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***Demersal fishes, benthic and  
epibenthic invertebrates, and  
sediment characteristics  
at and adjacent to offshore  
disposal Site F,  
Coos Bay, Oregon,  
April and October 1992***

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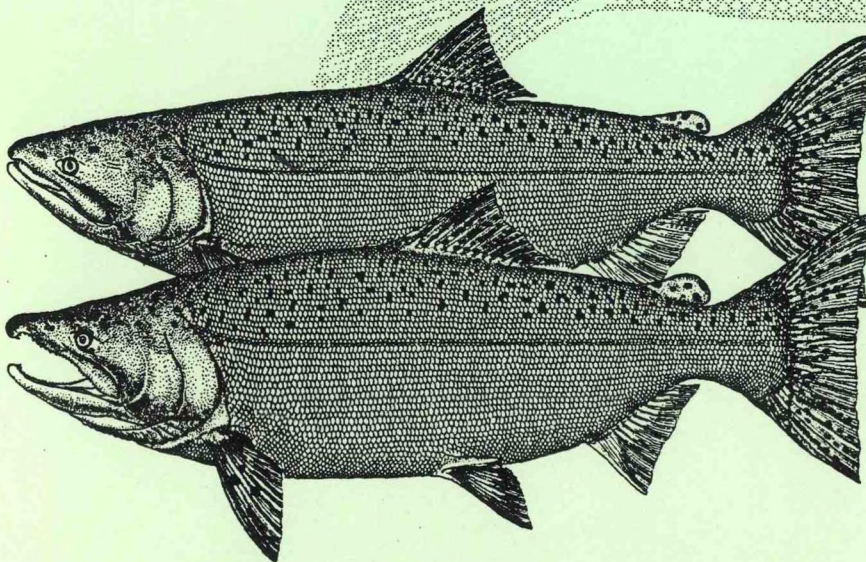
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**Seattle, Washington**

by Susan A. Hinton  
and Robert L. Emmett

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DEMERSAL FISHES, BENTHIC AND EPIBENTHIC  
INVERTEBRATES, AND SEDIMENT CHARACTERISTICS  
AT AND ADJACENT TO OFFSHORE DISPOSAL  
SITE F, COOS BAY, OREGON,  
APRIL AND OCTOBER 1992

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Report of Research

Funded by

U.S. Army Corps of Engineers  
Portland District  
P.O. Box 2946  
Portland, Oregon 97208  
(Contracts E96920027, E96920028)

and

Coastal Zone and Estuarine Studies Division  
Northwest Fisheries Science Center  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
2725 Montlake Boulevard East  
Seattle, Washington 98112-2097

March 1994

1. Coos Bay, Oregon

INTRODUCTION ..... 1

METHODS ..... 3

    Sampling ..... 3

        Benthic Invertebrates and Sediments ..... 3

        Fishes and Large Epibenthic Invertebrates ..... 3

    Data Analyses ..... 6

        Benthic Invertebrates and Sediments ..... 6

        Fishes and Large Epibenthic Invertebrates ..... 7

RESULTS ..... 7

    Benthic Invertebrates ..... 7

    Sediments ..... 12

        Fishes and Large Epibenthic Invertebrates ..... 12

DISCUSSION ..... 21

ACKNOWLEDGMENTS ..... 23

REFERENCES ..... 24

APPENDIX ..... 26

## INTRODUCTION

The U.S. Army Corps of Engineers (COE) has proposed to expand offshore disposal Site F off Coos Bay, Oregon to accommodate additional dredged material from the Coos Bay channel-deepening project (Fig. 1). Site F has already been expanded to twice its original size, which is adequate for routine maintenance dredging, but too small for dredged material from the channel-deepening project. If Site F is expanded as proposed, it would be three times its original size.

In 1979 and 1980, during the initial designation process of Site F, a pilot study was conducted at and adjacent to Site F and the proposed expansion area by Oregon State University researchers under contract to the COE. The COE and the Environmental Protection Agency are joint designators of the site. Together, they decided that the proposed expansion could take place if the biological communities had not changed significantly since 1979. Therefore, in March 1992, the National Marine Fisheries Service (NMFS) in cooperation with the COE planned two biological surveys at the present disposal area and the proposed expansion area. In addition, an inshore area near the North Spit was sampled to determine if it could be used as an alternative to the expansion area. This report contains the results from the April and October 1992 biological surveys as well as limited comparisons to the 1979-1980 surveys (Hancock et al. 1984).

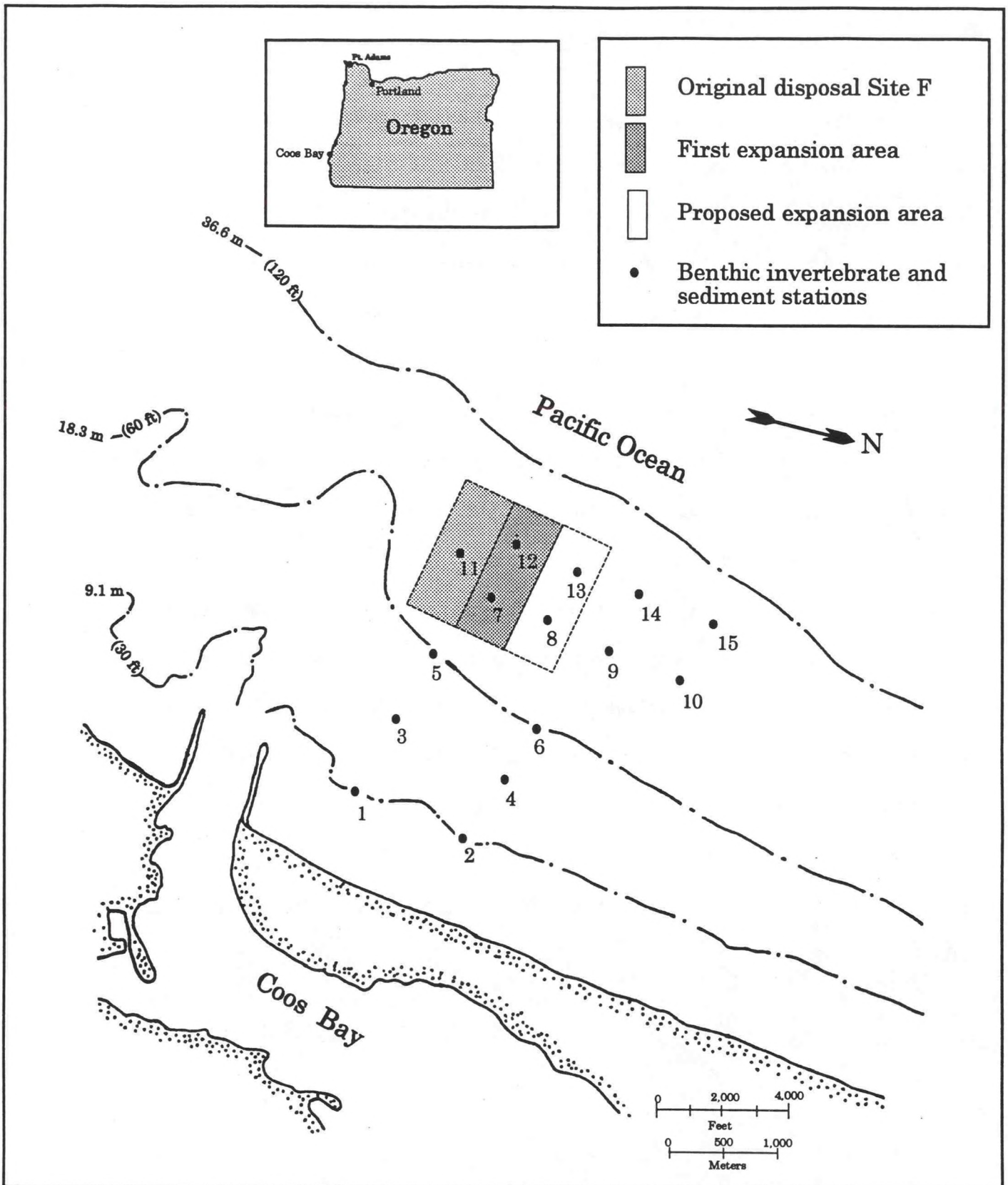


Figure 1.--Locations of benthic invertebrate and sediment stations at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

## METHODS

## Sampling

## Benthic Invertebrates and Sediments

Benthic invertebrate and sediment samples were collected at 15 stations that were predetermined by the COE: 1 within the original disposal Site F, 2 within the first expansion area, 2 within the proposed expansion area, 4 north of the proposed expansion area, and 6 in the nearshore area east of the existing and proposed disposal sites (Fig. 1). Stations were located using the Global Positioning System (GPS). Geographic locations of all stations are listed in Appendix Table 1. Station depths ranged from 9.1 to 23.8 m.

A 0.1-m<sup>2</sup> Gray-O'Hara box corer (Fig. 2) (Pequegnat et al. 1981) was used to collect six bottom samples at each station. Five of the samples were placed in individual 5-gallon buckets and preserved with a buffered 4% formaldehyde solution containing rose bengal (a protein stain). In the laboratory, each sample was sieved through a 0.5-mm mesh screen, and the residues containing macroinvertebrates were preserved in jars with a 70% ethanol solution. Benthic organisms were then sorted from the preserved samples, identified to the lowest practical taxonomic level (usually species), and counted. All specimens were placed in vials containing 70% ethanol and stored at the NMFS Point Adams Biological Field Station, Hammond, Oregon. The sixth sample was saved in a labelled plastic bag and refrigerated for later analysis of sediment grain size and percent volatile solids by the COE Materials Laboratory in Troutdale, Oregon.

## Fishes and Large Epibenthic Invertebrates

Three bottom trawls were conducted during each survey: two in the disposal area and one in the nearshore area (Fig. 3). Depths along the trawling transects ranged from 10 to 25 m. All trawling efforts were 5 minutes long and were made against the current. Bottom trawling was done with an 8-m (headrope length) semiballoon shrimp trawl that

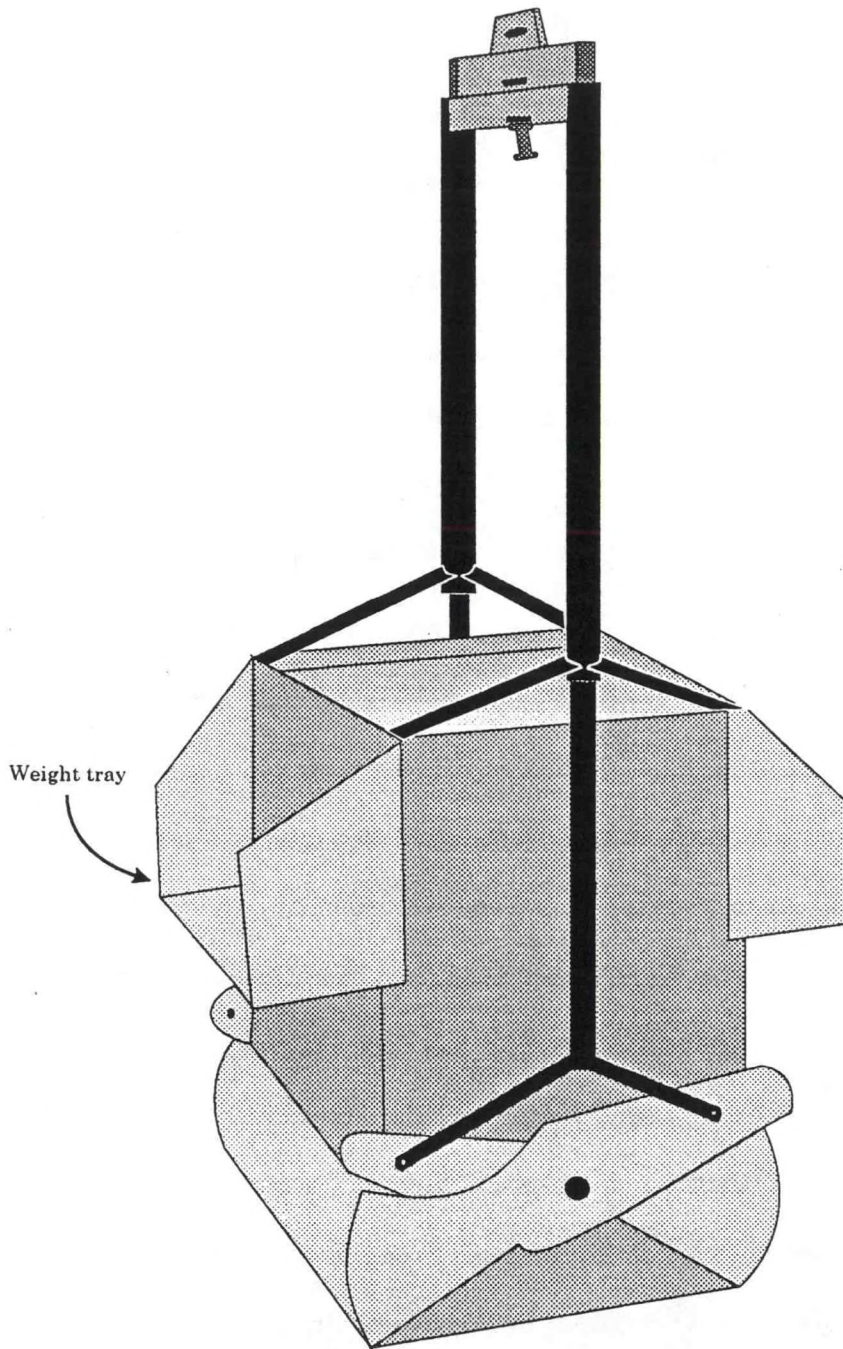


Figure 2.--The 0.1-m<sup>2</sup> box corer (Gray-O'Hara modification of a standard box corer) used for benthic invertebrate sampling at the offshore disposal Site F off Coos Bay, Oregon. For deeper penetration 113 kg (250 lb) weights were placed in each tray located on opposite sides of the sampler.





had an overall mesh size of 38-mm (stretched). A 10-mm-mesh liner was inserted in the cod end of the trawl to ensure retention of small fishes and epibenthic invertebrates. Location and distance traveled during each trawling effort were determined using the GPS (Appendix Table 1).

All organisms captured by trawling were weighed (g) and measured (mm), total length for fishes, and carapace width for Dungeness crabs (*Cancer magister*). Shrimps were measured from the rostrum to the distal end of the telson.

### Data Analyses

#### Benthic Invertebrates and Sediments

The five benthic invertebrate samples from each station were treated as replicates for calculations of a mean number of individuals/m<sup>2</sup> and standard deviation for each taxon and for each station. Two community structure indices were also calculated for each station. The first index was Diversity (H), which was determined using the Shannon-Wiener function (Krebs 1978):

$$H = - \sum_{i=1}^s p_i \log_2 p_i$$

where  $p_i = n_i/N$  ( $n_i$  is the number of individuals of the  $i$ th taxon in the sample, and  $N$  is the total number of all individuals in the sample) and  $s$  = number of species. The second community structure index was Equitability (E), which measures the proportional abundances among the various taxa in a sample (Krebs 1978):

$$E = H/\log_2 s$$

where  $H$  = Diversity and  $s$  = number of taxa. Equitability has a possible range of 0.00 to 1.00, with 1.00 indicating that all species in the sample are numerically equal.

Cluster analysis, using the Bray-Curtis dissimilarity index with a group-averaging fusion strategy (Clifford and Stephenson 1975), was used to identify station groupings that had similar species and densities. A 0.5 dissimilarity value was considered a significant difference between groups. The mean number of individuals/m<sup>2</sup> for each species per station was used in the analysis. Species which had densities less than 10/m<sup>2</sup> were excluded from the analysis to reduce the effect of rare species.

Median grain size was calculated for each station.

#### Fishes and Large Epibenthic Invertebrates

A descriptive summary of each trawling effort was produced based on the distance fished, estimated fishing width of the trawl (5 m), and catch data. This summary includes a species list, numbers and weights of fishes and large epibenthic invertebrates captured (by species and total), number/ha (by species and total), weight/ha (by species and total), and the previously described community structure indices.

## RESULTS

### Benthic Invertebrates

During the April 1992 benthic sampling, 148 taxa were identified (Appendix Table 2). Eleven of these taxa were not benthic invertebrates; therefore, 137 benthic invertebrate taxa were used in the analysis. Mean benthic invertebrate density for all stations combined was 4,037/m<sup>2</sup>. Number of taxa per station ranged from 30 (Station 12) to 85 (Station 15). Mean densities of benthic invertebrates ranged from 975/m<sup>2</sup> (Station 12) to 8,909/m<sup>2</sup> (Station 5) (Table 1, Appendix Table 3). The following dominant taxa within each major group were found throughout the study area: the polychaetes *Nephtys* spp., *Scoloplos armiger*, *Spiophanes bombyx*, *Magelona* spp., and *Chaetozone spinosa*; the

Table 1.--Description of the benthic invertebrate community at and adjacent to disposal Site F off Coos Bay, Oregon, April and October 1992. Diversity and Equitability were calculated by combining replicates from each station.

Station	Depth (m)	Number of taxa	Mean number per m <sup>2</sup>	Standard deviation	H <sup>a</sup>	E <sup>b</sup>
APRIL 1992						
1	10.4	33	2,770	1,439	1.72	0.34
2	10.1	34	4,022	2,469	1.36	0.27
3	- <sup>c</sup>	53	4,197	1,590	2.70	0.47
4	10.7	38	2,963	723	3.22	0.61
5	9.1	60	8,909	1,819	3.28	0.55
6	18.3	65	7,165	2,635	3.64	0.60
7	-	60	2,909	873	3.45	0.58
8	20.1	58	4,622	2,902	3.72	0.63
9	21.9	79	3,626	1,456	4.69	0.74
10	21.9	79	5,095	2,771	4.15	0.66
11	18.3	34	1,065	306	3.29	0.65
12	17.7	30	975	196	2.99	0.61
13	20.1	64	3,347	2,158	3.35	0.56
14	21.3	77	3,851	1,274	4.69	0.75
15	23.8	85	5,039	3,215	3.89	0.61
	Mean	57	4,037	2,690	3.34	0.58
OCTOBER 1992						
1	8.5	51	3,880	1,304	3.78	0.67
2	2.4	14	998	492	1.71	0.45
3	11.0	42	3,462	982	3.02	0.56
4	10.1	43	2,772	499	3.61	0.67
5	14.3	58	2,938	969	3.95	0.67
6	13.7	65	5,725	1,248	3.53	0.59
7	18.3	39	4,120	737	2.67	0.51
8	18.3	37	5,206	2,522	2.41	0.46
9	24.4	72	1,997	384	4.50	0.73
10	25.0	67	2,480	431	4.57	0.75
11	21.0	42	90,364	82,166	0.53	0.10
12	21.3	47	2,288	744	3.68	0.66
13	16.5	33	6,988	2,415	1.86	0.37
14	26.2	63	1,342	609	4.41	0.74
15	27.1	80	15,222	6,206	1.41	0.22
	Mean	50	10,087	29,290	3.04	0.54

<sup>a</sup> Diversity

<sup>b</sup> Equitability

<sup>c</sup> Depths were not recorded

gastropod *Olivella pycna*; and the amphipods *Eohaustorius sawyeri* and *Mandibulophoxus gilesi* (Table 2).

Diversity and Equitability were moderate to high at all stations except Stations 1 and 2 in the nearshore area (Table 1). Diversity ranged from 1.36 (Station 2) to 4.69 (Stations 9 and 14). Equitability ranged from 0.27 (Station 2) to 0.75 (Station 14). The higher H values are a result of the higher number of taxa and a more uniform distribution of the taxa. Although Stations 11 and 12 had numbers of taxa similar to those of Stations 1 and 2, H values were much higher at Stations 11 and 12 because E was higher at these two stations, (i.e., the numbers of individuals of the taxa were more evenly distributed).

During the October 1992 benthic sampling, 182 taxa were identified (Appendix Table 2). Fourteen of these taxa were not benthic invertebrates and were eliminated from the analysis. Mean benthic invertebrate density for all stations combined was 10,087/m<sup>2</sup>. Number of taxa per station ranged from 14 (Station 2) to 80 (Station 15). Benthic invertebrate density ranged from 998/m<sup>2</sup> (Station 2) to 90,364/m<sup>2</sup> (Station 11) (Table 1, Appendix Table 3). The following dominant taxa within each major group were found throughout the study area: the polychaetes *Polygordius* spp., *Spiophanes bombyx*, *Scoloplos armiger*, *Hesionura coineaui difficilis*, *Heteropodarke heteromorpha*; the gastropod *Olivella pycna*; the amphipod *Mandibulophoxus* spp.; and the echinoderm *Dendraster excentricus* (sand dollar).

Diversity and Equitability were moderate to high at all stations except Stations 2, 11, 13, and 15. Diversity ranged from 0.53 (Station 11) to 4.57 (Station 10) and E from 0.10 (Station 11) to 0.75 (Station 10). In general the high H and E values reflect the higher number of taxa and the uniform distribution of these taxa. The lower H and E values at Station 11 were caused by the dominance of the polychaete *Polygordius* spp.

