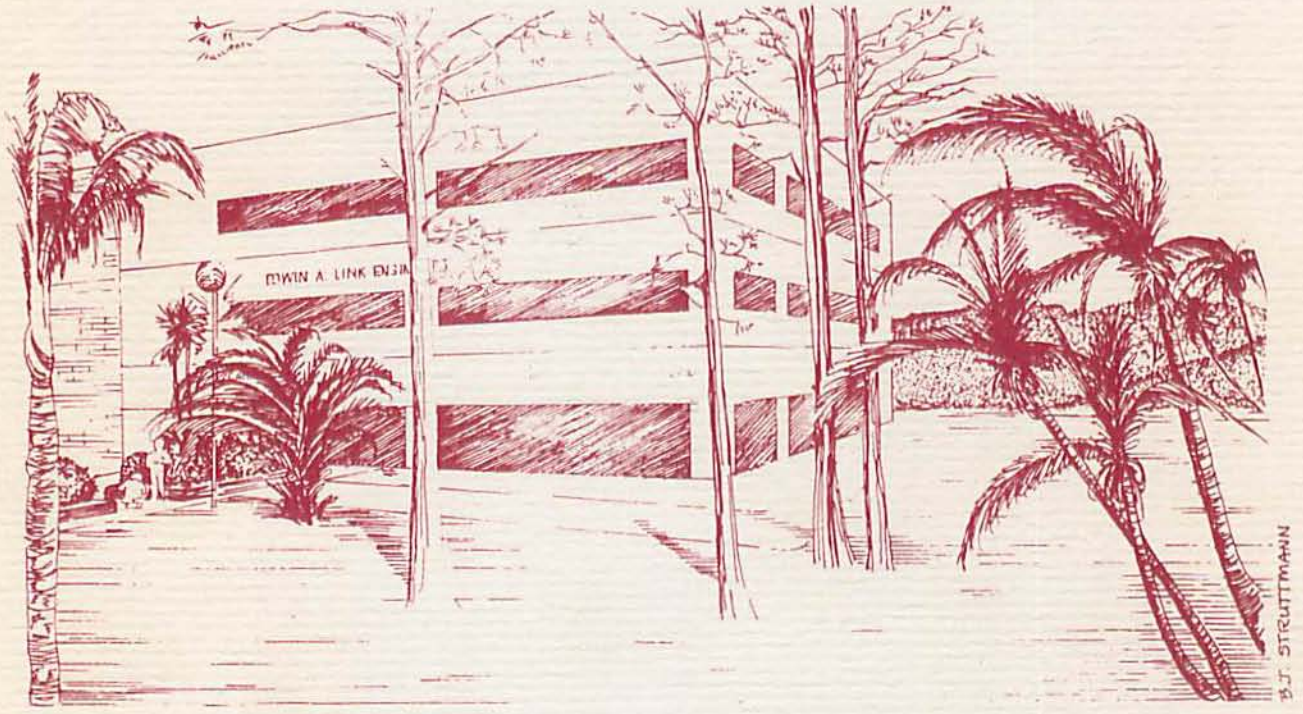
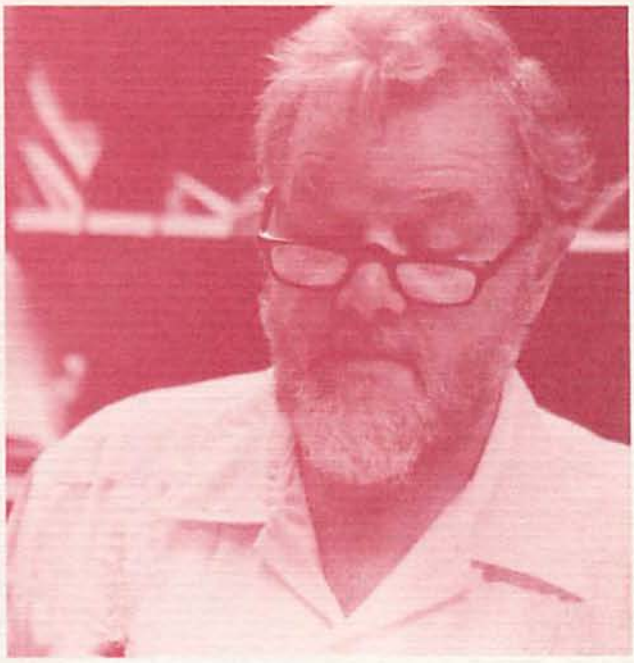
Report No. 87-14

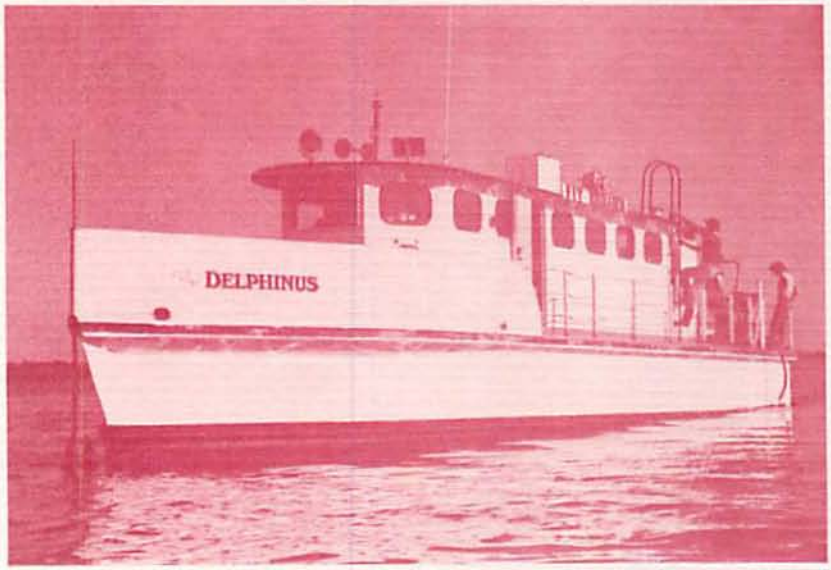
EFFECTS OF BEACH RENOURISHMENT ON THE BENTHIC MACROFAUNA AND THE FISHES OF THE NEARSHORE ZONE AT SEBASTIAN INLET STATE RECREATION AREA

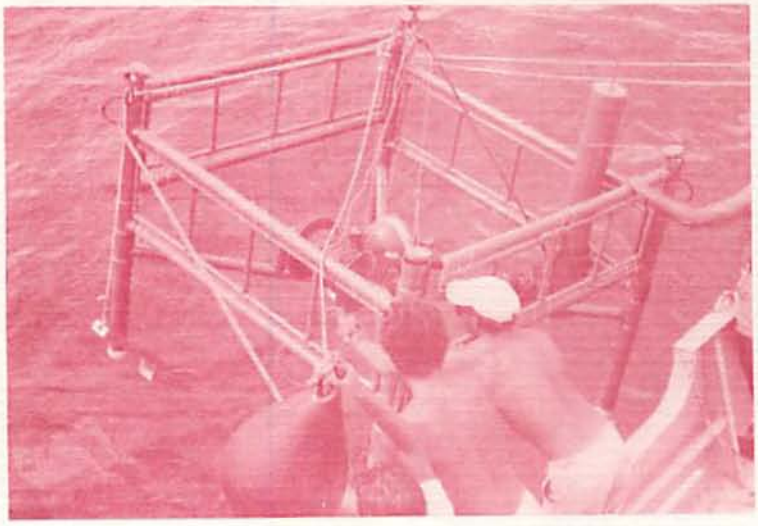
WALTER G. NELSON
GARY COLLINS



DEPARTMENT OF OCEANOGRAPHY AND OCEAN ENGINEERING
FLORIDA INSTITUTE OF TECHNOLOGY
MELBOURNE, FLORIDA




DELPHINUS



EFFECTS OF BEACH RENOURISHMENT ON THE BENTHIC MACROFAUNA AND THE FISHES OF THE NEARSHORE ZONE AT SEBASTIAN INLET STATE RECREATION AREA

WALTER G. NELSON

GARY W. COLLINS

DEPARTMENT OF OCEANOGRAPHY AND OCEAN ENGINEERING
FLORIDA INSTITUTE OF TECHNOLOGY
MELBOURNE FL 32901

A REPORT TO THE US ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT

AUGUST 1987

INTRODUCTION

As a result of the interruption of the littoral drift by Sebastian Inlet, the beach immediately to the south of the inlet in the Sebastian Inlet State Recreation Area (SRA) is subject to erosion. Beach erosion in this area has been severe enough to result in dune overwash and minor flooding of state road A1A. As part of the maintenance dredging of the Sebastian Inlet sand trap to maintain navigation through the inlet during 1985, sand removed from the sand trap was pumped to diked holding areas where it was allowed to settle out. The sand obtained from the dredging was then transported with earth-moving equipment onto the ocean beach where it was dumped and graded. Approximately 100,000 cubic yards of sand was transported to the ocean beach to renourish the eroded beach front during the period December 1985 through May 1986.

The ocean beach at Sebastian Inlet SRA was previously studied in a project examining the benthic macrofauna and the fishes of the nearshore zone during 1981-1982 (Allenbaugh, 1984; Peters, 1984; Nelson, unpublished). In view of the existing data, the US Army Corps of Engineers provided funding to study the effects of the beach renourishment activities at Sebastian Inlet SRA on the benthic macrofauna and the fishes of the nearshore zone. This is the report on the results of this study.

Methods

The Sebastian Inlet State Recreation Area (SRA) beach nourishment study began in November 1985 and continued until November 1986. This study was designed to examine the effects of sand deposition on the sand beach macrofauna at the Sebastian Inlet SRA. Five study transects were established at Florida Department of Natural Resources benchmarks (Figure 1). From north to south, the transects were R0, next to the south jetty of Sebastian Inlet, R1, R2, R4 and R7. Transect R7 was approximately 1.6 km south of the southern fill limit. Each transect consisted of two stations, one in the swash zone and the second at a distance of 61 m from the high tide line. These locations correspond to station positions used in a previous macrofaunal study at Sebastian Inlet (Allenbaugh, 1984; Nelson, unpub.). The high tide line was not sampled in this study since previous work had showed that macrofauna rarely occurred at this site.

The sampler used for the macrofaunal benthic samples was a 7.6 cm diameter PVC pipe corer fitted with 0.5 mm mesh in one end so that the corer could be inverted. Ten replicate cores were taken to a depth of 10 cm at each site on each transect. To locate the 61 m site, a marked rope was anchored at the high tide line and stretched out into the surf zone. Cores were obtained by skin diving. As cores were obtained, they were immediately transfered to plastic Ziploc R storage bags. Seven per cent formalin solution was added directly to these bags. After a minimum of 48 hrs, each sample was washed on a 0.5 mm mesh sieve, stained in ethanol with rose-bengal for at least 48 hrs, rough sorted, and stored in 70% ethanol to await identification and

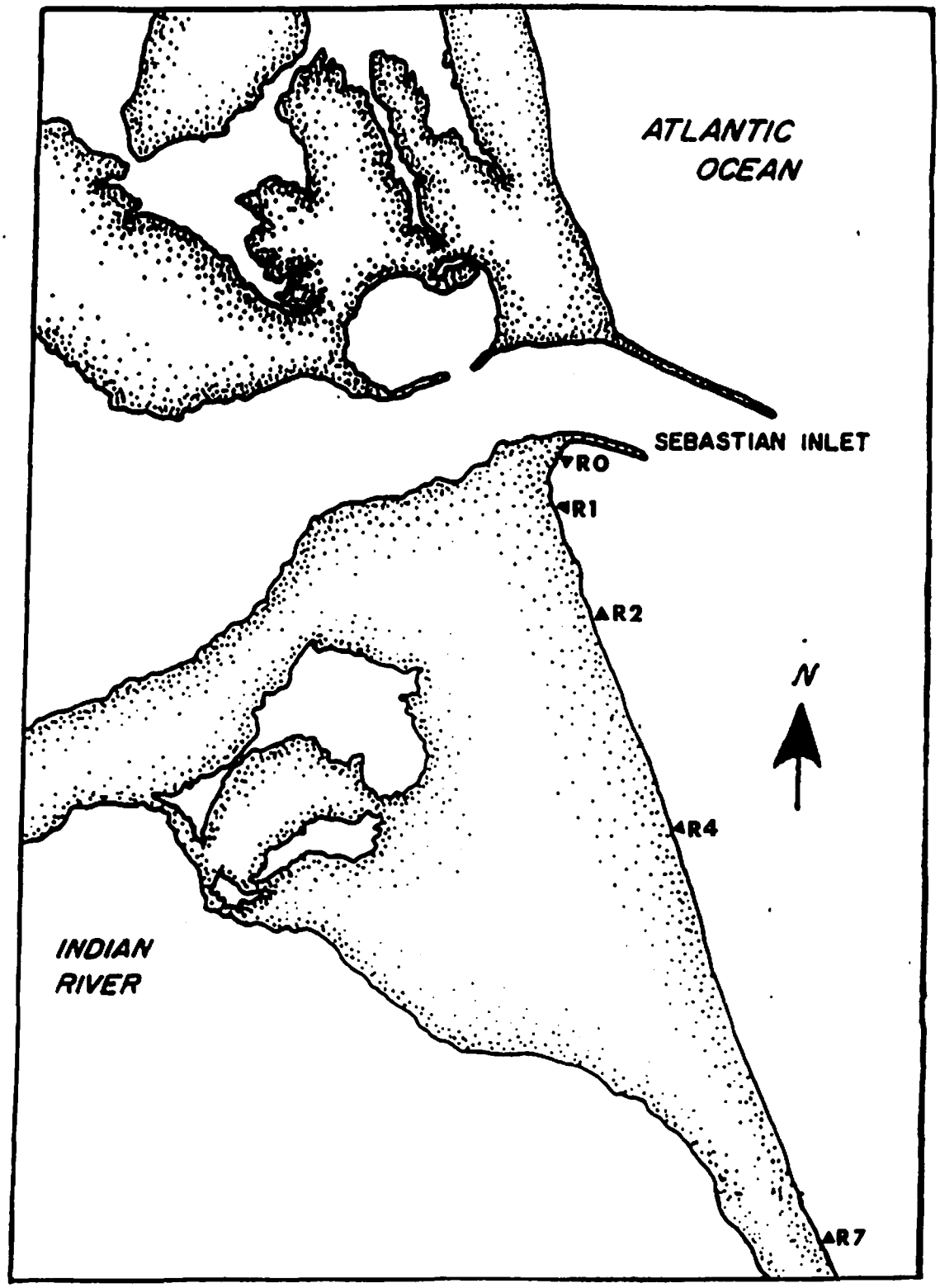


Figure 1. Sebastian Inlet sampling area.

sorting.

Fish samples were collected from the surf zone of the five transect locations between November 1985 and November 1986. Samples consisted of three net hauls with a 9.14 m x 1.22 m seine net with a 6.35 mm Ace mesh. Each haul was pulled from approximately 15 m offshore straight into the beach. All samples were collected at high tide because of the presence of coquina rock structures in the shallow subtidal of the collection sites which interfered with seining at low tide. All fish captured were placed in a 10% formalin solution for preservation and returned to the laboratory for identification.

Data Analysis

Basic statistics including mean, median, variance, standard deviation, standard error, the coefficient of variation, skewness, kurtosis and the Kolmogorov-Smirnov test of goodness of fit to the normal distribution were computed for all fish and benthic macrofauna data.

All comparisons among means for either fish or benthic macrofauna data were made using Analysis of Variance (ANOVA) where possible. The assumption of homogeneity of variances was tested for each data set using the F-max test. Where variances were heterogeneous, transformations were used to attempt to correct this condition. Where transformations failed to make variances homogeneous, an equivalent non-parametric test was used.

The sampling for the macrofauna was originally designed to be analysed as a two-way analysis of variance with the main factors being time and station location. Each beach level (swash zone and 91 m)

were to be analysed separately because previous work had shown that there were clear differences between beach levels in faunal compostion (Allenbaugh, 1984; Nelson, 1985; Collins, 1987). However, several sampling difficulties arose during the project which interfered with this design.

Based on the engineering design drawings of the project, transect locations had been selected. Transect R0 was to be a control station since it was not scheduled to be nourished. However, the contractor initiated sand deposition at the south jetty and R0 was therefore lost as a control station, leaving only the R7 transect as a control. Additional control stations were not added because it was deemed crucial to have sampled any control location before sand deposition was initiated.

The physical environment at Sebastian Inlet also led to difficulties in sampling. No control stations could be established to the north of the inlet because previous sampling had indicated that significant differences existed between the beaches north and south of the inlet due to the absence of the offshore rock outcrops off the north beach (Peters, 1984). High wave energy conditions made it impossible to obtain fish samples in some months (Table 1). The offshore environment between low water and the permanent reefline at Sebastian is extremely variable in terms of the presence of bottom sediments. In 1981-1982 (Allenbaugh, 1984), transect R4 and R7 generally possessed sand at the 61 m location. However, on one occasion, the bottom between low water and the reef line some 500 feet away was found to change from 100 % exposed hard substrate to 100 % sand bottom within a one month period (pers. observ.). In the present

Table 1. List of sample dates and samples obtained during the Sebastian Inlet State Recreation Area beach nourishment study. Numbers are number of seine hauls or benthic cores. ns - no sand present at this location.

Transect	-Fish Samples	Benthos: Swash Zone	61 m
	11/8/85	11/8/85	
R0	3	10	10
R1	3	10	ns
R2	3	10	10
R4	1	10	ns
R7	-	10	10
	12/7/85	12/13/85	
R0	-	10	10
R1	-	10	10
R2	-	10	10
R4	3	10	ns
R7	-	10	ns
	1/17/86	1/17/86	
R0	1	10	10
R1	-	10	10
R2	-	10	10
R4	-	10	ns
R7	-	10	ns
	2/7/86	2/17/86	
R0	3	10	10
R1	3	10	10
R2	3	10	10
R4	3	10	ns
R7	3	10	ns
		4/3/86	
R0		10	10
R1		10	10
R2		10	10
R4		10	ns
R7		10	ns
	5/15-22/86	5/15/86	
R0	3	10	10
R1	3	10	ns
R2	3	10	10
R4	3	10	ns
R7	3	10	ns

Table 1. (cont.)

Transect	Fish Samples	Benthos: Swash Zone	61 m
	6/12/86	6/5/86	
R0	3	10	10
R1	3	10	ns
R2	3	10	10
R4	3	10	ns
R7	3	10	ns
	7/23/86	7/7/86	
R0	3	10	10
R1	3	10	ns
R2	3	10	10
R4	3	10	ns
R7	3	10	ns
		8/8/86	
R0		10	ns
R1		10	10
R2		10	ns
R4		10	ns
R7		10	10
		9/10/86	
R0		10	10
R1		10	5
R2		10	10
R4		10	10
R7		10	10
	10/2/86		
R0	3		
R1	3		
R2	3		
R4	3		
R7	3		
	11/6/86		
R0	3		
R1	3		
R2	3		
R4	3		
R7	3		

study, sand was rarely present at either R4 or R7 (Table 1), so that no macrofauna samples could be obtained. The presence of sand at 61 m varied among stations and among sample dates, making it difficult to rigourously analyse the data from the 61 m locations. The lack of sand at R7 for much of the study period after the initial sample precluded an analysis of data versus a control for most sample dates at this site. The large natural variability encountered suggests an ephemeral soft-sediment habitat in the offshore area which would probably make detection of any effects on the fauna resulting from beach nourishment extremely difficult. Therefore, the analysis of the effects of beach nourishment concentrate on the swash zone samples.

Physical Conditions

Air temperature, water temperature and salinity measurements were made on each transect on each sample date. Salinity ranged between 23 and 35 ppt (Table 2). On most dates, salinity was relatively similar among all locations, although on a few dates salinity was relatively lower at the locations closest to the inlet. Air temperature ranged from 22 to 30 degrees C (Table 3). Water temperature ranged between 18 in February and 31 degrees C in June (Table 4). All locations were generally within a few degrees C of one another on any sampling date.

TABLE 2. Salinity measurements (ppt) at the Sebastian Inlet State Recreation Area sample locations during the period of the study.

DATE	STATION				
	R0	R1	R2	R4	R7
11-8-85	25	26	23	25	28
12-7-85				29	29
12-13-85	34	34	35	34	34
1-17-86	26.5	27	28	32	34
2-7-86	33.5	33.5	32	32.5	36.5
2-17-86	32	33	33	33	32
4-3-86	34	32	30	34	35
5-1-86	35	35	35	35	35
5-15-86	35	35	35	34.5	34
6-5-86	35	35	35	35	35
6-12-86	35	35	35	35	35
7-23-86	34	34	34	34	34
8-8-86	34	34	34	34	34
9-10-86	32	32	32	32	32
10-2-86	34	34	35	35	34
11-6-86	35	35.5	34.5	35	34

TABLE 3. Air temperature measurements (°C) at the Sebastian Inlet State Recreation Area sample locations during the period of the study.

DATE	STATION				
	R0	R1	R2	R4	R7
11-8-85	23.5	24	22	23	24
12-7-85				20.5	20.5
12-13-86			29	30	29.5
1-17-86	20	21	20	20	20
2-7-86	25	24	24	23	23
2-17-86	24	24	24	24	23
4-3-86	23	22.5	22.5	23.8	21.5
5-1-86	25.5	26	25.5	26	26
5-15-86	24	24	24	24	24
6-5-86	28	29	27.5	29	28
6-12-86	34	29	27	27	27
7-23-86	32	31.5	31	31	31
8-8-86	27	27	28	26.8	27.8
9-10-86	28	28	28.5	28	28
10-2-86	29	29	29	29.5	29
11-6-86	26	26	25	25	25

TABLE 4. Water temperature measurements (°C) at the Sebastian Inlet State Recreation Area sample locations during the period of the study.

DATE	STATION				
	R0	R1	R2	R4	R7
11-8-85	25	26	23	25	28
12-7-86				21.5	21
12-13-86	24	24	24	23.5	24
1-17-86	18	18	18	19	19
2-7-86	23	22	22.5	22.5	22
2-17-86	22	22	22	21	21
4-3-86	24	23.8	23.8	24	24
5-1-86	26.5	26.5	26.5	26.5	26
5-15-86	25	25	25	25	25
6-5-86	28.7	29	28	29.5	28.5
6-12-86	31	30	30	30.5	30
7-23-86	26	26	27	26	27
8-8-86	26.7	26.7	27.3	28.6	29
9-10-86	28	28	28	28.5	28.5
10-2-86	30	30	30	30	30
11-6-86	28	28	28	28	28

Results

Fish Samples

A total of 22 species of fishes and 6401 individuals were collected from the five transects at the Sebastian Inlet SRA (Table 5). Abundance and species composition of each net haul are shown in Appendix Tables 1-9. Fish composition was dominated by two pelagic feeding species, the scaled sardine Harengula jaguana (53 %) and the striped anchovey Anchoa hepsetus (29 %). The majority of the sardines were collected on only one sample date in June, however (Appendix Table 6). The Florida pompano (Trachinotus falcatus) was the third most abundant species but only composed 6 % of total abundance.

Basic statistics on the number of fish individuals collected from each transect on each sampling date are provided in Tables 6a-6i. Mean density of fish per haul was highly variable among stations on a single date. For example, mean fish abundance per haul ranged from 5.6 at R4 to 645 at R0 for the June sample (Table 6f). Variability among dates at a single station was similarly high (Tables 6a-6i). Basic statistics on the number of species of fish collected from each transect on each sampling date are provided in Tables 7a-7i. Mean number of species showed a relatively smaller range of variability, ranging from a minimum of 0 to a maximum of only 7 per haul in June 1986.

A comparison of mean abundance of fish among stations was carried out with one-way ANOVA for each month sampled except December 1985 and January 1986 when only a total of 3 fish were collected at all

Table 5. List of fish species collected at the Sebastian Inlet State Recreation Area during the study period.

Species Name	Common Name
Albula vulpes	bonefish
Anchoa hepsetus	striped anchovy
Arius felis	sea catfish
Caranx hippos	crevalle jack
Chloroscombrus chrysurus	Atlantic bumper
Harengula jaquana	scaled sardine
Hyporhamphus unifasciatus	halfbeak
Larimus fasciatus	banded croaker
Lutjanus sp.	snapper
Membras martinica	rough silverside
Menticirrhus littoralis	gulf kingfish
Mugil curema	white mullet
Polydactylus octonemus	Atlantic threadfin
Scomberomorus maculatus	Spanish mackerel
Selene vomer	lookdown
Sphoeroides nephelus	southern puffer
Sphyraena borealis	northern sennet
Strongylura marina	Atlantic needlefish
Syngnathus louisianae	chain pipefish
Trachinotus carolinus	Florida pompano
Trachinotus falcatus	permit
Umbrina coroides	sand drum

TABLE 6a. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, November 8, 1985

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	308.00	182.79	298.9	317.1
Median	257.00	229.09	245.5	268.5
Variance	100233.00			
Std. Dev.	316.60			
Std. Error	182.79			
Coeff. Var.	102.79	74.04	99.1	106.5
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.23			
STATION R1				
Mean	4.33	2.03	4.2	4.4
Median	4.00	2.54	3.9	4.1
Variance	12.33			
Std. Dev.	3.51			
Std. Error	2.03			
Coeff. Var.	81.04	50.33	78.5	83.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.20			
STATION R2				
Mean	18.33	10.73	17.8	18.9
Median	13.00	13.45	12.3	13.7
Variance	345.33			
Std. Dev.	18.58			
Std. Error	10.73			
Coeff. Var.	101.36	72.33	97.7	105.0
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R4				
Mean	0.67	0.67	0.6	0.7
Median	0.00	0.84	0.0	0.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				

TABLE 6b. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, December 7, 1985

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R2				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R4				
Mean	0.67	0.67	0.6	0.7
Median	0.00	0.84	0.0	0.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				182.6
G1 - Skewness				0.0
G2 - Kurtosis				0.0
K-S D-Max				

TABLE 6c. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, January 17, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.33	0.33	0.3	0.4
Median	0.00	0.42	0.0	0.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R2				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R4				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				

TABLE 6d. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, February 7, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	23.67	9.17	23.2	24.1
Median	15.00	11.49	14.4	15.6
Variance	252.33			
Std. Dev.	15.89			
Std. Error	9.17			
Coeff. Var.	67.12	37.78	65.2	69.0
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.37			
STATION R1				
Mean	10.67	7.31	10.3	11.0
Median	6.00	9.16	5.5	6.5
Variance	160.33			
Std. Dev.	12.66			
Std. Error	7.31			
Coeff. Var.	118.71	94.70	114.0	123.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.31			
STATION R2				
Mean	115.67	103.31	110.5	120.8
Median	22.00	129.48	15.5	28.5
Variance	32020.30			
Std. Dev.	178.94			
Std. Error	103.31			
Coeff. Var.	154.71	151.93	147.1	162.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.37			
STATION R4				
Mean	60.67	57.17	57.8	63.5
Median	4.00	71.65	0.4	7.6
Variance	9804.33			
Std. Dev.	99.02			
Std. Error	57.17			
Coeff. Var.	163.21	167.61	154.8	171.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	34.00	15.89	33.2	34.8
Median	35.00	19.91	34.0	36.0
Variance	757.00			
Std. Dev.	27.51			
Std. Error	15.89			
Coeff. Var.	80.92	50.21	78.4	83.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.18			

TABLE 6e. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, May 15, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	27.00	17.24	26.1	27.9
Median	15.00	21.61	13.9	16.1
Variance	892.00			
Std. Dev.	29.87			
Std. Error	17.24			
Coeff. Var.	110.62	83.84	106.4	114.8
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.32			
STATION R1				
Mean	18.00	6.03	17.7	18.3
Median	23.00	7.55	22.6	23.4
Variance	109.00			
Std. Dev.	10.44			
Std. Error	6.03			
Coeff. Var.	58.00	30.63	56.5	59.5
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R2				
Mean	2.67	0.88	2.6	2.7
Median	3.00	1.11	2.9	3.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	57.28	30.10	55.8	58.8
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.20			
STATION R4				
Mean	9.00	7.02	8.6	9.4
Median	3.00	8.80	2.6	3.4
Variance	148.00			
Std. Dev.	12.17			
Std. Error	7.02			
Coeff. Var.	135.17	119.05	129.2	141.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.36			
STATION R7				
Mean	13.33	6.57	13.0	13.7
Median	10.00	8.23	9.6	10.4
Variance	129.33			
Std. Dev.	11.37			
Std. Error	6.57			
Coeff. Var.	85.29	54.56	82.6	88.0
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			

TABLE 6f. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, June 12, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	645.00	465.97	621.7	668.3
Median	232.00	584.00	202.8	261.2
Variance	651379.00			
Std. Dev.	807.08			
Std. Error	465.97			
Coeff. Var.	125.13	103.83	119.9	130.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.36			
STATION R1				
Mean	424.67	421.67	403.6	445.8
Median	3.00	528.47	-23.4	29.4
Variance	533408.00			
Std. Dev.	730.35			
Std. Error	421.67			
Coeff. Var.	171.98	184.64	162.7	181.2
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R2				
Mean	28.67	23.67	27.5	29.9
Median	6.00	29.67	4.5	7.5
Variance	1681.33			
Std. Dev.	41.00			
Std. Error	23.67			
Coeff. Var.	143.04	131.77	136.4	149.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R4				
Mean	5.67	1.45	5.6	5.7
Median	6.00	1.82	5.9	6.1
Variance	6.33			
Std. Dev.	2.52			
Std. Error	1.45			
Coeff. Var.	44.41	21.41	43.3	45.5
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.19			
STATION R7				
Mean	59.00	57.50	56.1	61.9
Median	2.00	72.07	-1.6	5.6
Variance	9919.00			
Std. Dev.	99.59			
Std. Error	57.50			
Coeff. Var.	168.80	178.36	159.9	177.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			

TABLE 6g. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, July 23, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	61.67	33.53	60.0	63.3
Median	37.00	42.02	34.9	39.1
Variance	3372.33			
Std. Dev.	58.07			
Std. Error	33.53			
Coeff. Var.	94.17	64.03	91.0	97.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.33			
STATION R1				
Mean	43.67	31.47	42.1	45.2
Median	20.00	39.44	18.0	22.0
Variance	2970.33			
Std. Dev.	54.50			
Std. Error	31.47			
Coeff. Var.	124.81	103.37	119.6	130.0
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.33			
STATION R2				
Mean	4.00	1.73	3.9	4.1
Median	4.00	2.17	3.9	4.1
Variance	9.00			
Std. Dev.	3.00			
Std. Error	1.73			
Coeff. Var.	75.00	44.63	72.8	77.2
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R4				
Mean	29.00	20.50	28.0	30.0
Median	9.00	25.70	7.7	10.3
Variance	1261.00			
Std. Dev.	35.51			
Std. Error	20.50			
Coeff. Var.	122.45	99.97	117.5	127.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	29.00	21.50	27.9	30.1
Median	8.00	26.95	6.7	9.3
Variance	1387.00			
Std. Dev.	37.24			
Std. Error	21.50			
Coeff. Var.	128.42	108.70	123.0	133.9
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			

TABLE 6h. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, October 2, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	23.67	15.21	22.9	24.4
Median	16.00	19.07	15.0	17.0
Variance	694.33			
Std. Dev.	26.35			
Std. Error	15.21			
Coeff. Var.	111.34	84.78	107.1	115.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R1				
Mean	0.67	0.33	0.7	0.7
Median	1.00	0.42	1.0	1.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	86.60	55.90	83.8	89.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R2				
Mean	52.00	28.88	50.6	53.4
Median	50.00	36.20	48.2	51.8
Variance	2503.00			
Std. Dev.	50.03			
Std. Error	28.88			
Coeff. Var.	96.21	66.32	92.9	99.5
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.18			
STATION R4				
Mean	32.00	19.66	31.0	33.0
Median	25.00	24.63	23.8	26.2
Variance	1159.00			
Std. Dev.	34.04			
Std. Error	19.66			
Coeff. Var.	106.39	78.46	102.5	110.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R7				
Mean	4.00	2.08	3.9	4.1
Median	3.00	2.61	2.9	3.1
Variance	13.00			
Std. Dev.	3.61			
Std. Error	2.08			
Coeff. Var.	90.14	59.62	87.2	93.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			

TABLE 6i. Basic statistics for number of individuals for fishes collected at Sebastian Inlet State Recreation Area, November 6, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	14.33	8.84	13.9	14.8
Median	6.00	11.08	5.4	6.6
Variance	234.33			
Std. Dev.	15.31			
Std. Error	8.84			
Coeff. Var.	106.80	78.98	102.9	110.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.37			
STATION R1				
Mean	7.67	2.73	7.5	7.8
Median	6.00	3.42	5.8	6.2
Variance	22.33			
Std. Dev.	4.73			
Std. Error	2.73			
Coeff. Var.	61.64	33.38	60.0	63.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.30			
STATION R2				
Mean	6.67	1.20	6.6	6.7
Median	6.00	1.51	5.9	6.1
Variance	4.33			
Std. Dev.	2.08			
Std. Error	1.20			
Coeff. Var.	31.22	13.94	30.5	31.9
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.29			
STATION R4				
Mean	6.67	4.67	6.4	6.9
Median	2.00	5.85	1.7	2.3
Variance	65.33			
Std. Dev.	8.08			
Std. Error	4.67			
Coeff. Var.	121.24	98.25	116.3	126.2
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	4.33	2.40	4.2	4.5
Median	3.00	3.01	2.8	3.2
Variance	17.33			
Std. Dev.	4.16			
Std. Error	2.40			
Coeff. Var.	96.08	66.17	92.8	99.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.29			

TABLE 7a. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area — November 8, 1985

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.33	0.88	2.3	2.4
Median	2.00	1.11	1.9	2.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	65.47	36.42	63.6	67.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R1				
Mean	2.00	0.58	2.0	2.0
Median	2.00	0.72	2.0	2.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	50.00	25.00	48.8	51.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R2				
Mean	1.33	0.33	1.3	1.4
Median	1.00	0.42	1.0	1.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	43.30	20.73	42.3	44.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R4				
Mean	0.67	0.67	0.6	0.7
Median	0.00	0.84	0.0	0.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				

TABLE 7b. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area December 7, 1985

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R2				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R4				
Mean	0.67	0.67	0.6	0.7
Median	0.00	0.84	0.0	0.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				

TABLE 7c. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area January 17, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.33	0.33	0.3	0.4
Median	0.00	0.42	0.0	0.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	173.21	187.08	163.9	182.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R2				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R4				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				
STATION R7				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.				
G1 - Skewness				
G2 - Kurtosis				
K-S D-Max				

TABLE 7d. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area February 7, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.00	0.58	4.0	4.0
Median	4.00	0.72	4.0	4.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	25.00	10.83	24.5	25.5
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R1				
Mean	2.33	0.67	2.3	2.4
Median	3.00	0.84	3.0	3.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	49.49	24.66	48.3	50.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R2				
Mean	3.33	0.88	3.3	3.4
Median	3.00	1.11	2.9	3.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	45.83	22.29	44.7	46.9
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R4				
Mean	1.67	0.67	1.6	1.7
Median	1.00	0.84	1.0	1.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	69.28	39.60	67.3	71.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	3.33	0.88	3.3	3.4
Median	3.00	1.11	2.9	3.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	45.83	22.29	44.7	46.9
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			

TABLE 7e. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area May 15, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.67	0.67	1.6	1.7
Median	1.00	0.84	1.0	1.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	69.28	39.60	67.3	71.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	1.67	0.33	1.7	1.7
Median	2.00	0.42	2.0	2.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	34.64	15.75	33.9	35.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R2				
Mean	2.00	0.58	2.0	2.0
Median	2.00	0.72	2.0	2.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	50.00	25.00	48.8	51.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R4				
Mean	1.67	0.67	1.6	1.7
Median	1.00	0.84	1.0	1.0
Variance	1.33			
Std. Dev.	1.15			
Std. Error	0.67			
Coeff. Var.	69.28	39.60	67.3	71.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R7				
Mean	2.67	0.33	2.7	2.7
Median	3.00	0.42	3.0	3.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	21.65	9.24	21.2	22.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			

TABLE 7f. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area June 12, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	7.00	1.53	6.9	7.1
Median	6.00	1.91	5.9	6.1
Variance	7.00			
Std. Dev.	2.65			
Std. Error	1.53			
Coeff. Var.	37.80	17.50	36.9	38.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.31			
STATION R1				
Mean	2.67	1.20	2.6	2.7
Median	2.00	1.51	1.9	2.1
Variance	4.33			
Std. Dev.	2.08			
Std. Error	1.20			
Coeff. Var.	78.06	47.47	75.7	80.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.29			
STATION R2				
Mean	3.33	0.88	3.3	3.4
Median	3.00	1.11	2.9	3.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	45.83	22.29	44.7	46.9
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R4				
Mean	3.00	0.58	3.0	3.0
Median	3.00	0.72	3.0	3.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	33.33	15.04	32.6	34.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R7				
Mean	2.00	0.58	2.0	2.0
Median	2.00	0.72	2.0	2.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	50.00	25.00	48.8	51.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			

TABLE 7g. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area July 23, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.33	0.33	4.3	4.4
Median	4.00	0.42	4.0	4.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	13.32	5.53	13.0	13.6
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	4.00	0.00	4.0	4.0
Median	4.00	0.00	4.0	4.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
Coeff. Var.	0.00	0.00	0.0	0.0
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.46			
STATION R2				
Mean	2.33	0.88	2.3	2.4
Median	2.00	1.11	1.9	2.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	65.47	36.42	63.6	67.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R4				
Mean	4.33	0.88	4.3	4.4
Median	4.00	1.11	3.9	4.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	35.25	16.08	34.4	36.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R7				
Mean	3.33	0.33	3.3	3.4
Median	3.00	0.42	3.0	3.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	17.32	7.28	17.0	17.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			

TABLE 7h. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area October 2, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.00	1.00	2.0	2.1
Median	1.00	1.25	0.9	1.1
Variance	3.00			
Std. Dev.	1.73			
Std. Error	1.00			
Coeff. Var.	86.60	55.90	83.8	89.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	0.67	0.33	0.7	0.7
Median	1.00	0.42	1.0	1.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	86.60	55.90	83.8	89.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R2				
Mean	4.33	0.88	4.3	4.4
Median	4.00	1.11	3.9	4.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	35.25	16.08	34.4	36.1
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			
STATION R4				
Mean	2.00	0.58	2.0	2.0
Median	2.00	0.72	2.0	2.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	50.00	25.00	48.8	51.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			
STATION R7				
Mean	2.00	0.58	2.0	2.0
Median	2.00	0.72	2.0	2.0
Variance	1.00			
Std. Dev.	1.00			
Std. Error	0.58			
Coeff. Var.	50.00	25.00	48.8	51.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.17			

TABLE 7i. Basic statistics for number of species for fishes collected at Sebastian Inlet State Recreation Area November 6, 1986

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	3.33	0.33	3.3	3.4
Median	3.00	0.42	3.0	3.0
Variance	0.33			
Std. Dev.	0.58			
Std. Error	0.33			
Coeff. Var.	17.32	7.28	17.0	17.7
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R1				
Mean	3.33	1.33	3.3	3.4
Median	2.00	1.67	1.9	2.1
Variance	5.33			
Std. Dev.	2.31			
Std. Error	1.33			
Coeff. Var.	69.28	39.60	67.3	71.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.38			
STATION R2				
Mean	3.00	1.00	3.0	3.1
Median	4.00	1.25	3.9	4.1
Variance	3.00			
Std. Dev.	1.73			
Std. Error	1.00			
Coeff. Var.	57.74	30.43	56.2	59.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.28			
STATION R4				
Mean	2.67	1.20	2.6	2.7
Median	2.00	1.51	1.9	2.1
Variance	4.33			
Std. Dev.	2.08			
Std. Error	1.20			
Coeff. Var.	78.06	47.47	75.7	80.4
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.29			
STATION R7				
Mean	2.33	0.88	2.3	2.4
Median	2.00	1.11	1.9	2.1
Variance	2.33			
Std. Dev.	1.53			
Std. Error	0.88			
Coeff. Var.	65.47	36.42	63.6	67.3
G1 - Skewness	0.00	0.00	0.0	0.0
G2 - Kurtosis	0.00	0.00	0.0	0.0
K-S D-Max	0.25			

stations for both months (Tables 8a-8g). Only for the pre-nourishment sample in November 1985 was there a significant difference in fish abundance among stations (Table 8a). On this date, transect R0 had significantly more fish present than did the other stations due to the presence of schools of Anchoa hepsetus (Appendix Table 1). Peters (1984) found that proximity to the jetties at the inlet may result in increased density and number of species of fishes, although this pattern was more definite near the north jetty where the adjacent beach lacked rock outcrops offshore.

For the comparisons among stations of the mean number of fish species (one-way ANOVA, Tables 9a-9g), only June 1986 showed a significant difference among stations. On this occasion, the a posteriori comparison among means (Table 9d) indicated the presence of two largely overlapping groups of stations. One group consisted of stations R7, R1, R4 and R2; the second group consisted of R1, R4, R2 and R0. This pattern suggested only the stations at either end of the sample area (R0 and R7) differed in species number on this date. Beach nourishment activities at this time were nearing completion near transect R4. Thus it is possible this pattern may have been related to beach nourishment. However, since there were no other occasions during the period of beach nourishment on which significant differences were found, it does not appear that there was any consistent effect of beach nourishment on fish species number.

Figures 2 and 3 provide summaries of the mean abundance and mean species number per haul at each station over the study period and illustrate the fact that there was no consistent pattern in either

TABLE 8a. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p <-0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

NOVEMBER 8, 1985 - LOG (x+1) TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.18	0.59	0.77
R1	0.65	0.11	0.33
R2	1.12	0.25	0.50
R4	0.16	0.08	0.28

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	3	6.7	2.2	8.69 **
EXP. ERROR	8	2.1	0.3	
TOTAL	11	8.8		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 7.83 WITH 4 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.16	3
2	R1	0.65	3
3	R2	1.12	3
1	R0	2.18	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	3

TABLE 8b. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

FEBRUARY 7, 1986 - LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.32	0.07	0.27
R1	0.73	0.49	0.70
R2	1.44	1.04	1.02
R4	1.11	0.97	0.99
R7	1.37	0.28	0.53

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	1.0	0.3	0.44 ns
EXP. ERROR	10	5.7	0.6	
TOTAL	14	6.7		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 14.54 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.73	3
4	R4	1.11	3
1	R0	1.32	3
5	R7	1.37	3
3	R2	1.44	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS
1	2 3

TABLE 8c. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

MAY 15, 1986 - LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.22	0.30	0.54
R1	1.18	0.12	0.35
R2	0.36	0.10	0.32
R4	0.61	0.48	0.69
R7	1.01	0.17	0.41

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	1.7	0.4	1.82 ns
EXP. ERROR	10	2.3	0.2	
TOTAL	14	4.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.73 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.36	3
4	R4	0.61	3
5	R7	1.01	3
2	R1	1.18	3
1	R0	1.22	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	1

TABLE 8d. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

JUNE 12, 1986 - LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.56	0.32	0.57
R1	1.35	2.30	1.52
R2	1.09	0.48	0.69
R4	0.72	0.05	0.22
R7	0.85	1.48	1.22

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	6.5	1.6	1.76 ns
EXP. ERROR	10	9.3	0.9	
TOTAL	14	15.8		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 47.94 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.72	3
5	R7	0.85	3
3	R2	1.09	3
2	R1	1.35	3
1	R0	2.56	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 8e. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

JULY 23, 1986 - LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.66	0.17	0.41
R1	1.34	0.44	0.66
R2	0.48	0.19	0.44
R4	1.23	0.28	0.53
R7	1.20	0.32	0.57

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	2.2	0.6	1.99	ns
EXP. ERROR	10	2.8	0.3		
TOTAL	14	5.0			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.62 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.48	3
5	R7	1.20	3
4	R4	1.23	3
2	R1	1.34	3
1	R0	1.66	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	1

TABLE 8f. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OCTOBER 2, 1986 - LOG (x+1) TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.15	0.40	0.63
R1	0.20	0.03	0.17
R2	1.44	0.55	0.74
R4	1.25	0.49	0.70
R7	0.62	0.11	0.33

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	3.1	0.8	2.46 ns
EXP. ERROR	10	3.2	0.3	
TOTAL	14	6.3		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 18.32 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.20	3
5	R7	0.62	3
1	R0	1.15	3
4	R4	1.25	3
3	R2	1.44	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	3

TABLE 8g. Analysis of variance results and a posteriori comparison of means of number of fish individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

NOVEMBER 6, 1986 - LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.99	0.20	0.44
R1	0.83	0.07	0.26
R2	0.81	0.02	0.13
R4	0.60	0.27	0.52
R7	0.48	0.23	0.48

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	0.5	0.1	0.80	ns
EXP. ERROR	10	1.6	0.2		
TOTAL	14	2.1			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 15.92 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	0.48	3
4	R4	0.60	3
3	R2	0.81	3
2	R1	0.83	3
1	R0	0.99	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	1

TABLE 9a. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

NOVEMBER 8, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.33	2.33	1.53
R1	2.00	1.00	1.00
R2	1.33	0.33	0.58
R4	0.67	1.33	1.15

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	3	4.9	1.6	1.31	ns
EXP. ERROR	8	10.0	1.2		
TOTAL	11	14.9			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 7.00 WITH 4 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.67	3
3	R2	1.33	3
2	R1	2.00	3
1	R0	2.33	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 9b. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

FEBRUARY 7, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	4.00	1.00	1.00
R1	2.33	1.33	1.15
R2	3.33	2.33	1.53
R4	1.67	1.33	1.15
R7	3.33	2.33	1.53

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	10.3	2.6	1.54	ns
EXP. ERROR	10	16.7	1.7		
TOTAL	14	26.9			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.33 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	1.67	3
2	R1	2.33	3
3	R2	3.33	3
5	R7	3.33	3
1	R0	4.00	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 9c. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

MAY 15, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.67	1.33	1.15
R1	1.67	0.33	0.58
R2	2.00	1.00	1.00
R4	1.67	1.33	1.15
R7	2.67	0.33	0.58

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	2.3	0.6	0.65	ns
EXP. ERROR	10	8.7	0.9		
TOTAL	14	10.9			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.00 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	1.67	3
2	R1	1.67	3
4	R4	1.67	3
3	R2	2.00	3
5	R7	2.67	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	5

TABLE 9d. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

JUNE 12, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	7.00	7.00	2.65
R1	2.67	4.33	2.08
R2	3.33	2.33	1.53
R4	3.00	1.00	1.00
R7	2.00	1.00	1.00

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	46.3	11.6	3.69	*
EXP. ERROR	10	31.3	3.1		
TOTAL	14	77.6			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 7.00 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	2.00	3
2	R1	2.67	3
4	R4	3.00	3
3	R2	3.33	3
1	R0	7.00	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	3
2	2	1

TABLE 9e. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

JULY 23, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	4.33	0.33	0.58
R1	4.00	0.00	0.00
R2	2.33	2.33	1.53
R4	4.33	2.33	1.53
R7	3.33	0.33	0.58

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	8.7	2.2	2.03 ns
EXP. ERROR	10	10.7	1.1	
TOTAL	14	19.3		

THE F-MAX RATIO CAN NOT BE COMPUTED - 0 VARIANCE

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	2.33	3
5	R7	3.33	3
2	R1	4.00	3
1	R0	4.33	3
4	R4	4.33	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	4

TABLE 9f. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OCTOBER 2, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.00	3.00	1.73
R1	0.67	0.33	0.58
R2	4.33	2.33	1.53
R4	2.00	1.00	1.00
R7	2.00	1.00	1.00

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	21.1	5.3	3.43	ns
EXP. ERROR	10	15.3	1.5		
TOTAL	14	36.4			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 9.00 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.67	3
1	R0	2.00	3
4	R4	2.00	3
5	R7	2.00	3
3	R2	4.33	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	5
2	1	3

TABLE 9g. Analysis of variance results and a posteriori comparison of means of number of fish species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

NOVEMBER 6, 1986 -

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	3.33	0.33	0.58
R1	3.33	5.33	2.31
R2	3.00	3.00	1.73
R4	2.67	4.33	2.08
R7	2.33	2.33	1.53

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	2.3	0.6	0.18	ns
EXP. ERROR	10	30.7	3.1		
TOTAL	14	32.9			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 16.00 WITH 5 GROUPS AND 2 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	2.33	3
4	R4	2.67	3
3	R2	3.00	3
1	R0	3.33	3
2	R1	3.33	3

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	2

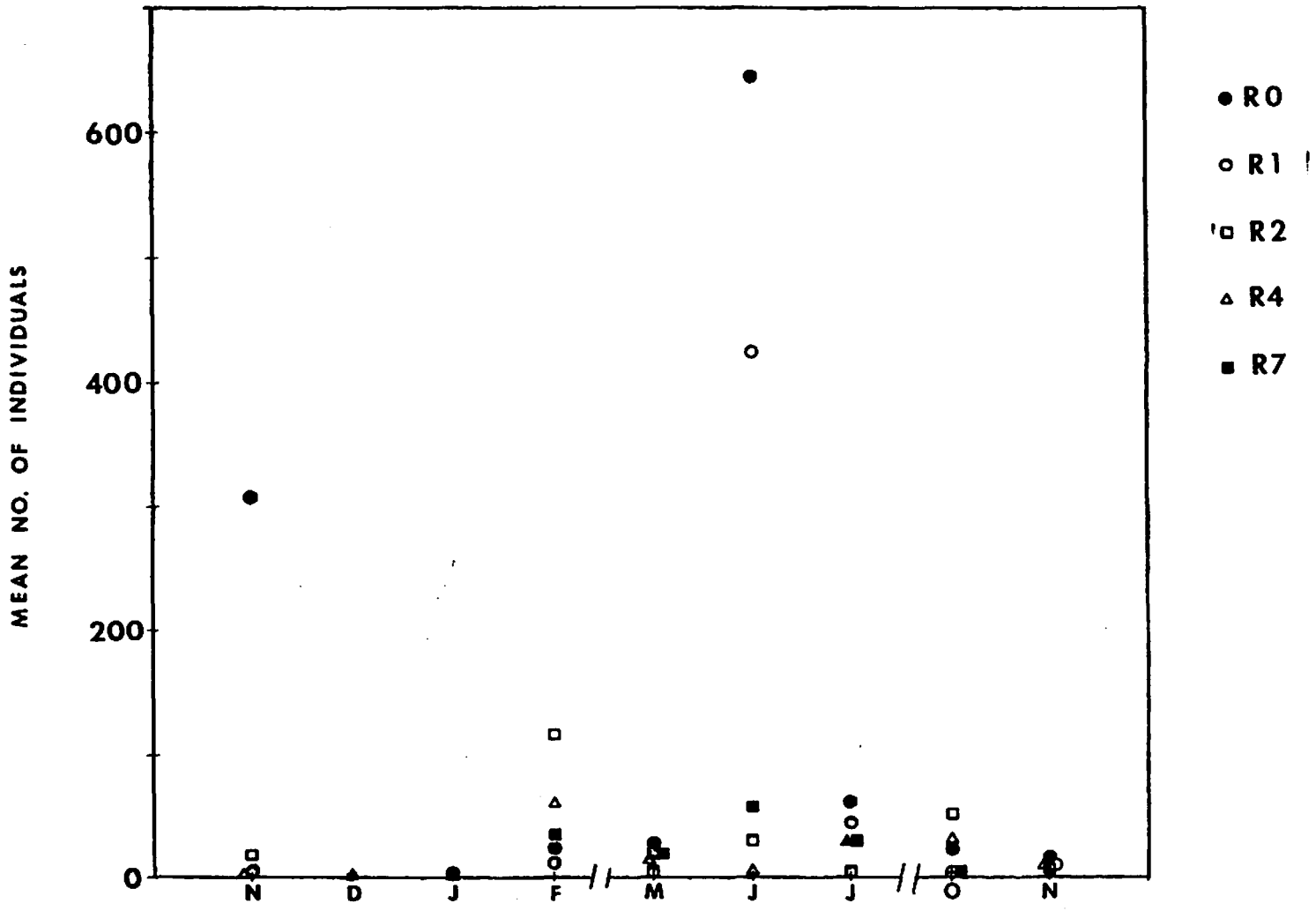


Figure 2. Mean number of fish individuals per sample at each sampling location at Sebastian Inlet State Recreation Area.