Table 2.--Dominant benthic invertebrates collected at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Taxon	APRIL 1992		OCTOBER 1992	
	Total number	Mean number/m <sup>2</sup>	Total number	Mean number/m <sup>2</sup>
Nemertea	613	85	1,990	280
Polychaeta				
<i>Thalenessa spinosa</i>	163	23	0	0
<i>Hesionura coineaui difficilis</i>	0	0	1,407	198
<i>Heteropodarke heteromorpha</i>	211	29	1,178	166
<i>Phyllodoce hartmanae</i>	9	1	114	16
Syllidae	190	26	328	46
<i>Nephtys</i> spp.	4,290	596	5	1
<i>Nephtys caeca</i>	202	28	0	0
<i>Nephtys caecoides</i>	138	19	725	102
<i>Glycera tenuis</i>	162	23	804	113
<i>Glycera convoluta</i>	7	1	190	27
<i>Scoloplos armiger</i>	991	138	1,503	212
<i>Paraonella platybranchia</i>	179	25	90	13
<i>Spio butleri</i>	180	25	0	0
<i>Spiophanes bombyx</i>	1,993	277	4,771	672
<i>Magelona</i> spp.	5,746	798	12	2
<i>Magelona sacculata</i>	114	16	259	37
<i>Chaetozone spinosa</i>	868	121	757	107
<i>Ophelia</i> spp.	44	6	167	24
<i>Polygordius</i> spp.	0	0	41,614	5,860
Miscellaneous	476	66	532	75
Total	15,963	2,218	53,912	7,871
Mollusca				
<i>Olivella</i> spp.	196	27	166	23
<i>Olivella biplicata</i>	120	17	271	38
<i>Olivella baetica</i>	45	6	115	16
<i>Olivella pycna</i>	5,088	707	3,758	529
<i>Tellina</i> spp.	146	20	67	9
<i>Tellina nukuloides</i>	202	28	36	5
Miscellaneous	392	55	349	49
Total	6,189	860	4,762	670
Cumacea/Mysidacea				
<i>Diastylopsis</i> spp.	99	14	2	<1
<i>Diastylopsis tenuis</i>	231	32	132	19
<i>Colorostylis occidentalis</i>	32	4	184	26
Miscellaneous	212	30	97	14
Total	574	80	415	59

Table 2.--Continued.

Taxon	APRIL 1992		OCTOBER 1992	
	Total number	Mean number/m <sup>2</sup>	Total number	Mean number/m <sup>2</sup>
Amphipoda				
<i>Eohaustorius</i> spp.	509	71	61	9
<i>Eohaustorius estuarius</i>	209	29	1	<1
<i>Eohaustorius sawyeri</i>	812	113	273	38
<i>Eohaustorius sencillus</i>	504	70	262	37
<i>Photis lacia</i>	186	26	0	0
<i>Photis macinerneyi</i>	0	0	212	30
<i>Psammonyx longimerus</i>	200	28	77	11
<i>Monoculodes spinipes</i>	44	6	119	17
<i>Synchelidium</i> spp.	123	17	0	0
<i>Synchelidium shoemakeri</i>	0	0	274	39
<i>Mandibulophoxus</i> spp.	2	<1	967	136
<i>Mandibulophoxus gilesi</i>	1,461	203	23	3
<i>Rhepoxynius abronius</i>	55	8	291	41
<i>Rhepoxynius vigitegus</i>	225	31	154	22
<i>Foxiphalus major</i>	733	102	143	20
Miscellaneous	168	30	178	24
Total	5,231	734	3,035	427
Echinodermata				
<i>Amphiodia</i> spp.	129	18	0	0
<i>Amphiodia urtica</i>	0	0	160	23
<i>Dendraster excentricus</i>	217	30	6,611	931
Miscellaneous	3	<1	3	<1
Total	349	48	6,774	954
Miscellaneous	86	12	214	30
GRAND TOTAL	29,005	4,037	71,102	10,087

Station 15 had low H and E values even though the number of taxa was high (80), this was caused by the dominance of *Dendraster excentricus*.

Using cluster analysis, the stations were grouped for April and October as shown in Figures 4 and 5. Results of these analyses suggested that the benthic invertebrate community changed between the 1992 surveys. These changes were exhibited by the different station groupings and the shift in dominant species. In April there were 13 different taxa among the highest four in abundance for each cluster, while in October there were 18 different taxa among the "top four." However, only seven of these taxa were common between the surveys. Excluding the sudden abundance of *Polygordius* spp. at Station 11 and *Dendraster excentricus* at Station 15 in October, mean invertebrate densities were similar between surveys.

#### Sediments

Median grain size ranged from 0.0884 to 0.1768 mm in April and from 0.1015 to 0.2176 mm in October (Table 3). Two sediment types were found during these surveys: very fine sand (0.0625-0.1250 mm) and fine sand (0.125-0.250 mm). The amount of silt/clay was low in April, ranging from 0.1 to 1.4 %. In October silt/clay was slightly higher; between 1.3 and 3.4 % at most stations . Station 1 was the only exception, with 11.6 % silt/clay. Percent volatile solids was low for both surveys, ranging from 0.5 to 3.1 % in April and 0.7 to 1.5 % in October.

#### Fishes and Large Epibenthic Invertebrates

In April 1992, we captured 2,875 fishes and epibenthic invertebrates representing 30 taxa (Appendix Table 4). The number of organisms/ha and the weight/ha for the three bottom trawls ranged from 5,882 to 8,263 organisms/ha and from 29,296 to 33,740 g/ha, respectively (Table 4, Appendix Table 5). Trawls 1 and 2 had low H values, which

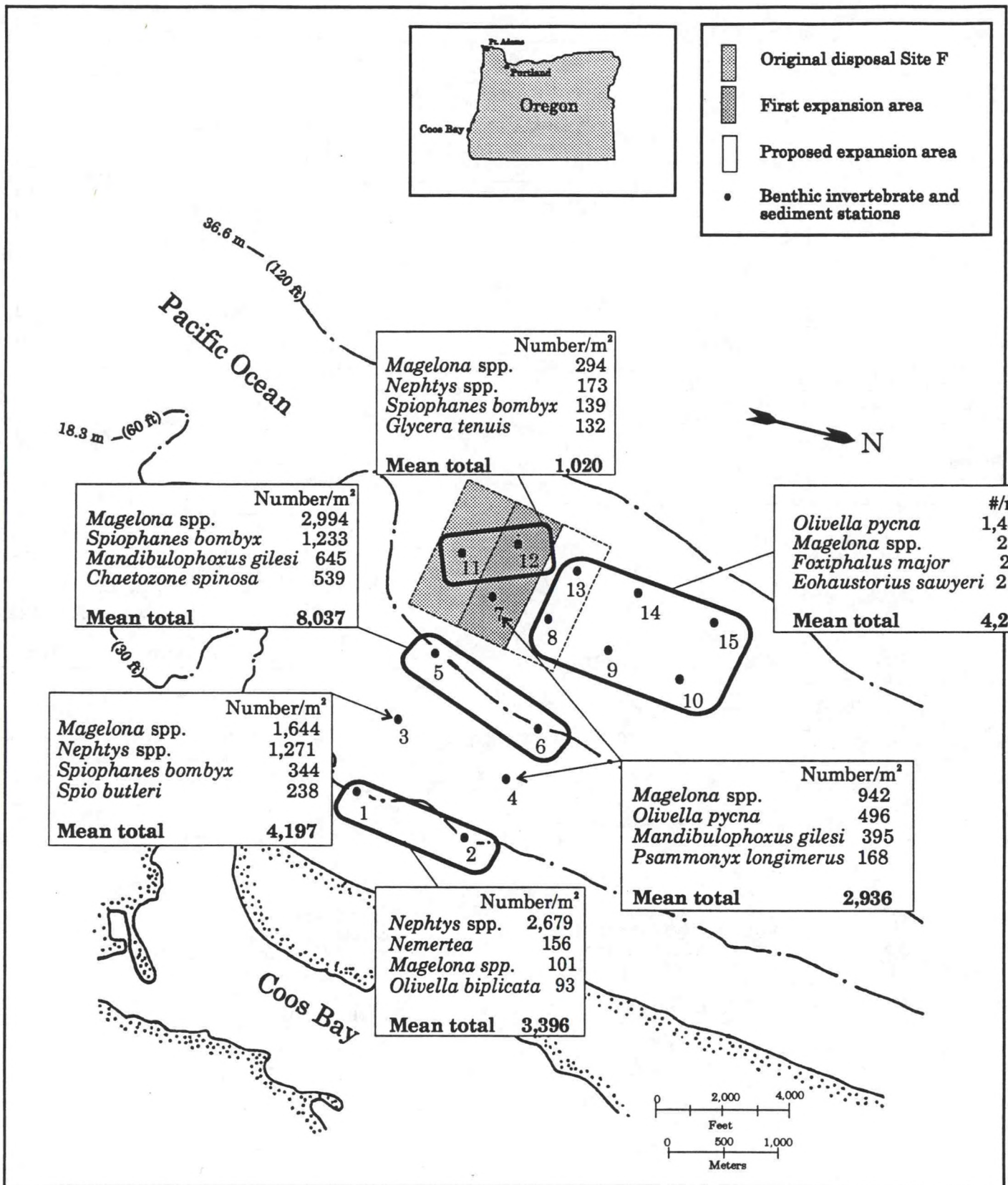


Figure 4.--Benthic invertebrate taxa groups, identified using cluster analysis, at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April 1992. Mean totals include all taxa.



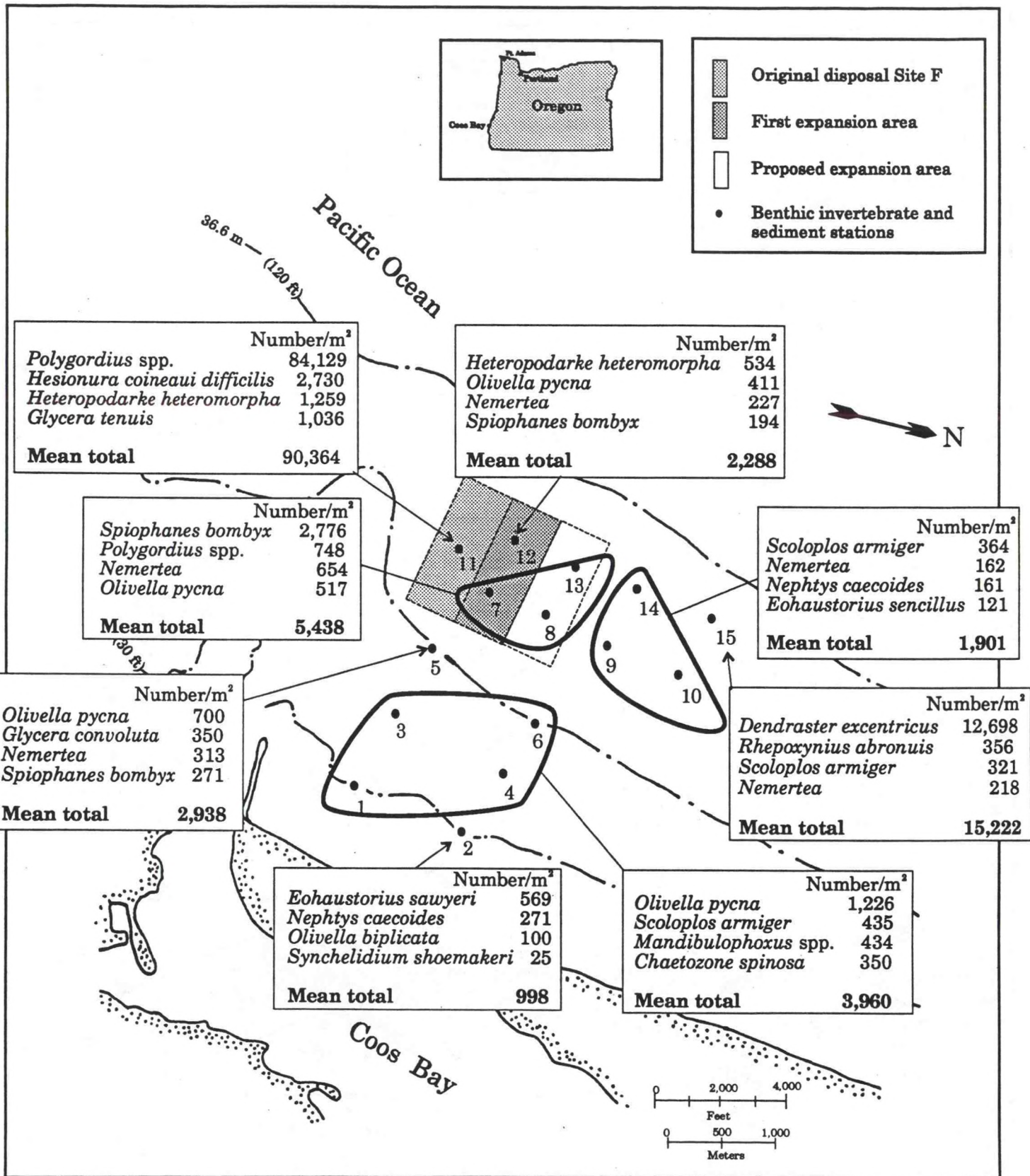


Figure 5.--Benthic invertebrate taxa groups, identified using cluster analysis, at and adjacent to offshore disposal Site F off Coos Bay, Oregon, October 1992. Mean totals include all taxa.

Table 3.--Sediment characteristics at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Station	Median grain size (mm)	Silt/clay (%)	Volatile solids (%)
APRIL 1992			
1	0.1166	0.2	0.7
2	0.1250	0.2	3.1
3	0.1339	0.2	1.0
4	0.1339	0.2	0.8
5	0.1088	0.4	0.9
6	0.1015	0.2	1.3
7	0.1436	0.4	1.0
8	0.1250	0.4	1.2
9	0.1166	0.7	2.0
10	0.0884	0.5	0.8
11	0.1539	0.2	0.9
12	0.1768	0.1	0.5
13	0.1339	0.6	1.5
14	0.1015	0.7	0.6
15	0.0947	1.4	1.3
OCTOBER 1992			
1	0.1088	11.6	1.3
2	0.1539	1.8	1.2
3	0.1340	1.6	1.1
4	0.1436	2.2	1.5
5	0.2031	2.1	0.9
6	0.2176	1.3	0.8
7	0.1436	1.6	0.7
8	0.1895	1.8	0.9
9	0.1166	2.2	1.3
10	0.1088	3.4	1.3
11	0.1015	2.3	1.2
12	0.1340	1.9	1.5
13	0.1768	1.6	1.0
14	0.1539	2.2	1.1
15	0.1088	2.6	1.4

Table 4.--Summary of fish and large epibenthic invertebrate catches for three bottom trawls at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Station (depth [m])	Number of taxa	Total number captured	Total wt. (g)	Number /ha	Wt. (g) /ha	H <sup>a</sup>	E <sup>b</sup>
APRIL 1992							
1 (-) <sup>c</sup>	20	951	3,852	7,232	29,296	0.67	0.16
2 (20.1)	22	1,112	4,538	8,263	33,740	1.13	0.25
3 (10.1)	14	812	4,093	5,882	29,661	1.86	0.49
OCTOBER 1992							
1 (24.7)	11	223	4,689	1,276	27,824	1.63	0.47
2 (23.5)	12	265	3,418	1,610	20,784	1.45	0.40
3 (11.6)	9	184	2,673	943	13,710	1.39	0.44

<sup>a</sup> Diversity

<sup>b</sup> Equitability

<sup>c</sup> Depth not recorded

were a reflection of the low E values. Equitability was higher for Trawl 3 than for the other two trawls even though fewer taxa were collected. The higher E value for Trawl 3 is indicative of a more uniform distribution of the taxa. Speckled sanddab (*Citharichthys stigmaeus*), with a mean density of 5,278 fish/ha, was by far the dominant fish throughout the study area, comprising 74% of the total number of fishes and epibenthic invertebrates captured (Table 5). Other abundant fishes included northern anchovy (*Engraulis mordax*) and whitebait smelt (*Allosmerus elongatus*).

Most of the dominant species captured in the study area were of one size-class, with total lengths of the dominant fishes usually between 45 and 110 mm (Fig. 6). Speckled sanddabs were represented by at least two size-classes, with the majority between 45 and 55 mm.

In October 1992, there were 672 fishes and epibenthic invertebrates captured, representing 18 taxa (Appendix Table 4). For the three trawls, the number of organisms/ha ranged from 943 to 1,610, and weight (g)/ha ranged from 13,710 to 27,824 (Table 4, Appendix Table 5). Diversity and E values were generally low because of the low number of taxa and their unequal distribution. As in April, speckled sanddab was the dominant fish, comprising 70% of the total number of fishes captured (Table 5). Smooth bay shrimp (*Crangon stylirostris*) was the only other organism that comprised a notable portion of the total catch (16%).

At least two size-classes of speckled sanddab were captured, with the majority measuring between 65 and 95 mm long (Fig. 7). Smooth bay shrimp were essentially one size-class, with most between 25 and 35 mm long.

Table 5.--Major fish and epibenthic invertebrates captured by bottom trawl at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Taxon	APRIL 1992		OCTOBER 1992	
	Mean no./ha	Mean wt. (g)/ha	Mean no./ha	Mean wt. (g)/ha
Northern anchovy	841	925	0	0
Night smelt	135	419	0	0
Whitebait smelt	255	1,193	0	0
Pacific tomcod	10	128	19	58
<i>Sebastes</i> spp.	73	126	0	0
Lingcod	54	192	0	0
Unidentified sanddab	0	0	15	2
Speckled sanddab	5,278	8,613	892	5,414
Sand sole	25	2,469	50	8,494
Dungeness crab	52	11,965	17	3,270
Smooth bay shrimp	193	198	202	198
Miscellaneous	182	4,671	34	3,318
Total	7,125	30,899	1,276	20,773

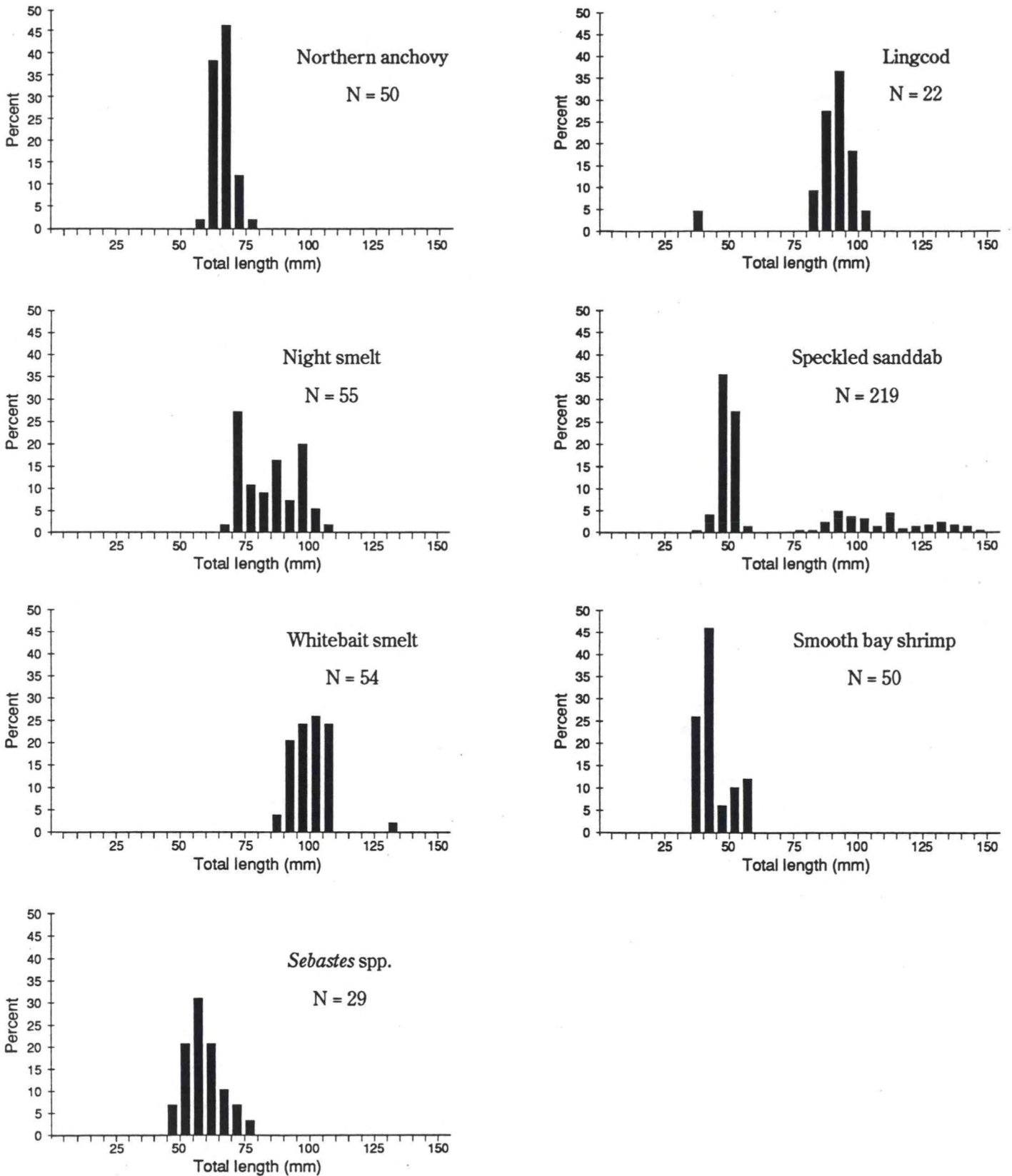


Figure 6.--Length-frequency distributions of major fish and epibenthic invertebrate taxa captured at three trawling areas at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April 1992. N is the number of individuals of each taxon that was measured.