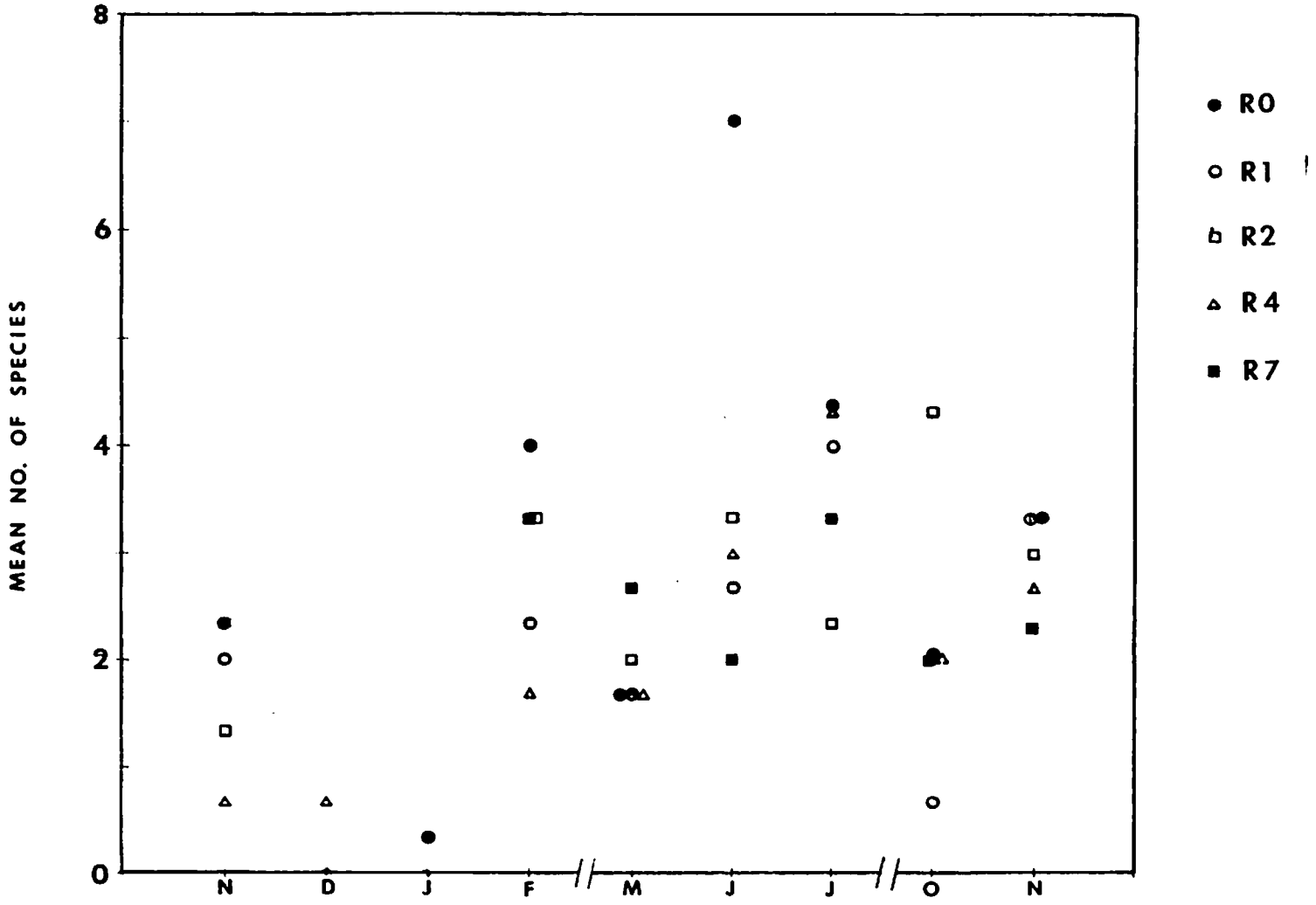


Figure 3. Mean number of fish species per sample at each sampling location at Sebastian Inlet State Recreation Area.

parameter which would appear to relate to beach nourishment activities.

Benthic Macrofaunal Samples

A total of 18,325 individuals and 106 taxa were collected from the inshore (swash zone) and offshore (61 m) sampling locations at the Sebastian Inlet SRA during this study. Of this total, 70% of the individuals collected were unidentified archiannelids collected on two occasions, 11,779 from the swash zone of transect R2 in November 1985 and 1,130 collected also from the swash zone of transect R4 in December 1985. The most diverse taxonomic groups collected were the amphipods with 32 species and the polychaetes (excluding archiannelids) with 24 species. Other crustacean taxa contributed 22 species and the molluscs 11 species to the total species list. A complete list of the abundance of each species on each sample date for each transect location is provided in Appendix Tables 10 - 20.

Basic statistics for the number of individuals from the macrofaunal samples taken from the inshore and offshore sites at all five transects on all samples dates are provided in Tables 10a-10t. For the offshore sites, only those stations which had sand present are included in the tables. The maximum mean abundances observed were both at the inshore sites and were 1184 per core at station R2 in November 1985 (Table 10a) and 115.6 per core at station R4 in December 1986 (Table 10c). Both maxima were the result of the extremely high abundance of archiannelids present. Other than these two sites, mean density did not excede 30 per core for any site on any sampling date.

Basic statistics for the number of species from the macrofaunal samples taken from the inshore and offshore sites at all five transects on all samples dates are provided in Tables 11a-11t. For

TABLE 10a. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, November 8, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

—	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.80	0.80	0.8	0.8
Median	0.00	1.00	-0.1	0.1
Variance	6.40			
Std. Dev.	2.53			
Std. Error	0.80			
Coeff. Var.	316.23	324.04	300.0	332.4
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	10.00	1.33	7.4	12.6
K-S D-Max	0.52			
STATION R1				
Mean	0.30	0.30	0.3	0.3
Median	0.00	0.38	-0.0	0.0
Variance	0.90			
Std. Dev.	0.95			
Std. Error	0.30			
Coeff. Var.	316.23	324.04	300.0	332.4
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	10.00	1.33	7.4	12.6
K-S D-Max	0.52			
STATION R2				
Mean	1184.60	900.62	1139.6	1229.6
Median	12.00	1128.75	-44.4	68.4
Variance	8111240.00			
Std. Dev.	2848.02			
Std. Error	900.62			
Coeff. Var.	240.42	190.53	230.9	249.9
G1 - Skewness	2.69	0.69	1.3	4.0
G2 - Kurtosis	7.38	1.33	4.8	10.0
K-S D-Max	0.45			
STATION R4				
Mean	15.60	8.76	15.2	16.0
Median	10.00	10.98	9.5	10.5
Variance	768.04			
Std. Dev.	27.71			
Std. Error	8.76			
Coeff. Var.	177.65	107.42	172.3	183.0
G1 - Skewness	2.95	0.69	1.6	4.3
G2 - Kurtosis	9.00	1.33	6.4	11.6
K-S D-Max	0.39			
STATION R7				
Mean	2.10	0.69	2.1	2.1
Median	1.00	0.87	1.0	1.0
Variance	4.77			
Std. Dev.	2.18			
Std. Error	0.69			
Coeff. Var.	103.97	41.34	101.9	106.0
G1 - Skewness	0.64	0.69	-0.7	2.0
G2 - Kurtosis	-1.14	1.33	-3.8	1.5
K-S D-Max	0.29			

TABLE 10b. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, November 8, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.50	1.28	4.4	4.6
Median	4.50	1.60	4.4	4.6
Variance	16.28			
Std. Dev.	4.03			
Std. Error	1.28			
Coeff. Var.	89.66	32.37	88.0	91.3
G1 - Skewness	0.86	0.69	-0.5	2.2
G2 - Kurtosis	0.86	1.33	-1.8	3.5
K-S D-Max	0.17			
STATION R2				
Mean	2.50	0.69	2.5	2.5
Median	2.00	0.86	2.0	2.0
Variance	4.72			
Std. Dev.	2.17			
Std. Error	0.69			
Coeff. Var.	86.92	30.80	85.4	88.5
G1 - Skewness	2.11	0.69	0.8	3.5
G2 - Kurtosis	4.87	1.33	2.3	7.5
K-S D-Max	0.29			
STATION R7				
Mean	12.30	3.22	12.1	12.5
Median	10.50	4.04	10.3	10.7
Variance	103.79			
Std. Dev.	10.19			
Std. Error	3.22			
Coeff. Var.	82.83	28.52	81.4	84.3
G1 - Skewness	1.48	0.69	0.1	2.8
G2 - Kurtosis	2.60	1.33	-0.0	5.2
K-S D-Max	0.16			

TABLE 10c Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, December 13, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	7.40	1.97	7.3	7.5
Median	6.00	2.47	5.9	6.1
Variance	38.93			
Std. Dev.	6.24			
Std. Error	1.97			
Coeff. Var.	84.32	29.34	82.9	85.8
G1 - Skewness	0.34	0.69	-1.0	1.7
G2 - Kurtosis	-1.60	1.33	-4.2	1.0
K-S D-Max	0.21			
STATION R1				
Mean	3.20	1.07	3.1	3.3
Median	2.00	1.34	1.9	2.1
Variance	11.51			
Std. Dev.	3.39			
Std. Error	1.07			
Coeff. Var.	106.03	42.73	103.9	108.2
G1 - Skewness	1.02	0.69	-0.3	2.4
G2 - Kurtosis	0.16	1.33	-2.5	2.8
K-S D-Max	0.24			
STATION R2				
Mean	5.60	2.16	5.5	5.7
Median	3.50	2.70	3.4	3.6
Variance	46.49			
Std. Dev.	6.82			
Std. Error	2.16			
Coeff. Var.	121.75	54.21	119.0	124.5
G1 - Skewness	1.27	0.69	-0.1	2.6
G2 - Kurtosis	0.45	1.33	-2.2	3.1
K-S D-Max	0.24			
STATION R4				
Mean	115.60	112.61	110.0	121.2
Median	0.00	141.13	-7.1	7.1
Variance	126810.00			
Std. Dev.	356.10			
Std. Error	112.61			
Coeff. Var.	308.05	307.88	292.7	323.4
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	10.00	1.33	7.4	12.6
K-S D-Max	0.51			
STATION R7				
Mean	29.40	27.07	28.0	30.8
Median	3.00	33.93	1.3	4.7
Variance	7329.60			
Std. Dev.	85.61			
Std. Error	27.07			
Coeff. Var.	291.20	275.95	277.4	305.0
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	9.99	1.33	7.4	12.6
K-S D-Max	0.51			

TABLE 10d Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, December 13, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	11.40	2.30	11.3	11.5
Median	11.00	2.88	10.9	11.1
Variance	52.93			
Std. Dev.	7.28			
Std. Error	2.30			
Coeff. Var.	63.82	19.22	62.9	64.8
G1 - Skewness	0.31	0.69	-1.0	1.7
G2 - Kurtosis	0.04	1.33	-2.6	2.7
K-S D-Max	0.11			
STATION R1				
Mean	9.40	2.11	9.3	9.5
Median	8.00	2.65	7.9	8.1
Variance	44.71			
Std. Dev.	6.69			
Std. Error	2.11			
Coeff. Var.	71.13	22.56	70.0	72.3
G1 - Skewness	1.60	0.69	0.3	2.9
G2 - Kurtosis	2.79	1.33	0.2	5.4
K-S D-Max	0.28			
STATION R2				
Mean	2.30	1.44	2.2	2.4
Median	1.00	1.80	0.9	1.1
Variance	20.68			
Std. Dev.	4.55			
Std. Error	1.44			
Coeff. Var.	197.71	131.28	191.1	204.3
G1 - Skewness	2.95	0.69	1.6	4.3
G2 - Kurtosis	9.00	1.33	6.4	11.6
K-S D-Max	0.43			

TABLE 10e. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, January 17,1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.30	1.27	2.2	2.4
Median	0.00	1.59	-0.1	0.1
Variance	16.01			
Std. Dev.	4.00			
Std. Error	1.27			
Coeff. Var.	173.97	103.32	168.8	179.1
G1 - Skewness	1.94	0.69	0.6	3.3
G2 - Kurtosis	3.51	1.33	0.9	6.1
K-S D-Max	0.33			
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	-0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
STATION R2				
Mean	13.30	4.09	13.1	13.5
Median	7.00	5.12	6.7	7.3
Variance	167.12			
Std. Dev.	12.93			
Std. Error	4.09			
Coeff. Var.	97.20	36.95	95.4	99.0
G1 - Skewness	0.96	0.69	-0.4	2.3
G2 - Kurtosis	-0.12	1.33	-2.7	2.5
K-S D-Max	0.29			
STATION R4				
Mean	0.30	0.15	0.3	0.3
Median	0.00	0.19	-0.0	0.0
Variance	0.23			
Std. Dev.	0.48			
Std. Error	0.15			
Coeff. Var.	161.02	89.54	156.5	165.5
G1 - Skewness	1.04	0.69	-0.3	2.4
G2 - Kurtosis	-1.22	1.33	-3.8	1.4
K-S D-Max	0.43			
STATION R7				
Mean	4.00	1.19	3.9	4.1
Median	3.50	1.49	3.4	3.6
Variance	14.22			
Std. Dev.	3.77			
Std. Error	1.19			
Coeff. Var.	94.28	35.14	92.5	96.0
G1 - Skewness	0.14	0.69	-1.2	1.5
G2 - Kurtosis	-2.09	1.33	-4.7	0.5
K-S D-Max	0.20			

TABLE 10f Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, January 17,1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.10	0.94	2.1	2.1
Median	1.00	1.17	0.9	1.1
Variance	8.77			
Std. Dev.	2.96			
Std. Error	0.94			
Coeff. Var.	140.99	70.33	137.5	144.5
G1 - Skewness	2.58	0.69	1.2	3.9
G2 - Kurtosis	6.84	1.33	4.2	9.5
K-S D-Max	0.44			
STATION R1				
Mean	6.90	1.78	6.8	7.0
Median	5.50	2.23	5.4	5.6
Variance	31.66			
Std. Dev.	5.63			
Std. Error	1.78			
Coeff. Var.	81.54	27.83	80.1	82.9
G1 - Skewness	1.51	0.69	0.2	2.9
G2 - Kurtosis	2.61	1.33	-0.0	5.2
K-S D-Max	0.19			
STATION R2				
Mean	2.60	0.67	2.6	2.6
Median	2.50	0.84	2.5	2.5
Variance	4.49			
Std. Dev.	2.12			
Std. Error	0.67			
Coeff. Var.	81.49	27.80	80.1	82.9
G1 - Skewness	0.22	0.69	-1.1	1.6
G2 - Kurtosis	-1.32	1.33	-3.9	1.3
K-S D-Max	0.17			

TABLE 10g Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, February 17,1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	5.10	2.85	5.0	5.2
Median	0.00	3.57	-0.2	0.2
Variance	80.99			
Std. Dev.	9.00			
Std. Error	2.85			
Coeff. Var.	176.46	106.08	171.2	181.8
G1 - Skewness	2.20	0.69	0.9	3.5
G2 - Kurtosis	5.02	1.33	2.4	7.6
K-S D-Max	0.31			
STATION R1				
Mean	3.70	0.58	3.7	3.7
Median	3.00	0.72	3.0	3.0
Variance	3.34			
Std. Dev.	1.83			
Std. Error	0.58			
Coeff. Var.	49.43	13.48	48.8	50.1
G1 - Skewness	-0.54	0.69	-1.9	0.8
G2 - Kurtosis	0.54	1.33	-2.1	3.2
K-S D-Max	0.25			
STATION R2				
Mean	19.80	5.20	19.5	20.1
Median	16.50	6.51	16.2	16.8
Variance	269.96			
Std. Dev.	16.43			
Std. Error	5.20			
Coeff. Var.	82.98	28.61	81.6	84.4
G1 - Skewness	1.57	0.69	0.2	2.9
G2 - Kurtosis	3.36	1.33	0.7	6.0
K-S D-Max	0.20			
STATION R4				
Mean	5.50	1.28	5.4	5.6
Median	6.00	1.61	5.9	6.1
Variance	16.50			
Std. Dev.	4.06			
Std. Error	1.28			
Coeff. Var.	73.85	23.88	72.7	75.0
G1 - Skewness	0.34	0.69	-1.0	1.7
G2 - Kurtosis	0.03	1.33	-2.6	2.6
K-S D-Max	0.16			
STATION R7				
Mean	11.10	2.41	11.0	11.2
Median	9.00	3.03	8.8	9.2
Variance	58.32			
Std. Dev.	7.64			
Std. Error	2.41			
Coeff. Var.	68.80	21.46	67.7	69.9
G1 - Skewness	0.02	0.69	-1.3	1.4
G2 - Kurtosis	-1.53	1.33	-4.1	1.1
K-S D-Max	0.21			

TABLE 10h Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, February 17, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	8.30	2.37	8.2	8.4
Median	6.00	2.97	5.9	6.1
Variance	56.23			
Std. Dev.	7.50			
Std. Error	2.37			
Coeff. Var.	90.35	32.78	88.7	92.0
G1 - Skewness	1.41	0.69	0.1	2.8
G2 - Kurtosis	1.10	1.33	-1.5	3.7
K-S D-Max	0.27			
STATION R1				
Mean	8.30	1.47	8.2	8.4
Median	8.50	1.84	8.4	8.6
Variance	21.57			
Std. Dev.	4.64			
Std. Error	1.47			
Coeff. Var.	55.95	15.95	55.2	56.7
G1 - Skewness	0.74	0.69	-0.6	2.1
G2 - Kurtosis	0.94	1.33	-1.7	3.6
K-S D-Max	0.18			
STATION R2				
Mean	4.90	2.39	4.8	5.0
Median	3.00	2.99	2.9	3.1
Variance	56.99			
Std. Dev.	7.55			
Std. Error	2.39			
Coeff. Var.	154.06	82.59	149.9	158.2
G1 - Skewness	2.95	0.69	1.6	4.3
G2 - Kurtosis	9.05	1.33	6.4	11.7
K-S D-Max	0.39			

TABLE 10i Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, April 3,1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.00	0.82	2.0	2.0
Median	0.50	1.02	0.4	0.6
Variance	6.67			
Std. Dev.	2.58			
Std. Error	0.82			
Coeff. Var.	129.10	60.09	126.1	132.1
G1 - Skewness	0.97	0.69	-0.4	2.3
G2 - Kurtosis	-0.39	1.33	-3.0	2.2
K-S D-Max	0.28			
STATION R1				
Mean	3.40	1.34	3.3	3.5
Median	3.50	1.68	3.4	3.6
Variance	18.04			
Std. Dev.	4.25			
Std. Error	1.34			
Coeff. Var.	124.94	56.72	122.1	127.8
G1 - Skewness	1.88	0.69	0.5	3.2
G2 - Kurtosis	4.49	1.33	1.9	7.1
K-S D-Max	0.25			
STATION R2				
Mean	3.40	0.99	3.4	3.4
Median	4.00	1.24	3.9	4.1
Variance	9.82			
Std. Dev.	3.13			
Std. Error	0.99			
Coeff. Var.	92.18	33.86	90.5	93.9
G1 - Skewness	-0.11	0.69	-1.5	1.2
G2 - Kurtosis	-2.15	1.33	-4.8	0.5
K-S D-Max	0.26			
STATION R4				
Mean	5.40	1.64	5.3	5.5
Median	5.00	2.06	4.9	5.1
Variance	26.93			
Std. Dev.	5.19			
Std. Error	1.64			
Coeff. Var.	96.11	36.26	94.3	97.9
G1 - Skewness	1.25	0.69	-0.1	2.6
G2 - Kurtosis	1.80	1.33	-0.8	4.4
K-S D-Max	0.23			
STATION R7				
Mean	7.00	1.26	6.9	7.1
Median	7.00	1.57	6.9	7.1
Variance	15.78			
Std. Dev.	3.97			
Std. Error	1.26			
Coeff. Var.	56.74	16.27	55.9	57.6
G1 - Skewness	-0.43	0.69	-1.8	0.9
G2 - Kurtosis	-0.49	1.33	-3.1	2.1
K-S D-Max	0.10			

TABLE 10j. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, April 3, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	19.70	4.29	19.5	19.9
Median	19.00	5.38	18.7	19.3
Variance	184.23			
Std. Dev.	13.57			
Std. Error	4.29			
Coeff. Var.	68.90	21.51	67.8	70.0
G1 - Skewness	0.20	0.69	-1.1	1.5
G2 - Kurtosis	-1.29	1.33	-3.9	1.3
K-S D-Max	0.14			
STATION R1				
Mean	5.80	1.29	5.7	5.9
Median	5.00	1.62	4.9	5.1
Variance	16.62			
Std. Dev.	4.08			
Std. Error	1.29			
Coeff. Var.	70.29	22.16	69.2	71.4
G1 - Skewness	0.94	0.69	-0.4	2.3
G2 - Kurtosis	0.67	1.33	-1.9	3.3
K-S D-Max	0.18			
STATION R2				
Mean	4.60	1.26	4.5	4.7
Median	4.00	1.58	3.9	4.1
Variance	15.82			
Std. Dev.	3.98			
Std. Error	1.26			
Coeff. Var.	86.47	30.54	84.9	88.0
G1 - Skewness	2.21	0.69	0.9	3.6
G2 - Kurtosis	6.30	1.33	3.7	8.9
K-S D-Max	0.36			

TABLE 10k. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, May 1, 1986 n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.40	0.62	1.4	1.4
Median	1.00	0.77	1.0	1.0
Variance	3.82			
Std. Dev.	1.96			
Std. Error	0.62			
Coeff. Var.	139.65	69.12	136.2	143.1
G1 - Skewness	1.53	0.69	0.2	2.9
G2 - Kurtosis	0.91	1.33	-1.7	3.5
K-S D-Max	0.38			
STATION R1				
Mean	11.10	3.07	10.9	11.3
Median	9.00	3.85	8.8	9.2
Variance	94.54			
Std. Dev.	9.72			
Std. Error	3.07			
Coeff. Var.	87.60	31.18	86.0	89.2
G1 - Skewness	0.71	0.69	-0.6	2.1
G2 - Kurtosis	-0.45	1.33	-3.1	2.2
K-S D-Max	0.20			
STATION R2				
Mean	12.60	5.71	12.3	12.9
Median	1.00	7.16	0.6	1.4
Variance	326.27			
Std. Dev.	18.06			
Std. Error	5.71			
Coeff. Var.	143.36	72.46	139.7	147.0
G1 - Skewness	1.00	0.69	-0.3	2.3
G2 - Kurtosis	-1.10	1.33	-3.7	1.5
K-S D-Max	0.34			
STATION R4				
Mean	12.20	2.26	12.1	12.3
Median	11.50	2.83	11.4	11.6
Variance	51.07			
Std. Dev.	7.15			
Std. Error	2.26			
Coeff. Var.	58.57	17.01	57.7	59.4
G1 - Skewness	-0.14	0.69	-1.5	1.2
G2 - Kurtosis	-0.64	1.33	-3.3	2.0
K-S D-Max	0.11			
STATION R7				
Mean	5.20	1.73	5.1	5.3
Median	3.50	2.17	3.4	3.6
Variance	29.96			
Std. Dev.	5.47			
Std. Error	1.73			
Coeff. Var.	105.25	42.20	103.1	107.4
G1 - Skewness	0.57	0.69	-0.8	1.9
G2 - Kurtosis	-1.45	1.33	-4.1	1.2
K-S D-Max	0.22			

TABLE 101. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, May 1, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	13.80	2.45	13.7	13.9
Median	11.00	3.07	10.8	11.2
Variance	59.96			
Std. Dev.	7.74			
Std. Error	2.45			
Coeff. Var.	56.11	16.02	55.3	56.9
G1 - Skewness	1.21	0.69	-0.1	2.6
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.24			
STATION R2				
Mean	2.60	0.62	2.6	2.6
Median	2.50	0.77	2.5	2.5
Variance	3.82			
Std. Dev.	1.96			
Std. Error	0.62			
Coeff. Var.	75.19	24.54	74.0	76.4
G1 - Skewness	0.48	0.69	-0.9	1.8
G2 - Kurtosis	-0.81	1.33	-3.4	1.8
K-S D-Max	0.19			

TABLE 10m. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, June 5, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.80	0.57	2.8	2.8
Median	2.50	0.72	2.5	2.5
Variance	3.29			
Std. Dev.	1.81			
Std. Error	0.57			
Coeff. Var.	64.77	19.64	63.8	65.8
G1 - Skewness	0.37	0.69	-1.0	1.7
G2 - Kurtosis	-0.23	1.33	-2.8	2.4
K-S D-Max	0.17			
STATION R1				
Mean	2.50	0.45	2.5	2.5
Median	3.00	0.57	3.0	3.0
Variance	2.06			
Std. Dev.	1.43			
Std. Error	0.45			
Coeff. Var.	57.35	16.51	56.5	58.2
G1 - Skewness	-0.57	0.69	-1.9	0.8
G2 - Kurtosis	-1.00	1.33	-3.6	1.6
K-S D-Max	0.15			
STATION R2				
Mean	24.80	13.07	24.1	25.5
Median	1.00	16.38	0.2	1.8
Variance	1708.40			
Std. Dev.	41.33			
Std. Error	13.07			
Coeff. Var.	166.66	95.42	161.9	171.4
G1 - Skewness	1.37	0.69	0.0	2.7
G2 - Kurtosis	0.18	1.33	-2.4	2.8
K-S D-Max	0.41			
STATION R4				
Mean	1.00	0.39	1.0	1.0
Median	0.50	0.49	0.5	0.5
Variance	1.56			
Std. Dev.	1.25			
Std. Error	0.39			
Coeff. Var.	124.72	56.55	121.9	127.5
G1 - Skewness	0.86	0.69	-0.5	2.2
G2 - Kurtosis	-0.91	1.33	-3.5	1.7
K-S D-Max	0.29			
STATION R7				
Mean	1.30	0.68	1.3	1.3
Median	0.50	0.86	0.5	0.5
Variance	4.68			
Std. Dev.	2.16			
Std. Error	0.68			
Coeff. Var.	166.37	95.11	161.6	171.1
G1 - Skewness	2.40	0.69	1.1	3.7
G2 - Kurtosis	6.34	1.33	3.7	9.0
K-S D-Max	0.27			

TABLE 10n. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, June 5, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	8.50	2.29	8.4	8.6
Median	6.50	2.87	6.4	6.6
Variance	52.28			
Std. Dev.	7.23			
Std. Error	2.29			
Coeff. Var.	85.06	29.75	83.6	86.6
G1 - Skewness	1.13	0.69	-0.2	2.5
G2 - Kurtosis	0.20	1.33	-2.4	2.8
K-S D-Max	0.23			
STATION R2				
Mean	9.80	4.96	9.6	10.0
Median	5.00	6.22	4.7	5.3
Variance	246.18			
Std. Dev.	15.69			
Std. Error	4.96			
Coeff. Var.	160.10	88.61	155.7	164.5
G1 - Skewness	2.80	0.69	1.5	4.2
G2 - Kurtosis	8.28	1.33	5.7	10.9
K-S D-Max	0.32			

TABLE 10o. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, July 7, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	5.20	1.37	5.1	5.3
Median	4.00	1.72	3.9	4.1
Variance	18.84			
Std. Dev.	4.34			
Std. Error	1.37			
Coeff. Var.	83.48	28.88	82.0	84.9
G1 - Skewness	0.98	0.69	-0.4	2.3
G2 - Kurtosis	0.30	1.33	-2.3	2.9
K-S D-Max	0.21			
STATION R1				
Mean	3.00	0.73	3.0	3.0
Median	2.50	0.92	2.5	2.5
Variance	5.33			
Std. Dev.	2.31			
Std. Error	0.73			
Coeff. Var.	76.98	25.45	75.7	78.3
G1 - Skewness	0.61	0.69	-0.7	2.0
G2 - Kurtosis	-0.75	1.33	-3.4	1.9
K-S D-Max	0.20			
STATION R2				
Mean	5.00	1.05	4.9	5.1
Median	5.00	1.32	4.9	5.1
Variance	11.11			
Std. Dev.	3.33			
Std. Error	1.05			
Coeff. Var.	66.67	20.49	65.6	67.7
G1 - Skewness	0.77	0.69	-0.6	2.1
G2 - Kurtosis	1.01	1.33	-1.6	3.6
K-S D-Max	0.17			
STATION R4				
Mean	1.70	0.65	1.7	1.7
Median	1.00	0.82	1.0	1.0
Variance	4.23			
Std. Dev.	2.06			
Std. Error	0.65			
Coeff. Var.	121.03	53.65	118.3	123.7
G1 - Skewness	1.17	0.69	-0.2	2.5
G2 - Kurtosis	0.61	1.33	-2.0	3.2
K-S D-Max	0.23			
STATION R7				
Mean	4.30	1.57	4.2	4.4
Median	3.50	1.97	3.4	3.6
Variance	24.68			
Std. Dev.	4.97			
Std. Error	1.57			
Coeff. Var.	115.53	49.48	113.1	118.0
G1 - Skewness	1.56	0.69	0.2	2.9
G2 - Kurtosis	2.86	1.33	0.2	5.5
K-S D-Max	0.17			

TABLE 10p. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, July 7, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.50	0.43	1.5	1.5
Median	1.50	0.54	1.5	1.5
Variance	1.83			
Std. Dev.	1.35			
Std. Error	0.43			
Coeff. Var.	90.27	32.73	88.6	91.9
G1 - Skewness	0.50	0.69	-0.8	1.9
G2 - Kurtosis	-0.47	1.33	-3.1	2.1
K-S D-Max	0.17			
STATION R2				
Mean	9.50	3.07	9.3	9.7
Median	5.50	3.85	5.3	5.7
Variance	94.50			
Std. Dev.	9.72			
Std. Error	3.07			
Coeff. Var.	102.33	40.25	100.3	104.3
G1 - Skewness	1.44	0.69	0.1	2.8
G2 - Kurtosis	1.52	1.33	-1.1	4.1
K-S D-Max	0.24			

TABLE 10q. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, August 8, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	5.80	1.40	5.7	5.9
Median	4.50	1.75	4.4	4.6
Variance	19.51			
Std. Dev.	4.42			
Std. Error	1.40			
Coeff. Var.	76.16	25.03	74.9	77.4
G1 - Skewness	1.32	0.69	-0.0	2.7
G2 - Kurtosis	1.09	1.33	-1.5	3.7
K-S D-Max	0.28			
STATION R1				
Mean	11.20	2.04	11.1	11.3
Median	10.00	2.55	9.9	10.1
Variance	41.51			
Std. Dev.	6.44			
Std. Error	2.04			
Coeff. Var.	57.53	16.58	56.7	58.4
G1 - Skewness	0.55	0.69	-0.8	1.9
G2 - Kurtosis	0.74	1.33	-1.9	3.4
K-S D-Max	0.13			
STATION R2				
Mean	8.00	1.44	7.9	8.1
Median	8.00	1.80	7.9	8.1
Variance	20.67			
Std. Dev.	4.55			
Std. Error	1.44			
Coeff. Var.	56.83	16.30	56.0	57.6
G1 - Skewness	0.32	0.69	-1.0	1.7
G2 - Kurtosis	-1.26	1.33	-3.9	1.4
K-S D-Max	0.21			
STATION R4				
Mean	1.70	0.68	1.7	1.7
Median	1.50	0.86	1.5	1.5
Variance	4.68			
Std. Dev.	2.16			
Std. Error	0.68			
Coeff. Var.	127.22	58.56	124.3	130.2
G1 - Skewness	1.80	0.69	0.5	3.1
G2 - Kurtosis	3.90	1.33	1.3	6.5
K-S D-Max	0.24			
STATION R7				
Mean	4.80	0.71	4.8	4.8
Median	4.00	0.89	4.0	4.0
Variance	5.07			
Std. Dev.	2.25			
Std. Error	0.71			
Coeff. Var.	46.89	12.58	46.3	47.5
G1 - Skewness	0.60	0.69	-0.7	1.9
G2 - Kurtosis	-0.24	1.33	-2.9	2.4
K-S D-Max	0.24			

TABLE 10r. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, August 8, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R2				
Mean	25.20	6.48	24.9	25.5
Median	19.00	8.12	18.6	19.4
Variance	419.51			
Std. Dev.	20.48			
Std. Error	6.48			
Coeff. Var.	81.28	27.69	79.9	82.7
G1 - Skewness	1.50	0.69	0.2	2.8
G2 - Kurtosis	1.62	1.33	-1.0	4.2
K-S D-Max	0.28			
STATION R7				
Mean	12.90	6.09	12.6	13.2
Median	7.50	7.63	7.1	7.9
Variance	370.77			
Std. Dev.	19.26			
Std. Error	6.09			
Coeff. Var.	149.27	77.96	145.4	153.2
G1 - Skewness	3.01	0.69	1.7	4.4
G2 - Kurtosis	9.31	1.33	6.7	11.9
K-S D-Max	0.42			

TABLE 10s. Basic statistics for number of individuals for inshore stations at Sebastian Inlet State Recreation Area, September 10, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.10	0.41	2.1	2.1
Median	2.00	0.51	2.0	2.0
Variance	1.66			
Std. Dev.	1.29			
Std. Error	0.41			
Coeff. Var.	61.27	18.13	60.4	62.2
G1 - Skewness	1.34	0.69	-0.0	2.7
G2 - Kurtosis	1.86	1.33	-0.8	4.5
K-S D-Max	0.23			
STATION R1				
Mean	14.40	3.22	14.2	14.6
Median	15.50	4.03	15.3	15.7
Variance	103.60			
Std. Dev.	10.18			
Std. Error	3.22			
Coeff. Var.	70.68	22.35	69.6	71.8
G1 - Skewness	0.41	0.69	-0.9	1.8
G2 - Kurtosis	0.08	1.33	-2.5	2.7
K-S D-Max	0.13			
STATION R2				
Mean	10.40	1.74	10.3	10.5
Median	10.00	2.18	9.9	10.1
Variance	30.27			
Std. Dev.	5.50			
Std. Error	1.74			
Coeff. Var.	52.90	14.77	52.2	53.6
G1 - Skewness	0.22	0.69	-1.1	1.6
G2 - Kurtosis	-0.56	1.33	-3.2	2.1
K-S D-Max	0.11			
STATION R4				
Mean	6.90	1.26	6.8	7.0
Median	6.50	1.58	6.4	6.6
Variance	15.88			
Std. Dev.	3.98			
Std. Error	1.26			
Coeff. Var.	57.75	16.67	56.9	58.6
G1 - Skewness	2.03	0.69	0.7	3.4
G2 - Kurtosis	5.02	1.33	2.4	7.6
K-S D-Max	0.29			
STATION R7				
Mean	3.90	1.62	3.8	4.0
Median	3.00	2.03	2.9	3.1
Variance	26.32			
Std. Dev.	5.13			
Std. Error	1.62			
Coeff. Var.	131.55	62.13	128.4	134.7
G1 - Skewness	2.76	0.69	1.4	4.1
G2 - Kurtosis	8.23	1.33	5.6	10.8
K-S D-Max	0.39			

TABLE 10t. Basic statistics for number of individuals for offshore stations at Sebastian Inlet State Recreation Area, September 10, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0 -				
Mean	9.90	1.72	9.8	10.0
Median	10.00	2.15	9.9	10.1
Variance	29.43			
Std. Dev.	5.43			
Std. Error	1.72			
Coeff. Var.	54.80	15.50	54.0	55.6
G1 - Skewness	0.12	0.69	-1.2	1.5
G2 - Kurtosis	0.61	1.33	-2.0	3.2
K-S D-Max	0.15			
STATION R1				
Mean	9.00	5.67	8.7	9.3
Median	2.00	7.11	1.6	2.4
Variance	161.00			
Std. Dev.	12.69			
Std. Error	5.67			
Coeff. Var.	140.98	99.44	136.0	146.0
G1 - Skewness	1.57	0.91	-0.2	3.4
G2 - Kurtosis	2.01	2.00	-1.9	5.9
K-S D-Max	0.31			
STATION R2				
Mean	15.40	6.86	15.1	15.7
Median	7.50	8.59	7.1	7.9
Variance	470.27			
Std. Dev.	21.69			
Std. Error	6.86			
Coeff. Var.	140.82	70.17	137.3	144.3
G1 - Skewness	2.08	0.69	0.7	3.4
G2 - Kurtosis	4.17	1.33	1.6	6.8
K-S D-Max	0.31			
STATION R4				
Mean	10.40	3.77	10.2	10.6
Median	7.00	4.72	6.8	7.2
Variance	141.82			
Std. Dev.	11.91			
Std. Error	3.77			
Coeff. Var.	114.51	48.73	112.1	116.9
G1 - Skewness	2.74	0.69	1.4	4.1
G2 - Kurtosis	8.01	1.33	5.4	10.6
K-S D-Max	0.31			
STATION R7				
Mean	3.70	0.72	3.7	3.7
Median	3.50	0.90	3.5	3.5
Variance	5.12			
Std. Dev.	2.26			
Std. Error	0.72			
Coeff. Var.	61.17	18.09	60.3	62.1
G1 - Skewness	-0.04	0.69	-1.4	1.3
G2 - Kurtosis	-1.09	1.33	-3.7	1.5
K-S D-Max	0.17			

the offshore sites, only those stations which had sand present are included in the tables. Average number of species per core ranged from 0 to 3.0 species per core at the inshore sites, with the maximum being obtained at station R1 in September 1986. At the offshore sites, average number of species per core ranged from 0.8 to 5.7 for those sites where sand was present. The maximum was obtained from the samples taken at station R0 in August 1986.

Statistical comparisons of number of individuals

The results of comparisons among stations (one-way ANOVA) in the mean number of individuals per core for both inshore and offshore stations are given in Tables 12a-12t. Patterns of significant differences among stations are considerably more complex for the macrofauna than for the fishes, and require a description of results on a month by month basis.

For the November 1985 inshore samples, variances were heterogeneous and the non-parametric Kruskal-Wallis test and non-parametric comparisons by STP were carried out in lieu of ANOVA. There were significant ($p<0.05$) differences among stations, with stations R1, R0 and R7 not differing significantly from one another and stations R7, R4 and R2 not differing significantly as well (Table 12a). Therefore, significant differences among stations in abundance existed prior to nourishment. In the main however, this was due to extremely high numbers of archiannnelids found in only two cores. For the offshore sites, analysis of log-transformed data indicated that station R7 had significantly more individuals that did R0 and R2 (Table 12b). No sand was present at stations R1 and R4.

TABLE 11a. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, November 8, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.30	0.30	0.3	0.3
Median	0.00	0.38	-0.0	0.0
Variance	0.90			
Std. Dev.	0.95			
Std. Error	0.30			
Coeff. Var.	316.23	324.04	300.0	332.4
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	10.00	1.33	7.4	12.6
K-S D-Max	0.52			
STATION R1				
Mean	0.20	0.20	0.2	0.2
Median	0.00	0.25	-0.0	0.0
Variance	0.40			
Std. Dev.	0.63			
Std. Error	0.20			
Coeff. Var.	316.23	324.04	300.0	332.4
G1 - Skewness	3.16	0.69	1.8	4.5
G2 - Kurtosis	10.00	1.33	7.4	12.6
K-S D-Max	0.52			
STATION R2				
Mean	2.60	0.50	2.6	2.6
Median	2.50	0.63	2.5	2.5
Variance	2.49			
Std. Dev.	1.58			
Std. Error	0.50			
Coeff. Var.	60.68	17.88	59.8	61.6
G1 - Skewness	0.20	0.69	-1.2	1.5
G2 - Kurtosis	-0.14	1.33	-2.8	2.5
K-S D-Max	0.20			
STATION R4				
Mean	1.80	0.39	1.8	1.8
Median	2.00	0.49	2.0	2.0
Variance	1.51			
Std. Dev.	1.23			
Std. Error	0.39			
Coeff. Var.	68.29	21.23	67.2	69.4
G1 - Skewness	0.02	0.69	-1.3	1.4
G2 - Kurtosis	0.14	1.33	-2.5	2.8
K-S D-Max	0.24			
STATION R7				
Mean	1.20	0.33	1.2	1.2
Median	1.00	0.41	1.0	1.0
Variance	1.07			
Std. Dev.	1.03			
Std. Error	0.33			
Coeff. Var.	86.07	30.32	84.6	87.6
G1 - Skewness	0.27	0.69	-1.1	1.6
G2 - Kurtosis	-0.90	1.33	-3.5	1.7
K-S D-Max	0.18			

TABLE 11b. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, November 8, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.00	0.42	2.0	2.0
Median	2.00	0.53	2.0	2.0
Variance	1.78			
Std. Dev.	1.33			
Std. Error	0.42			
Coeff. Var.	66.67	20.49	65.6	67.7
G1 - Skewness	-0.35	0.69	-1.7	1.0
G2 - Kurtosis	-0.75	1.33	-3.4	1.9
K-S D-Max	0.13			
STATION R2				
Mean	1.50	0.22	1.5	1.5
Median	1.00	0.28	1.0	1.0
Variance	0.50			
Std. Dev.	0.71			
Std. Error	0.22			
Coeff. Var.	47.14	12.67	46.5	47.8
G1 - Skewness	1.18	0.69	-0.2	2.5
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.36			
STATION R7				
Mean	3.40	0.56	3.4	3.4
Median	2.50	0.70	2.5	2.5
Variance	3.16			
Std. Dev.	1.78			
Std. Error	0.56			
Coeff. Var.	52.25	14.53	51.5	53.0
G1 - Skewness	1.02	0.69	-0.3	2.4
G2 - Kurtosis	0.05	1.33	-2.6	2.7
K-S D-Max	0.28			

TABLE 11c. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, December 13, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.80	0.71	2.8	2.8
Median	2.00	0.89	2.0	2.0
Variance	5.07			
Std. Dev.	2.25			
Std. Error	0.71			
Coeff. Var.	80.39	27.22	79.0	81.8
G1 - Skewness	1.48	0.69	0.1	2.8
G2 - Kurtosis	2.70	1.33	0.1	5.3
K-S D-Max	0.26			
STATION R1				
Mean	1.40	0.43	1.4	1.4
Median	1.00	0.54	1.0	1.0
Variance	1.82			
Std. Dev.	1.35			
Std. Error	0.43			
Coeff. Var.	96.42	36.46	94.6	98.2
G1 - Skewness	0.77	0.69	-0.6	2.1
G2 - Kurtosis	-0.13	1.33	-2.7	2.5
K-S D-Max	0.22			
STATION R2				
Mean	1.60	0.56	1.6	1.6
Median	1.00	0.70	1.0	1.0
Variance	3.16			
Std. Dev.	1.78			
Std. Error	0.56			
Coeff. Var.	111.02	46.21	108.7	113.3
G1 - Skewness	1.06	0.69	-0.3	2.4
G2 - Kurtosis	-0.16	1.33	-2.8	2.5
K-S D-Max	0.33			
STATION R4				
Mean	1.40	0.60	1.4	1.4
Median	0.00	0.75	-0.0	0.0
Variance	3.60			
Std. Dev.	1.90			
Std. Error	0.60			
Coeff. Var.	135.53	65.51	132.3	138.8
G1 - Skewness	0.74	0.69	-0.6	2.1
G2 - Kurtosis	-1.64	1.33	-4.3	1.0
K-S D-Max	0.37			
STATION R7				
Mean	1.10	0.38	1.1	1.1
Median	1.00	0.47	1.0	1.0
Variance	1.43			
Std. Dev.	1.20			
Std. Error	0.38			
Coeff. Var.	108.84	44.67	106.6	111.1
G1 - Skewness	1.71	0.69	0.4	3.1
G2 - Kurtosis	3.71	1.33	1.1	6.3
K-S D-Max	0.33			

TABLE 11d. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, December 13, 1985 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.30	0.60	4.3	4.3
Median	5.00	0.75	5.0	5.0
Variance	3.57			
Std. Dev.	1.89			
Std. Error	0.60			
Coeff. Var.	43.92	11.56	43.3	44.5
G1 - Skewness	-1.16	0.69	-2.5	0.2
G2 - Kurtosis	0.17	1.33	-2.4	2.8
K-S D-Max	0.18			
STATION R1				
Mean	4.30	0.78	4.3	4.3
Median	4.50	0.97	4.5	4.5
Variance	6.01			
Std. Dev.	2.45			
Std. Error	0.78			
Coeff. Var.	57.02	16.38	56.2	57.8
G1 - Skewness	1.26	0.69	-0.1	2.6
G2 - Kurtosis	2.96	1.33	0.3	5.6
K-S D-Max	0.29			
STATION R2				
Mean	0.80	0.25	0.8	0.8
Median	1.00	0.31	1.0	1.0
Variance	0.62			
Std. Dev.	0.79			
Std. Error	0.25			
Coeff. Var.	98.60	37.83	96.7	100.5
G1 - Skewness	0.41	0.69	-0.9	1.8
G2 - Kurtosis	-1.07	1.33	-3.7	1.5
K-S D-Max	0.24			