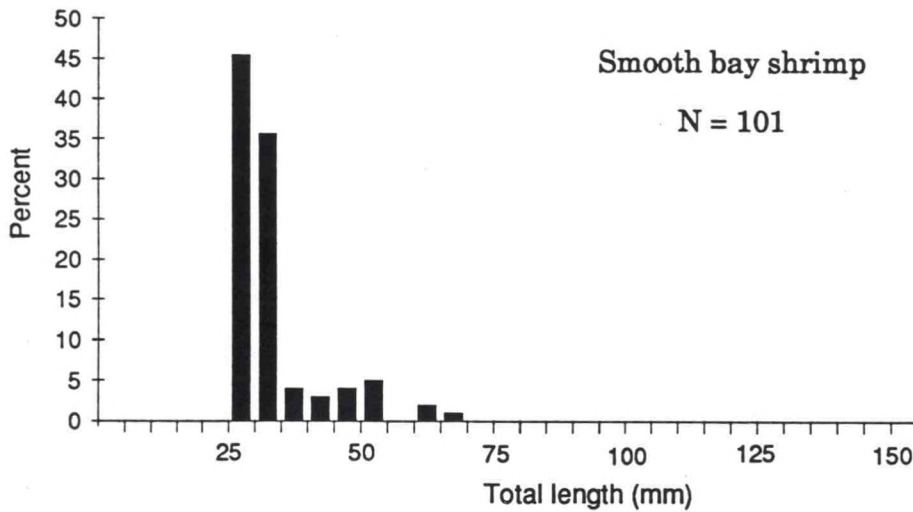
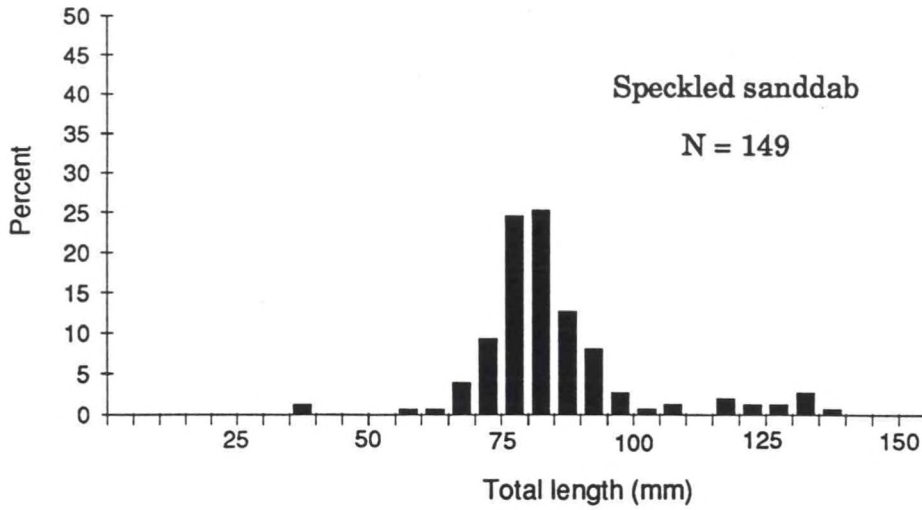


Figure 7.--Length-frequency distributions of the two major fish and epibenthic invertebrate taxa captured at three trawling areas at and adjacent to offshore disposal Site F off Coosbay, Oregon, October 1992. N is the number of individuals of each taxon that was measured.

## DISCUSSION

Generally, benthic invertebrate species composition and density at Coos Bay during April and October 1992 resembled that of previous surveys conducted off the Oregon/Washington coast (Richardson et al. 1977, Hancock et al. 1984, Emmett et al. 1987, Siipola et al. 1993). Site F benthic invertebrate and sediment characteristics are analogous to the shallow-water, clean-sand habitats described by Lie and Kisker (1970) using factor analysis. These characteristics include similar species and sediments with less than 10% mud.

Direct comparisons of 1992 benthic invertebrate surveys to those conducted in 1979-1980 (Hancock et al. 1984) were not possible because the original data from 1979-1980 were unavailable and the studies differed in number of stations, station locations, and sample size. However, general trends in the 1992 study appeared to coincide with those found by Hancock et al. (1984). These include similarities in species composition and the dominant species in each major taxonomic category, and for both projects, benthic invertebrate densities were higher in October than April.

Sediment grain size and percent volatile solids were also similar between the 1979-1980 and 1992 surveys. Sediment classification for both projects were very fine sand and fine sand, which varied among years and months at most stations. Percent volatile solids were low (<3.1%) during both projects, and also appeared to vary throughout the study area.

Direct comparison of trawl data between the 1979-1980 and 1992 projects was also impossible because of differences in the areas sampled. However, the nearshore trawls for each project did have two dominant organisms in common: speckled sanddab and non-commercially important shrimp. For both projects, speckled sanddabs were considered juveniles.



This report does not constitute NMFS's formal comments under the Fish and Wildlife Coordination Act or the National Environmental Policy Act.

## ACKNOWLEDGMENTS

We thank the Portland District COE Materials Laboratory in Troutdale, Oregon, for the sediment analyses. Special thanks go to Leonard VanCurler and the crew of the chartered F/V HONCHO for their assistance in data collection.

## REFERENCES

Clifford, H. T., and W. Stephenson

1975. An introduction to numerical classification. Academic Press, Inc., New York.  
229 p.

Emmett, R. L., T. C. Coley, G. T. McCabe, Jr., and R. J. McConnell

1987. Demersal fishes and benthic invertebrates at four interim dredge disposal sites off the Oregon coast. Report to the U.S. Army Corps of Engineers, Contract DACW57-85-F-0210, 69 p. plus appendices. (Available from Northwest Fish, Sci.Cent., 2725 Montlake Blvd. E., Seattle WA 98112.

Hancock, D. R., P. O. Nelson, C. K. Sollitt, and D. J. Williamson.

1984. Coos Bay offshore disposal site investigation interim report, phase 1, February 1979-March 1980. Report to the U.S. Army Corps of Engineers, Contract DACW57-79-C0040, 208 p. plus appendices. (Available from Oregon State Univ., Corvallis, OR.)

Krebs, C. J.

1978. Ecology: the experimental analysis of distribution and abundance. Harper and Row. New York. 678 p.

Lie, U., and D. S. Kisker.

1970. Species composition and structure of benthic infauna communities off the coast of Washington. J. Fish. Res. Board. Can. 27: 2773-2285.

Pequegnat, W. E., L. H. Pequegnat, P. Wilkinson, J. S. Young, and S. L. Kiessger.

1981. Procedural guide for designation surveys of ocean dredged material disposal sites. U.S. Army Corps of Engineers Tech. Rep. EL-81-1 to Chief of Engineers, U.S. Army, Washington, D.C. 20314. 268 p. plus appendices.

Richardson, M. D., A. G. Carey, and W. A. Colgate.

1977. Aquatic disposal field investigations Columbia River disposal site, Oregon. Appendix C: The effects of dredged material disposal on benthic assemblages. Report to U.S. Army Corps of Engineers, Contract DACW57-79-C0040, Chapter IV, 65 p. plus appendices. (Available from Waterways Experiment. Station, Vicksburg, MS.)

Siipola, M. D., R. L. Emmett, S. A. Hinton.

1993. Tongue Point monitoring program 1989-1992 final report. Report to the U.S. Army Corps of Engineers, Contract E96910024 and E96910024, 63 p. plus appendices. (Available from U.S. Army Corps of Engineers, Portland District, Portland, OR, 97208-2946.)

APPENDIX

Appendix Table 1.--Benthic invertebrate, sediment, and trawling locations at offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Benthic invertebrate and sediment station locations

<u>Station</u>	<u>Depth, m (ft)</u>	<u>Latitude</u>	<u>Longitude</u>
1	10.4 (34)	43° 22.187'	124° 20.337'
2	10.1 (33)	22.768'	19.860'
3	- <sup>a</sup>	22.282'	20.588'
4	10.7 (35)	22.835'	20.063'
5	9.1 (30)	22.434'	20.968'
6	18.3 (60)	22.976'	20.422'
7	-	22.654'	21.682'
8	20.1 (66)	22.873'	21.545'
9	21.9 (72)	23.103'	21.413'
10	21.9 (72)	23.305'	21.276'
11	18.3 (60)	22.498'	22.002'
12	17.7 (58)	22.780'	22.047'
13	20.1 (66)	22.999'	21.914'
14	21.3 (70)	23.217'	21.781'
15	23.8 (78)	23.436'	21.648'

Trawling locations

<u>Station</u>	<u>Mean depth m (ft)</u>	<u>Beginning</u>		<u>Ending</u>	
TR1	-	43° 23.136'	124° 21.565'	43° 23.131'	124° 21.759'
TR2	20.1 (66)	43° 22.392'	124° 21.409'	43° 22.390'	124° 21.210'
TR3	10.0 (33)	43° 22.332'	124° 20.345'	43° 22.451'	124° 20.222'

<sup>a</sup> Depths were not recorded.

Appendix Table 2.--Taxa collected by box corer at and adjacent to Site F, offshore from Coos Bay, Oregon, April and October 1992.

Taxon	April	October
Cnidaria		x
Pleurobrachidae	x	
<i>Pleurobrachia bachei</i>		x
Tentaculata	x	
Platyhelminthes		x
Nemertea	x	x
Annelida		
Polychaeta	x	
Polynoidae	x	x
<i>Tenonia priops</i>		x
<i>Harmothoe</i> spp.	x	
Sigalionidae		x
<i>Sigalion</i> spp.		x
<i>Sigalion mathildae</i>		x
<i>Pholoe minuta</i>		x
<i>Sthenelais tertiaglabra</i>	x	x
<i>Thalenessa spinosa</i>	x	
Pisicionidae		
<i>Pisione remota</i>		x
Phyllodoceidae	x	
<i>Phyllodoce</i> spp.	x	x
<i>Eteone</i> spp.	x	
<i>Eteone longa</i>	x	x
<i>Eteone fauchaldi</i>	x	x
<i>Phyllodoce groenlandica</i>		x
<i>Phyllodoce mucosa</i>		x
<i>Phyllodoce</i> (Paranaitis) <i>polynoides</i>	x	
<i>Phyllodoce</i> (Aponaitides) <i>hartmanae</i>	x	x
<i>Hesionura coineaui difficilis</i>		x
<i>Eumida sanguinea</i>		x
Hesionidae		x
<i>Microphthalmus</i> spp.	x	
<i>Microphthalmus sczelkowi</i>		x
<i>Heteropodarke heteromorpha</i>	x	x
<i>Podarkeopsis brevipalpa</i>		x
Syllidae	x	x
<i>Proceraea cornutus</i>		x
Nereidae		x
<i>Nereis zonata</i>		x

Appendix Table 2.--Continued.

Taxon	April	October
Nephtyidea		
<i>Nephtys</i> spp.	x	x
<i>Nephtys caeca</i>	x	
<i>Nephtys caecoides</i>	x	x
<i>Nephtys californiensis</i>	x	
Glyceridae		
<i>Glycera</i> spp.	x	x
<i>Glycera tenuis</i>	x	x
<i>Glycera americana</i>		x
<i>Glycera convoluta</i>	x	x
<i>Glycinde armigera</i>	x	x
<i>Goniada maculata</i>	x	
Onuphidae		
<i>Onuphis iridescens</i>	x	x
<i>Onuphis elegans</i>	x	
Lumbrineridae		
<i>Lumbrineris</i> spp.	x	x
<i>Eranno bicirrata</i>		x
Arabellidae		
<i>Notocirrus californiensis</i>	x	
Orbiniidae		
<i>Naineris uncinata</i>	x	
<i>Scoloplos armiger</i>	x	x
<i>Orbinia felix</i>	x	x
Paraonidae		
<i>Aedicira</i> spp.	x	
<i>Aricidea lopezi</i>	x	
<i>Aricidea</i> (Acesta) <i>catherinae</i>		x
<i>Paraonella platybranchia</i>	x	x
Spionidae		
<i>Polydora</i> spp.		x
<i>Polydora socialis</i>		x
<i>Prionospio lighti</i>	x	x
<i>Spio</i> spp.		x
<i>Spio butleri</i>	x	
<i>Spiophanes bombyx</i>	x	x
<i>Paraprionospio pinnata</i>		x
<i>Pygospio elegans</i>	x	
<i>Scolelepis</i> spp.	x	x
<i>Scolelepis squamata</i>	x	
Magelonidae		
<i>Magelona</i> spp.	x	x
<i>Magelona longicornis</i>	x	x
<i>Magelona sacculata</i>	x	x
<i>Magelona hobsonae</i>		x



Appendix Table 2.--Continued.

Taxon	April	October
Chaetopteridae		
<i>Spiochaetopterus costarum</i>		x
<i>Mesochaetopterus taylori</i>	x	
Cirratulidae	x	x
<i>Aphelochaeta</i> spp.	x	
<i>Chaetozone spinosa</i>	x	x
Scalibregmidae		
<i>Scalibregma inflatum</i>	x	
Opheliidae		
<i>Armandia brevis</i>		x
<i>Ophelia</i> spp.	x	x
<i>Travisia brevis</i>		x
Capitellidae	x	
<i>Capitella capitata</i> complex	x	x
<i>Heteromastus filiformis</i>	x	x
<i>Heteromastus filobranchus</i>	x	
<i>Notomastus tenuis</i>	x	
<i>Notomastus lineatus</i>	x	x
Maldanidae	x	x
Oweniidae		
<i>Owenia fusiformis</i>	x	
Ampharetidae		
<i>Ampharete acutifrons</i>	x	x
Terebellidae	x	
<i>Neoamphitrite edwardsii</i>		x
<i>Eupolymnia heterobranchia</i>	x	
<i>Polycirrus</i> spp. complex	x	x
<i>Lanassa venusta venusta</i>	x	
Saccocirridae		
<i>Saccocirrus exoticus</i>		x
Polygordiidae		
<i>Polygordius</i> spp.		x
Oligochaeta	x	x
Mollusca		
Gastropoda	x	x
Turbinidae		
<i>Spiromoellaria quadrae</i>		x
Lacunidae		
<i>Lacuna</i> spp.		x
<i>Lacuna vincta</i>		x
Vitrinellidae		
<i>Vitrinella columbiana</i>		x
Naticidae		
<i>Polinices</i> spp.	x	x

Appendix Table 2.--Continued.

Taxon	April	October
Muricidae		
<i>Nitidella gouldi</i>	x	x
Nassaridae		
<i>Nassarius fossatus</i>	x	x
Olivellidae	x	x
<i>Olivella</i> spp.	x	x
<i>Olivella biplicata</i>	x	x
<i>Olivella baetica</i>	x	x
<i>Olivella pycna</i>	x	x
Turridae		
<i>Kurtzia arteaga</i>		x
Opisthobranchia		
Pyramidellidae		
<i>Odostomia</i> spp.	x	x
<i>Turbonilla</i> spp.		x
Cylichnidae		
<i>Cylichna attonsa</i>	x	x
Aglajidae		
<i>Aglaja diomedea</i>	x	
Gastropteridae		
<i>Gastropteron pacificum</i>	x	
Bivalvia		x
Nuculidae		
<i>Nucula tenuis</i>		x
<i>Acila minuta</i>	x	
Mytilidae	x	x
Montacutidae		
<i>Mysella tumida</i>	x	
Cardiidae		
<i>Clinocardium nuttalli</i>		x
Cultellidae		
<i>Siliqua</i> spp.	x	x
<i>Siliqua patula</i>	x	x
<i>Siliqua sloati</i>	x	x
Tellinidae		
<i>Macoma</i> spp.	x	x
<i>Macoma calcarea</i>	x	
<i>Macoma carlottensis</i>	x	x
<i>Macoma balthica</i>	x	x
<i>Macoma secta</i>		x
<i>Tellina</i> spp.	x	x
<i>Tellina nuculiodes</i>	x	x
<i>Tellina carpenteri</i>	x	x
<i>Tellina modesta</i>		x
<i>Tellina bodegensis</i>	x	x

Appendix Table 2.--Continued.

Taxon	April	October
Veneridae		
<i>Saxidomus giganteus</i>		x
Turtoniidae		
<i>Petricola carditoides</i>		x
Hiatellidae		
<i>Hiatella arctica</i>		x
Pandoridae		
<i>Pandora</i> spp.		x
Arthropoda		
Arachnida		x
Ostracoda		
Cylindroleberididae		x
<i>Bathyleberis</i> spp.	x	
Copepoda		
Calanoida	x	x
Harpacticoida		x
Cyclopoida		x
Cirripedia	x	x
<i>Balanus</i> spp.		x
Mysidacea		
Mysidae	x	
<i>Acanthomysis</i> spp.		x
<i>Acanthomysis columbiae</i>		x
<i>Archaeomysis grebnitzkii</i>	x	x
<i>Neomysis</i> spp.	x	x
<i>Neomysis kadiakensis</i>		x
Lampropidae		x
<i>Lamprops</i> spp.	x	
<i>Hemilamprops californica</i>		x
Leuconiidae		
<i>Leucon</i> spp.		x
Diastylidae		
<i>Diastylis</i> spp.	x	
<i>Diastylopsis</i> spp.	x	x
<i>Diastylopsis dawsoni</i>	x	x
<i>Diastylopsis tenuis</i>	x	x
<i>Colurostylis occidentalis</i>	x	x
Isopoda		
Spaeromatidae		
<i>Tecticeps</i> spp.		x
<i>Gnorimosphaeroma oregonensis</i>	x	x
<i>Bathycopea daltonae</i>	x	

Appendix Table 2.--Continued.

Taxon	April	October
Idoteidae		
<i>Ancinus</i> spp.		x
<i>Ancinus granulatus</i>		x
<i>Synidotea</i> spp.		x
<i>Synidotea angulata</i>	x	x
<i>Edotea sublittoralis</i>	x	x
Janiridae		x
<i>Caecianiropsis psammophila</i>		x
Amphipoda		
Gammaridea		
Atylidae		
<i>Atylus tridens</i>	x	x
Corophiidae		
<i>Corophium</i> spp.		x
Ampeliscidae		
<i>Ampelisca</i> spp.	x	
<i>Ampelisca macrocephala</i>		x
<i>Ampelisca agassizi</i>	x	
<i>Ampelisca careyi</i>	x	
Haustoridae		
<i>Eohaustorius</i> spp.	x	x
<i>Eohaustorius estuarius</i>	x	x
<i>Eohaustorius sawyeri</i>	x	x
<i>Eohaustorius sencillus</i>	x	x
Hyalidae		x
<i>Allorchestes</i> spp.		x
Isaetae		x
<i>Photis</i> spp.	x	x
<i>Photis lacia</i>	x	
<i>Photis macinerneyi</i>		x
<i>Photis parvidons</i>		x
<i>Protomedeia</i> spp.		x
Ischyroceridae		x
<i>Ischyrocerus</i> spp.	x	
Lysianassidae		
<i>Anonyx</i> spp.	x	
<i>Psammonyx longimerus</i>	x	x
Oedicerotidae		
<i>Monoculodes</i> spp.	x	x
<i>Monoculodes spinipes</i>	x	x
<i>Monoculodes shoemakeri</i>		x
<i>Monoculodes zernovi</i>	x	
<i>Synchelidium</i> spp.	x	

Appendix Table 2.--Continued.

Taxon	April	October
Phoxocephalidae		
<i>Foxiphalus obtusidens</i>		x
<i>Paraphoxus oculatus</i>	x	
<i>Mandibulophoxus</i> spp.	x	x
<i>Mandibulophoxus gilesi</i>	x	x
<i>Rhepoxynius</i> spp.	x	x
<i>Rhepoxynius abronius</i>	x	x
<i>Rhepoxynius tridentatus</i>		x
<i>Rhepoxynius vigitegus</i>	x	x
<i>Eobrolgus spinosus</i>	x	x
<i>Foxiphalus major</i>	x	x
Pleustidae		
<i>Parapleustes</i> spp.		x
<i>Parapleustes den</i>		x
Hyperiididae		
<i>Hyperoche</i> spp.		x
Decapoda		x
Decapoda zoea		x
Crangonidae		
<i>Lissocrangon stylirostris</i>	x	x
Paguridae		
<i>Pagurus</i> spp.	x	x
<i>Pagurus quaylei</i>	x	
Brachyura		
<i>Cancer</i> spp. (megalops)	x	
<i>Cancer</i> spp. (zoea)	x	
Onychophora		
Pinnotheridae		
<i>Pinnixa</i> spp.	x	x
Collembola		x
Hymenoptera		x
Phoronidae		
Phoronida	x	x
Brachiopoda		
Ophiuridea		x
Amphiuridae		
<i>Amphiodia</i> spp.	x	
<i>Amphiodia urtica</i>	x	x

Appendix Table 2.--Continued.