TABLE 11e. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, January 17, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	0.50	0.22	0.5	0.5
Median	0.00	0.28	-0.0	0.0
Variance	0.50			
Std. Dev.	0.71			
Std. Error	0.22			
Coeff. Var.	141.42	70.71	137.9	145.0
G1 - Skewness	1.18	0.69	-0.2	2.5
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.36			
STATION R1				
Mean	0.00	0.00	0.0	0.0
Median	0.00	0.00	0.0	0.0
Variance	0.00			
Std. Dev.	0.00			
Std. Error	0.00			
STATION R2				
Mean	2.00	0.42	2.0	2.0
Median	2.00	0.53	2.0	2.0
Variance	1.78			
Std. Dev.	1.33			
Std. Error	0.42			
Coeff. Var.	66.67	20.49	65.6	67.7
G1 - Skewness	0.35	0.69	-1.0	1.7
G2 - Kurtosis	-0.75	1.33	-3.4	1.9
K-S D-Max	0.20			
STATION R4				
Mean	0.30	0.15	0.3	0.3
Median	0.00	0.19	-0.0	0.0
Variance	0.23			
Std. Dev.	0.48			
Std. Error	0.15			
Coeff. Var.	161.02	89.54	156.5	165.5
G1 - Skewness	1.04	0.69	-0.3	2.4
G2 - Kurtosis	-1.22	1.33	-3.8	1.4
K-S D-Max	0.43			
STATION R7				
Mean	1.50	0.45	1.5	1.5
Median	1.00	0.57	1.0	1.0
Variance	2.06			
Std. Dev.	1.43			
Std. Error	0.45			
Coeff. Var.	95.58	35.94	93.8	97.4
G1 - Skewness	0.57	0.69	-0.8	1.9
G2 - Kurtosis	-1.00	1.33	-3.6	1.6
K-S D-Max	0.24			

TABLE 11f. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, January 17, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.00	0.84	2.0	2.0
Median	1.00	1.06	0.9	1.1
Variance	7.11			
Std. Dev.	2.67			
Std. Error	0.84			
Coeff. Var.	133.33	63.63	130.2	136.5
G1 - Skewness	2.46	0.69	1.1	3.8
G2 - Kurtosis	6.19	1.33	3.6	8.8
K-S D-Max	0.45			
STATION R1				
Mean	3.90	0.66	3.9	3.9
Median	3.00	0.82	3.0	3.0
Variance	4.32			
Std. Dev.	2.08			
Std. Error	0.66			
Coeff. Var.	53.31	14.93	52.6	54.1
G1 - Skewness	0.72	0.69	-0.6	2.1
G2 - Kurtosis	0.23	1.33	-2.4	2.8
K-S D-Max	0.27			
STATION R2				
Mean	1.40	0.31	1.4	1.4
Median	1.50	0.38	1.5	1.5
Variance	0.93			
Std. Dev.	0.97			
Std. Error	0.31			
Coeff. Var.	69.01	21.56	67.9	70.1
G1 - Skewness	-0.11	0.69	-1.5	1.2
G2 - Kurtosis	-0.62	1.33	-3.2	2.0
K-S D-Max	0.17			

TABLE 11g. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, February 17, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0-				
Mean	0.50	0.17	0.5	0.5
Median	0.50	0.21	0.5	0.5
Variance	0.28			
Std. Dev.	0.53			
Std. Error	0.17			
Coeff. Var.	105.41	42.31	103.3	107.5
G1 - Skewness	0.00	0.69	-1.3	1.3
G2 - Kurtosis	-2.57	1.33	-5.2	0.0
K-S D-Max	0.33			
STATION R1				
Mean	1.60	0.27	1.6	1.6
Median	2.00	0.33	2.0	2.0
Variance	0.71			
Std. Dev.	0.84			
Std. Error	0.27			
Coeff. Var.	52.70	14.70	52.0	53.4
G1 - Skewness	-0.39	0.69	-1.7	1.0
G2 - Kurtosis	0.37	1.33	-2.2	3.0
K-S D-Max	0.22			
STATION R2				
Mean	1.30	0.33	1.3	1.3
Median	1.00	0.42	1.0	1.0
Variance	1.12			
Std. Dev.	1.06			
Std. Error	0.33			
Coeff. Var.	81.49	27.80	80.1	82.9
G1 - Skewness	2.06	0.69	0.7	3.4
G2 - Kurtosis	5.42	1.33	2.8	8.0
K-S D-Max	0.41			
STATION R4				
Mean	1.20	0.36	1.2	1.2
Median	1.00	0.45	1.0	1.0
Variance	1.29			
Std. Dev.	1.14			
Std. Error	0.36			
Coeff. Var.	94.61	35.34	92.8	96.4
G1 - Skewness	1.80	0.69	0.5	3.1
G2 - Kurtosis	4.34	1.33	1.7	7.0
K-S D-Max	0.37			
STATION R7				
Mean	1.80	0.33	1.8	1.8
Median	2.00	0.41	2.0	2.0
Variance	1.07			
Std. Dev.	1.03			
Std. Error	0.33			
Coeff. Var.	57.38	16.52	56.6	58.2
G1 - Skewness	-0.27	0.69	-1.6	1.1
G2 - Kurtosis	-0.90	1.33	-3.5	1.7
K-S D-Max	0.18			

TABLE 11h. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, February 17, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.30	0.87	4.3	4.3
Median	4.00	1.09	3.9	4.1
Variance	7.57			
Std. Dev.	2.75			
Std. Error	0.87			
Coeff. Var.	63.97	19.29	63.0	64.9
G1 - Skewness	1.25	0.69	-0.1	2.6
G2 - Kurtosis	0.83	1.33	-1.8	3.4
K-S D-Max	0.24			
STATION R1				
Mean	3.00	0.39	3.0	3.0
Median	3.00	0.49	3.0	3.0
Variance	1.56			
Std. Dev.	1.25			
Std. Error	0.39			
Coeff. Var.	41.57	10.78	41.0	42.1
G1 - Skewness	1.72	0.69	0.4	3.1
G2 - Kurtosis	3.42	1.33	0.8	6.0
K-S D-Max	0.30			
STATION R2				
Mean	2.00	0.33	2.0	2.0
Median	2.00	0.42	2.0	2.0
Variance	1.11			
Std. Dev.	1.05			
Std. Error	0.33			
Coeff. Var.	52.70	14.70	52.0	53.4
G1 - Skewness	-0.71	0.69	-2.1	0.6
G2 - Kurtosis	-0.45	1.33	-3.1	2.2
K-S D-Max	0.17			

TABLE 11i. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, April 3, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.20	0.44	1.2	1.2
Median	0.50	0.55	0.5	0.5
Variance	1.96			
Std. Dev.	1.40			
Std. Error	0.44			
Coeff. Var.	116.53	50.23	114.0	119.0
G1 - Skewness	0.48	0.69	-0.9	1.8
G2 - Kurtosis	-1.93	1.33	-4.5	0.7
K-S D-Max	0.30			
STATION R1				
Mean	1.40	0.58	1.4	1.4
Median	1.00	0.73	1.0	1.0
Variance	3.38			
Std. Dev.	1.84			
Std. Error	0.58			
Coeff. Var.	131.28	61.90	128.2	134.4
G1 - Skewness	1.94	0.69	0.6	3.3
G2 - Kurtosis	4.53	1.33	1.9	7.1
K-S D-Max	0.27			
STATION R2				
Mean	1.30	0.45	1.3	1.3
Median	1.00	0.56	1.0	1.0
Variance	2.01			
Std. Dev.	1.42			
Std. Error	0.45			
Coeff. Var.	109.09	44.85	106.8	111.3
G1 - Skewness	0.80	0.69	-0.5	2.1
G2 - Kurtosis	-0.38	1.33	-3.0	2.2
K-S D-Max	0.22			
STATION R4				
Mean	1.40	0.54	1.4	1.4
Median	1.00	0.68	1.0	1.0
Variance	2.93			
Std. Dev.	1.71			
Std. Error	0.54			
Coeff. Var.	122.34	54.66	119.6	125.1
G1 - Skewness	2.53	0.69	1.2	3.9
G2 - Kurtosis	7.22	1.33	4.6	9.8
K-S D-Max	0.39			
STATION R7				
Mean	1.80	0.39	1.8	1.8
Median	1.50	0.49	1.5	1.5
Variance	1.51			
Std. Dev.	1.23			
Std. Error	0.39			
Coeff. Var.	68.29	21.23	67.2	69.4
G1 - Skewness	0.47	0.69	-0.9	1.8
G2 - Kurtosis	-0.54	1.33	-3.2	2.1
K-S D-Max	0.24			

TABLE 11j. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, April 3, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	5.10	0.74	5.1	5.1
Median	5.00	0.92	5.0	5.0
Variance	5.43			
Std. Dev.	2.33			
Std. Error	0.74			
Coeff. Var.	45.70	12.17	45.1	46.3
G1 - Skewness	-0.08	0.69	-1.4	1.3
G2 - Kurtosis	-1.58	1.33	-4.2	1.0
K-S D-Max	0.12			
STATION R1				
Mean	3.20	0.74	3.2	3.2
Median	2.50	0.93	2.5	2.5
Variance	5.51			
Std. Dev.	2.35			
Std. Error	0.74			
Coeff. Var.	73.36	23.64	72.2	74.5
G1 - Skewness	1.05	0.69	-0.3	2.4
G2 - Kurtosis	0.46	1.33	-2.2	3.1
K-S D-Max	0.20			
STATION R2				
Mean	2.50	0.69	2.5	2.5
Median	2.00	0.86	2.0	2.0
Variance	4.72			
Std. Dev.	2.17			
Std. Error	0.69			
Coeff. Var.	86.92	30.80	85.4	88.5
G1 - Skewness	1.14	0.69	-0.2	2.5
G2 - Kurtosis	0.64	1.33	-2.0	3.3
K-S D-Max	0.29			

TABLE 11k. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, May 1, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0 -				
Mean	0.60	0.16	0.6	0.6
Median	1.00	0.20	1.0	1.0
Variance	0.27			
Std. Dev.	0.52			
Std. Error	0.16			
Coeff. Var.	86.07	30.32	84.6	87.6
G1 - Skewness	-0.48	0.69	-1.8	0.9
G2 - Kurtosis	-2.28	1.33	-4.9	0.3
K-S D-Max	0.28			
STATION R1				
Mean	1.50	0.27	1.5	1.5
Median	1.50	0.34	1.5	1.5
Variance	0.72			
Std. Dev.	0.85			
Std. Error	0.27			
Coeff. Var.	56.66	16.23	55.8	57.5
G1 - Skewness	0.00	0.69	-1.3	1.3
G2 - Kurtosis	0.11	1.33	-2.5	2.7
K-S D-Max	0.22			
STATION R2				
Mean	0.80	0.25	0.8	0.8
Median	1.00	0.31	1.0	1.0
Variance	0.62			
Std. Dev.	0.79			
Std. Error	0.25			
Coeff. Var.	98.60	37.83	96.7	100.5
G1 - Skewness	0.41	0.69	-0.9	1.8
G2 - Kurtosis	-1.07	1.33	-3.7	1.5
K-S D-Max	0.24			
STATION R4				
Mean	2.30	0.58	2.3	2.3
Median	2.00	0.72	2.0	2.0
Variance	3.34			
Std. Dev.	1.83			
Std. Error	0.58			
Coeff. Var.	79.51	26.75	78.2	80.9
G1 - Skewness	2.04	0.69	0.7	3.4
G2 - Kurtosis	5.79	1.33	3.2	8.4
K-S D-Max	0.37			
STATION R7				
Mean	1.20	0.33	1.2	1.2
Median	1.00	0.41	1.0	1.0
Variance	1.07			
Std. Dev.	1.03			
Std. Error	0.33			
Coeff. Var.	86.07	30.32	84.6	87.6
G1 - Skewness	0.27	0.69	-1.1	1.6
G2 - Kurtosis	-0.90	1.33	-3.5	1.7
K-S D-Max	0.18			

TABLE 111. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, May 1, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	5.20	0.36	5.2	5.2
Median	5.00	0.45	5.0	5.0
Variance	1.29			
Std. Dev.	1.14			
Std. Error	0.36			
Coeff. Var.	21.83	5.11	21.6	22.1
G1 - Skewness	1.80	0.69	0.5	3.1
G2 - Kurtosis	4.34	1.33	1.7	7.0
K-S D-Max	0.37			
STATION R2				
Mean	1.90	0.41	1.9	1.9
Median	1.50	0.51	1.5	1.5
Variance	1.66			
Std. Dev.	1.29			
Std. Error	0.41			
Coeff. Var.	67.72	20.97	66.7	68.8
G1 - Skewness	0.23	0.69	-1.1	1.6
G2 - Kurtosis	-1.19	1.33	-3.8	1.4
K-S D-Max	0.26			

TABLE 11m. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, June 5, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.20	0.20	1.2	1.2
Median	1.00	0.25	1.0	1.0
Variance	0.40			
Std. Dev.	0.63			
Std. Error	0.20			
Coeff. Var.	52.70	14.70	52.0	53.4
G1 - Skewness	-0.13	0.69	-1.5	1.2
G2 - Kurtosis	0.18	1.33	-2.4	2.8
K-S D-Max	0.32			
STATION R1				
Mean	1.00	0.15	1.0	1.0
Median	1.00	0.19	1.0	1.0
Variance	0.22			
Std. Dev.	0.47			
Std. Error	0.15			
Coeff. Var.	47.14	12.67	46.5	47.8
G1 - Skewness	0.00	0.69	-1.3	1.3
G2 - Kurtosis	4.50	1.33	1.9	7.1
K-S D-Max	0.40			
STATION R2				
Mean	0.90	0.31	0.9	0.9
Median	1.00	0.39	1.0	1.0
Variance	0.99			
Std. Dev.	0.99			
Std. Error	0.31			
Coeff. Var.	110.49	45.84	108.2	112.8
G1 - Skewness	1.08	0.69	-0.3	2.4
G2 - Kurtosis	0.91	1.33	-1.7	3.5
K-S D-Max	0.26			
STATION R4				
Mean	0.70	0.26	0.7	0.7
Median	0.50	0.33	0.5	0.5
Variance	0.68			
Std. Dev.	0.82			
Std. Error	0.26			
Coeff. Var.	117.61	51.04	115.1	120.2
G1 - Skewness	0.69	0.69	-0.7	2.0
G2 - Kurtosis	-1.04	1.33	-3.7	1.6
K-S D-Max	0.30			
STATION R7				
Mean	0.90	0.35	0.9	0.9
Median	0.50	0.44	0.5	0.5
Variance	1.21			
Std. Dev.	1.10			
Std. Error	0.35			
Coeff. Var.	122.28	54.62	119.5	125.0
G1 - Skewness	0.86	0.69	-0.5	2.2
G2 - Kurtosis	-0.52	1.33	-3.1	2.1
K-S D-Max	0.29			

TABLE 11n. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, June 5, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	3.60	0.70	3.6	3.6
Median	3.00	0.88	3.0	3.0
Variance	4.93			
Std. Dev.	2.22			
Std. Error	0.70			
Coeff. Var.	61.70	18.31	60.8	62.6
G1 - Skewness	0.33	0.69	-1.0	1.7
G2 - Kurtosis	-1.57	1.33	-4.2	1.0
K-S D-Max	0.21			
STATION R2				
Mean	2.50	0.65	2.5	2.5
Median	2.00	0.82	2.0	2.0
Variance	4.28			
Std. Dev.	2.07			
Std. Error	0.65			
Coeff. Var.	82.73	28.47	81.3	84.2
G1 - Skewness	2.45	0.69	1.1	3.8
G2 - Kurtosis	6.76	1.33	4.1	9.4
K-S D-Max	0.30			

TABLE 11o. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, July 7, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.10	0.64	2.1	2.1
Median	1.00	0.80	1.0	1.0
Variance	4.10			
Std. Dev.	2.02			
Std. Error	0.64			
Coeff. Var.	96.42	36.46	94.6	98.2
G1 - Skewness	1.94	0.69	0.6	3.3
G2 - Kurtosis	3.46	1.33	0.8	6.1
K-S D-Max	0.41			
STATION R1				
Mean	1.30	0.26	1.3	1.3
Median	1.00	0.33	1.0	1.0
Variance	0.68			
Std. Dev.	0.82			
Std. Error	0.26			
Coeff. Var.	63.33	19.01	62.4	64.3
G1 - Skewness	0.81	0.69	-0.5	2.2
G2 - Kurtosis	1.24	1.33	-1.4	3.9
K-S D-Max	0.34			
STATION R2				
Mean	1.90	0.35	1.9	1.9
Median	1.50	0.44	1.5	1.5
Variance	1.21			
Std. Dev.	1.10			
Std. Error	0.35			
Coeff. Var.	57.92	16.74	57.1	58.8
G1 - Skewness	0.86	0.69	-0.5	2.2
G2 - Kurtosis	-0.52	1.33	-3.1	2.1
K-S D-Max	0.29			
STATION R4				
Mean	0.90	0.28	0.9	0.9
Median	1.00	0.35	1.0	1.0
Variance	0.77			
Std. Dev.	0.88			
Std. Error	0.28			
Coeff. Var.	97.29	37.00	95.4	99.1
G1 - Skewness	0.22	0.69	-1.1	1.6
G2 - Kurtosis	-1.73	1.33	-4.3	0.9
K-S D-Max	0.25			
STATION R7				
Mean	1.00	0.26	1.0	1.0
Median	1.00	0.32	1.0	1.0
Variance	0.67			
Std. Dev.	0.82			
Std. Error	0.26			
Coeff. Var.	81.65	27.89	80.3	83.0
G1 - Skewness	0.00	0.69	-1.3	1.3
G2 - Kurtosis	-1.39	1.33	-4.0	1.2
K-S D-Max	0.20			

TABLE 11p. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, July 7, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	1.10	0.28	1.1	1.1
Median	1.00	0.35	1.0	1.0
Variance	0.77			
Std. Dev.	0.88			
Std. Error	0.28			
Coeff. Var.	79.60	26.80	78.3	80.9
G1 - Skewness	-0.22	0.69	-1.6	1.1
G2 - Kurtosis	-1.73	1.33	-4.3	0.9
K-S D-Max	0.20			
STATION R2				
Mean	3.40	0.65	3.4	3.4
Median	3.50	0.82	3.5	3.5
Variance	4.27			
Std. Dev.	2.07			
Std. Error	0.65			
Coeff. Var.	60.75	17.91	59.9	61.6
G1 - Skewness	-0.01	0.69	-1.4	1.3
G2 - Kurtosis	-1.85	1.33	-4.5	0.8
K-S D-Max	0.18			

TABLE 11q. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, August 8, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	2.20	0.33	2.2	2.2
Median	2.00	0.41	2.0	2.0
Variance	1.07			
Std. Dev.	1.03			
Std. Error	0.33			
Coeff. Var.	46.95	12.60	46.3	47.6
G1 - Skewness	0.27	0.69	-1.1	1.6
G2 - Kurtosis	-0.90	1.33	-3.5	1.7
K-S D-Max	0.18			
STATION R1				
Mean	2.90	0.31	2.9	2.9
Median	3.00	0.39	3.0	3.0
Variance	0.99			
Std. Dev.	0.99			
Std. Error	0.31			
Coeff. Var.	34.29	8.52	33.9	34.7
G1 - Skewness	0.24	0.69	-1.1	1.6
G2 - Kurtosis	3.06	1.33	0.4	5.7
K-S D-Max	0.36			
STATION R2				
Mean	2.20	0.36	2.2	2.2
Median	2.50	0.45	2.5	2.5
Variance	1.29			
Std. Dev.	1.14			
Std. Error	0.36			
Coeff. Var.	51.60	14.29	50.9	52.3
G1 - Skewness	0.09	0.69	-1.3	1.4
G2 - Kurtosis	-1.65	1.33	-4.3	1.0
K-S D-Max	0.25			
STATION R4				
Mean	0.70	0.21	0.7	0.7
Median	1.00	0.27	1.0	1.0
Variance	0.46			
Std. Dev.	0.67			
Std. Error	0.21			
Coeff. Var.	96.42	36.46	94.6	98.2
G1 - Skewness	0.43	0.69	-0.9	1.8
G2 - Kurtosis	-0.28	1.33	-2.9	2.3
K-S D-Max	0.25			
STATION R7				
Mean	1.50	0.22	1.5	1.5
Median	1.00	0.28	1.0	1.0
Variance	0.50			
Std. Dev.	0.71			
Std. Error	0.22			
Coeff. Var.	47.14	12.67	46.5	47.8
G1 - Skewness	1.18	0.69	-0.2	2.5
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.36			

TABLE 11r. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, August 8, 1986) n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R2				
Mean	5.70	0.45	5.7	5.7
Median	6.00	0.56	6.0	6.0
Variance	2.01			
Std. Dev.	1.42			
Std. Error	0.45			
Coeff. Var.	24.88	5.90	24.6	25.2
G1 - Skewness	-0.80	0.69	-2.1	0.5
G2 - Kurtosis	-0.38	1.33	-3.0	2.2
K-S D-Max	0.18			
STATION R7				
Mean	4.00	0.47	4.0	4.0
Median	4.00	0.59	4.0	4.0
Variance	2.22			
Std. Dev.	1.49			
Std. Error	0.47			
Coeff. Var.	37.27	9.42	36.8	37.7
G1 - Skewness	1.01	0.69	-0.3	2.4
G2 - Kurtosis	0.79	1.33	-1.8	3.4
K-S D-Max	0.30			

TABLE 11s. Basic statistics for number of species for inshore stations at Sebastian Inlet State Recreation Area, September 10, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0 -				
Mean	1.50	0.22	1.5	1.5
Median	1.00	0.28	1.0	1.0
Variance	0.50			
Std. Dev.	0.71			
Std. Error	0.22			
Coeff. Var.	47.14	12.67	46.5	47.8
G1 - Skewness	1.18	0.69	-0.2	2.5
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.36			
STATION R1				
Mean	3.00	0.54	3.0	3.0
Median	3.00	0.67	3.0	3.0
Variance	2.89			
Std. Dev.	1.70			
Std. Error	0.54			
Coeff. Var.	56.66	16.23	55.8	57.5
G1 - Skewness	0.00	0.69	-1.3	1.3
G2 - Kurtosis	-1.78	1.33	-4.4	0.8
K-S D-Max	0.18			
STATION R2				
Mean	1.80	0.42	1.8	1.8
Median	1.00	0.52	1.0	1.0
Variance	1.73			
Std. Dev.	1.32			
Std. Error	0.42			
Coeff. Var.	73.14	23.53	72.0	74.3
G1 - Skewness	1.91	0.69	0.6	3.3
G2 - Kurtosis	3.61	1.33	1.0	6.2
K-S D-Max	0.33			
STATION R4				
Mean	1.50	0.22	1.5	1.5
Median	1.00	0.28	1.0	1.0
Variance	0.50			
Std. Dev.	0.71			
Std. Error	0.22			
Coeff. Var.	47.14	12.67	46.5	47.8
G1 - Skewness	1.18	0.69	-0.2	2.5
G2 - Kurtosis	0.57	1.33	-2.0	3.2
K-S D-Max	0.36			
STATION R7				
Mean	1.30	0.21	1.3	1.3
Median	1.00	0.27	1.0	1.0
Variance	0.46			
Std. Dev.	0.67			
Std. Error	0.21			
Coeff. Var.	51.92	14.40	51.2	52.6
G1 - Skewness	-0.43	0.69	-1.8	0.9
G2 - Kurtosis	-0.28	1.33	-2.9	2.3
K-S D-Max	0.27			

TABLE 11t. Basic statistics for number of species for offshore stations at Sebastian Inlet State Recreation Area, September 10, 1986 (n = 10, K-S = Kolmogorov-Smirnov test)

	Statistic	Standard Error	Confidence Limits 95%	
STATION R0				
Mean	4.10	0.91	4.1	4.1
Median	4.00	1.14	3.9	4.1
Variance	8.32			
Std. Dev.	2.88			
Std. Error	0.91			
Coeff. Var.	70.36	22.20	69.3	71.5
G1 - Skewness	0.81	0.69	-0.5	2.2
G2 - Kurtosis	0.58	1.33	-2.0	3.2
K-S D-Max	0.18			
STATION R1				
Mean	3.40	1.50	3.3	3.5
Median	2.00	1.88	1.9	2.1
Variance	11.30			
Std. Dev.	3.36			
Std. Error	1.50			
Coeff. Var.	98.87	53.75	96.2	101.6
G1 - Skewness	0.41	0.91	-1.4	2.2
G2 - Kurtosis	-3.04	2.00	-7.0	0.9
K-S D-Max	0.26			
STATION R2				
Mean	3.30	0.70	3.3	3.3
Median	3.00	0.88	3.0	3.0
Variance	4.90			
Std. Dev.	2.21			
Std. Error	0.70			
Coeff. Var.	67.08	20.67	66.0	68.1
G1 - Skewness	0.14	0.69	-1.2	1.5
G2 - Kurtosis	-1.00	1.33	-3.6	1.6
K-S D-Max	0.22			
STATION R4				
Mean	4.00	0.49	4.0	4.0
Median	3.50	0.62	3.5	3.5
Variance	2.44			
Std. Dev.	1.56			
Std. Error	0.49			
Coeff. Var.	39.09	9.99	38.6	39.6
G1 - Skewness	0.87	0.69	-0.5	2.2
G2 - Kurtosis	-0.03	1.33	-2.6	2.6
K-S D-Max	0.24			
STATION R7*				
Mean	2.40	0.54	2.4	2.4
Median	2.00	0.68	2.0	2.0
Variance	2.93			
Std. Dev.	1.71			
Std. Error	0.54			
Coeff. Var.	71.36	22.67	70.2	72.5
G1 - Skewness	0.54	0.69	-0.8	1.9
G2 - Kurtosis	-0.82	1.33	-3.4	1.8
K-S D-Max	0.29			

n = 5

TABLE 12a. Kruskal-Wallis test results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ ns - non-significant)

INSHORE - NOVEMBER 8, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.80	6.40	2.53
R1	0.30	0.90	0.95
R2	1184.60	8111240.00	2848.02
R4	15.60	768.04	27.71
R7	2.10	4.77	2.18

THE KRUSKAL-WALLIS STATISTIC H = 25.54 WITH 4 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.30	10
1	R0	0.80	10
5	R7	2.10	10
4	R4	15.60	10
3	R2	1184.60	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	5
2	5	3

TABLE 12b. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - NOVEMBER 8, 1985 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.61	0.16	0.40
R2	0.49	0.05	0.21
R7	1.01	0.11	0.34

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	2	1.5	0.8	7.12	**
EXP. ERROR	27	2.9	0.1		
TOTAL	29	4.4			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 3.39 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R2	0.49	10
1	R0	0.61	10
3	R7	1.01	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 12c. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

INSHORE - DECEMBER 13, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.77	0.18	0.43
R1	0.48	0.15	0.38
R2	0.59	0.25	0.50
R4	0.60	0.96	0.98
R7	0.63	0.50	0.71

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	0.4	0.1	0.27	ns
EXP. ERROR	45	18.4	0.4		
TOTAL	49	18.8			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 6.50 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.48	10
3	R2	0.59	10
4	R4	0.60	10
5	R7	0.63	10
1	R0	0.77	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS
1	2 1

TABLE 12d. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - DECEMBER 13, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	11.40	52.93	7.28
R1	9.40	44.71	6.69
R2	2.30	20.68	4.55

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	457.4	228.7	5.80 **
EXP. ERROR	27	1064.9	39.4	
TOTAL	29	1522.3		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.56 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	2.30	10
2	R1	9.40	10
1	R0	11.40	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 12e. Kruskal-Wallis test results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ ns - non-significant)

INSHORE - JANUARY 17, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.30	16.01	4.00
R1	0.00	0.00	0.00
R2	13.30	167.12	12.93
R4	0.30	0.23	0.48
R7	4.00	14.22	3.77

THE KRUSKAL-WALLIS STATISTIC H = 14.47 WITH 3 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.00	10
4	R4	0.30	10
1	R0	2.30	10
5	R7	4.00	10
3	R2	13.30	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	5
2	1	3

TABLE 12f Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JANUARY 17, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.38	0.08	0.28
R1	0.80	0.09	0.30
R2	0.47	0.10	0.31

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	1.0	0.5	5.53 *
EXP. ERROR	27	2.4	0.1	
TOTAL	29	3.4		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.18 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.38	10
3	R2	0.47	10
2	R1	0.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	3

TABLE 12g. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - FEBRUARY 17, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.42	0.33	0.57
R1	0.63	0.06	0.24
R2	1.16	0.23	0.48
R4	0.69	0.16	0.40
R7	0.95	0.18	0.43

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	3.3	0.8	4.35 *
EXP. ERROR	45	8.6	0.2	
TOTAL	49	11.9		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 5.47 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.42	10
2	R1	0.63	10
4	R4	0.69	10
5	R7	0.95	10
3	R2	1.16	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	4
2	2	5
3	4	3

TABLE 12h. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - FEBRUARY 17, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	8.30	56.23	7.50
R1	8.30	21.57	4.64
R2	4.90	56.99	7.55

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	77.1	38.5	0.86 ns
EXP. ERROR	27	1213.1	44.9	
TOTAL	29	1290.2		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.64 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	4.90	10
1	R0	8.30	10
2	R1	8.30	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	2

TABLE 12i. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - APRIL 3, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.00	6.67	2.58
R1	3.40	18.04	4.25
R2	3.40	9.82	3.13
R4	5.40	26.93	5.19
R7	7.00	15.78	3.97

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	153.9	38.5	2.49 ns
EXP. ERROR	45	695.2	15.4	
TOTAL	49	849.1		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.04 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	2.00	10
2	R1	3.40	10
3	R2	3.40	10
4	R4	5.40	10
5	R7	7.00	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	5

TABLE 12j. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - APRIL 3, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.19	0.16	0.39
R1	0.76	0.08	0.29
R2	0.66	0.09	0.30

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	1.6	0.8	7.26 **
EXP. ERROR	27	3.0	0.1	
TOTAL	29	4.5		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.92 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.66	10
2	R1	0.76	10
1	R0	1.19	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	2

TABLE 12k. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - MAY 1, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.28	0.09	0.30
R1	0.90	0.24	0.49
R2	0.64	0.53	0.72
R4	1.01	0.16	0.40
R7	0.58	0.24	0.49

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	3.3	0.8	3.32 *
EXP. ERROR	45	11.3	0.3	
TOTAL	49	14.6		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 5.83 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.28	10
5	R7	0.58	10
3	R2	0.64	10
2	R1	0.90	10
4	R4	1.01	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	4
2	1	3

TABLE 121. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

OFFSHORE - MAY 1, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.12	0.04	0.21
R2	0.49	0.07	0.26

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	2.0	2.0	35.75 ***
EXP. ERROR	18	1.0	0.1	
TOTAL	19	3.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.64 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R2	0.49	10
1	R0	1.12	10

ALL MEANS SIGNIFICANTLY DIFFERENT

TABLE 12m. Kruskal-Wallis test results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ ns - non-significant)

INSHORE - JUNE 5, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.80	3.29	1.81
R1	2.50	2.06	1.43
R2	24.80	1708.40	41.33
R4	1.00	1.56	1.25
R7	1.30	4.68	2.16

THE KRUSKAL-WALLIS STATISTIC H = 8.71 WITH 4 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	1.00	10
5	R7	1.30	10
2	R1	2.50	10
1	R0	2.80	10
3	R2	24.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	3

TABLE 12n. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JUNE 5, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	8.50	52.28	7.23
R2	9.80	246.18	15.69

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	8.4	8.4	0.06 ns
EXP. ERROR	18	2686.1	149.2	
TOTAL	19	2694.6		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.71 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	8.50	10
2	R2	9.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	2

TABLE 12o. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - JULY 7, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	5.20	18.84	4.34
R1	3.00	5.33	2.31
R2	5.00	11.11	3.33
R4	1.70	4.23	2.06
R7	4.30	24.68	4.97

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	86.9	21.7	1.69 ns
EXP. ERROR	45	577.8	12.8	
TOTAL	49	664.7		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 5.83 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	1.70	10
2	R1	3.00	10
5	R7	4.30	10
3	R2	5.00	10
1	R0	5.20	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 12p. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JULY 7, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.33	0.07	0.26
R2	0.86	0.16	0.40

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	1.4	1.4	12.46 **
EXP. ERROR	18	2.0	0.1	
TOTAL	19	3.4		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.33 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.33	10
2	R2	0.86	10

ALL MEANS SIGNIFICANTLY DIFFERENT

TABLE 12q. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - AUGUST 8, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.76	0.07	0.27
R1	1.01	0.09	0.30
R2	0.90	0.06	0.24
R4	0.32	0.10	0.32
R7	0.73	0.03	0.17

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	2.7	0.7	9.67	***
EXP. ERROR	45	3.2	0.1		
TOTAL	49	5.9			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 3.39 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.32	10
5	R7	0.73	10
1	R0	0.76	10
3	R2	0.90	10
2	R1	1.01	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	2

TABLE 12r. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - AUGUST 8, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R2	25.20	419.51	20.48
R7	12.90	370.77	19.26

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	756.4	756.4	1.91 ns
EXP. ERROR	18	7112.5	395.1	
TOTAL	19	7869.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.13 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R7	12.90	10
1	R2	25.20	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 12s. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

INSHORE - SEPTEMBER 10, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.46	0.03	0.16
R1	1.06	0.17	0.41
R2	1.00	0.06	0.25
R4	0.86	0.03	0.18
R7	0.56	0.11	0.34

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	2.8	0.7	8.85	***
EXP. ERROR	45	3.6	0.1		
TOTAL	49	6.4			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 6.12 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.46	10
5	R7	0.56	10
4	R4	0.86	10
3	R2	1.00	10
2	R1	1.06	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	2
2	1	5

TABLE 12t. Analysis of variance results and a posteriori comparison of means of data for number of individuals among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

OFFSHORE - SEPTEMBER 10, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.97	0.09	0.30
R1	0.68	0.37	0.61
R2	0.91	0.30	0.55
R4	0.93	0.10	0.31
R7	0.61	0.07	0.27

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	1.0	0.2	1.46 ns
EXP. ERROR	40	6.5	0.2	
TOTAL	44	7.5		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 5.11 WITH 5 GROUPS AND 4 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	0.61	10
2	R1	0.68	5
3	R2	0.91	10
4	R4	0.93	10
1	R0	0.97	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	1

In December 1985 there was no significant difference in abundance among inshore sites (Table 12c). For offshore sites, stations R1 and R0 had significantly more individuals than did R2, while there was no sand at either R4 or R7.

For the January 1986 inshore samples, variances were heterogeneous and the non-parametric Kruskal-Wallis test and non-parametric comparisons by STP were carried out in lieu of ANOVA. There were significant ($p<0.05$) differences among stations, with stations R0, R7 and R2 not differing significantly from one another with stations R1, R4, R0 and R7 forming a second group of stations not significantly different from one another (Table 12e). For the offshore sites with sand, analysis of log-transformed data showed that abundance was signficantly greater at station R1 than at stations R0 and R2 (Table 12f).

For the inshore sites in February 1986, comparison of log-transformed mean abundances showed there to be significant differences among stations. Groups of stations not significantly different from one another were largly overlapping, however (Table 12g). The three groups of stations were 1) stations R0, R1, R4, 2) stations R1, R4, R7, and 3) R4, R7, R2. For the offshore sites on the same date, there were no significant differences among the three sites with sand (Table 12h).

In April 1986, there were no significant differences among the inshore sites (Table 12i). For the offshore sites on the same date, a significant difference if mean abundance was found among stations with sand, with station R0 being higher in abundance than stations R2 and R1 (Table 12j).

For the May 1986 samples, there were significant differences among stations in the log-transformed mean abundances at the inshore sites (Table 12k). Two groups of stations not significantly different from each other were found: 1) stations R0, R7 aand R2, and 2) stations R7, R2, R1 and R4. For the two offshore stations with sand on this date, station R0 had a significantly higher abundance of macrofauna than station R2 (Table 12l).

For the June 1986 inshore samples, variances were heterogeneous and the non-parametric Kruskal-Wallis test was carried out in lieu of ANOVA. There were no significant differences among stations (Table 12m). There were also no significant differences between the two offshore stations with sand on this date (Table 12n).

In July 1986, the inshore sites again showed no significant differences among stations (Table 12o). For the two offshore stations with sand, station R2 had a significantly higher abundance of macrofauna than did station R0 Table 12p), the opposite of the result obtained in May.

At the inshore stations in August 1986, station R4 was significantly lower in abundance than the other four stations which did not differ significantly from one another (Table 12q). There was no significant difference between stations R2 and R7 for the offshore sites with sand on this date (Table 12r).

There were again significant differences among the inshore sites in log-transformed macrofaunal abundance in September 1986 (Table 12s). Stations R0 and R7 formed a group which was significantly lower in abundance than stations R4, R2 and R1. There were no significant differences among the offshore sites on this date.

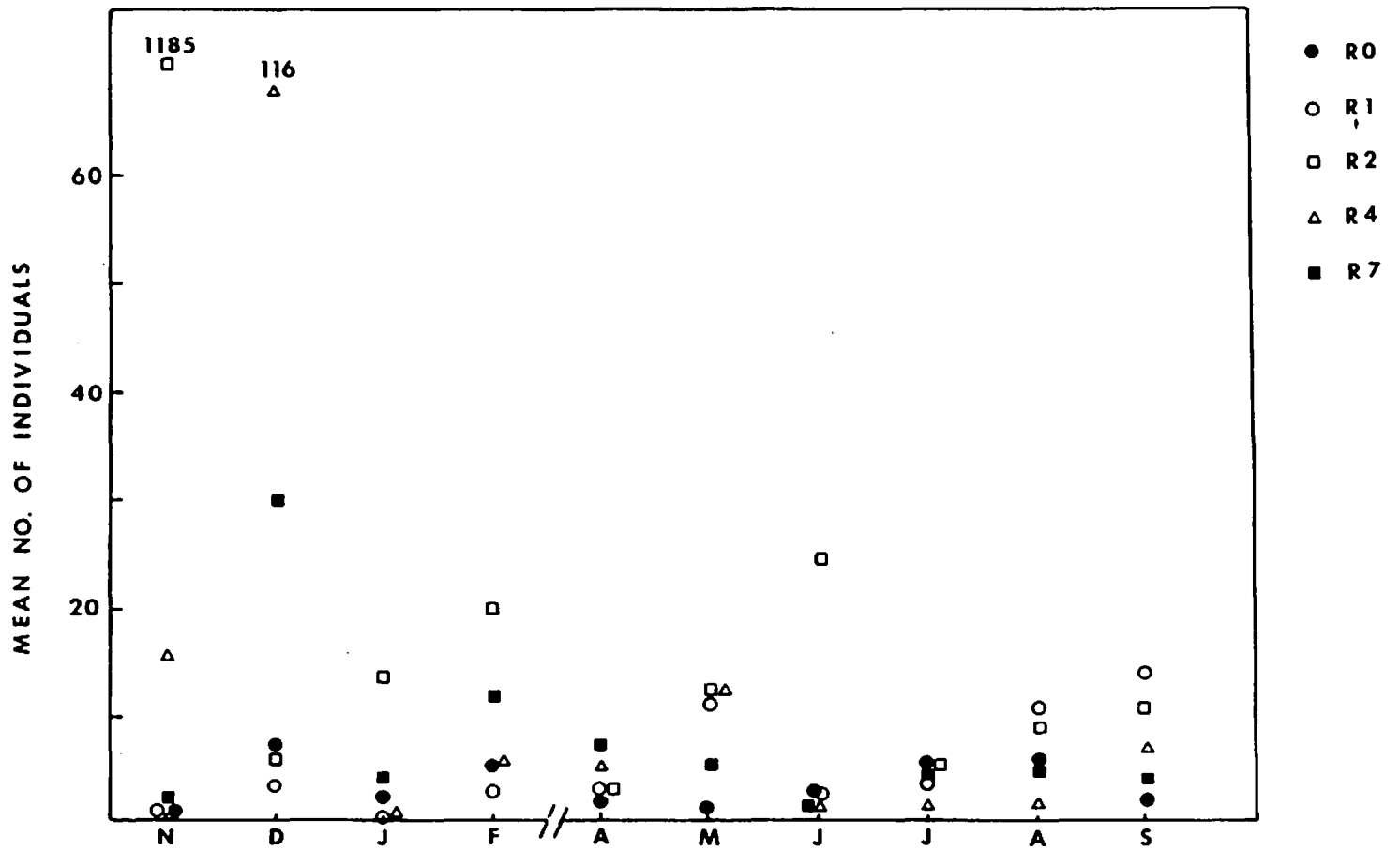


Figure 4. Mean number of macrofauna individuals per core at each swash zone sampling location at Sebastian Inlet State Recreation Area.

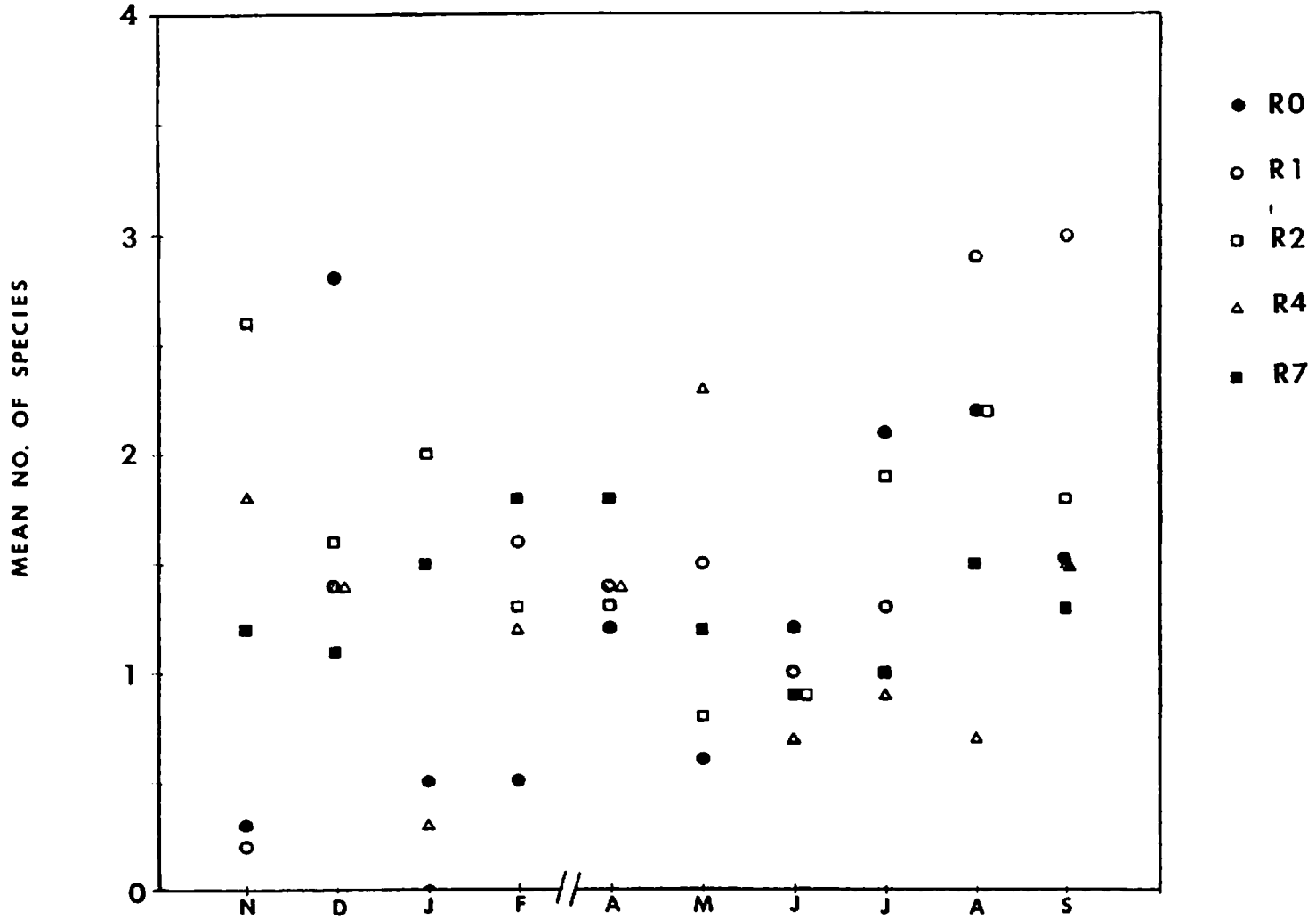


Figure 5. Mean number of macrofauna species per core at each swash zone sampling location at Sebastian Inlet State Recreation Area.

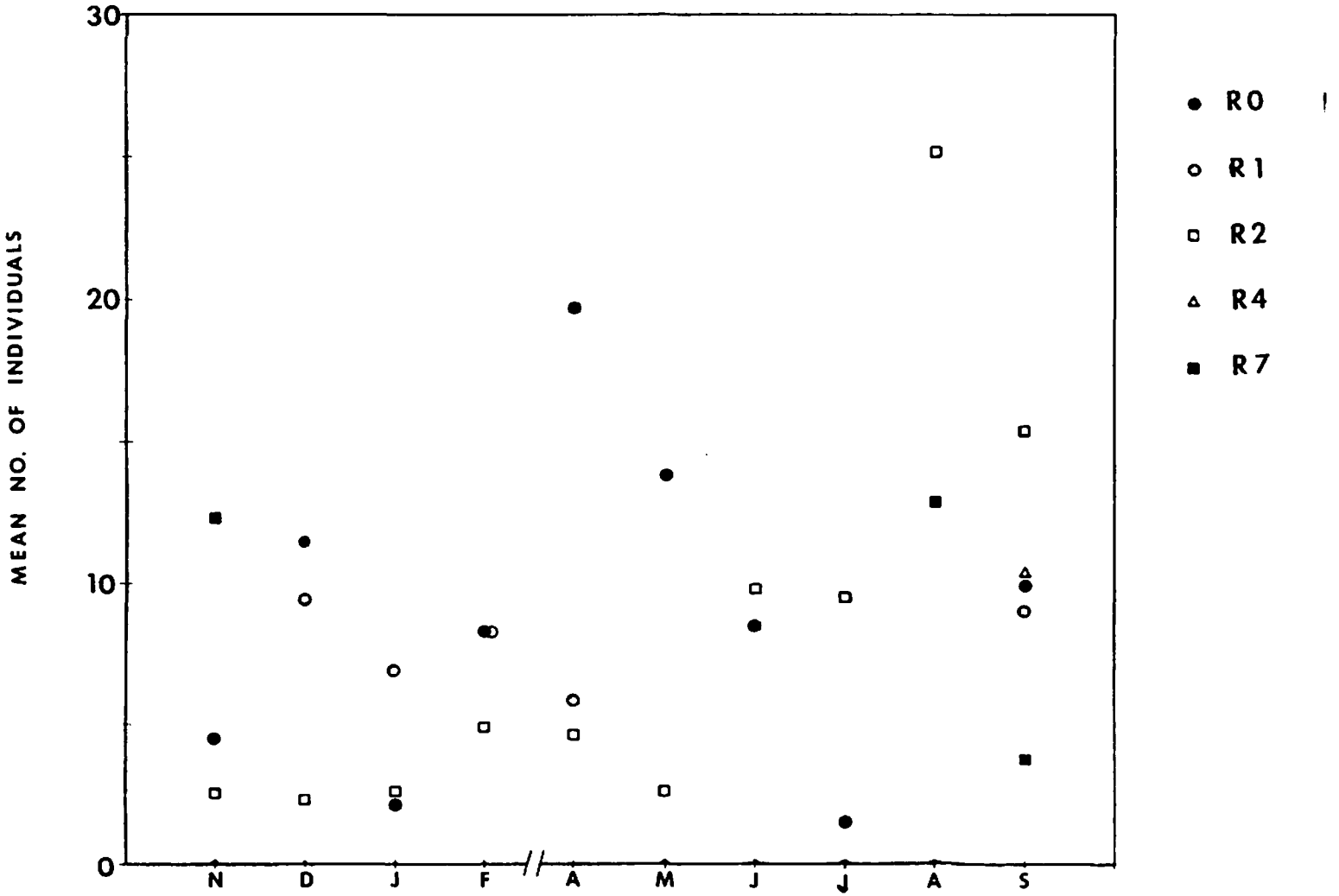


Figure 6. Mean number of macrofauna individuals per core at each 61 m sampling location at Sebastian Inlet State Recreation Area.