Taxon	April	October
Echinodermata		
Echinoidea		
Dendrasteridae		
<i>Dendraster excentricus</i>	x	x
Holothuroidea		x
Chaetognatha	x	x
Chordata		
Vertebrata		
Osteichthyes		
<i>Ammodytes hexapterus</i>	x	
Total number of taxa	148	182

Appendix Table 3.--Summary of benthic invertebrates, by station, at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Station: 1		Date: 14 Apr 92		Sample size: 5	
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>	
Nemertea	82	60.0	170.9	370.5	
Polychaeta	1	20.0	2.1	4.7	
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7	
Syllidae	6	60.0	12.5	13.6	
<i>Nephtys</i> spp.	984	100.0	2,050.7	1,383.6	
<i>Nephtys caeca</i>	3	40.0	6.3	9.3	
<i>Glycera</i> spp.	1	20.0	2.1	4.7	
<i>Glycera tenuis</i>	1	20.0	2.1	4.7	
<i>Onuphis elegans</i>	2	40.0	4.2	5.7	
<i>Scoloplos armiger</i>	35	100.0	72.9	31.3	
<i>Paraonella platybranchia</i>	12	80.0	25.0	24.0	
<i>Spio butleri</i>	14	100.0	29.2	17.1	
<i>Spiophanes bombyx</i>	4	60.0	8.3	8.7	
<i>Magelona</i> spp.	72	100.0	150.0	92.5	
<i>Magelona sacculata</i>	1	20.0	2.1	4.7	
<i>Chaetozone spinosa</i>	4	40.0	8.3	13.6	
<i>Heteromastus filiformis</i>	1	20.0	2.1	4.7	
<i>Olivella biplicata</i>	55	60.0	114.6	111.0	
<i>Olivella pycna</i>	14	80.0	29.2	37.9	
Pelecypoda	1	20.0	2.1	4.7	
<i>Tellina</i> spp.	1	20.0	2.1	4.7	
<i>Lamprops</i> spp.	2	20.0	4.2	9.3	
<i>Atylus tridens</i>	1	20.0	2.1	4.7	
<i>Eohaustorius</i> spp.	2	20.0	4.2	9.3	
<i>Eohaustorius sawyeri</i>	8	80.0	16.7	15.8	
<i>Eohaustorius sencillus</i>	7	20.0	14.6	32.6	
<i>Photis</i> spp.	1	20.0	2.1	4.7	
<i>Ischyrocercus</i> spp.	1	20.0	2.1	4.7	
<i>Monoculodes</i> spp.	1	20.0	2.1	4.7	
<i>Monoculodes spinipes</i>	2	20.0	4.2	9.3	
<i>Synchelidium</i> spp.	3	40.0	6.3	9.3	
<i>Mandibulophoxus gilesi</i>	3	60.0	6.3	5.7	
<i>Foxiphalus major</i>	2	40.0	4.2	5.7	
Number of taxa: 33					
Mean number/sample: 265.8					
Mean number/m <sup>2</sup> : 2,769.6					
H = 1.72 E = 0.34					
Standard deviation/sample: 138.1					
Standard deviation: 1,439.4					

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	68	80.0	141.7	299.4
Polychaeta	6	40.0	12.5	18.6
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Microphthalmus</i> spp.	1	20.0	2.1	4.7
Syllidae	51	100.0	106.3	143.1
<i>Nephtys</i> spp.	1,587	100.0	3,307.3	2,492.7
<i>Nephtys caeca</i>	2	40.0	4.2	5.7
<i>Nephtys californiensis</i>	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	4	40.0	8.3	13.6
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Onuphis elegans</i>	4	40.0	8.3	13.6
<i>Scoloplos armiger</i>	11	80.0	22.9	23.8
<i>Spio butleri</i>	45	100.0	93.8	58.9
<i>Spiophanes bombyx</i>	3	60.0	6.3	5.7
<i>Pygospio elegans</i>	2	40.0	4.2	5.7
<i>Scolelepis</i> spp.	1	20.0	2.1	4.7
<i>Scolelepis squamata</i>	2	20.0	4.2	9.3
<i>Magelona</i> spp.	25	80.0	52.1	33.0
<i>Magelona sacculata</i>	5	20.0	10.4	23.3
<i>Chaetozone spinosa</i>	3	40.0	6.3	9.3
<i>Ophelia</i> spp.	1	20.0	2.1	4.7
<i>Capitella capitata</i> complex	4	60.0	8.3	8.7
<i>Olivella biplicata</i>	35	80.0	72.9	72.6
<i>Olivella pycna</i>	2	40.0	4.2	5.7
<i>Macoma</i> spp.	2	20.0	4.2	9.3
<i>Tellina</i> spp.	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	21	20.0	43.8	97.9
<i>Eohaustorius estuarius</i>	5	60.0	10.4	12.8
<i>Eohaustorius sawyeri</i>	14	80.0	29.2	22.6
<i>Eohaustorius sencillus</i>	13	60.0	27.1	30.9
<i>Ischyrocerus</i> spp.	1	20.0	2.1	4.7
<i>Monoculodes spinipes</i>	2	20.0	4.2	9.3
<i>Synchelidium</i> spp.	1	20.0	2.1	4.7
<i>Mandibulophoxus gilesi</i>	5	80.0	10.4	7.4

Number of taxa: 34  
 Mean number/sample: 386.0  
 Mean number/m<sup>2</sup>: 4,022.1  
 H = 1.36 E = 0.27

Standard deviation/sample: 236.9  
 Standard deviation: 2,468.7



Station: 3

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	28	100.0	58.4	65.3
Polychaeta	1	20.0	2.1	4.7
Phyllodocidae	1	20.0	2.1	4.7
<i>Eteone fauchaldi</i>	7	80.0	14.6	11.9
<i>Microphthalmus</i> spp.	1	20.0	2.1	4.7
Syllidae	10	100.0	20.8	12.8
<i>Nephtys</i> spp.	610	100.0	1,271.2	541.1
<i>Nephtys caeca</i>	6	60.0	12.5	17.1
<i>Nephtys caecoides</i>	5	60.0	10.4	12.8
<i>Glycera</i> spp.	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Onuphis elegans</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	88	100.0	183.4	82.2
<i>Aedicira</i> spp.	1	20.0	2.1	4.7
<i>Aricidae lopezi</i>	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	49	100.0	102.1	52.8
<i>Spio butleri</i>	114	100.0	237.6	95.0
<i>Spiophanes bombyx</i>	165	100.0	343.9	192.4
<i>Pygospio elegans</i>	2	20.0	4.2	9.3
<i>Scolecopsis squamata</i>	4	80.0	8.3	4.7
<i>Magelona</i> spp.	789	100.0	1,644.3	832.5
<i>Chaetozone spinosa</i>	15	100.0	31.3	22.1
<i>Ophelia</i> spp.	1	20.0	2.1	4.7
Capitellidae	2	40.0	4.2	5.7
<i>Capitella capitata</i> complex	3	20.0	6.3	14.0
<i>Heteromastus filiformis</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	1	20.0	2.1	4.7
<i>Olivella baetica</i>	1	20.0	2.1	4.7
<i>Olivella pycna</i>	7	40.0	14.6	22.8
<i>Tellina</i> spp.	1	20.0	2.1	4.7
<i>Tellina</i> spp. juvenile	4	40.0	8.3	13.6
<i>Tellina nuculoides</i>	1	20.0	2.1	4.7
<i>Tellina bodegensis</i>	3	60.0	6.3	5.7
<i>Archaeomysis grebnitzkii</i>	2	20.0	4.2	9.3
<i>Diastylis</i> spp.	3	40.0	6.3	9.3
<i>Diastylopsis dawsoni</i>	1	20.0	2.1	4.7
<i>Diastylopsis tenuis</i>	1	20.0	2.1	4.7
<i>Colurostylis occidentalis</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	8	80.0	16.7	11.9
<i>Eohaustorius estuarius</i>	1	20.0	2.1	4.7
<i>Eohaustorius sawyeri</i>	11	60.0	22.9	28.0
<i>Eohaustorius sencillus</i>	10	60.0	20.8	20.8
<i>Anonyx</i> spp.	1	20.0	2.1	4.7
<i>Monoculodes</i> spp.	6	40.0	12.5	22.6
<i>Monoculodes spinipes</i>	6	60.0	12.5	13.6
<i>Synchelidium</i> spp.	1	20.0	2.1	4.7
<i>Mandibulophoxus gilesi</i>	28	60.0	58.4	57.4

## Appendix Table 3.--Continued.

Station: 3-Continued		Date: 14 Apr 92		Sample size: 5	
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>	
<i>Rhepoxynius</i> spp.	1	20.0	2.1	4.7	
<i>Rhepoxynius abronius</i>	1	20.0	2.1	4.7	
<i>Foxiphalus major</i>	2	40.0	4.2	5.7	
Phoronida	1	20.0	2.1	4.7	
<i>Amphiodia</i> spp.	1	20.0	2.1	4.7	
<i>Dendraster excentricus</i>	3	40.0	6.3	9.3	
Number of taxa: 53		Standard deviation/sample:		152.6	
Mean number/sample: 402.8		Standard deviation:		1,590.1	
Mean number/m <sup>2</sup> : 4,197.2					
H = 2.70 E = 0.47					

Station: 4

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	8	80.0	16.7	15.8
<i>Eteone fauchaldi</i>	7	80.0	14.6	11.9
<i>Microphthalmus</i> spp.	3	60.0	6.3	5.7
Syllidae	28	100.0	58.4	28.2
<i>Nephtys</i> spp.	51	100.0	106.3	91.6
<i>Nephtys caeca</i>	2	40.0	4.2	5.7
<i>Nephtys caecoides</i>	3	40.0	6.3	9.3
<i>Glycera</i> spp.	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	3	40.0	6.3	9.3
<i>Scoloplos armiger</i>	68	100.0	141.7	77.1
<i>Paraonella platybranchia</i>	20	100.0	41.7	26.6
<i>Spio butleri</i>	2	40.0	4.2	5.7
<i>Spiophanes bombyx</i>	57	100.0	118.8	82.6
<i>Magelona</i> spp.	471	100.0	981.6	389.2
<i>Magelona sacculata</i>	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	29	100.0	60.4	27.0
<i>Heteromastus filiformis</i>	5	60.0	10.4	10.4
<i>Olivella</i> spp.	2	40.0	4.2	5.7
<i>Olivella biplicata</i>	12	100.0	25.0	14.0
<i>Olivella baetica</i>	5	40.0	10.4	14.7
<i>Olivella pycna</i>	81	100.0	168.8	89.8
Pelecypoda	1	20.0	2.1	4.7
<i>Macoma</i> spp.	2	20.0	4.2	9.3
<i>Tellina nuculoides</i>	2	20.0	4.2	9.3
<i>Tellina bodegensis</i>	6	80.0	12.5	11.4
<i>Diastylopsis</i> spp.	4	20.0	8.3	18.6
<i>Diastylopsis tenuis</i>	7	60.0	14.6	17.4
<i>Bathycopea daltonae</i>	3	40.0	6.3	9.3
<i>Eohaustorius</i> spp.	4	60.0	8.3	8.7
<i>Eohaustorius sawyeri</i>	2	40.0	4.2	5.7
<i>Eohaustorius sencillus</i>	1	20.0	2.1	4.7
<i>Psammonyx longimerus</i>	150	100.0	312.6	95.5
<i>Monoculodes</i> spp.	6	60.0	12.5	13.6
<i>Monoculodes spinipes</i>	3	20.0	6.3	14.0
<i>Synchelidium</i> spp.	3	40.0	6.3	9.3
<i>Mandibulophoxus gilesi</i>	328	100.0	683.6	147.8
<i>Foxiphalus major</i>	15	100.0	31.3	16.5
<i>Dendraster excentricus</i>	26	100.0	54.2	41.9

Number of taxa: 38

Mean number/sample: 284.4

Mean number/m<sup>2</sup>: 2,963.4

H = 3.22 E = 0.61

Standard deviation/sample: 69.3

Standard deviation: 722.5

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	25	100.0	52.1	27.6
<i>Thalenessa spinosa</i>	6	60.0	12.5	11.4
Phyllodocidae	1	20.0	2.1	4.7
<i>Eteone fauchaldi</i>	5	40.0	10.4	14.7
<i>Eteone longa</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	7	80.0	14.6	15.8
<i>Heteropodarke heteromorpha</i>	2	40.0	4.2	5.7
Syllidae	36	100.0	75.0	62.7
<i>Nephtys</i> spp.	132	100.0	275.1	133.6
<i>Nephtys caeca</i>	13	80.0	27.1	28.2
<i>Nephtys caecoides</i>	9	80.0	18.8	20.0
<i>Glycera</i> spp.	20	80.0	41.7	38.3
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	5	60.0	10.4	10.4
<i>Scoloplos armiger</i>	113	80.0	235.5	155.0
Paraonidae	1	20.0	2.1	4.7
<i>Aricidae lopezi</i>	2	20.0	4.2	9.3
<i>Paraonella platybranchia</i>	40	100.0	83.4	26.6
<i>Prionopsio lighti</i>	1	20.0	2.1	4.7
<i>Spio butleri</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	770	100.0	1,604.7	804.3
<i>Magelona</i> spp.	1,716	100.0	3,576.1	899.2
<i>Magelona sacculata</i>	50	100.0	104.2	25.5
<i>Chaetozone spinosa</i>	299	100.0	623.1	327.5
<i>Heteromastus filobranchus</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	26	100.0	54.2	21.4
<i>Olivella</i> spp.	31	100.0	64.6	43.8
<i>Olivella biplicata</i>	8	80.0	16.7	20.3
<i>Olivella baetica</i>	11	60.0	22.9	34.9
<i>Olivella pycna</i>	310	100.0	646.0	292.4
Pelecypoda	40	20.0	83.4	186.4
<i>Nuculana minuta</i>	1	20.0	2.1	4.7
<i>Macoma</i> spp.	2	40.0	4.2	5.7
<i>Tellina</i> spp.	26	100.0	54.2	36.4
<i>Tellina nuculoides</i>	3	20.0	6.3	14.0
<i>Tellina carpenteri</i>	10	80.0	20.8	19.5
<i>Tellina bodegensis</i>	11	100.0	22.9	11.4
<i>Archaeomysis grebnitzkii</i>	1	20.0	2.1	4.7
<i>Lamprops</i> spp.	2	20.0	4.2	9.3
<i>Diastylopsis</i> spp.	5	60.0	10.4	10.4
<i>Diastylopsis tenuis</i>	63	80.0	131.3	102.5
<i>Colurostylis occidentalis</i>	3	40.0	6.3	9.3
<i>Bathycopea daltonae</i>	4	60.0	8.3	8.7
<i>Eohaustorius</i> spp.	18	80.0	37.5	39.4
<i>Eohaustorius estuarius</i>	2	20.0	4.2	9.3
<i>Eohaustorius sawyeri</i>	35	100.0	72.9	28.5
<i>Eohaustorius sencillus</i>	28	60.0	58.4	63.6
<i>Photis</i> spp.	5	60.0	10.4	10.4
<i>Photis lacia</i>	2	20.0	4.2	9.3
<i>Ischyrocercus</i> spp.	4	40.0	8.3	13.6
<i>Psammonyx longimerus</i>	11	100.0	22.9	13.6
<i>Monoculodes</i> spp.	2	20.0	4.2	9.3
<i>Monoculodes spinipes</i>	4	60.0	8.3	8.7

## Appendix Table 3.--Continued.

Station: 5-Continued.

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Synchelidium</i> spp.	19	80.0	39.6	28.0
<i>Mandibulophoxus gilesi</i>	226	100.0	471.0	175.4
<i>Rhepoxynius vigitegus</i>	52	100.0	108.4	51.4
<i>Foxiphalus major</i>	30	100.0	62.5	16.5
Phoronida	2	40.0	4.2	5.7
<i>Amphiodia</i> spp.	10	100.0	20.8	7.4
<i>Dendraster excentricus</i>	11	100.0	22.9	13.6

Number of taxa: 60

Mean number/sample: 855.0

Mean number/m<sup>2</sup>: 8,909.1

H = 3.28 E = 0.55

Standard deviation/sample: 174.6

Standard deviation: 1,818.9

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	47	80.0	97.9	53.9
Polynoidae	1	20.0	2.1	4.7
<i>Thalenessa spinosa</i>	10	100.0	20.8	14.7
<i>Eteone fauchaldi</i>	3	40.0	6.3	9.3
<i>Phyllodoce hartmanae</i>	1	20.0	2.1	4.7
<i>Microphthalmus</i> spp.	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	2	40.0	4.2	5.7
Syllidae	24	100.0	50.0	32.5
<i>Nephtys</i> spp.	160	80.0	333.4	356.2
<i>Nephtys caeca</i>	16	80.0	33.3	29.8
<i>Nephtys caecoides</i>	5	60.0	10.4	12.8
<i>Glycera</i> spp.	17	60.0	35.4	42.7
<i>Onuphis elegans</i>	2	40.0	4.2	5.7
<i>Scoloplos armiger</i>	68	80.0	141.7	104.4
<i>Orbinia (Phylo) felix</i>	3	20.0	6.3	14.0
<i>Aedicira</i> spp.	1	20.0	2.1	4.7
<i>Aricidae lopezi</i>	2	40.0	4.2	5.7
<i>Paraonella platybranchia</i>	15	100.0	31.3	20.8
<i>Spiophanes bombyx</i>	413	100.0	860.7	651.2
<i>Magelona</i> spp.	1,157	100.0	2,411.2	1,377.0
<i>Magelona sacculata</i>	31	100.0	64.6	52.8
<i>Aphelochaeta</i> spp.	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	218	100.0	454.3	168.6
Capitellidae	1	20.0	2.1	4.7
<i>Heteromastus filiformis</i>	2	40.0	4.2	5.7
<i>Notomastus lineatus</i>	1	20.0	2.1	4.7
Terebellidae	1	20.0	2.1	4.7
Oligochaeta	4	60.0	8.3	8.7
<i>Nassarius fossatus</i>	19	60.0	39.6	40.6
<i>Olivella</i> spp.	33	80.0	68.8	77.5
<i>Olivella biplicata</i>	1	20.0	2.1	4.7
<i>Olivella baetica</i>	7	60.0	14.6	15.8
<i>Olivella pycna</i>	126	80.0	262.6	283.3
<i>Gastropteron pacificum</i>	1	20.0	2.1	4.7
Mytilidae	1	20.0	2.1	4.7
<i>Macoma</i> spp.	5	60.0	10.4	10.4
<i>Macoma calcarea</i>	1	20.0	2.1	4.7
<i>Macoma balthica</i>	1	20.0	2.1	4.7
<i>Tellina</i> spp.	6	80.0	12.5	8.7
<i>Tellina nuculoides</i>	4	20.0	8.3	18.6
<i>Tellina bodegensis</i>	7	80.0	14.6	15.8
<i>Lamprops</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis</i> spp.	7	60.0	14.6	14.0
<i>Diastylopsis tenuis</i>	42	80.0	87.5	94.8
<i>Colurostyliis occidentalis</i>	6	60.0	12.5	13.6
<i>Bathycopea daltonae</i>	13	100.0	27.1	9.3
<i>Eohaustorius</i> spp.	172	100.0	358.4	301.3
<i>Eohaustorius estuarius</i>	13	40.0	27.1	41.4
<i>Eohaustorius sawyeri</i>	121	100.0	252.2	189.1
<i>Eohaustorius sencillus</i>	57	100.0	118.8	122.1
<i>Photis</i> spp.	1	20.0	2.1	4.7
<i>Ischyrocerus</i> spp.	2	20.0	4.2	9.3
<i>Psammonyx longimerus</i>	2	40.0	4.2	5.7

## Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Monoculodes</i> spp.	3	40.0	6.3	9.3
<i>Monoculodes spinipes</i>	5	40.0	10.4	14.7
<i>Synchelidium</i> spp.	5	40.0	10.4	18.0
<i>Mandibulophoxus</i> spp.	2	20.0	4.2	9.3
<i>Mandibulophoxus gilesi</i>	393	100.0	819.0	275.3
<i>Rhepoxynius vigitegus</i>	102	100.0	212.6	67.0
<i>Eobrolgus spinosus</i>	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	18	100.0	37.5	44.0
<i>Pagurus quaylei</i>	2	40.0	4.2	5.7
Phoronida	1	20.0	2.1	4.7
<i>Amphiodia</i> spp.	3	60.0	6.3	5.7
<i>Dendraster excentricus</i>	47	100.0	97.9	42.1

Number of taxa: 65  
 Mean number/sample: 687.6  
 Mean number/m<sup>2</sup>: 7,164.8  
 H = 3.64 E = 0.60

Standard deviation/sample: 252.9  
 Standard deviation: 2,635.3

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	31	100.0	64.6	45.1
Polynoidae	1	20.0	2.1	4.7
<i>Thalenessa spinosa</i>	2	20.0	4.2	9.3
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7
<i>Phyllodoce</i> spp.	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	17	100.0	35.4	14.0
Syllidae	2	20.0	4.2	9.3
<i>Nephtys</i> spp.	36	100.0	75.0	40.6
<i>Nephtys caeca</i>	6	80.0	12.5	8.7
<i>Nephtys caecoides</i>	6	40.0	12.5	22.6
<i>Glycera</i> spp.	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	15	100.0	31.3	19.5
<i>Glycinde armigera</i>	9	80.0	18.8	20.0
<i>Onuphis elegans</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	89	100.0	185.5	58.2
<i>Orbinia (Phylo) felix</i>	1	20.0	2.1	4.7
<i>Aedicira</i> spp.	1	20.0	2.1	4.7
<i>Aricidae lopezi</i>	2	40.0	4.2	5.7
<i>Paraonella platybranchia</i>	10	100.0	20.8	10.4
<i>Spiophanes bombyx</i>	73	100.0	152.1	38.0
<i>Magelona</i> spp.	433	100.0	902.4	167.1
<i>Magelona sacculata</i>	10	80.0	20.8	20.8
<i>Chaetozone spinosa</i>	35	100.0	72.9	26.6
<i>Ophelia</i> spp.	5	40.0	10.4	14.7
<i>Notomastus lineatus</i>	1	20.0	2.1	4.7
<i>Maldanidae</i> spp.	3	20.0	6.3	14.0
<i>Oligochaeta</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	1	20.0	2.1	4.7
<i>Olivella biplicata</i>	1	20.0	2.1	4.7
<i>Olivella baetica</i>	3	40.0	6.3	9.3
<i>Olivella pycna</i>	395	100.0	823.2	915.7
<i>Aglaja diomedea</i>	3	40.0	6.3	9.3
<i>Siliqua</i> spp.	1	20.0	2.1	4.7
<i>Macoma calcarea</i>	3	20.0	6.3	14.0
<i>Tellina</i> spp.	3	40.0	6.3	9.3
<i>Tellina carpenteri</i>	1	20.0	2.1	4.7
<i>Tellina bodegensis</i>	2	40.0	4.2	5.7
<i>Archaeomysis grebnitzkii</i>	2	20.0	4.2	9.3
<i>Lamprops</i> spp.	3	40.0	6.3	9.3
<i>Diastylopsis</i> spp.	3	20.0	6.3	14.0
<i>Diastylopsis tenuis</i>	15	60.0	31.3	39.0
<i>Colurostylis occidentalis</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	5	40.0	10.4	18.0
<i>Eohaustorius estuarius</i>	3	20.0	6.3	14.0
<i>Eohaustorius sawyeri</i>	10	80.0	20.8	19.5
<i>Eohaustorius sencillus</i>	17	100.0	35.4	26.2
<i>Photis</i> spp.	9	40.0	18.8	36.4
<i>Photis lacia</i>	5	60.0	10.4	10.4
<i>Ischyrocercus</i> spp.	2	40.0	4.2	5.7
<i>Psammonyx longimerus</i>	11	60.0	22.9	22.6
<i>Monoculodes</i> spp.	3	40.0	6.3	9.3



## Appendix Table 3.--Continued.

Station: 7-Continued.