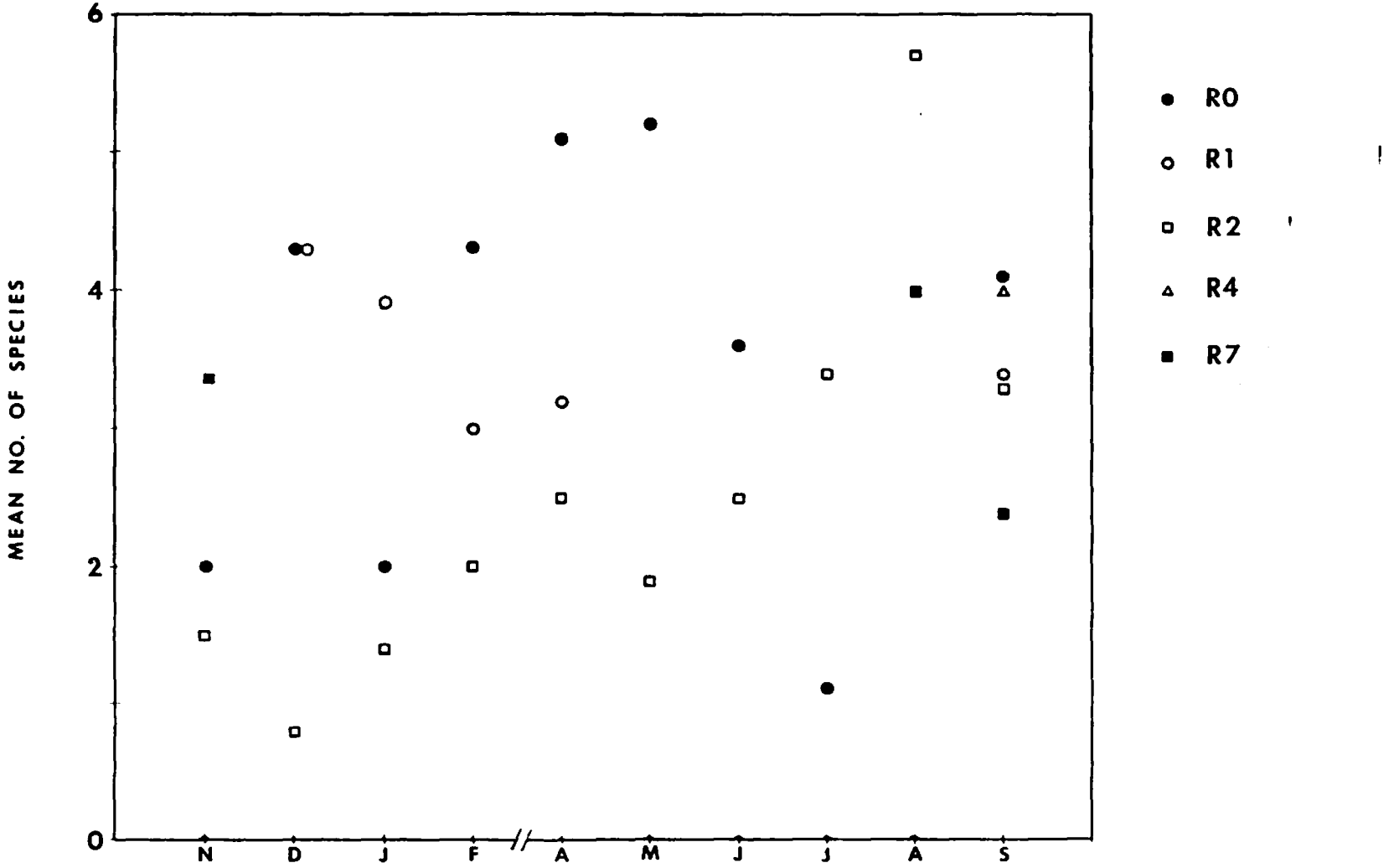


Figure 7. Mean number of macrofaunal species per core at each 61 m sampling location at Sebastian Inlet State Recreation Area.

The overall patterns in mean abundances among stations over the period of the study are shown for the inshore sites in Figure 4 and for the offshore sites in Figure 6. The patterns of abundance shown in Figures 4 and 6 illustrate the general conclusions from the statistical analysis of the monthly abundance data, namely that there was no consistent pattern in which transect locations possesed the highest abundance of organisms for either the swash zone or 61 m sample sites. There was no pattern of stations being reduced in abundance in reference to the control at R7 during the period of nourishment (December 1985 - May 1986). There was a marked decrease in mean abundance at station R2 between November and the December samples, which corresponds to the period of the beginning of beach nourishment at R0 but preceded nourishment at this location. Since 99 % of abundance on this date was due to high densities of archiannelids present in only 2 of 10 cores taken from this site, it is likely the difference between sampling dates resulted from spacial patchiness of this organism and not from an effect of beach nourishment.

Statistical comparisons of number of species

Comparison of mean number of macrofaunal species among the inshore sites in November 1985 indicated that there were signficant differences among stations. There were three non-significantly different groups: 1) stations R1, R0, R7, 2) stations R7 and R4, and 3) stations R4 and R2 (Table 13a). There were significant differences among the offshore stations with sand as well, with station R7 having a significantly higher mean number (log-transformed) of species than stations R0 and R2 (Table 13b).

There were no significant differences among inshore stations in December 1985 (Table 13c). For the offshore sites, mean number of species (log-transformed) was significantly greater at stations R0 and R1 than at station R2 (Table 13d).

In January 1986, there were significant differences among the inshore sites, with stations R2 and R7 possessing a greater mean number of species than stations R0 and R4 (Table 13e). Station R1 was excluded from the analysis because no organisms were found in the samples from this site. Among the offshore sites with sand, station R1 had a significantly greater mean number of species than did stations R0 and R2 (Table 13f).

For the inshore sites in February 1986, there were significant differences among stations although the a posteriori comparison of means indicated that there were two broadly overlapping groups of stations (Table 13g). The first group included stations R0, R4, R2 and R1, while the second group included stations R4, R2, R1 and R7. Therefore only the stations at either end of the study area differed from each other. For the offshore stations with sand on the same sampling date, significant differences among stations existed, but groups of means were also broadly overlapping (Table 13h). In order of increasing mean number of species, stations R0 and R1 formed one group of non-significantly different stations, while R2 and R1 formed a second.

For the April 1986 samples, there was no significant difference among the inshore stations (Table 13i). For the offshore stations with sand, there were significant differences among stations with the same pattern as occurred in February (Table 13j). In order of

TABLE 13a. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - NOVEMBER 8, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.30	0.90	0.95
R1	0.20	0.40	0.63
R2	2.60	2.49	1.58
R4	1.80	1.51	1.23
R7	1.20	1.07	1.03

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	41.3	10.3	8.10 ***
EXP. ERROR	45	57.3	1.3	
TOTAL	49	98.6		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 6.22 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R1	0.20	10
1	R0	0.30	10
5	R7	1.20	10
4	R4	1.80	10
3	R2	2.60	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	5
2	5	4
3	4	3

TABLE 13b. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - NOVEMBER 8, 1985 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.42	0.06	0.25
R2	0.38	0.01	0.11
R7	0.61	0.03	0.16

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	0.3	0.2	4.52 *
EXP. ERROR	27	0.9	0.0	
TOTAL	29	1.2		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.82 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R2	0.38	10
1	R0	0.42	10
3	R7	0.61	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 13c. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - DECEMBER 13, 1985

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.80	5.07	2.25
R1	1.40	1.82	1.35
R2	1.60	3.16	1.78
R4	1.40	3.60	1.90
R7	1.10	1.43	1.20

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	17.5	4.4	1.45 ns
EXP. ERROR	45	135.7	3.0	
TOTAL	49	153.2		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 3.53 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	1.10	10
2	R1	1.40	10
4	R4	1.40	10
3	R2	1.60	10
1	R0	2.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	1

TABLE 13d. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - DECEMBER 13, 1985 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.69	0.04	0.21
R1	0.68	0.04	0.20
R2	0.22	0.04	0.20

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	1.5	0.7	17.77 ***
EXP. ERROR	27	1.1	0.0	
TOTAL	29	2.6		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.13 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.22	10
2	R1	0.68	10
1	R0	0.69	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 13e. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - JANUARY 17, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.14	0.03	0.19
R2	0.43	0.05	0.21
R4	0.09	0.02	0.15
R7	0.33	0.07	0.27

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	3	0.8	0.3	6.02 **
EXP. ERROR	36	1.5	0.0	
TOTAL	39	2.3		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 3.34 WITH 4 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R4	0.09	10
1	R0	0.14	10
4	R7	0.33	10
2	R2	0.43	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	1
2	4	2

TABLE 13f. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JANUARY 17, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.38	0.07	0.27
R1	0.65	0.04	0.19
R2	0.34	0.04	0.21

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	0.6	0.3	5.69 **
EXP. ERROR	27	1.4	0.1	
TOTAL	29	2.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.08 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.34	10
1	R0	0.38	10
2	R1	0.65	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	1

TABLE 13g. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - FEBRUARY 17,-1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.50	0.28	0.53
R1	1.60	0.71	0.84
R2	1.30	1.12	1.06
R4	1.20	1.29	1.14
R7	1.80	1.07	1.03

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	9.9	2.5	2.76 *
EXP. ERROR	45	40.2	0.9	
TOTAL	49	50.1		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.64 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.50	10
4	R4	1.20	10
3	R2	1.30	10
2	R1	1.60	10
5	R7	1.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	2
2	4	5

TABLE 13h. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - FEBRUARY 17, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.68	0.04	0.21
R1	0.59	0.01	0.12
R2	0.44	0.04	0.19

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	0.3	0.1	4.40 *
EXP. ERROR	27	0.9	0.0	
TOTAL	29	1.1		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.97 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	0.44	10
2	R1	0.59	10
1	R0	0.68	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	2
2	2	1

TABLE 13i. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant)

INSHORE - APRIL 3, 1986 -

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.20	1.96	1.40
R1	1.40	3.38	1.84
R2	1.30	2.01	1.42
R4	1.40	2.93	1.71
R7	1.80	1.51	1.23

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	2.1	0.5	0.22 ns
EXP. ERROR	45	106.1	2.4	
TOTAL	49	108.2		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.24 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	1.20	10
3	R2	1.30	10
2	R1	1.40	10
4	R4	1.40	10
5	R7	1.80	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	5

TABLE 13j. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - APRIL 3, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	5.10	5.43	2.33
R1	3.20	5.51	2.35
R2	2.50	4.72	2.17

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	2	36.2	18.1	3.47 *
EXP. ERROR	27	141.0	5.2	
TOTAL	29	177.2		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.17 WITH 3 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
3	R2	2.50	10
2	R1	3.20	10
1	R0	5.10	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	3	2
2	2	1

TABLE 13k. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - MAY 1, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.18	0.02	0.16
R1	0.37	0.03	0.17
R2	0.22	0.04	0.20
R4	0.47	0.05	0.22
R7	0.29	0.05	0.22

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	0.5	0.1	3.51 *
EXP. ERROR	45	1.7	0.0	
TOTAL	49	2.3		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.09 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.18	10
3	R2	0.22	10
5	R7	0.29	10
2	R1	0.37	10
4	R4	0.47	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	1	2
2	5	4

TABLE 131. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - MAY 1, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	5.20	1.29	1.14
R2	1.90	1.66	1.29

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	54.4	54.4	36.98 ***
EXP. ERROR	18	26.5	1.5	
TOTAL	19	81.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.28 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R2	1.90	10
1	R0	5.20	10

ALL MEANS SIGNIFICANTLY DIFFERENT

TABLE 13m. Analysis of variance results and a posteriori comparison of means of data for number of species among Seabastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - JUNE 5, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.20	0.40	0.63
R1	1.00	0.22	0.47
R2	0.90	0.99	0.99
R4	0.70	0.68	0.82
R7	0.90	1.21	1.10

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	1.3	0.3	0.47 ns
EXP. ERROR	45	31.5	0.7	
TOTAL	49	32.8		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 5.45 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.70	10
3	R2	0.90	10
5	R7	0.90	10
2	R1	1.00	10
1	R0	1.20	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 13n. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JUNE 5, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	3.60	4.93	2.22
R2	2.50	4.28	2.07

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	6.1	6.1	1.31 ns
EXP. ERROR	18	82.9	4.6	
TOTAL	19	89.0		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.15 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R2	2.50	10
1	R0	3.60	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	2	1

TABLE 13o. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - JULY 7, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.10	4.10	2.02
R1	1.30	0.68	0.82
R2	1.90	1.21	1.10
R4	0.90	0.77	0.88
R7	1.00	0.67	0.82

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	11.5	2.9	1.94 ns
EXP. ERROR	45	66.8	1.5	
TOTAL	49	78.3		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 6.15 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.90	10
5	R7	1.00	10
2	R1	1.30	10
3	R2	1.90	10
1	R0	2.10	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	4	1

TABLE 13p. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - JULY 7, 1986 LOG TRANSFORMED

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	0.28	0.04	0.21
R2	0.59	0.05	0.23

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	1	0.5	0.5	10.07 **
EXP. ERROR	18	0.9	0.0	
TOTAL	19	1.4		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.21 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
1	R0	0.28	10
2	R2	0.59	10

ALL MEANS SIGNIFICANTLY DIFFERENT

TABLE 13q. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - AUGUST 8, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	2.20	1.07	1.03
R1	2.90	0.99	0.99
R2	2.20	1.29	1.14
R4	0.70	0.46	0.67
R7	1.50	0.50	0.71

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	4	27.8	7.0	8.08	***
EXP. ERROR	45	38.7	0.9		
TOTAL	49	66.5			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 2.83 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
4	R4	0.70	10
5	R7	1.50	10
1	R0	2.20	10
3	R2	2.20	10
2	R1	2.90	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	3
2	1	2
3	4	5

TABLE 13r. Analysis of variance results and a posteriori coomparison of means of_data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - AUGUST 8, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R2	5.70	2.01	1.42
R7	4.00	2.22	1.49

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F	
BETWEEN METHODS	1	14.4	14.4	6.83	*
EXP. ERROR	18	38.1	2.1		
TOTAL	19	52.5			

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 1.10 WITH 2 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
2	R7	4.00	10
1	R2	5.70	10

ALL MEANS SIGNIFICANTLY DIFFERENT

TABLE 13s. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

INSHORE - SEPTEMBER 10, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	1.50	0.50	0.71
R1	3.00	2.89	1.70
R2	1.80	1.73	1.32
R4	1.50	0.50	0.71
R7	1.30	0.46	0.67

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	18.7	4.7	3.84 **
EXP. ERROR	45	54.7	1.2	
TOTAL	49	73.4		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 6.34 WITH 5 GROUPS AND 9 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	1.30	10
1	R0	1.50	10
4	R4	1.50	10
3	R2	1.80	10
2	R1	3.00	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	3

TABLE 13t. Analysis of variance results and a posteriori comparison of means of data for number of species among Sebastian Inlet SRA stations (* p < 0.05, ** p < 0.01, *** p < 0.001, ns = non-significant)

OFFSHORE - SEPTEMBER 10, 1986

STATION	MEAN	VARIANCE	ST. DEVIATION
R0	4.10	8.32	2.88
R1	3.40	11.30	3.36
R2	3.30	4.90	2.21
R4	4.00	2.44	1.56
R7	2.40	2.93	1.71

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE	F
BETWEEN METHODS	4	18.5	4.6	0.87 ns
EXP. ERROR	40	212.6	5.3	
TOTAL	44	231.1		

HOMOGENEITY OF VARIANCE TEST
THE F-MAX RATIO IS 4.62 WITH 5 GROUPS AND 4 DEGREES OF FREEDOM

TABLE OF MEANS (SORTED)

SAMPLE NO.	STATION	MEAN	N
5	R7	2.40	10
3	R2	3.30	10
2	R1	3.40	5
4	R4	4.00	10
1	R0	4.10	10

MAXIMUM NONSIGNIFICANT RANGES

SUBSET	SAMPLE NUMBERS	
1	5	1

increasing mean number of species, stations R0 and R1 formed one group of non-significantly different stations, while R2 and R1 formed a second.

In May 1986, there were significant differences in mean number of species (log-transformed) among the inshore sites (Table 13k). Stations R4, R1 and R7 formed one group of non-significantly different means, while stations R1, R7, R2 and R0 were also not significantly different from one another. Comparison of the two offshore sites with sand indicated that station R0 had a greater mean number of species than station R2 (Table 13l).

For the June 1986 macrofaunal samples, there was no significant difference among stations for either the inshore sites or the offshore sites (Tables 13m, 13n).

In July 1986, there was no significant difference among stations for the inshore sites (Table 13o), while for the offshore sites, station R2 had a significantly greater mean number of species (log-transformed) than did station R0 (Table 13p).

There were highly significant differences in mean number of macrofaunal species among stations for the inshore sites in August 1986 (Table 13q). Three groups of stations were found. In order of decreasing means, these were 1) stations R1, R2 and R0, 2) stations R2, R0, and R7, and 3) stations R7 and R4 (Table 13q). For the two offshore sites with sand on this date, station R2 had a significantly higher mean number of species than did station R7 (Table 13r).

On the final sampling date, September 1986, station R1 was shown to have a significantly higher mean number of species than the other 4 stations for the inshore sites (Table 13s). There were no

Table 14. The five most abundant taxa from each station at both the swash zone and the 61m sampling sites.

Transect	Swash Zone		61m	
	Taxon	Abundance	Taxon	Abundance
R0	Nemertea	150	Bathyporeia parkeri	154
	Emerita talpoida	100	Donax variabilis	77
	Calanoida spp.	13	Capitomastus sp.	58
	Donax variabilis	12	Dispio uncinata	52
	Cirolana polita	10	Rhyncospio sp.	44
R1	Nemertea	206	Donax variabilis	86
	Emerita talpoida	141	Bathyporeia parkeri	57
	Cirolana polita	29	Dispio uncinata	32
	Cirolana albida	24	Ancinus depressus	30
	Oligochaeta	23	Rhyncospio sp.	24
			Parahaustorius longimerus	24
R2	Archiannelida	12031	Bathyporeia parkeri	329
	Nemertea	427	Donax variabilis	154
	Emerita talpoida	179	Parahaustorius longimerus	91
	Nematoda	103	Nematoda	27
	Turbellaria	45	Parahaustorius obliquus	26
R4	Archiannelida	1221	Bathyporeia parkeri	66
	Nemertea	261	Rhepoxynius epistomus	6
	Emerita talpoida	83	Paraonis fulgens	6
	Turbellaria	27	Onuphis erimeta	5
	Nematoda	20	Magelona sp.	4
R7	Nemertea	297	Bathyporeia parkeri	99
	Archiannelida	274	Nainereis sp.	58
	Emerita talpoida	60	Dispio uncinata	32
	Turbellaria	42	Donax variabilis	16
	Nematoda	17	Nereis falsa	16

significant differences among stations for the 5 offshore sites on this date (Table 13t).

The overall patterns in mean number of species among stations over the period of the study are shown for the inshore sites in Figure 5 and for the offshore sites in Figure 7. The patterns of abundance shown in Figures 5 and 7 illustrate the general conclusions from the statistical analysis of the monthly data for number of species, namely that no station within a given beach level consistently possessed the highest mean number of macrofaunal species. There was no pattern of stations being reduced in terms of number of species in reference to the control at R7 during the period of nourishment (December 1985 - May 1986) for the inshore sites. No indication of a decrease in species number from before nourishment as compared either with the period of nourishment or the post-nourishment period was indicated.

The top five species in numerical abundance showed some differences among stations at the inshore (swash zone) sites (Table 14). Emerita talpoida, the mole crab, was a dominant at all five stations as were nemertean worms. Stations R2, R4 and R7 were similar in that archiannnelids, turbellarians and nematodes formed the remaining dominant species. Dominants at stations R0 and R1 were more varied and included oligochaetes, several isopod species and calanoid copepods. At the offshore (61m) sites, Bathyporeia parkeri was a dominant at all five stations and Donax variabilis was a dominant at 4 of 5 stations. The remaining dominant species varied from station to station. Unlike the inshore sites, there was little indication of a group of stations possessing a more similar species composition than for other stations.

Conclusion

The statistical analyses of mean abundance of benthic macrofauna, mean abundance of fishes, mean number of benthic macrofaunal species and mean number of fishes do not provide any evidence that the beach nourishment project at Sebastian Inlet SRA had any measureable effect on these parameters of the the biological communities of the nearshore zone. While significant differences among stations in one or more of these parameters were often detected on different sampling dates, the patterns of which stations differed from the others was not consistent with the hypothesis that differences were being generated by the beach nourishment project. Rather, it would appear that differences reflect a high degree of natural variation among the station locations in this environment which may result from a high spatial variability of the physical envirnonment. High temporal variation was seen for the offshore stations in terms of the substrate at the offshore stations which varied from sand to rocky bottom unpredictably.

Comparison of the samples taken during this study with previous sampling at the Sebastian Inlet SRA at two of the same transect locations (R4, R7) also offers evidence that there were few significant effects of the beach nourishment carried out in 1985-1986. Fish abundance, number of species and species compostion may be compared with the study of Peters (1984) carried out in 1982-1983. Total number of species was 22 (all 5 transects) versus 24 (R7) and 32 (R4) in the previous study. Sampling by Peters (1984) was relatively more intensive than for the present study. Mean abundances and mean number of species fell within similar ranges in both studies.

Harengula jaguana was the dominant species in both studies. Therefore there is little evidence that beach nourishment resulted in changes in the fish fauna as compared with previous sampling.

The more intensive benthic sampling of the present study recorded some 32 species of amphipods, versus 13 recorded from R4 and R7 in the 1982-1983 study (Allenbaugh. 1984). The dominant amphipod species was the same in both studies. For the polychaetes, 23 species were found in the present study as compared with 21 species total in the previous study (Collins, 1987). Species composition of the polychaetes was relatively similar between the two studies, although rank order of abundance had changed for some species (Collins, 1987). There was an increased dominance of opportunistic spionid polychaetes during the present study, which may be due to the decreased frequency with which sand was present at the 61 m location.

Based on comparisons among stations before and after nourishment, on comparisons among stations which were nourished or not, and on comparisons with previous studies, there appear to be few if any significant effects of the 1985-1986 beach nourishment project on the nearshore fauna. Because sand was not present at many of the offshore stations both during and after the nourishment project, it appears that the new sand was not moving into this area and therefore would not be an influence on any benthic macroinfauna which might find small patches of sand in the offshore area. The general lack of effects due to nourishment may be in part due to the care which was exercised in the design and execution of this project. Carefull inspection of sediment grain size was made of all material placed on the beach to determine that it was suitable as beach fill. All sand was placed

landward of the high tide line. All sediment was placed on the beach by heavy equipment, not by hydraulic pumping, which decreased the chance of rapid pulses of sand or turbidity entering the nearshore zone and allowed for a slower redistribution of sand into the intertidal and subtidal. Each of these factors probably contributed to minimizing negative effects on the nearshore fauna by the nourishment project.

Literature Cited

Allenbaugh, T. D. 1984. Dynamics of nearshore amphipod assemblages from the central Florida east coast. M.S. thesis, Florida Institute of Technology, Melbourne Fl. 46 pp.

Collins, G. W. 1987. Some aspects of polychaete ecology on sand beaches of the central Florida east coast. M.S. thesis, Florida Institute of Technology, Melbourne Fl. 99 pp.

Nelson, W. G. 1985. Guidelines for beach restoration projects. Part 1. Biological. Florida Sea Grant Report No. 76. Florida Sea Grant, Gainesville, 66 pp.

Peters, D. J. 1984. Seasonality, residency and spatial distribution of juvenile surf zone fishes of the Florida east coast. M.S. thesis, Florida Institute of Technology, Melbourne Fl. 66 pp.

APPENDIX TABLE 1. Fish collection data from the Sebastian Inlet State Recreation Area for November 11, 1985.

Species	Station R-0			R-1			R-2			R-4			R-7		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Anchoa hepsetus	20	242	646	1	2	3	14	39	2						
Harengula jaquana			1		3	1									
Menticirrhus littoralis		1								1					
Polydactylus octonemus		6			3										
Trachinotus carolinus		8							1	1					

APPENDIX TABLE 2. Fish collection data from the Sebastian Inlet State Recreation Area for December 7, 1985.

Species	Station R-0			R-1			R-2			R-4			R-5		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Trachinotus carolinus										1					
Menticirrhus littoralis										1					

APPENDIX TABLE 3. Fish collection data from the Sebastian Inlet State Recreation Area for January 17, 1986.

Species	Station R-0			R-1			R-2			R-4			R-5		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Trachinotus carolinus	1														

APPENDIX TABLE 4. Fish collection data from the Sebastian Inlet State Recreation Area for February 7, 1986.

	Station														
	R-0			R-1			R-2			R-4			R-7		
Species	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Albula vulpes	10	2					1	4	2						1
Anchoa hepsetus	19	8	10	2	23		1	12	320	156			21	4	49
Caranx hippos													1		
Harengula jaquana										3			7	2	
Hyporhamphus unifasciatus								1							
Membras martinica		3													
Menticirrhus littoralis	1		1	3	1								1		
Mugil curema	11	2	3								3	4			
Trachinotus carolinus	1			1			1	3							
Umbrina coroides					1	1		2		16			5		11

APPENDIX TABLE 5. Fish collection data from the Sebastian Inlet State Recreation Area for May 15, 1986.

	Station														
	R-0			R-1			R-2			R-4			R-7		
Species	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Anchoa hepsetus												19	2		
Harengula jaquana								3							
Larimus fasciatus													1		
Menticirrhus littoralis					3	1	1	1						1	
Mugil curema		1					1								
Trachinotus carolinus	61	13	5	6	22	22	1			1	3	3	1	3	1
Trachinotus falcatus		1													
Umbrina coroides									1			1		22	9

APPENDIX TABLE 6. Fish collection data from the Sebastian Inlet State Recreation Area for June 12, 1986.

Species	Station R-0 1	R-0 2	R-0 3	R-1 1	R-1 2	R-1 3	R-2 1	R-2 2	R-2 3	R-4 1	R-4 2	R-4 3	R-7 1	R-7 2	R-7 3
Anchoa hepsetus	3	138	3			2	1				2		4		
Caranx hippos		1				1			1		3				
Harengula jaguana	112	1387	188			1261	65	1	1	1			166	1	
Lutjanus sp.			1												
Menticirrhus littoralis	2	1	4	1		1	1			2		1			
Mugil curema	2	10					3								
Scombermorus maculatus		2	1			3									
Selene vomer										1					
Sphoeroides nephelus		1													
Sphyraena borealis		1													
Trachinotus carolinus	9	7	35	2	3		6	5	2	4	1	2	4	1	1
Umbrina coroides		27													

APPENDIX TABLE 7. Fish collection data from the Sebastian Inlet State Recreation Area for July 23, 1986.

Species	Station R-0 1	R-0 2	R-0 3	R-1 1	R-1 2	R-1 3	R-2 1	R-2 2	R-2 3	R-4 1	R-4 2	R-4 3	R-7 1	R-7 2	R-7 3
Anchoa hepsetus		1								3	3	52	7	1	1
Chloroscombrus chrysurus									1						
Harengula jaguana												11	35	4	
Menticirrhus littoralis	1	1	1		1		3				1	1	3		
Mugil curema															1
Polydactylus octonemus				3		3									
Strongylura marina								1							
Trachinotus carolinus	7	3	1	5	1	1	1	3		5	1	3			
Trachinotus falcatus	2	1	2	3	1	1	1					2			
Umbrina coroides	118	14	33	95	2	15	3			1	3	1	27	2	6

APPENDIX TABLE 8. Fish collection data from the Sebastian Inlet State Recreation Area for October 2, 1986.

Species	Station R-0 1	R-0 2	R-0 3	R-1 1	R-1 2	R-1 3	R-2 1	R-2 2	R-2 3	R-4 1	R-4 2	R-4 3	R-7 1	R-7 2	R-7 3
Anchoa hepsetus			16												
Harengula jaquana							31	1	20	22	68				
Membras martinica		39		1	1										
Menticirrhus littoralis									1		1	2	6		
Mugil curema								1							
Polydactylus octonemus									1				1		
Scombermorus maculatus										1					
Sphoeroides nephelus							1								
Trachinotus carolinus		7					67	1	14				1	2	1
Trachinotus falcatus		4					4		5	2				1	
Umbrina coroides	2	3							9						

APPENDIX TABLE 9. Fish collection data from the Sebastian Inlet State Recreation Area for November 6, 1986.

Species	Station R-0 1	R-0 2	R-0 3	R-1 1	R-1 2	R-1 3	R-2 1	R-2 2	R-2 3	R-4 1	R-4 2	R-4 3	R-7 1	R-7 2	R-7 3
Anchoa hepsetus				1											
Arius felis									1		1				
Chloroscombrus chrysurus			1	1			9	1			10				
Harengula jaquana											1				
Menticirrhus littoralis	10	1	2	7	4			2	3		3	1		2	3
Mugil curema		2							1		1	1	1		1
Polydactylus octonemus				1		2		1							
Selene vomer				1					1						
Sphoeroides nephelus											1				
Syngnathus louisianae	1														
Trachinotus carolinus	20	2	3	2	2	2		1		2				1	4
Trachinotus falcatus	1														

Appendix Table 10.
Total number of individuals of each species collected at transect R0 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri		4								
Caprella equilibra										
Caprella penantis		4								
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Eobrolgus spinosus										
Eudevenopus honduranus										
Gammaropsis cf kaumaka								1		
Hyale media					1					
Ischyrocerus anguipes										
Lembos smithi								2		
Lembos sp.										
Leucothoe spinicarpa								1		
Maera sp. juv.								1		
Parahaustorius longimerus										
Parahaustorius holmesi						1				
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.								1		
Podocerus brasiliensis		1								
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus					1	1		2		
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea		1								
Emerita talpoida							21	30	36	13
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 10 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus						1				
Cirolana albida									2	
Cirolana polita									10	
Eurydice littoralis										
Eurydice sp.									2	
Excorallana subtilis										
Exsphaeroma crenulatum										
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.										
Metamysidopsis sp.					3					
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.	3	3						7		
Cyclopoida sp.								1		
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.		3								
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae	4	3								
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis		3			5		2	1		1
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 10 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										1
Cirratulidae juv.										
Dispio uncinata		4				1				
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita										
Paraonis fulgens										
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.							1			
Stenelais sp.										
Syllis sp.										
Oligochaeta										
Archiannelida		2			2					
Nemertea	1	41	20	51	7	10	4	5	7	4
Turbellaria		3	3		1					2
Nematoda									1	
Chaetognatha										
Sagitta sp.		1								
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	8	74	23	51	20	14	28	52	58	21
Total No. Species	3	14	2	1	7	5	4	11	6	5

Appendix Table 11.
Total number of individuals of each species collected at transect R0 in the offshore zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi							1			
Acanthohaustorius pansus										
Ampithoidae sp.					1					
Ampithoe sp. juv.										
Bathyporeia parkeri	18	7	1	6	34	60	16			12
Caprella equilibra										
Caprella penantis		1								
Corophium acutum		1		1						
Corophium sp. juv.										
Ericthonius brasiliensis										
Ebbrolgus spinosus		11			2		1			
Eudevenopus honduranus		1			4	1				1
Gammaropsis cf kaumaka						1				
Hyale media	3	2			13			2		
Ischyrocerus anguipes	1									
Lembos smithi										
Lembos sp.		1								
Leucothoe spinicarpa										
Maera sp. juv.					1					
Parahaustorius longimerus			2	13		9	4			3
Parahaustorius holmesi			1	7		5	1			
Parahaustorius obliquus		1	2	6	1	10				
Parahaustorius sp.				1						
Photis macromanus					1					
Photis sp.				1	6					
Podocerus brasiliensis	1									
Protohaustorius deichmannae										
Protohaustorius wigleyi					1					
Rhepoxynius epistomus			1	2	7	27	4			1
Siphonocetes sp.		1								
Synchelidium americanum						2				
Tethygenia longleyi					16					
Decaopoda										
Acetes ameranus										1
Brachyuran zoea	1									
Emerita talpoida						1				1
Lepidopa sp.							1			
Lucifer faxoni										
Ogyrides alphaerostris	2					1				
Pagurus longicarpus										1
Pagurus maclaughlinae										1
Pinnixia cristata										

Appendix Table 11 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus	1	1	4	5	13	5				6
Cirolana albida										
Cirolana polita										
Eurydice littoralis		30				1				9
Eurydice sp.				1						
Excorallana subtilis		1								
Exsphaeroma crenulatum	10	1	1	2	3			1		3
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.	2	3	1	3	1	1				1
Metamysidopsis sp.					28					
Mysidopsis sp.				1	21					
Mysidacea larvae				5						
Copepoda										
Calanoida sp.										
Cyclopoida sp.										
Cumacea										
Cyclaspis varians				1						
Oxyurostylis smithi				1		5	1			
Euphausiacea										
Thysanopoda sp.										2
Tanaidacea										
unidentified species										1
Stomatopoda										
Stomatopoda larvae	2									
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata						1				
Donax variabilis			4	23	37		3	7		3
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										1
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 11 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.						2				
Capitomastus sp.		1					7	3		47
Cirratulidae juv.										
Dispio uncinata	1	13	2	2	1	3	29	1		
Glycinde solitaria		1		1						
Leiocapitella sp.										
Leiocapitellides sp.		1								
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.								1		
Mediomastus sp.										
Nainereis sp.	1									1
Nereis falsa	1	2					2			
Onuphis erimita										4
Paraonis fulgens										
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.		27	1	1		2	13			
Stenelais sp.										
Syllis sp.										
Oligochaeta	1									
Archiannelida		1								
Nemertea					1					
Turbellaria		6	1		2		1			
Nematoda					3					
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	45	114	21	83	197	137	84	15	0	99
Total No. Species	14	22	12	20	22	18	14	6	0	19

Appendix Table 12.
Total number of individuals of each species collected at transect R1 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.							1			
Bathyporeia parkeri		7								2
Caprella equilibra										
Caprella penantis										
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Eobrolgus spinosus										
Eudevenopus honduranus										
Gammaropsis cf kaumaka					1					
Hyale media					1				1	1
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus		1								
Parahaustorius holmesi										
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.		1								
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus										2
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea					2					
Emerita talpoida						14	23		44	60
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 12 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus				1						
Cirolana albida									24	
Cirolana polita				1					28	
Eurydice littoralis										10
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum										
Exsphaeroma diminutum										1
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.										
Metamysidopsis sp.										
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.		2			1					
Cyclopoida sp.										
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae					5					
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis								1		
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 12 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata		1		1						
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa		1								
Onuphis erimita										
Paraonis fulgens										
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.		2			1		1			
Stenelais sp.										
Syllis sp.										
Oligochaeta										23
Archiannelida				4						2
Nemertea	1	13		26	18	89		5	15	39
Turbellaria	2			1	5			1		3
Nematoda				3		8				1
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	3	28	0	37	34	111	25	7	112	144
Total No. Species	2	8	0	7	8	3	3	3	5	11

Appendix Table 13.
Total number of individuals of each species collected at transect R1 in the offshore zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus				2						
Ampithoidae sp.					2					
Ampithoe sp. juv.										
Bathyporeia parkeri		40	1	1	13					2
Caprella equilibra										
Caprella penantis		1								
Corophium acutum					2					
Corophium sp. juv.		1								
Ericthonius brasiliensis		2								
Fobrolgus spinosus										2
Eudevenopus honduranus		1								
Gammaropsis cf kaumaka										
Hyale media					1					
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus		13	5	5	1					
Parahaustorius holmesi		4	2							
Parahaustorius obliquus		8	2	1	1					
Parahaustorius sp.										
Photis macromanus										
Photis sp.			1							
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus			1							1
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea		1								
Emerita talpoida					1					
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 13 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus			7	17	6					
Cirolana albida										
Cirolana polita										
Eurydice littoralis		2								
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum			4		4					
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor			1	1						
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.		2	1		4					
Metamysidopsis sp.					3					
Mysidopsis sp.					2					
Mysidacea larvae										
Copepoda										
Calanoida sp.				1						
Cyclopoida sp.										
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi				4						
Euphausiacea										
Thysanopoda sp.		1		1						
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae		3	1							
Mollusca										
Bivalvia										
Chione grus					1					
Corbula contracta										
Crassinella lunulata										
Donax variabilis			20	49	17					
Gastropoda										
Anachis sparsa		1								
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 13 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										1
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										7
Cirratulidae juv.										
Dispio uncinata		11	20	1						
Glycinde solitaria										
Leiocapitella sp.										1
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										2
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										1
Nainereis sp.										
Nereis falsa		1	1							
Onuphis erimita										
Paraonis fulgens										
Pisione sp. A										1
Potamilla sp.										3
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.		2	1							21
Stenelais sp.										
Syllis sp.			1							1
Oligochaeta										
Archiannelida										
Nemertea										
Turbellaria										
Nematoda										
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	0	94	69	83	58	0	0	0	0	43
Total No. Species	0	17	16	11	14	0	0	0	0	12

Appendix Table 14.
Total number of individuals of each species collected at transect R2 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri					4		1	1		
Caprella equilibra										
Caprella penantis										
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Eobrolgus spinosus										
Eudevenopus honduranus										
Gammaropsis cf kaumaka										
Hyale media										
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus										
Parahaustorius holmesi										
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.										
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus	1									
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea	1	1		11						
Emerita talpoida		1				3	3	35	48	89
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 14 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus										
Cirolana albida								1	1	
Cirolana polita										
Eurydice littoralis										
Eurydice sp.								2		
Excorallana subtilis										
Exsphaeroma crenulatum					1					
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.										
Metamysidopsis sp.										
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.		1		6						
Cyclopoida sp.				1						
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae		9	2	24			1			
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										1
Donax variabilis										
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 14 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata		2				1		1		
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis		1								
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita										
Paraonis fulgens										
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.					1					
Stenelais sp.										
Syllis sp.								1		
Oligochaeta	6									7
Archiannelida	11779	2	9		1		239			1
Nemertea	42	37	95	155	22	48		9	15	4
Turbellaria	11	2	8	1	5				16	2
Nematoda	7		18			74	4			
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	11847	56	132	198	34	126	248	50	80	104
Total No. Species	7	9	5	7	6	4	5	7	4	6

Appendix Table 15.
Total number of individuals of each species collected at transect R0 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										1
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri	4				8	1	41	42	123	110
Caprella equilibra										
Caprella penantis										
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Eobrolgus spinosus										
Eudevenopus honduranus									5	2
Gammaropsis cf kaumaka										
Hyale media										
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus	2	3		6	3	4	20	20	17	16
Parahaustorius holmesi					1		9	2	3	4
Parahaustorius obliquus	1				2	1	3	7	9	3
Parahaustorius sp.								1		
Photis macromanus										
Photis sp.				1						
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus	1						1		2	
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi									1	
Decaopoda										
Acetes ameranus										
Brachyuran zoea										
Emerita talpoida										
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris									1	
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata	1									

Appendix Table 15 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus				1	1	1		4	1	
Cirolana albida										
Cirolana polita										
Eurydice littoralis	3		1	1	1	5	3	2	3	1
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum		2	1	1	1	2			1	1
Exsphaeroma diminutum							1	1		
Jaeropsis sp.										
Sphaeroma destructor						1				
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.		1	2	1						4
Metamysidopsis sp.				1						
Mysidopsis sp.				1	1					
Mysidacea larvae				21						
Copepoda										
Calanoida sp.			2							
Cyclopoida sp.										
Cumacea										
Cyclaspis varians					1					
Oxyurostylis smithi						1				
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae										
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta	1									
Crassinella lunulata										
Donax variabilis	4		14	9	19	6	6	12	74	10
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.				1						

Appendix Table 15 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera	1								2	
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata					2	1	6	3	4	
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita									1	
Paraonis fulgens			2							
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.									1	
Phyllodocidae										
Rhynchospio sp.										
Stenelais sp.										
Syllis sp.										
Oligochaeta		1								
Archiannelida							8			
Nemertea		1	2	3	1	3				1
Turbellaria	5		1					1	1	
Nematoda	2	15		2	5				3	
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.			1							
Amphioxus sp.										1
Total No. Individuals	25	23	26	49	46	26	98	95	252	154
Total No. Species	11	6	9	13	13	11	10	11	18	12

Appendix Table 16.
Total number of individuals of each species collected at transect R4 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri		2								
Caprella equilibra										
Caprella penantis			1							
Corophium acutum					1					
Corophium sp. juv.										
Ericthonius brasiliensis										
Ebbrolgus spinosus										
Eudevenopus honduranus										
Gammaropsis cf kaumaka					3					
Hyale media					5					
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus							1			
Parahaustorius holmesi										
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.										
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus		1								
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea		2		1						
Emerita talpoida					1	6	7	12		57
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 16 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus										
Cirolana albida										
Cirolana polita			1							2
Eurydice littoralis										
Eurydice sp.								1		
Excorallana subtilis										
Exsphaeroma crenulatum										
Exsphaeroma diminutum										
Jaeropsis sp.						1				
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.										
Metamysidopsis sp.										
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.		2		3						
Cyclopoida sp.		1		1						
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae		10	1							
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis								1		
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 16 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata							2			
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita										
Paraonis fulgens										
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.					1					
Stenelais sp.										
Syllis sp.					2					
Oligochaeta	2									
Archiannelida	87	1130		1		2				1
Nemertea	47	4		48	41	94	1	2	15	9
Turbellaria	19	2		1		2		1	2	
Nematoda	1	2				17				
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	156	1156	3	55	54	115	11	17	17	69
Total No. Species	5	10	3	7	7	6	4	5	2	4

Appendix Table 17.
Total number of individuals of each species collected at transect R4 in the offshore zone

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										1
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri										66
Caprella equilibra										
Caprella penantis										
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Ebbrolgus spinosus										1
Eudevenopus honduranus										
Gammaropsis cf kaumaka										
Hyale media										
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus										1
Parahaustorius holmesi										1
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.										
Podocerus brasiliensis										
Protohaustorius deichmannae										2
Protohaustorius wigleyi										
Rhepoxynius epistomus										6
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea										
Emerita talpoida										
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										1
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 17 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus										
Cirolana albida										
Cirolana polita										
Eurydice littoralis										
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum										
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.										2
Metamysidopsis sp.										
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.										
Cyclopoida sp.										
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae										
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis										3
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.										

Appendix Table 17 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata										2
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										1
Lumbrineris sp.										
Magelona sp.										4
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita										5
Paraonis fulgens										6
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.										
Stenelais sp.										
Syllis sp.										
Oligochaeta										1
Archiannelida										
Nemertea										
Turbellaria										
Nematoda										1
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals										104
Total No. Species										17

Appendix Table 18.
Total number of individuals of each species collected at transect R7 in the swash zone.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri										
Caprella equilibra			1							
Caprella penantis										
Corophium acutum					4					
Corophium sp. juv.										
Ericthonius brasiliensis					1					
Eobrolgus spinosus										
Eudevenopus honduranus										
Gammaropsis cf kaumaka										
Hyale media					3					
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus										
Parahaustorius holmesi										
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.										
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi										
Rhepoxynius epistomus										
Siphonocetes sp.										
Synchelidium americanum										
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea	1							1		
Emerita talpoida					1	13	5	25	4	12
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 18 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus										
Cirolana albida									1	
Cirolana polita										
Eurydice littoralis										
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum										
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri										
Mysidacea										
Bowmaniella sp.		1								
Metamysidopsis sp.										
Mysidopsis sp.					1					
Mysidacea larvae										
Copepoda										
Calanoida sp.						1	4			
Cyclopoida sp.										
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae	2		1	1		4		4		
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis										1
Gastropoda										
Anachis sparsa										
Cerithiopsis emersoni										
Cerithiopsis sp.	1									
Odostomia sp.										

Appendix Table 18 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										
Cirratulidae juv.										
Dispio uncinata		1								
Glycinde solitaria										
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										
Lumbrineris sp.										
Magelona sp.										
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.										
Nereis falsa										
Onuphis erimita										
Paraonis fulgens				1						
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.										
Phyllodocidae										
Rhynchospio sp.										
Stenelais sp.										
Syllis sp.										
Oligochaeta	1									4
Archiannelida		268	1	3			1		1	
Nemertea	8	22	27	88	59	27	6	3	37	20
Turbellaria	8		7	13			1	6	5	2
Nematoda		2	3	5		7				
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	21	294	40	111	69	52	13	43	48	39
Total No. Species	6	5	6	6	6	5	4	8	5	5

Appendix Table 19.
Total number of individuals of each species collected at transect R0 in the swash zone.

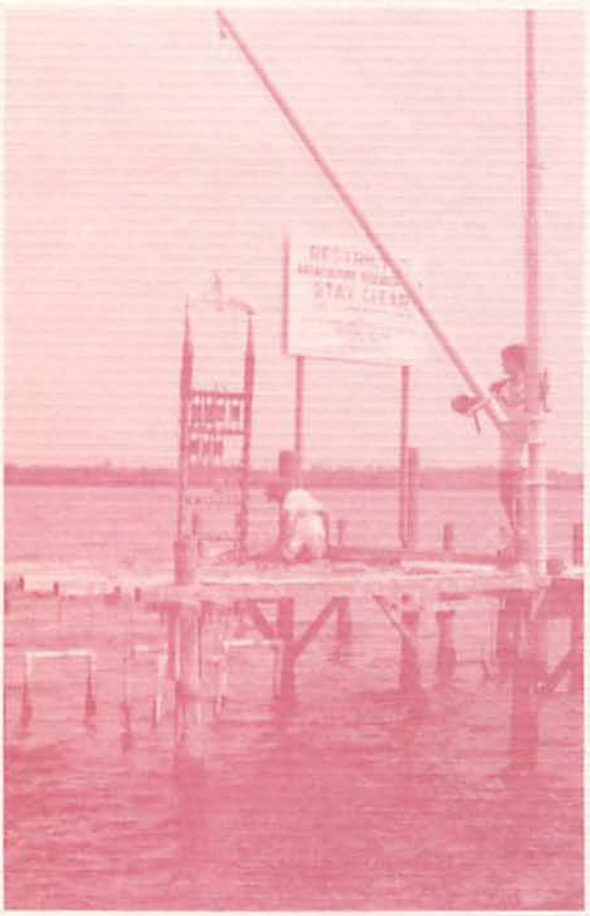
Taxon	Month N	D	J	F	A	M	J	J	A	S
Crustacea										
Amphipoda										
Acanthohaustorius millsi										
Acanthohaustorius pansus										
Ampithoidae sp.										
Ampithoe sp. juv.										
Bathyporeia parkeri	15								76	8
Caprella equilibra										
Caprella penantis										
Corophium acutum										
Corophium sp. juv.										
Ericthonius brasiliensis										
Eobrolgus spinosus	2								10	
Eudevenopus honduranus										
Gammaropsis cf kaumaka										
Hyale media										
Ischyrocerus anguipes										
Lembos smithi										
Lembos sp.										
Leucothoe spinicarpa										
Maera sp. juv.										
Parahaustorius longimerus	4									
Parahaustorius holmesi										
Parahaustorius obliquus										
Parahaustorius sp.										
Photis macromanus										
Photis sp.										
Podocerus brasiliensis										
Protohaustorius deichmannae										
Protohaustorius wigleyi									1	
Rhepoxynius epistomus									5	
Siphonocetes sp.										
Synchelidium americanum									1	
Tethygenia longleyi										
Decaopoda										
Acetes ameranus										
Brachyuran zoea										
Emerita talpoida										
Lepidopa sp.										
Lucifer faxoni										
Ogyrides alphaerostris										
Pagurus longicarpus										
Pagurus maclaughlinae										
Pinnixia cristata										

Appendix Table 19 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Isopoda										
Ancinus depresus										
Cirolana albida										
Cirolana polita										
Eurydice littoralis	3									
Eurydice sp.										
Excorallana subtilis										
Exsphaeroma crenulatum										1
Exsphaeroma diminutum										
Jaeropsis sp.										
Sphaeroma destructor										
Sphaeroma walkeri	1									
Mysidacea										
Bowmaniella sp.	14								1	
Metamysidopsis sp.	1									
Mysidopsis sp.										
Mysidacea larvae										
Copepoda										
Calanoida sp.										
Cyclopoida sp.										
Cumacea										
Cyclaspis varians										
Oxyurostylis smithi										
Euphausiacea										
Thysanopoda sp.										
Tanaidacea										
unidentified species										
Stomatopoda										
Stomatopoda larvae										
Mollusca										
Bivalvia										
Chione grus										
Corbula contracta										
Crassinella lunulata										
Donax variabilis									14	2
Gastropoda										
Anachis sparsa	5									
Cerithiopsis emersoni										
Cerithiopsis sp.										
Odostomia sp.	1									

Appendix Table 19 cont.

Taxon	Month N	D	J	F	A	M	J	J	A	S
Terebra cinera										
Turbonilla sp.										
Gastropoda juv.										
Annelida										
Polychaeta										
Arenicola sp.										
Capitomastus sp.										3
Cirratulidae juv.										
Dispio uncinata	2								17	13
Glycinde solitaria									1	
Leiocapitella sp.										
Leiocapitellides sp.										
Leitoscoloplos fragilis										1
Lumbrineris sp.										
Magelona sp.										3
Maldanidae sp.										
Mediomastus sp.										
Nainereis sp.	58									
Nereis falsa	16									
Onuphis erimita										2
Paraonis fulgens										4
Pisione sp. A										
Potamilla sp.										
Psammolyce sp.									1	
Phyllodocidae										
Rhynchospio sp.	1									
Stenelais sp.										
Syllis sp.										
Oligochaeta										
Archiannelida										
Nemertea										
Turbellaria										
Nematoda										
Chaetognatha										
Sagitta sp.										
Chordata										
Oikopleura sp.										
Amphioxus sp.										
Total No. Individuals	123								127	37
Total No. Species	13								10	9



DEPARTMENT OF OCEANOGRAPHY AND OCEAN ENGINEERING
FLORIDA INSTITUTE OF TECHNOLOGY
MELBOURNE, FLORIDA