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Synchelidium</i> spp.	12	80.0	25.0	21.6
<i>Mandibulophoxus gilesi</i>	51	100.0	106.3	30.7
<i>Rhepoxynius vigitegus</i>	2	20.0	4.2	9.3
<i>Foxiphalus major</i>	8	80.0	16.7	15.8
<i>Pagurus quaylei</i>	1	20.0	2.1	4.7
Phoronida	2	40.0	4.2	5.7
<i>Amphiodia</i> spp.	5	60.0	10.4	12.8
<i>Dendraster excentricus</i>	18	100.0	37.5	15.8

Number of taxa: 60

Mean number/sample: 279.2

Mean number/m<sup>2</sup>: 2,909.3

H = 3.45 E = 0.58

Standard deviation/sample: 83.8

Standard deviation: 872.8

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	41	100.0	85.4	32.5
Polynoidae	3	40.0	6.3	9.3
<i>Thalenessa spinosa</i>	12	100.0	25.0	5.7
<i>Eteone fauchaldi</i>	5	60.0	10.4	10.4
<i>Heteropodarke heteromorpha</i>	14	100.0	29.2	15.5
Syllidae	6	60.0	12.5	13.6
<i>Nephtys</i> spp.	119	100.0	248.0	240.8
<i>Nephtys caeca</i>	22	100.0	45.8	15.8
<i>Nephtys caecoides</i>	5	40.0	10.4	18.0
<i>Glycera</i> spp.	9	80.0	18.8	13.6
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	4	40.0	8.3	13.6
<i>Onuphis iridescens</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	139	100.0	289.7	107.6
<i>Orbinia</i> (Phylo) <i>felix</i>	3	40.0	6.3	9.3
Aricidae <i>lopezi</i>	2	40.0	4.2	5.7
<i>Paraonella platybranchia</i>	11	100.0	22.9	13.6
<i>Spio butleri</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	37	100.0	77.1	45.8
<i>Magelona</i> spp.	246	100.0	512.7	208.1
<i>Magelona sacculata</i>	5	60.0	10.4	10.4
<i>Chaetozone spinosa</i>	126	100.0	262.6	113.3
<i>Nassarius fossatus</i>	2	40.0	4.2	5.7
<i>Olivella</i> spp.	11	80.0	22.9	18.6
<i>Olivella biplicata</i>	4	40.0	8.3	13.6
<i>Olivella baetica</i>	4	40.0	8.3	13.6
<i>Olivella pycna</i>	859	100.0	1,790.2	2,196.9
<i>Aglaja diomedea</i>	8	60.0	16.7	18.9
<i>Macoma</i> spp.	6	60.0	12.5	13.6
<i>Macoma calcarea</i>	2	20.0	4.2	9.3
<i>Tellina</i> spp.	18	60.0	37.5	46.9
<i>Tellina nuculoides</i>	9	100.0	18.8	8.7
<i>Tellina carpenteri</i>	12	80.0	25.0	21.6
<i>Tellina bodegensis</i>	10	80.0	20.8	19.5
<i>Lamprops</i> spp.	5	40.0	10.4	14.7
<i>Diastylopsis</i> spp.	21	60.0	43.8	64.8
<i>Diastylopsis tenuis</i>	50	100.0	104.2	62.1
<i>Colurostylis occidentalis</i>	3	40.0	6.3	9.3
<i>Ampelisca careyi</i>	1	20.0	2.1	4.7
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	16	80.0	33.3	32.5
<i>Eohaustorius estuarius</i>	12	60.0	25.0	35.0
<i>Eohaustorius sawyeri</i>	65	100.0	135.5	43.0
<i>Eohaustorius sencillus</i>	6	60.0	12.5	13.6
<i>Photis</i> spp.	13	80.0	27.1	20.3
<i>Photis lacia</i>	30	80.0	62.5	67.9
<i>Psammonyx longimerus</i>	5	60.0	10.4	10.4
<i>Monoculodes spinipes</i>	1	20.0	2.1	4.7
<i>Synchelidium</i> spp.	20	100.0	41.7	30.4
<i>Mandibulophoxus gilesi</i>	97	100.0	202.1	112.9
<i>Rhepoxynius vigitegus</i>	26	100.0	54.2	40.0
<i>Foxiphalus major</i>	50	100.0	104.2	58.5
<i>Pagurus</i> spp.	2	20.0	4.2	9.3
<i>Pagurus quaylei</i>	2	20.0	4.2	9.3

Station: 8-Continued.

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Phoronida	5	60.0	10.4	12.8
<i>Amphiodia</i> spp.	10	80.0	20.8	24.4
<i>Dendraster excentricus</i>	19	100.0	39.6	20.0

Number of taxa: 58

Mean number/sample: 443.6

Mean number/m<sup>2</sup>: 4,622.3

H = 3.72 E = 0.63

Standard deviation/sample: 278.5

Standard deviation: 2,902.4

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	52	100.0	108.4	48.7
Polynoidae	4	20.0	8.3	18.6
<i>Thalenessa spinosa</i>	30	100.0	62.5	22.1
Phyllodocidae	1	20.0	2.1	4.7
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7
<i>Microphthalmus</i> spp.	2	40.0	4.2	5.7
Syllidae	8	100.0	16.7	9.3
<i>Nephtys</i> spp.	102	100.0	212.6	131.1
<i>Nephtys caeca</i>	22	100.0	45.8	27.2
<i>Nephtys caecoides</i>	10	60.0	20.8	20.8
<i>Glycera</i> spp.	3	60.0	6.3	5.7
<i>Glycinde armigera</i>	6	80.0	12.5	8.7
<i>Onuphis iridescens</i>	1	20.0	2.1	4.7
<i>Onuphis elegans</i>	2	40.0	4.2	5.7
<i>Lumbrineris</i> spp.	1	20.0	2.1	4.7
<i>Notocirrus californiensis</i>	1	20.0	2.1	4.7
<i>Naineris uncinata</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	98	100.0	204.2	51.9
<i>Orbinia</i> (Phylo) <i>felix</i>	4	40.0	8.3	13.6
<i>Aedicira</i> spp.	2	20.0	4.2	9.3
<i>Aricidae lopezi</i>	2	20.0	4.2	9.3
<i>Paraonella platybranchia</i>	3	20.0	6.3	14.0
<i>Spio butleri</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	83	100.0	173.0	35.8
<i>Scolelepis squamata</i>	3	40.0	6.3	9.3
<i>Magelona</i> spp.	149	100.0	310.5	116.1
<i>Magelona sacculata</i>	4	80.0	8.3	4.7
<i>Mesochaetopterus taylori</i>	6	80.0	12.5	11.4
<i>Chaetozone spinosa</i>	40	100.0	83.4	36.8
<i>Notomastus lineatus</i>	4	60.0	8.3	8.7
Oligochaeta	1	20.0	2.1	4.7
<i>Polinices</i> spp.	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
Olivellidae	7	20.0	14.6	32.6
<i>Olivella</i> spp.	13	60.0	27.1	33.4
<i>Olivella baetica</i>	8	40.0	16.7	31.8
<i>Olivella pycna</i>	313	80.0	652.3	1,263.3
<i>Odostomia</i> spp.	1	20.0	2.1	4.7
<i>Aglaja diomedea</i>	1	20.0	2.1	4.7
<i>Pelecypoda</i>	1	20.0	2.1	4.7
Mytilidae	1	20.0	2.1	4.7
<i>Siliqua</i> spp.	2	40.0	4.2	5.7
<i>Macoma</i> spp.	13	100.0	27.1	14.0
<i>Macoma calcarea</i>	2	40.0	4.2	5.7
<i>Tellina</i> spp.	13	80.0	27.1	22.8
<i>Tellina nukuloides</i>	22	100.0	45.8	40.8
<i>Tellina carpenteri</i>	8	100.0	16.7	5.7
<i>Tellina bodegensis</i>	3	40.0	6.3	9.3
<i>Bathyleberis</i> spp.	4	60.0	8.3	8.7
<i>Lamprops</i> spp.	3	40.0	6.3	9.3
<i>Diastylopsis</i> spp.	18	100.0	37.5	17.4
<i>Diastylopsis tenuis</i>	11	40.0	22.9	31.6
<i>Colurostylis occidentalis</i>	2	40.0	4.2	5.7

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Ampelisca</i> spp.	1	20.0	2.1	4.7
<i>Ampelisca agassizi</i>	1	20.0	2.1	4.7
<i>Ampelisca careyi</i>	9	40.0	18.8	31.6
<i>Atylus tridens</i>	6	60.0	12.5	13.6
<i>Eohaustorius</i> spp.	68	100.0	141.7	109.7
<i>Eohaustorius estuarius</i>	42	80.0	87.5	69.7
<i>Eohaustorius sawyeri</i>	106	80.0	220.9	174.6
<i>Eohaustorius sencillus</i>	94	100.0	195.9	196.5
<i>Photis</i> spp.	15	60.0	31.3	31.3
<i>Photis lacia</i>	48	80.0	100.0	133.6
<i>Ischyrocerus</i> spp.	6	40.0	12.5	18.6
<i>Monoculodes</i> spp.	3	40.0	6.3	9.3
<i>Monoculodes spinipes</i>	4	60.0	8.3	8.7
<i>Synchelidium</i> spp.	5	80.0	10.4	7.4
<i>Mandibulophoxus gilesi</i>	54	100.0	112.5	50.2
<i>Rhepoxynius</i> spp.	2	40.0	4.2	5.7
<i>Rhepoxynius vigitegus</i>	13	100.0	27.1	21.6
<i>Eobrolgus spinosus</i>	2	40.0	4.2	5.7
<i>Foxiphalus major</i>	116	100.0	241.7	45.1
<i>Pagurus</i> spp.	3	20.0	6.3	14.0
<i>Pagurus quaylei</i>	8	60.0	16.7	26.2
<i>Pinnixa</i> spp.	2	40.0	4.2	5.7
Phoronida	4	60.0	8.3	8.7
<i>Amphiodia</i> spp.	15	100.0	31.3	10.4
<i>Amphiodia urtica</i>	2	20.0	4.2	9.3
<i>Dendraster excentricus</i>	15	60.0	31.3	34.6

Number of taxa: 79  
 Mean number/sample: 348.0  
 Mean number/m<sup>2</sup>: 3,626.2  
 H = 4.69 E = 0.74

Standard deviation/sample: 139.8  
 Standard deviation: 1,456.4

Appendix Table 3.--Continued.

Station: 10	Date: 14 Apr 92	Sample size: 5		
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	42	100.0	87.5	55.9
Polynoidae	13	60.0	27.1	27.2
<i>Harmothoe</i> spp.	3	40.0	6.3	9.3
<i>Sthenelais tertiaglabra</i>	8	20.0	16.7	37.3
<i>Thalenessa spinosa</i>	54	100.0	112.5	28.0
Phyllodocidae	1	20.0	2.1	4.7
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Eteone</i> spp.	1	20.0	2.1	4.7
<i>Phyllodoce</i> spp.	1	20.0	2.1	4.7
<i>Microphthalmus</i> spp.	2	20.0	4.2	9.3
Syllidae	3	40.0	6.3	9.3
<i>Nephtys</i> spp.	84	100.0	175.1	70.4
<i>Nephtys caeca</i>	31	80.0	64.6	43.8
<i>Nephtys caecoides</i>	27	80.0	56.3	49.8
<i>Glycera</i> spp.	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	2	40.0	4.2	5.7
<i>Glycinde armigera</i>	9	80.0	18.8	13.6
<i>Onuphis iridescens</i>	4	60.0	8.3	8.7
<i>Onuphis elegans</i>	2	40.0	4.2	5.7
<i>Lumbrineris</i> spp.	2	20.0	4.2	9.3
<i>Scoloplos armiger</i>	104	100.0	216.7	59.6
<i>Orbinia</i> (Phylo) <i>felix</i>	4	40.0	8.3	13.6
Paraonidae	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	5	60.0	10.4	10.4
<i>Spiophanes bombyx</i>	60	100.0	125.0	36.8
<i>Scolecopsis squamata</i>	2	20.0	4.2	9.3
<i>Magelona</i> spp.	128	100.0	266.8	28.2
<i>Magelona longicornis</i>	1	20.0	2.1	4.7
<i>Magelona sacculata</i>	5	20.0	10.4	23.3
<i>Mesochaetopterus taylori</i>	7	100.0	14.6	5.7
<i>Chaetozone spinosa</i>	25	100.0	52.1	25.5
<i>Notomastus lineatus</i>	3	40.0	6.3	9.3
<i>Polycirrus complex</i>	1	20.0	2.1	4.7
<i>Nitidella gouldi</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	2	40.0	4.2	5.7
<i>Olivella</i> spp.	41	100.0	85.4	51.8
<i>Olivella baetica</i>	2	20.0	4.2	9.3
<i>Olivella pycna</i>	817	80.0	1,702.6	2,861.8
<i>Gastropteron pacificum</i>	3	20.0	6.3	14.0
Mytilidae	1	20.0	2.1	4.7
<i>Siliqua</i> spp.	4	40.0	8.3	11.4
<i>Siliqua patula</i>	1	20.0	2.1	4.7
<i>Macoma</i> spp.	15	60.0	31.3	39.0
<i>Tellina</i> spp.	24	100.0	50.0	22.6
<i>Tellina nuculoides</i>	48	100.0	100.0	79.6
<i>Tellina carpenteri</i>	7	60.0	14.6	14.0
<i>Tellina bodegensis</i>	3	20.0	6.3	14.0
<i>Bathyleberis</i> spp.	4	40.0	8.3	13.6
<i>Lamprops</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis</i> spp.	22	100.0	45.8	17.4
<i>Diastylopsis tenuis</i>	16	100.0	33.3	13.6
<i>Colurostylis occidentalis</i>	5	60.0	10.4	10.4
<i>Bathycopea daltonae</i>	1	20.0	2.1	4.7
<i>Edotea sublittoralis</i>	1	20.0	2.1	4.7

## Appendix Table 3.--Continued.

Station: 10-Continued.	Date: 14 Apr 92	Sample size: 5		
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Ampelisca</i> spp.	12	20.0	25.0	55.9
<i>Ampelisca agassizi</i>	2	20.0	4.2	9.3
<i>Ampelisca careyi</i>	13	40.0	27.1	49.8
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	78	100.0	162.6	51.9
<i>Eohaustorius estuarius</i>	51	100.0	106.3	27.0
<i>Eohaustorius sawyeri</i>	151	100.0	314.7	227.3
<i>Eohaustorius sencillus</i>	134	100.0	279.3	212.7
<i>Photis</i> spp.	7	40.0	14.6	27.2
<i>Photis lacia</i>	23	100.0	47.9	27.2
<i>Monoculodes</i> spp.	6	60.0	12.5	17.1
<i>Monoculodes spinipes</i>	2	20.0	4.2	9.3
<i>Synchelidium</i> spp.	2	40.0	4.2	5.7
<i>Mandibulophoxus gilesi</i>	81	100.0	168.8	22.6
<i>Rhepoxynius</i> spp.	1	20.0	2.1	4.7
<i>Rhepoxynius vigitegus</i>	11	80.0	22.9	24.9
<i>Eobrolgus spinosus</i>	5	80.0	10.4	7.4
<i>Foxiphalus major</i>	167	100.0	348.0	99.3
<i>Pagurus</i> spp.	3	40.0	6.3	9.3
<i>Pagurus quaylei</i>	4	40.0	8.3	13.6
<i>Pinnixa</i> spp.	4	60.0	8.3	8.7
<i>Phoronida</i>	4	40.0	8.3	13.6
<i>Amphiodia</i> spp.	16	80.0	33.3	27.0
<i>Amphiodia urtica</i>	1	20.0	2.1	4.7
<i>Dendraster excentricus</i>	10	100.0	20.8	12.8

Number of taxa: 79

Mean number/sample: 489.0

Mean number/m<sup>2</sup>: 5,095.4

H = 4.15 E = 0.66

Standard deviation/sample: 265.9

Standard deviation: 2,770.5

Appendix Table 3.--Continued.

Station: 11		Date: 14 Apr 92		Sample size: 5	
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>	
Nemertea	13	100.0	27.1	21.6	
Polynoidae	1	20.0	2.1	4.7	
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7	
<i>Heteropodarke heteromorpha</i>	64	100.0	133.4	72.3	
Syllidae	1	20.0	2.1	4.7	
<i>Nephtys</i> spp.	37	100.0	77.1	44.0	
<i>Glycera</i> spp.	1	20.0	2.1	4.7	
<i>Glycera tenuis</i>	79	100.0	164.6	34.9	
<i>Glycera convoluta</i>	1	20.0	2.1	4.7	
<i>Glycinde armigera</i>	1	20.0	2.1	4.7	
<i>Scoloplos armiger</i>	1	20.0	2.1	4.7	
<i>Spio butleri</i>	2	20.0	4.2	9.3	
<i>Spiophanes bombyx</i>	66	80.0	137.5	103.8	
<i>Pygospio elegans</i>	2	40.0	4.2	5.7	
<i>Magelona</i> spp.	154	100.0	320.9	115.0	
<i>Chaetozone spinosa</i>	1	20.0	2.1	4.7	
<i>Ophelia</i> spp.	3	40.0	6.3	9.3	
<i>Olivella</i> spp.	11	100.0	22.9	11.4	
<i>Olivella biplicata</i>	1	20.0	2.1	4.7	
<i>Olivella pycna</i>	8	80.0	16.7	15.8	
<i>Aglaja diomedea</i>	1	20.0	2.1	4.7	
<i>Siliqua</i> spp.	1	20.0	2.1	4.7	
<i>Tellina</i> spp.	1	20.0	2.1	4.7	
<i>Tellina nukuloides</i>	5	60.0	10.4	12.8	
<i>Colurostylis occidentalis</i>	2	40.0	4.2	5.7	
<i>Eohaustorius</i> spp.	1	20.0	2.1	4.7	
<i>Eohaustorius sencillus</i>	2	20.0	4.2	9.3	
<i>Ischyrocerus</i> spp.	1	20.0	2.1	4.7	
<i>Psammonyx longimerus</i>	7	60.0	14.6	21.6	
<i>Monoculodes</i> spp.	1	20.0	2.1	4.7	
<i>Monoculodes spinipes</i>	1	20.0	2.1	4.7	
<i>Synchelidium</i> spp.	9	100.0	18.8	8.7	
<i>Mandibulophoxus gilesi</i>	1	20.0	2.1	4.7	
<i>Dendraster excentricus</i>	29	100.0	60.4	22.6	

Number of taxa: 34  
 Mean number/sample: 102.2  
 Mean number/m<sup>2</sup>: 1,064.9  
 H = 3.29 E = 0.65

Standard deviation/sample: 29.3  
 Standard deviation: 305.6



Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	16	100.0	33.3	13.6
<i>Microphthalmus</i> spp.	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	23	100.0	47.9	30.0
<i>Nephtys</i> spp.	129	100.0	268.8	122.5
<i>Nephtys caeca</i>	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	48	100.0	100.0	42.1
<i>Glycinde armigera</i>	2	20.0	4.2	9.3
<i>Paraonella platybranchia</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	67	100.0	139.6	49.2
<i>Magelona</i> spp.	128	100.0	266.8	56.9
<i>Mesochaetopterus taylori</i>	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	1	20.0	2.1	4.7
<i>Ophelia</i> spp.	2	40.0	4.2	5.7
<i>Notomastus tenuis</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	1	20.0	2.1	4.7
<i>Olivella biplicata</i>	3	40.0	6.3	9.3
<i>Olivella baetica</i>	1	20.0	2.1	4.7
<i>Olivella pycna</i>	2	40.0	4.2	5.7
<i>Siliqua</i> spp.	1	20.0	2.1	4.7
<i>Tellina nukuloides</i>	7	60.0	14.6	15.8
<i>Archaeomysis grebnitzkii</i>	2	40.0	4.2	5.7
<i>Lamprops</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis tenuis</i>	1	20.0	2.1	4.7
<i>Eohaustorius sencillus</i>	2	40.0	4.2	5.7
<i>Monoculodes spinipes</i>	3	60.0	6.3	5.7
<i>Synchelidium</i> spp.	3	60.0	6.3	5.7
<i>Mandibulophoxus gilesi</i>	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	2	40.0	4.2	5.7
<i>Pinnixa</i> spp.	1	20.0	2.1	4.7
<i>Dendraster excentricus</i>	16	100.0	33.3	28.9

Number of taxa: 30

Mean number/sample: 93.6

Mean number/m<sup>2</sup>: 975.3

H = 2.99 E = 0.61

Standard deviation/sample: 18.8

Standard deviation: 195.9

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	80	100.0	166.7	76.9
Polynoidae	7	60.0	14.6	14.0
<i>Thalenessa spinosa</i>	6	60.0	12.5	17.1
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7
<i>Heteropodarke heteromorpha</i>	86	100.0	179.2	137.9
Syllidae	7	60.0	14.6	14.0
<i>Nephtys</i> spp.	60	100.0	125.0	62.5
<i>Nephtys caeca</i>	8	80.0	16.7	15.8
<i>Nephtys caecoides</i>	2	40.0	4.2	5.7
<i>Glycera</i> spp.	7	60.0	14.6	21.6
<i>Glycera tenuis</i>	10	80.0	20.8	14.7
<i>Glycera convoluta</i>	2	40.0	4.2	5.7
<i>Onuphis iridescens</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	48	100.0	100.0	45.2
<i>Orbinia</i> (Phylo) <i>felix</i>	3	20.0	6.3	14.0
Aricidae <i>lopezi</i>	2	20.0	4.2	9.3
<i>Paraonella platybranchia</i>	7	80.0	14.6	11.9
<i>Spiophanes bombyx</i>	25	100.0	52.1	12.8
<i>Magelona</i> spp.	111	100.0	231.3	28.9
<i>Magelona sacculata</i>	1	20.0	2.1	4.7
<i>Mesochaetopterus taylori</i>	2	20.0	4.2	9.3
<i>Chaetozone spinosa</i>	25	100.0	52.1	19.5
<i>Ophelia</i> spp.	32	100.0	66.7	48.1
<i>Heteromastus filiformis</i>	1	20.0	2.1	4.7
<i>Notomastus lineatus</i>	1	20.0	2.1	4.7
Maldanidae	1	20.0	2.1	4.7
<i>Olivella</i> spp.	7	60.0	14.6	14.0
<i>Olivella baetica</i>	3	40.0	6.3	9.3
<i>Olivella pycna</i>	786	100.0	1,638.0	1,909.2
<i>Aglaja diomedea</i>	8	60.0	16.7	18.9
Mytilidae	6	20.0	12.5	28.0
<i>Macoma</i> spp.	1	20.0	2.1	4.7
<i>Macoma carlottensis</i>	2	20.0	4.2	9.3
<i>Tellina</i> spp.	5	20.0	10.4	23.3
<i>Tellina nuculoides</i>	5	80.0	10.4	7.4
<i>Tellina carpenteri</i>	9	60.0	18.8	21.4
<i>Tellina bodegensis</i>	6	60.0	12.5	13.6
<i>Bathyleberis</i> spp.	1	20.0	2.1	4.7
<i>Archaeomysis grebnitzkii</i>	1	20.0	2.1	4.7
<i>Lamprops</i> spp.	8	60.0	16.7	18.9
<i>Diastylopsis tenuis</i>	8	60.0	16.7	26.2
<i>Colurostylis occidentalis</i>	4	40.0	8.3	13.6
<i>Gnorimosphaeroma oregonensis</i>	1	20.0	2.1	4.7
<i>Ampelisca careyi</i>	1	20.0	2.1	4.7
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	6	40.0	12.5	18.6
<i>Eohaustorius estuarius</i>	2	20.0	4.2	9.3
<i>Eohaustorius sawyeri</i>	6	60.0	12.5	17.1
<i>Eohaustorius sencillus</i>	7	80.0	14.6	11.9
<i>Photis lacia</i>	34	80.0	70.9	107.1
<i>Psammonyx longimerus</i>	14	80.0	29.2	37.1
<i>Monoculodes</i> spp.	1	20.0	2.1	4.7
<i>Monoculodes spinipes</i>	1	20.0	2.1	4.7
<i>Monoculodes zernovi</i>	3	20.0	6.3	14.0

## Appendix Table 3.--Continued.

Station: 13-Continued.

Date: 14 Apr 92

Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Synchelidium</i> spp.	12	80.0	25.0	33.4
<i>Paraphoxus oculatus</i>	1	20.0	2.1	4.7
<i>Mandibulophoxus gilesi</i>	87	100.0	181.3	139.9
<i>Eobrolgus spinosus</i>	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	12	60.0	25.0	44.6
<i>Pagurus quaylei</i>	1	20.0	2.1	4.7
<i>Pinnixa</i> spp.	1	20.0	2.1	4.7
Phoronida	1	20.0	2.1	4.7
<i>Amphiodia</i> spp.	3	20.0	6.3	14.0
<i>Dendraster excentricus</i>	13	100.0	27.1	14.0

Number of taxa: 64

Mean number/sample: 321.2

Mean number/m<sup>2</sup>: 3,346.9

H = 3.35 E = 0.56

Standard deviation/sample: 207.1

Standard deviation: 2,158.0

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	38	100.0	79.2	27.2
Polychaeta	1	20.0	2.1	4.7
Polynoidae	13	100.0	27.1	21.6
Thalenessa spinosa	21	100.0	43.8	23.8
Eteone fauchaldi	3	20.0	6.3	14.0
Paranaitides (=Phyllodoce) polynoides	1	20.0	2.1	4.7
Microphthalmus spp.	1	20.0	2.1	4.7
Heteropodarke heteromorpha	2	40.0	4.2	5.7
Syllidae	4	60.0	8.3	8.7
Nephtys spp.	136	100.0	283.4	197.1
Nephtys caeca	31	100.0	64.6	43.2
Nephtys caecoides	25	80.0	52.1	50.5
Glycera spp.	2	40.0	4.2	5.7
Glycinde armigera	9	100.0	18.8	8.7
Goniada maculata	2	20.0	4.2	9.3
Onuphis elegans	5	40.0	10.4	14.7
Lumbrineris spp.	1	20.0	2.1	4.7
Notocirrus californiensis	1	20.0	2.1	4.7
Naineris uncinata	1	20.0	2.1	4.7
Scoloplos armiger	75	100.0	156.3	39.0
Orbinia (Phylo) felix	9	20.0	18.8	41.9
Aricidae lopezi	1	20.0	2.1	4.7
Paraonella platybranchia	2	40.0	4.2	5.7
Spiophanes bombyx	86	100.0	179.2	46.2
Scolecopsis spp.	1	20.0	2.1	4.7
Magelona spp.	91	100.0	189.6	33.3
Magelona longicornis	1	20.0	2.1	4.7
Mesochaetopterus taylori	5	60.0	10.4	10.4
Chaetozone spinosa	24	100.0	50.0	20.0
Scalibregma inflatum	1	20.0	2.1	4.7
Capitellidae	1	20.0	2.1	4.7
Notomastus lineatus	2	40.0	4.2	5.7
Terebellidae	1	20.0	2.1	4.7
Polycirrus spp. complex	1	20.0	2.1	4.7
Olivella spp.	29	100.0	60.4	24.9
Olivella pycna	340	80.0	708.6	951.2
Cylichna attonsa	1	20.0	2.1	4.7
Aglaja diomedea	3	60.0	6.3	5.7
Siliqua spp.	3	60.0	6.3	5.7
Macoma spp.	13	80.0	27.1	24.0
Tellina spp.	21	100.0	43.8	8.7
Tellina nuculoides	40	100.0	83.4	33.0
Tellina carpenteri	5	80.0	10.4	7.4
Tellina bodegensis	1	20.0	2.1	4.7
Bathyleberis spp.	3	60.0	6.3	5.7
Lamprops spp.	3	60.0	6.3	5.7
Diastylopsis spp.	7	40.0	14.6	27.2
Diastylopsis dawsoni	3	40.0	6.3	9.3
Diastylopsis tenuis	12	60.0	25.0	31.8
Colurostylis occidentalis	1	20.0	2.1	4.7
Gnorimosphaeroma oregonensis	1	20.0	2.1	4.7
Bathycocpea daltonae	1	20.0	2.1	4.7
Edotea sublittoralis	6	40.0	12.5	18.6

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Ampelisca</i> spp.	1	20.0	2.1	4.7
<i>Ampelisca agassizi</i>	18	80.0	37.5	61.0
<i>Ampelisca careyi</i>	8	60.0	16.7	21.6
<i>Eohaustorius</i> spp.	56	100.0	116.7	156.5
<i>Eohaustorius estuarius</i>	52	100.0	108.4	61.5
<i>Eohaustorius sawyeri</i>	136	100.0	283.4	207.8
<i>Eohaustorius sencillus</i>	93	100.0	193.8	198.2
<i>Photis</i> spp.	3	40.0	6.3	9.3
<i>Photis lacia</i>	14	80.0	29.2	37.1
<i>Monoculodes</i> spp.	5	40.0	10.4	14.7
<i>Monoculodes spinipes</i>	3	40.0	6.3	9.3
<i>Synchelidium</i> spp.	13	100.0	27.1	11.9
<i>Paraphoxus oculatus</i>	52	20.0	108.4	242.3
<i>Mandibulophoxus gilesi</i>	75	100.0	156.3	101.8
<i>Rhepoxynius</i> spp.	16	20.0	33.3	74.6
<i>Rhepoxynius vigitegus</i>	13	100.0	27.1	15.8
<i>Eobrolgus spinosus</i>	3	40.0	6.3	9.3
<i>Foxiphalus major</i>	136	80.0	283.4	222.7
<i>Pagurus</i> spp.	1	20.0	2.1	4.7
<i>Pagurus quaylei</i>	9	40.0	18.8	36.4
<i>Pinnixa</i> spp.	6	40.0	12.5	22.6
Phoronida	3	20.0	6.3	14.0
<i>Amphiodia</i> spp.	39	100.0	81.3	35.6
<i>Dendraster excentricus</i>	2	40.0	4.2	5.7

Number of taxa: 77

Mean number/sample: 369.6

Mean number/m<sup>2</sup>: 3,851.2

H = 4.69 E = 0.75

Standard deviation/sample: 122.2

Standard deviation: 1,273.5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	42	80.0	87.5	51.9
Polynoidae	16	80.0	33.3	39.3
<i>Harmothoe</i> spp.	5	20.0	10.4	23.3
<i>Thalenessa spinosa</i>	22	100.0	45.8	22.8
Phyllodocidae	1	20.0	2.1	4.7
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Phyllodoce</i> spp.	2	40.0	4.2	5.7
<i>Phyllodoce hartmanae</i>	1	20.0	2.1	4.7
<i>Microphthalmus</i> spp.	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	1	20.0	2.1	4.7
Syllidae	4	80.0	8.3	4.7
<i>Nephtys</i> spp.	63	100.0	131.3	94.5
<i>Nephtys caeca</i>	39	100.0	81.3	36.4
<i>Nephtys caecoides</i>	37	100.0	77.1	36.5
<i>Glycera convoluta</i>	3	40.0	6.3	9.3
<i>Glycinde armigera</i>	5	60.0	10.4	10.4
<i>Onuphis iridescens</i>	1	20.0	2.1	4.7
<i>Onuphis elegans</i>	5	40.0	10.4	14.7
<i>Lumbrineris</i> spp.	3	60.0	6.3	5.7
<i>Scoloplos armiger</i>	54	100.0	112.5	35.6
Paraonidae	4	80.0	8.3	4.7
<i>Paraonella platybranchia</i>	4	60.0	8.3	8.7
<i>Spiophanes bombyx</i>	84	100.0	175.1	45.7
<i>Magelona</i> spp.	76	100.0	158.4	75.3
<i>Magelona longicornis</i>	1	20.0	2.1	4.7
<i>Magelona sacculata</i>	1	20.0	2.1	4.7
<i>Mesochaetopterus taylori</i>	12	100.0	25.0	11.9
<i>Chaetozone spinosa</i>	23	100.0	47.9	18.9
<i>Notomastus lineatus</i>	3	60.0	6.3	5.7
<i>Owenia fusiformis</i>	3	20.0	6.3	14.0
<i>Ampharete acutifrons</i>	1	20.0	2.1	4.7
Terebellidae	1	20.0	2.1	4.7
<i>Eupolyornia heterobranchia</i>	1	20.0	2.1	4.7
<i>Polycirrus</i> spp. complex	1	20.0	2.1	4.7
<i>Lanassa venusta venusta</i>	1	20.0	2.1	4.7
Gastropoda	1	20.0	2.1	4.7
<i>Nitidella gouldi</i>	4	40.0	8.3	13.6
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
Olivellidae	15	40.0	31.3	50.0
<i>Olivella</i> spp.	15	80.0	31.3	24.4
<i>Olivella pycna</i>	1,028	100.0	2,142.4	3,414.5
<i>Odostomia</i> spp.	4	60.0	8.3	8.7
<i>Cylichna attonsa</i>	1	20.0	2.1	4.7
Pelecypoda	2	40.0	4.2	5.7
Mytilidae	2	20.0	4.2	9.3
<i>Mysella tumida</i>	5	80.0	10.4	7.4
<i>Siliqua</i> spp.	3	60.0	6.3	5.7
<i>Siliqua sloati</i>	2	40.0	4.2	5.7
<i>Macoma</i> spp.	13	100.0	27.1	5.7
<i>Tellina</i> spp.	26	100.0	54.2	20.0
<i>Tellina nuculoides</i>	56	100.0	116.7	66.9
<i>Tellina carpenteri</i>	3	40.0	6.3	9.3
<i>Tellina bodegensis</i>	2	20.0	4.2	9.3
<i>Bathyleberis</i> spp.	22	100.0	45.8	15.8

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Archaeomysis grebnitzkii</i>	1	20.0	2.1	4.7
<i>Lamprops</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis</i> spp.	12	80.0	25.0	20.3
<i>Diastylopsis tenuis</i>	5	40.0	10.4	14.7
<i>Colurostylis occidentalis</i>	4	60.0	8.3	8.7
<i>Bathycopea daltonae</i>	2	40.0	4.2	5.7
<i>Synidotea angulata</i>	1	20.0	2.1	4.7
<i>Edotea sublittoralis</i>	1	20.0	2.1	4.7
<i>Ampelisca</i> spp.	12	60.0	25.0	35.0
<i>Ampelisca agassizi</i>	7	60.0	14.6	15.8
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	54	100.0	112.5	112.3
<i>Eohaustorius estuarius</i>	26	100.0	54.2	39.3
<i>Eohaustorius sawyeri</i>	147	100.0	306.3	91.0
<i>Eohaustorius sencillus</i>	33	60.0	68.8	64.5
<i>Photis</i> spp.	10	40.0	20.8	41.0
<i>Photis lacia</i>	30	100.0	62.5	7.4
<i>Ischyrocerus</i> spp.	6	20.0	12.5	28.0
<i>Monoculodes spinipes</i>	7	60.0	14.6	15.8
<i>Synchelidium</i> spp.	15	100.0	31.3	14.7
<i>Mandibulophoxus gilesi</i>	31	100.0	64.6	27.0
<i>Rhepoxynius</i> spp.	2	40.0	4.2	5.7
<i>Rhepoxynius abronius</i>	54	80.0	112.5	77.1
<i>Rhepoxynius vigitegus</i>	6	60.0	12.5	13.6
<i>Eobrolgus spinosus</i>	6	80.0	12.5	8.7
<i>Foxiphalus major</i>	175	100.0	364.7	215.2
<i>Pagurus</i> spp.	2	40.0	4.2	5.7
<i>Pagurus quaylei</i>	4	40.0	8.3	13.6
Phoronida	1	20.0	2.1	4.7
<i>Amphiodia</i> spp.	27	100.0	56.3	30.9
<i>Dendraster excentricus</i>	8	80.0	16.7	9.3

Number of taxa: 85

Mean number/sample: 483.6

Mean number/m<sup>2</sup>: 5,039.1

H = 3.89 E = 0.61

Standard deviation/sample: 308.6

Standard deviation: 3,215.2

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	43	100.0	89.6	40.8
Tenonia priops	1	20.0	2.1	4.7
Sigalion spp.	2	40.0	4.2	5.7
Eteone fauchaldi	3	60.0	6.3	5.7
Eteone longa	6	80.0	12.5	8.7
Hesionura coineaui difficilis	1	20.0	2.1	4.7
Phyllodoce hartmanae	71	100.0	148.0	140.5
Syllidae	102	100.0	212.6	44.6
Nephtys spp.	2	40.0	4.2	5.7
Nephtys caecoides	67	100.0	139.6	48.7
Glycera tenuis	9	80.0	18.8	13.6
Glycera convoluta	12	100.0	25.0	17.4
Glycinde armigera	12	100.0	25.0	15.8
Scoloplos armiger	202	100.0	421.0	63.2
Aricidea (Acesta) catherinae	2	40.0	4.2	5.7
Paraonella platybranchia	1	20.0	2.1	4.7
Spio spp.	1	20.0	2.1	4.7
Spiophanes bombyx	453	100.0	944.1	746.7
Magelona spp.	1	20.0	2.1	4.7
Magelona sacculata	9	80.0	18.8	11.4
Magelona hobsonae	2	20.0	4.2	9.3
Chaetozone spinosa	167	100.0	348.0	126.0
Olivella spp.	4	40.0	8.3	13.6
Olivella biplicata	23	60.0	47.9	55.9
Olivella pycna	237	100.0	493.9	308.5
Siliqua sloati	7	60.0	14.6	14.0
Macoma spp.	1	20.0	2.1	4.7
Macoma secta	2	20.0	4.2	9.3
Tellina spp.	7	80.0	14.6	11.9
Tellina modesta	2	40.0	4.2	5.7
Tellina cf. modesta	3	20.0	6.3	14.0
Tellina bodegensis	1	20.0	2.1	4.7
Arachnida	1	20.0	2.1	4.7
Archaeomysis grebnitzkii	3	40.0	6.3	9.3
Hemilamprops californica	7	80.0	14.6	11.9
Diastylopsis dawsoni	2	40.0	4.2	5.7
Diastylopsis tenuis	15	100.0	31.3	22.1
Colurostylis occidentalis	10	80.0	20.8	14.7
Ancinus spp.	6	80.0	12.5	11.4
Eohaustorius spp.	13	80.0	27.1	21.6
Hyalidae	1	20.0	2.1	4.7
Photis spp.	1	20.0	2.1	4.7
Psammonyx longimerus	18	100.0	37.5	17.4
Monoculodes spp.	5	20.0	10.4	23.3
Monoculodes spinipes	7	40.0	14.6	20.3



## Appendix Table 3.--Continued.

Station: 1-Continued		Date: 16 Oct 92		Sample size: 5	
Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>	
<i>Synchelidium shoemakeri</i>	70	100.0	145.9	73.3	
<i>Mandibulophoxus</i> spp.	203	100.0	423.1	196.0	
<i>Rhepoxynius tridentatus</i>	1	20.0	2.1	4.7	
<i>Foxiphalus major</i>	24	80.0	50.0	72.3	
<i>Amphiodia urtica</i>	2	20.0	4.2	9.3	
<i>Dendraster excentricus</i>	17	80.0	35.4	28.2	
Number of taxa: 51		Standard deviation/sample: 125.2			
Mean number/sample: 372.4		Standard deviation: 1,304.1			
Mean number/m <sup>2</sup> : 3,880.4					
H = 3.78		E = 0.67			

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	1	20.0	2.1	4.7
Syllidae	4	60.0	8.3	8.7
<i>Nephtys caecoides</i>	130	100.0	270.9	174.5
<i>Scoloplos armiger</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	2	20.0	4.2	9.3
<i>Chaetozone spinosa</i>	1	20.0	2.1	4.7
<i>Capitella capitata</i> complex	1	20.0	2.1	4.7
<i>Olivella biplicata</i>	48	100.0	100.0	48.1
<i>Acanthomysis</i> spp.	2	40.0	4.2	5.7
<i>Hemilamprops californica</i>	2	40.0	4.2	5.7
Janiridae	1	20.0	2.1	4.7
<i>Eohaustorius sawyeri</i>	273	100.0	568.9	346.4
<i>Photis</i> spp.	1	20.0	2.1	4.7
<i>Synchelidium shoemakeri</i>	12	80.0	25.0	22.8

Number of taxa: 14

Mean number/sample: 95.8                      Standard deviation/sample: 47.2

Mean number/m<sup>2</sup>: 998.2                      Standard deviation: 492.0

H = 1.71      E = 0.45

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	102	100.0	212.6	108.9
<i>Sigalion</i> spp.	1	20.0	2.1	4.7
<i>Sigalion mathildae</i>	2	40.0	4.2	5.7
<i>Phyllodoce hartmanae</i>	6	60.0	12.5	13.6
Syllidae	38	100.0	79.2	36.5
<i>Nephtys caecoides</i>	43	100.0	89.6	36.5
<i>Glycera tenuis</i>	2	40.0	4.2	5.7
<i>Glycera convoluta</i>	2	40.0	4.2	5.7
<i>Glycinde armigera</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	118	100.0	245.9	108.9
<i>Paraonella platybranchia</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	4	60.0	8.3	8.7
<i>Magelona sacculata</i>	37	100.0	77.1	35.0
<i>Chaetozone spinosa</i>	128	100.0	266.8	107.7
<i>Spiromoellaria quadrae</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	6	60.0	12.5	13.6
<i>Olivella</i> spp.	7	80.0	14.6	9.3
<i>Olivella biplicata</i>	5	60.0	10.4	12.8
<i>Olivella pycna</i>	798	100.0	1,663.0	630.8
Mytilidae	1	20.0	2.1	4.7
<i>Siliqua sloati</i>	2	40.0	4.2	5.7
<i>Tellina nukuloides</i>	2	40.0	4.2	5.7
<i>Tellina modesta</i>	3	60.0	6.3	5.7
<i>Tellina bodegensis</i>	2	40.0	4.2	5.7
<i>Acanthomysis columbiae</i>	1	20.0	2.1	4.7
<i>Hemilamprops californica</i>	6	80.0	12.5	11.4
<i>Diastylopsis dawsoni</i>	1	20.0	2.1	4.7
<i>Diastylopsis tenuis</i>	21	100.0	43.8	27.0
<i>Colurostylis occidentalis</i>	24	80.0	50.0	51.8
<i>Eohaustorius</i> spp.	4	40.0	8.3	13.6
<i>Eohaustorius sencillus</i>	1	20.0	2.1	4.7
Hyalidae	5	60.0	10.4	12.8
<i>Photis macinerneyi</i>	3	20.0	6.3	14.0
<i>Psammonyx longimerus</i>	19	80.0	39.6	28.0
<i>Monoculodes spinipes</i>	11	80.0	22.9	15.5
<i>Synchelidium shoemakeri</i>	15	80.0	31.3	20.8
<i>Mandibulophoxus</i> spp.	163	100.0	339.7	151.5
<i>Rhepoxynius vigitegus</i>	22	80.0	45.8	38.0
<i>Foxiphalus major</i>	37	100.0	77.1	35.0
<i>Pagurus</i> spp.	2	40.0	4.2	5.7
<i>Amphiodia urtica</i>	1	20.0	2.1	4.7
<i>Dendraster excentricus</i>	13	100.0	27.1	27.2

Number of taxa: 42

Mean number/sample: 332.2

Standard deviation/sample: 94.2

Mean number/m<sup>2</sup>: 3,461.5

Standard deviation: 981.5

H = 3.02 E = 0.56

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	14	100.0	29.2	15.5
<i>Sigalion mathildae</i>	5	60.0	10.4	10.4
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	5	60.0	10.4	12.8
<i>Microphthalmus szcelkowi</i>	3	40.0	6.3	9.3
Syllidae	144	100.0	300.1	88.2
<i>Nephtys caecoides</i>	43	100.0	89.6	21.6
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	1	20.0	2.1	4.7
<i>Onuphis iridescens</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	161	100.0	335.5	87.3
<i>Aricidea (Acesta) catherinae</i>	3	60.0	6.3	5.7
<i>Paraonella platybranchia</i>	12	80.0	25.0	24.0
<i>Spiophanes</i> spp.	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	55	100.0	114.6	112.5
<i>Magelona sacculata</i>	5	40.0	10.4	18.0
Cirratulidae	3	40.0	6.3	9.3
<i>Chaetozone spinosa</i>	38	100.0	79.2	25.1
<i>Heteromastus filiformis</i>	2	20.0	4.2	9.3
<i>Nassarius fossatus</i>	3	20.0	6.3	14.0
<i>Olivella biplicata</i>	51	100.0	106.3	56.3
<i>Olivella baetica</i>	2	20.0	4.2	9.3
<i>Olivella pycna</i>	289	100.0	602.3	593.6
Mytilidae	1	20.0	2.1	4.7
<i>Siliqua sloati</i>	1	20.0	2.1	4.7
<i>Tellina bodegensis</i>	1	20.0	2.1	4.7
Arachnida	1	20.0	2.1	4.7
<i>Archaeomysis grebnitzkii</i>	6	60.0	12.5	13.6
<i>Hemilamprops californica</i>	1	20.0	2.1	4.7
<i>Diastylopsis tenuis</i>	14	80.0	29.2	37.1
<i>Colurostylis occidentalis</i>	10	80.0	20.8	24.4
<i>Eohaustorius</i> spp.	5	60.0	10.4	10.4
<i>Eohaustorius sencillus</i>	1	20.0	2.1	4.7
<i>Photis</i> spp.	2	40.0	4.2	5.7
<i>Psammonyx longimerus</i>	19	100.0	39.6	18.6
<i>Monoculodes spinipes</i>	17	100.0	35.4	27.2
<i>Synchelidium shoemakeri</i>	38	100.0	79.2	29.1
<i>Mandibulophoxus</i> spp.	292	100.0	608.5	287.9
<i>Mandibulophoxus gilesi</i>	14	20.0	29.2	65.2
<i>Foxiphalus major</i>	13	100.0	27.1	14.0
<i>Pagurus</i> spp.	2	40.0	4.2	5.7
<i>Dendraster excentricus</i>	48	100.0	100.0	97.1

Number of taxa: 43

Mean number/sample: 266.0

Standard deviation/sample: 47.9

Mean number/m<sup>2</sup>: 2,771.7

Standard deviation: 498.6

H = 3.61 E = 0.67

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Platyhelminthes	1	20.0	2.1	4.7
Nemertea	150	100.0	312.6	135.5
<i>Sigalion mathildae</i>	1	20.0	2.1	4.7
<i>Hesionura coineaui difficilis</i>	92	40.0	191.7	333.9
<i>Phyllodoce</i> spp.	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	4	80.0	8.3	4.7
<i>Heteropodarke heteromorpha</i>	17	100.0	35.4	21.6
Syllidae	2	40.0	4.2	5.7
<i>Nereis zonata</i>	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	26	100.0	54.2	42.6
<i>Glycera</i> spp.	45	80.0	93.8	153.0
<i>Glycera tenuis</i>	2	20.0	4.2	9.3
<i>Glycera convoluta</i>	168	100.0	350.1	635.2
<i>Glycinde armigera</i>	2	20.0	4.2	9.3
<i>Scoloplos armiger</i>	13	60.0	27.1	25.1
Paraonidae	1	20.0	2.1	4.7
<i>Aricidea (Acesta) catherinae</i>	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	14	60.0	29.2	35.6
<i>Spiophanes bombyx</i>	130	60.0	270.9	337.0
<i>Magelona sacculata</i>	15	80.0	31.3	31.3
<i>Magelona hobsonae</i>	1	20.0	2.1	4.7
Cirratulidae	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	6	40.0	12.5	18.6
<i>Armandia brevis</i>	1	20.0	2.1	4.7
<i>Ophelia</i> spp.	108	100.0	225.1	64.9
<i>Saccocirrus exoticus</i>	1	20.0	2.1	4.7
<i>Polygordius</i> spp.	35	100.0	72.9	76.6
Gastropoda	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	2	40.0	4.2	5.7
<i>Olivella biplicata</i>	26	60.0	54.2	51.8
<i>Olivella baetica</i>	7	60.0	14.6	15.8
<i>Olivella pycna</i>	336	100.0	700.2	474.6
<i>Macoma</i> spp.	1	20.0	2.1	4.7
<i>Macoma secta</i>	1	20.0	2.1	4.7
<i>Tellina</i> spp.	1	20.0	2.1	4.7
<i>Tellina nuculoides</i>	1	20.0	2.1	4.7
<i>Tellina modesta</i>	1	20.0	2.1	4.7
Arachnida	1	20.0	2.1	4.7
<i>Archaeomysis grebnitzkii</i>	3	20.0	6.3	14.0
<i>Hemilamprops californica</i>	6	40.0	12.5	17.1
<i>Diastylopsis tenuis</i>	16	80.0	33.3	24.9
<i>Colurostylis occidentalis</i>	51	100.0	106.3	85.1
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	2	20.0	4.2	9.3
<i>Eohaustorius sencillus</i>	6	60.0	12.5	13.6
Hyalidae	1	20.0	2.1	4.7
<i>Photis</i> spp.	7	60.0	14.6	21.6
<i>Psammonyx longimerus</i>	12	40.0	25.0	40.8
<i>Monoculodes spinipes</i>	13	80.0	27.1	25.1
<i>Synchelidium shoemakeri</i>	9	60.0	18.8	30.7
<i>Foxiphalus obtusidens</i>	1	20.0	2.1	4.7
<i>Mandibulophoxus</i> spp.	51	100.0	106.3	88.8
<i>Rhepoxynius</i> spp.	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	3	40.0	6.3	9.3

## Appendix Table 3.--Continued.

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Station: 5-Continued.      Date: 16 Oct 92      Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Pagurus</i> spp.	1	20.0	2.1	4.7
<i>Amphiodia urtica</i>	2	40.0	4.2	5.7
<i>Dendraster excentricus</i>	6	60.0	12.5	13.6

Number of taxa: 58

Mean number/sample: 282.0      Standard deviation/sample: 92.9

Mean number/m<sup>2</sup>: 2,938.4      Standard deviation: 968.5

H = 3.95      E = 0.67

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Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	79	100.0	164.6	48.5
<i>Sthenelais tertiaglabra</i>	1	20.0	2.1	4.7
Sigalionidae	8	60.0	16.7	17.4
<i>Sigalion mathildae</i>	22	100.0	45.8	15.8
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7
<i>Phyllodoce</i> spp.	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	2	40.0	4.2	5.7
<i>Microphthalmus sczelkowi</i>	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	1	20.0	2.1	4.7
Syllidae	17	100.0	35.4	21.6
<i>Nereis zonata</i>	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	69	100.0	143.8	41.9
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	13	60.0	27.1	30.0
<i>Onuphis iridescens</i>	4	60.0	8.3	8.7
<i>Scoloplos armiger</i>	353	100.0	735.7	133.8
<i>Orbinia</i> (Phylo) <i>felix</i>	1	20.0	2.1	4.7
<i>Aricidea</i> (Acesta) <i>catherinae</i>	3	60.0	6.3	5.7
<i>Paraonella platybranchia</i>	20	100.0	41.7	22.1
<i>Spiophanes bombyx</i>	3	60.0	6.3	5.7
<i>Magelona</i> spp.	1	20.0	2.1	4.7
<i>Magelona sacculata</i>	89	100.0	185.5	35.6
Cirratulidae	33	80.0	68.8	64.5
<i>Chaetozone spinosa</i>	338	100.0	704.4	221.7
<i>Polycirrus</i> spp. complex	1	20.0	2.1	4.7
<i>Polygordius</i> spp.	12	20.0	25.0	55.9
<i>Vitrinella columbiana</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	2	40.0	4.2	5.7
<i>Olivella</i> spp.	4	40.0	8.3	13.6
<i>Olivella baetica</i>	8	80.0	16.7	20.3
<i>Olivella pycna</i>	1,030	100.0	2,146.5	873.2
<i>Cylichna attonsa</i>	1	20.0	2.1	4.7
<i>Siliqua</i> spp.	2	40.0	4.2	5.7
<i>Siliqua sloati</i>	1	20.0	2.1	4.7
<i>Macoma</i> spp.	2	40.0	4.2	5.7
<i>Macoma carlottensis</i>	2	20.0	4.2	9.3
<i>Macoma balthica</i>	2	20.0	4.2	9.3
<i>Tellina</i> spp.	15	40.0	31.3	43.0
<i>Tellina nuculoides</i>	2	40.0	4.2	5.7
<i>Tellina carpenteri</i>	18	40.0	37.5	53.4
<i>Tellina modesta</i>	40	60.0	83.4	80.4
<i>Tellina bodegensis</i>	12	80.0	25.0	20.3
Arachnida	1	20.0	2.1	4.7
<i>Archaeomysis grebnitzkii</i>	2	40.0	4.2	5.7
<i>Hemilamprops californica</i>	1	20.0	2.1	4.7
<i>Diastylopsis dawsoni</i>	1	20.0	2.1	4.7
<i>Diastylopsis tenuis</i>	18	100.0	37.5	25.1
<i>Colurostylis occidentalis</i>	32	100.0	66.7	26.2
<i>Ancinus</i> spp.	2	20.0	4.2	9.3
<i>Ampelisca macrocephala</i>	2	40.0	4.2	5.7
<i>Eohaustorius</i> spp.	24	100.0	50.0	20.0
<i>Eohaustorius sencillus</i>	22	100.0	45.8	35.0
<i>Photis macinerneyi</i>	17	80.0	35.4	46.9
Ischyroceridae	4	60.0	8.3	8.7

## Appendix Table 3.--Continued.

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Station: 6-Continued.      Date: 16 Oct 92      Sample size: 5

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Psammonyx longimerus</i>	8	100.0	16.7	14.0
<i>Monoculodes spinipes</i>	13	100.0	27.1	5.7
<i>Synchelidium shoemakeri</i>	8	100.0	16.7	5.7
<i>Foxiphalus obtusidens</i>	5	40.0	10.4	14.7
<i>Mandibulophoxus</i> spp.	175	100.0	364.7	125.7
<i>Rhepoxynius vigitegus</i>	112	100.0	233.4	34.2
<i>Foxiphalus major</i>	32	100.0	66.7	18.9
<i>Pagurus</i> spp.	12	80.0	25.0	24.0
Phoronida	1	20.0	2.1	4.7
<i>Amphiodia urtica</i>	17	100.0	35.4	21.6
<i>Dendraster excentricus</i>	20	100.0	41.7	10.4

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Number of taxa: 65

Mean number/sample: 549.4

Standard deviation/sample: 119.8

Mean number/m<sup>2</sup>: 5,724.7

Standard deviation: 1,248.0

H = 3.53      E = 0.59

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Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	269	100.0	560.6	230.4
<i>Hesionura coineaui difficilis</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	7	80.0	14.6	9.3
<i>Microphthalmus szcelkowi</i>	23	100.0	47.9	21.6
<i>Heteropodarke heteromorpha</i>	243	100.0	506.4	276.1
<i>Nephtys caecoides</i>	10	80.0	20.8	19.5
<i>Glycera tenuis</i>	82	100.0	170.9	30.0
<i>Scoloplos armiger</i>	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	5	60.0	10.4	12.8
<i>Spiophanes</i> spp.	2	40.0	4.2	5.7
<i>Spiophanes bombyx</i>	908	100.0	1,892.3	547.4
<i>Magelona sacculata</i>	16	80.0	33.3	22.6
<i>Magelona hobsonae</i>	1	20.0	2.1	4.7
Cirratulidae	3	60.0	6.3	5.7
<i>Chaetozone spinosa</i>	5	80.0	10.4	7.4
<i>Ophelia</i> spp.	17	80.0	35.4	28.2
<i>Notomastus lineatus</i>	7	60.0	14.6	17.4
<i>Polygordius</i> spp.	4	60.0	8.3	8.7
<i>Vitrinella columbiana</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	6	40.0	12.5	18.6
<i>Olivella biplicata</i>	17	20.0	35.4	79.2
<i>Olivella baetica</i>	7	40.0	14.6	22.8
<i>Olivella pycna</i>	262	100.0	546.0	1,145.3
Mytilidae	1	20.0	2.1	4.7
<i>Tellina</i> spp.	2	40.0	4.2	5.7
<i>Tellina nuculoides</i>	2	40.0	4.2	5.7
<i>Diastylopsis tenuis</i>	1	20.0	2.1	4.7
<i>Colurostylis occidentalis</i>	4	60.0	8.3	8.7
<i>Eohaustorius sencillus</i>	2	40.0	4.2	5.7
Hyalidae	4	20.0	8.3	18.6
<i>Photis</i> spp.	32	40.0	66.7	137.8
Ischyroceridae	3	20.0	6.3	14.0
<i>Monoculodes spinipes</i>	3	60.0	6.3	5.7
<i>Synchelidium shoemakeri</i>	6	60.0	12.5	13.6
<i>Mandibulophoxus</i> spp.	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	3	40.0	6.3	9.3
<i>Amphiodia urtica</i>	2	40.0	4.2	5.7
<i>Dendraster excentricus</i>	13	100.0	27.1	17.4

Number of taxa: 39

Mean number/sample: 395.4

Standard deviation/sample: 70.7

Mean number/m<sup>2</sup>: 4,120.1

Standard deviation: 736.9

H = 2.67 E = 0.51

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	399	100.0	831.5	243.9
Polynoidae	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	2	20.0	4.2	9.3
<i>Heteropodarke heteromorpha</i>	8	80.0	16.7	15.8
<i>Nephtys caecoides</i>	4	60.0	8.3	8.7
<i>Glycera tenuis</i>	65	100.0	135.5	39.0
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	1	20.0	2.1	4.7
<i>Aricidea (Acesta) catherinae</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	804	100.0	1,675.5	895.9
<i>Magelona sacculata</i>	3	40.0	6.3	9.3
<i>Ophelia</i> spp.	14	60.0	29.2	35.6
<i>Notomastus lineatus</i>	2	40.0	4.2	5.7
<i>Polygordius</i> spp.	890	100.0	1,854.8	1,613.8
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	4	20.0	8.3	18.6
<i>Olivella biplicata</i>	42	60.0	87.5	129.6
<i>Olivella baetica</i>	29	100.0	60.4	65.7
<i>Olivella pycna</i>	170	100.0	354.3	386.4
Mytilidae	3	60.0	6.3	5.7
<i>Tellina</i> spp.	1	20.0	2.1	4.7
<i>Tellina nuculoides</i>	6	80.0	12.5	8.7
Arachnida	1	20.0	2.1	4.7
<i>Acanthomysis</i> spp.	1	20.0	2.1	4.7
<i>Acanthomysis columbiae</i>	1	20.0	2.1	4.7
<i>Diastylopsis</i> spp.	1	20.0	2.1	4.7
<i>Colurostylis occidentalis</i>	4	60.0	8.3	8.7
<i>Synidotea angulata</i>	2	20.0	4.2	9.3
<i>Atylus tridens</i>	1	20.0	2.1	4.7
<i>Eohaustorius</i> spp.	1	20.0	2.1	4.7
<i>Photis</i> spp.	2	20.0	4.2	9.3
<i>Photis parvidons</i>	13	20.0	27.1	60.6
<i>Psammonyx longimerus</i>	1	20.0	2.1	4.7
<i>Monoculodes spinipes</i>	6	80.0	12.5	11.4
<i>Mandibulophoxus</i> spp.	3	40.0	6.3	9.3
<i>Parapleustes den</i>	1	20.0	2.1	4.7
<i>Dendraster excentricus</i>	9	100.0	18.8	8.7

Number of taxa: 37

Mean number/sample: 499.6

Standard deviation/sample: 242.0

Mean number/m<sup>2</sup>: 5,205.8

Standard deviation: 2,521.9

H = 2.41 E = 0.46

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	107	100.0	223.0	71.3
Polynoidae	4	60.0	8.3	8.7
Sigalionidae	8	60.0	16.7	15.8
<i>Sigalion mathildae</i>	10	80.0	20.8	14.7
<i>Eteone fauchaldi</i>	2	40.0	4.2	5.7
<i>Eteone longa</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	3	40.0	6.3	9.3
<i>Microphthalmus scelkowi</i>	3	20.0	6.3	14.0
<i>Heteropodarke heteromorpha</i>	1	20.0	2.1	4.7
Syllidae	9	100.0	18.8	11.4
<i>Nephtys</i> spp.	3	40.0	6.3	9.3
<i>Nephtys caecoides</i>	96	100.0	200.1	50.7
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	4	40.0	8.3	13.6
<i>Onuphis iridescens</i>	2	40.0	4.2	5.7
<i>Scoloplos armiger</i>	191	100.0	398.0	111.6
<i>Orbinia</i> (Phylo) <i>felix</i>	3	40.0	6.3	9.3
<i>Aricidea</i> (Acesta) <i>catherinae</i>	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	11	100.0	22.9	8.7
<i>Scoelelepis</i> spp.	1	20.0	2.1	4.7
<i>Magelona</i> spp.	2	40.0	4.2	5.7
<i>Magelona sacculata</i>	15	100.0	31.3	16.5
<i>Magelona hobsonae</i>	4	80.0	8.3	4.7
Cirratulidae	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	15	80.0	31.3	28.5
<i>Ophelia</i> spp.	1	20.0	2.1	4.7
<i>Travisia brevis</i>	1	20.0	2.1	4.7
Maldanidae spp.	2	40.0	4.2	5.7
<i>Ampharete acutifrons</i>	1	20.0	2.1	4.7
<i>Polycirrus</i> spp. complex	1	20.0	2.1	4.7
<i>Saccocirrus exoticus</i>	1	20.0	2.1	4.7
<i>Vitrinella columbiana</i>	1	20.0	2.1	4.7
<i>Nitidella gouldi</i>	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	2	20.0	4.2	9.3
<i>Olivella</i> spp.	21	60.0	43.8	48.0
<i>Olivella pycna</i>	11	60.0	22.9	29.8
<i>Cylichna attonsa</i>	3	40.0	6.3	9.3
Mytilidae	2	40.0	4.2	5.7
<i>Clinocardium nuttalli</i>	1	20.0	2.1	4.7
<i>Siliqua</i> spp.	2	40.0	4.2	5.7
<i>Siliqua sloati</i>	3	40.0	6.3	9.3
<i>Macoma</i> spp.	3	60.0	6.3	5.7
<i>Tellina</i> spp.	5	60.0	10.4	12.8
<i>Tellina carpenteri</i>	8	80.0	16.7	14.0
<i>Tellina bodegensis</i>	8	60.0	16.7	17.4
<i>Pandora</i> spp.	1	20.0	2.1	4.7
Cylindroleberididae	16	100.0	33.3	18.6
<i>Harpacticoida copepoda</i>	1	20.0	2.1	4.7
<i>Hemilamprops californica</i>	8	80.0	16.7	14.0
<i>Diastylopsis</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis dawsoni</i>	4	40.0	8.3	13.6
<i>Diastylopsis tenuis</i>	1	20.0	2.1	4.7
<i>Colurostylis occidentalis</i>	11	100.0	22.9	13.6
<i>Tecticeps</i> spp.	1	20.0	2.1	4.7

## Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Edotea sublittoralis</i>	5	40.0	10.4	14.7
<i>Eohaustorius sencillus</i>	87	100.0	181.3	52.4
Isaeidae	1	20.0	2.1	4.7
<i>Photis</i> spp.	10	20.0	20.8	46.6
<i>Photis macinerneyi</i>	49	100.0	102.1	66.5
<i>Monoculodes spinipes</i>	5	80.0	10.4	7.4
<i>Synchelidium shoemakeri</i>	2	20.0	4.2	9.3
<i>Mandibulophoxus</i> spp.	28	100.0	58.4	31.8
<i>Rhepoxynius abronius</i>	50	100.0	104.2	70.3
<i>Rhepoxynius vigitegus</i>	6	60.0	12.5	13.6
<i>Eobrolgus spinosus</i>	4	20.0	8.3	18.6
<i>Foxiphalus major</i>	8	80.0	16.7	11.9
<i>Parapleustes</i> spp.	1	20.0	2.1	4.7
<i>Hyperoche</i> spp.	1	20.0	2.1	4.7
<i>Pagurus</i> spp.	19	80.0	39.6	39.3
Phoronida	2	20.0	4.2	9.3
<i>Amphiodia urtica</i>	27	100.0	56.3	24.0
<i>Dendraster excentricus</i>	33	100.0	68.8	48.7

Number of taxa: 72

Mean number/sample: 191.6

Standard deviation/sample: 36.9

Mean number/m<sup>2</sup>: 1,996.5

Standard deviation: 384.3

H = 4.50    E = 0.73

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	50	100.0	130.3	82.7
Polynoidae	1	25.0	2.6	5.2
Sigalionidae	9	75.0	23.4	17.8
<i>Sigalion mathildae</i>	15	100.0	39.1	28.7
<i>Eteone fauchaldi</i>	3	50.0	7.8	10.0
<i>Eteone longa</i>	1	25.0	2.6	5.2
<i>Phyllodoce</i> spp.	1	25.0	2.6	5.2
<i>Phyllodoce mucosa</i>	1	25.0	2.6	5.2
<i>Phyllodoce hartmanae</i>	1	25.0	2.6	5.2
<i>Microphthalmus szelkowitzii</i>	2	25.0	5.2	10.4
<i>Heteropodarke heteromorpha</i>	2	25.0	5.2	10.4
Syllidae	2	50.0	5.2	6.0
Nereidae	1	25.0	2.6	5.2
<i>Nephtys caecoides</i>	74	100.0	192.8	24.8
<i>Glycera americana</i>	1	25.0	2.6	5.2
<i>Glycinde armigera</i>	9	100.0	23.4	19.7
<i>Onuphis iridescens</i>	1	25.0	2.6	5.2
Lumbrineridae	2	25.0	5.2	10.4
<i>Scoloplos armiger</i>	194	100.0	505.4	95.3
<i>Orbinia</i> (Phylo) <i>felix</i>	8	25.0	20.8	41.7
<i>Aricidea</i> (Acesta) <i>catherinae</i>	1	25.0	2.6	5.2
<i>Paraonella platybranchia</i>	3	50.0	7.8	10.0
<i>Magelona</i> spp.	2	50.0	5.2	6.0
<i>Magelona longicornis</i>	2	50.0	5.2	6.0
<i>Magelona sacculata</i>	15	100.0	39.1	5.2
<i>Chaetozone spinosa</i>	15	100.0	39.1	26.1
<i>Notomastus lineatus</i>	2	50.0	5.2	6.0
Maldanidae spp.	2	25.0	5.2	10.4
<i>Neoamphitrite edwardsii</i>	1	25.0	2.6	5.2
<i>Polycirrus</i> spp. complex	1	25.0	2.6	5.2
<i>Polygordius</i> spp.	1	25.0	2.6	5.2
<i>Olivella</i> spp.	40	100.0	104.2	40.8
<i>Olivella pycna</i>	2	50.0	5.2	6.0
<i>Kurtzia arteaga</i>	2	25.0	5.2	10.4
<i>Odostomia</i> spp.	1	25.0	2.6	5.2
<i>Cylichna attonsa</i>	8	100.0	20.8	14.7
Mytilidae	4	50.0	10.4	14.7
<i>Siliqua</i> spp.	1	25.0	2.6	5.2
<i>Macoma</i> spp.	3	75.0	7.8	5.2
<i>Tellina</i> spp.	12	100.0	31.3	8.5
<i>Tellina nuculoides</i>	1	25.0	2.6	5.2
<i>Tellina modesta</i>	2	50.0	5.2	6.0
<i>Tellina bodegensis</i>	5	100.0	13.0	5.2
<i>Pandora</i> spp.	2	50.0	5.2	6.0
Arachnida	1	25.0	2.6	5.2
Cylindroleberididae	19	100.0	49.5	42.9
<i>Hemilamprops californica</i>	11	75.0	28.7	26.1
<i>Diastylopsis tenuis</i>	10	100.0	26.1	6.0
<i>Colurostylis occidentalis</i>	13	75.0	33.9	24.6
<i>Ancinus</i> spp.	1	25.0	2.6	5.2
<i>Edotea sublittoralis</i>	9	25.0	23.4	46.9
<i>Ampelisca macrocephala</i>	5	75.0	13.0	13.1
<i>Eohaustorius</i> spp.	12	75.0	31.3	25.5
<i>Eohaustorius sencillus</i>	69	100.0	179.7	49.9

Appendix Table 3.--Continued.

Station: 10-Continued. Date: 16 Oct 92

Sample size: 4

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Photis macinerneyi</i>	42	100.0	109.4	108.5
Ischyroceridae	1	25.0	2.6	5.2
<i>Monoculodes spinipes</i>	13	100.0	33.9	17.8
<i>Synchelidium shoemakeri</i>	2	25.0	5.2	10.4
<i>Foxiphalus obtusidens</i>	35	75.0	91.2	118.3
<i>Mandibulophoxus</i> spp.	24	100.0	62.5	33.0
<i>Mandibulophoxus gilesi</i>	1	25.0	2.6	5.2
<i>Rhepoxynius abronius</i>	58	100.0	151.1	89.0
<i>Rhepoxynius vigitegus</i>	5	50.0	13.0	15.6
<i>Foxiphalus major</i>	11	100.0	28.7	21.5
<i>Pagurus</i> spp.	6	100.0	15.6	10.4
<i>Amphiodia urtica</i>	18	75.0	46.9	35.6
<i>Dendraster excentricus</i>	80	100.0	208.4	19.0

Number of taxa: 67

Mean number/sample: 238.0

Standard deviation/sample: 41.3

Mean number/m<sup>2</sup>: 2,480.0

Standard deviation: 430.7

H = 4.57 E = 0.75

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	228	100.0	475.2	313.1
<i>Pholoe minuta</i>	1	20.0	2.1	4.7
<i>Pisione remota</i>	6	20.0	12.5	28.0
<i>Hesionura coineaui difficilis</i>	1,310	100.0	2,730.0	2,754.4
<i>Phyllodoce hartmanae</i>	1	20.0	2.1	4.7
<i>Microphthalmus sczelkowi</i>	10	60.0	20.8	19.5
<i>Heteropodarke heteromorpha</i>	604	100.0	1,258.7	1,308.6
<i>Nephtys caecoides</i>	1	20.0	2.1	4.7
<i>Glycera tenuis</i>	497	100.0	1,035.7	431.4
Orbiniidae	1	20.0	2.1	4.7
<i>Aricidea (Acesta) catherinae</i>	1	20.0	2.1	4.7
<i>Polydora socialis</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	33	80.0	68.8	64.5
<i>Magelona sacculata</i>	1	20.0	2.1	4.7
<i>Armandia brevis</i>	1	20.0	2.1	4.7
<i>Ophelia</i> spp.	5	60.0	10.4	12.8
<i>Notomastus lineatus</i>	2	40.0	4.2	5.7
<i>Saccocirrus exoticus</i>	5	40.0	10.4	14.7
<i>Polygordius</i> spp.	40,369	100.0	84,129.0	79,106.3
<i>Lacuna vincta</i>	1	20.0	2.1	4.7
<i>Olivella</i> spp.	2	40.0	4.2	5.7
<i>Olivella biplicata</i>	3	20.0	6.3	14.0
<i>Olivella baetica</i>	11	60.0	22.9	27.0
<i>Olivella pycna</i>	1	20.0	2.1	4.7
Mytilidae	11	40.0	22.9	45.7
<i>Clinocardium nuttalli</i>	1	20.0	2.1	4.7
<i>Macoma</i> spp.	1	20.0	2.1	4.7
<i>Tellina</i> spp.	1	20.0	2.1	4.7
<i>Tellina nuculoides</i>	6	40.0	12.5	18.6
<i>Archaeomysis grebnitzkii</i>	3	60.0	6.3	5.7
Lampropidae	2	40.0	4.2	5.7
<i>Hemilamprops californica</i>	2	40.0	4.2	5.7
<i>Diastylopsis tenuis</i>	2	40.0	4.2	5.7
<i>Colurostylis occidentalis</i>	2	40.0	4.2	5.7
<i>Photis</i> spp.	2	40.0	4.2	5.7
<i>Monoculodes spinipes</i>	10	80.0	20.8	14.7
<i>Synchelidium shoemakeri</i>	53	80.0	110.5	173.8
<i>Mandibulophoxus</i> spp.	4	80.0	8.3	4.7
<i>Parapleustes</i> spp.	4	60.0	8.3	8.7
<i>Pagurus</i> spp.	10	100.0	20.8	23.3
<i>Amphiodia urtica</i>	1	20.0	2.1	4.7
<i>Dendraster excentricus</i>	151	100.0	314.7	241.4

Number of taxa: 42

Mean number/sample: 8,672.2

Standard deviation/sample: 7,885.4

Mean number/m<sup>2</sup>: 90,364.3

Standard deviation: 82,166.2

H = 0.53 E = 0.10

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	109	100.0	227.2	80.8
<i>Phyllodoce hartmanae</i>	3	60.0	6.3	5.7
<i>Eumida sanguinea</i>	1	20.0	2.1	4.7
<i>Microphthalmus scelkowi</i>	23	100.0	47.9	28.2
<i>Heteropodarke heteromorpha</i>	256	100.0	533.5	350.2
Syllidae	1	20.0	2.1	4.7
<i>Proceraea cornutus</i>	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	8	80.0	16.7	14.0
<i>Glycera tenuis</i>	81	100.0	168.8	72.7
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
Lumbrineridae	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	10	60.0	20.8	35.3
<i>Orbinia (Phylo) felix</i>	8	40.0	16.7	27.2
<i>Paraonella platybranchia</i>	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	93	100.0	193.8	86.7
<i>Magelona sacculata</i>	7	40.0	14.6	22.8
<i>Chaetozone spinosa</i>	20	80.0	41.7	38.3
<i>Armandia brevis</i>	3	40.0	6.3	9.3
<i>Ophelia</i> spp.	2	40.0	4.2	5.7
<i>Notomastus lineatus</i>	4	80.0	8.3	4.7
<i>Polygordius</i> spp.	76	80.0	158.4	132.3
Oligochaeta	1	20.0	2.1	4.7
Gastropoda	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	1	20.0	2.1	4.7
Olivellidae	1	20.0	2.1	4.7
<i>Olivella</i> spp.	3	60.0	6.3	5.7
<i>Olivella biplicata</i>	8	80.0	16.7	15.8
<i>Olivella baetica</i>	3	60.0	6.3	5.7
<i>Olivella pycna</i>	197	100.0	410.5	406.2
Mytilidae	1	20.0	2.1	4.7
Harpacticoida copepoda	1	20.0	2.1	4.7
<i>Acanthomysis columbiae</i>	1	20.0	2.1	4.7
<i>Hemilamprops californica</i>	5	80.0	10.4	7.4
<i>Diastylopsis tenuis</i>	10	100.0	20.8	7.4
<i>Colurostylis occidentalis</i>	4	40.0	8.3	11.4
<i>Corophium</i> spp.	1	20.0	2.1	4.7
<i>Eohaustorius sencillus</i>	1	20.0	2.1	4.7
<i>Photis macinerneyi</i>	3	20.0	6.3	14.0
<i>Protomedea</i> spp.	1	20.0	2.1	4.7
Ischyroceridae	6	40.0	12.5	18.6
<i>Monoculodes spinipes</i>	9	100.0	18.8	8.7
<i>Synchelidium shoemakeri</i>	49	100.0	102.1	61.4
<i>Mandibulophoxus gilesi</i>	7	80.0	14.6	11.9
<i>Foxiphalus major</i>	1	20.0	2.1	4.7
<i>Parapleustes</i> spp.	1	20.0	2.1	4.7
<i>Pagurus</i> spp.	4	60.0	8.3	8.7
<i>Dendraster excentricus</i>	69	100.0	143.8	140.1

Number of taxa: 47  
 Mean number/sample: 219.6  
 Mean number/m<sup>2</sup>: 2,288.2

Standard deviation/sample: 71.4  
 Standard deviation: 744.4

H = 3.68 E = 0.66



Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Platyhelminthes	1	20.0	2.1	4.7
Nemertea	273	100.0	568.9	481.1
<i>Eteone longa</i>	1	20.0	2.1	4.7
<i>Hesionura coineaui difficilis</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	4	40.0	8.3	11.4
<i>Heteropodarke heteromorpha</i>	29	100.0	60.4	22.6
Syllidae	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	7	60.0	14.6	17.4
<i>Glycera tenuis</i>	63	100.0	131.3	39.4
<i>Paraonella platybranchia</i>	2	40.0	4.2	5.7
<i>Spiophanes bombyx</i>	2,284	100.0	4,759.9	2,222.8
<i>Magelona sacculata</i>	5	60.0	10.4	10.4
<i>Ophelia</i> spp.	20	100.0	41.7	19.5
<i>Polygordius</i> spp.	183	100.0	381.4	107.2
<i>Lacuna</i> spp.	1	20.0	2.1	4.7
<i>Olivella</i> spp.	2	20.0	4.2	9.3
<i>Olivella biplicata</i>	48	80.0	100.0	151.1
<i>Olivella baetica</i>	48	100.0	100.0	61.5
<i>Olivella pycna</i>	312	100.0	650.2	578.9
<i>Tellina nukuloides</i>	8	60.0	16.7	26.2
<i>Petricola carditoides</i>	1	20.0	2.1	4.7
<i>Hiatella arctica</i>	1	20.0	2.1	4.7
<i>Acanthomysis</i> spp.	2	40.0	4.2	5.7
<i>Hemilamprops californica</i>	3	40.0	6.3	9.3
<i>Colurostylis occidentalis</i>	2	20.0	4.2	9.3
<i>Photis macinerneyi</i>	4	60.0	8.3	8.7
<i>Monoculodes spinipes</i>	6	80.0	12.5	8.7
<i>Synchelidium shoemakeri</i>	6	40.0	12.5	18.6
<i>Mandibulophoxus gilesi</i>	1	20.0	2.1	4.7
<i>Rhepoxynius abronius</i>	3	40.0	6.3	9.3
<i>Parapleustes den</i>	1	20.0	2.1	4.7
<i>Pagurus</i> spp.	4	40.0	8.3	13.6
<i>Dendraster excentricus</i>	26	80.0	54.2	103.8

Number of taxa: 33

Mean number/sample: 670.6

Standard deviation/sample: 231.8

Mean number/m<sup>2</sup>: 6,987.7

Standard deviation: 2,414.8

H = 1.86 E = 0.37

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	61	100.0	127.1	89.5
Polynoidae	2	40.0	4.2	5.7
<i>Sigalion mathildae</i>	2	20.0	4.2	9.3
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Phyllodoce hartmanae</i>	1	20.0	2.1	4.7
<i>Heteropodarke heteromorpha</i>	17	100.0	35.4	18.9
<i>Podarkeopsis brevipaipa</i>	1	20.0	2.1	4.7
Syllidae	6	60.0	12.5	13.6
Nereidae	3	40.0	6.3	9.3
<i>Nephtys caecoides</i>	46	100.0	95.9	60.0
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Glycera americana</i>	1	20.0	2.1	4.7
<i>Glycera convoluta</i>	2	40.0	4.2	5.7
<i>Onuphis iridescens</i>	4	40.0	8.3	13.6
<i>Eranno bicirrata</i>	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	104	100.0	216.7	66.9
<i>Orbinia</i> (Phylo) <i>felix</i>	9	80.0	18.8	17.1
<i>Aricidea</i> (Acesta) <i>catherinae</i>	1	20.0	2.1	4.7
<i>Paraonella platybranchia</i>	14	100.0	29.2	8.7
Spionidae	1	20.0	2.1	4.7
<i>Polydora</i> spp.	1	20.0	2.1	4.7
<i>Spiophanes bombyx</i>	1	20.0	2.1	4.7
<i>Magelona sacculata</i>	18	100.0	37.5	17.4
<i>Spiochaetopterus costarum</i>	1	20.0	2.1	4.7
Cirratulidae	1	20.0	2.1	4.7
<i>Chaetozone spinosa</i>	7	60.0	14.6	21.6
<i>Armandia brevis</i>	1	20.0	2.1	4.7
<i>Saccocirrus exoticus</i>	5	20.0	10.4	23.3
<i>Polygordius</i> spp.	24	100.0	50.0	42.6
<i>Lacuna</i> spp.	1	20.0	2.1	4.7
Olivellidae	4	20.0	8.3	18.6
<i>Olivella</i> spp.	5	60.0	10.4	10.4
<i>Olivella pycna</i>	108	100.0	225.1	433.8
<i>Kurtzia arteaga</i>	1	20.0	2.1	4.7
Mytilidae	5	60.0	10.4	12.8
<i>Siliqua</i> spp.	5	40.0	10.4	14.7
<i>Macoma</i> spp.	1	20.0	2.1	4.7
<i>Tellina nuculoides</i>	1	20.0	2.1	4.7
<i>Tellina modesta</i>	3	40.0	6.3	9.3
<i>Tellina bodegensis</i>	3	20.0	6.3	14.0
<i>Saxidomus giganteus</i>	1	20.0	2.1	4.7
Cylindroleberididae	2	20.0	4.2	9.3
<i>Hemilamprops californica</i>	3	60.0	6.3	5.7
<i>Diastylopsis tenuis</i>	5	80.0	10.4	7.4
<i>Colurostylis occidentalis</i>	10	60.0	20.8	22.1
<i>Synidotea angulata</i>	1	20.0	2.1	4.7
<i>Edotea sublittoralis</i>	2	20.0	4.2	9.3
<i>Eohaustorius estuarius</i>	1	20.0	2.1	4.7
<i>Eohaustorius sencillus</i>	6	80.0	12.5	11.4
<i>Allorchestes</i> spp.	2	20.0	4.2	9.3
<i>Photis macinerneyi</i>	34	100.0	70.9	63.6
Ischyroceridae	2	20.0	4.2	9.3
<i>Monoculodes spinipes</i>	1	20.0	2.1	4.7

## Appendix Table 3.--Continued.

Station: 14-Continued. Date: 16 Oct 92

Sample size: 4

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Synchelidium shoemakeri</i>	1	20.0	2.1	4.7
<i>Mandibulophoxus</i> spp.	3	40.0	6.3	9.3
<i>Rhepoxynius abronius</i>	9	60.0	18.8	22.6
<i>Rhepoxynius vigitegus</i>	1	20.0	2.1	4.7
<i>Foxiphalus major</i>	6	60.0	12.5	13.6
<i>Parapleustes</i> spp.	1	20.0	2.1	4.7
<i>Pagurus</i> spp.	34	80.0	70.9	124.0
Phoronida	2	40.0	4.2	5.7
<i>Amphiodia urtica</i>	10	60.0	20.8	24.4
<i>Dendraster excentricus</i>	33	80.0	68.8	60.1

Number of taxa: 63

Mean number/sample: 128.8

Standard deviation/sample: 58.5

Mean number/m<sup>2</sup>: 1,342.1

Standard deviation: 609.4

H = 4.41 E = 0.74

Appendix Table 3.--Continued.

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
Nemertea	105	100.0	218.8	85.0
Polynoidae	1	20.0	2.1	4.7
<i>Tenonia priops</i>	1	20.0	2.1	4.7
<i>Sthenelais tertiaglabra</i>	3	40.0	6.3	9.3
<i>Sigalion mathildae</i>	14	80.0	29.2	22.6
<i>Eteone fauchaldi</i>	1	20.0	2.1	4.7
<i>Hesionura coineaui difficilis</i>	2	40.0	4.2	5.7
<i>Phyllodoce groenlandica</i>	2	20.0	4.2	9.3
<i>Phyllodoce hartmanae</i>	4	40.0	8.3	13.6
Hesionidae	2	20.0	4.2	9.3
<i>Microphthalmus szcelkowi</i>	3	20.0	6.3	14.0
Syllidae	2	20.0	4.2	9.3
Nereidae	1	20.0	2.1	4.7
<i>Nephtys caecoides</i>	101	100.0	210.5	32.5
<i>Glycera tenuis</i>	1	20.0	2.1	4.7
<i>Glycera convoluta</i>	1	20.0	2.1	4.7
<i>Glycinde armigera</i>	5	60.0	10.4	10.4
<i>Onuphis iridescens</i>	2	40.0	4.2	5.7
Lumbrineridae	1	20.0	2.1	4.7
<i>Scoloplos armiger</i>	154	100.0	320.9	132.5
<i>Orbinia (Phylo) felix</i>	6	60.0	12.5	13.6
<i>Paraonella platybranchia</i>	6	40.0	12.5	18.6
<i>Prionopsio lighti</i>	2	40.0	4.2	5.7
<i>Spiophanes bombyx</i>	1	20.0	2.1	4.7
<i>Paraprionospio pinnata</i>	1	20.0	2.1	4.7
<i>Magelona</i> spp.	6	60.0	12.5	13.6
<i>Magelona longicornis</i>	2	20.0	4.2	9.3
<i>Magelona sacculata</i>	24	100.0	50.0	40.6
Cirratulidae	2	40.0	4.2	5.7
<i>Chaetozone spinosa</i>	17	100.0	35.4	11.9
<i>Armandia brevis</i>	1	20.0	2.1	4.7
Maldanidae	6	80.0	12.5	11.4
<i>Ampharete acutifrons</i>	1	20.0	2.1	4.7
<i>Polycirrus</i> spp. complex	2	40.0	4.2	5.7
<i>Saccocirrus exoticus</i>	1	20.0	2.1	4.7
<i>Polygordius</i> spp.	20	60.0	41.7	48.3
<i>Polinices</i> spp.	1	20.0	2.1	4.7
<i>Nassarius fossatus</i>	2	40.0	4.2	5.7
<i>Olivella</i> spp.	66	100.0	137.5	76.0
<i>Olivella pycna</i>	5	60.0	10.4	10.4
<i>Turbonilla</i> spp.	1	20.0	2.1	4.7
<i>Cylichna attonsa</i>	59	100.0	123.0	72.3
<i>Nucula tenuis</i>	1	20.0	2.1	4.7
Mytilidae	4	60.0	8.3	8.7
<i>Siliqua</i> spp.	1	20.0	2.1	4.7
<i>Siliqua patula</i>	1	20.0	2.1	4.7
<i>Siliqua sloati</i>	1	20.0	2.1	4.7
<i>Macoma</i> spp.	8	80.0	16.7	11.9
<i>Tellina</i> spp.	23	80.0	47.9	45.2
<i>Tellina nuculoides</i>	7	60.0	14.6	17.4
<i>Tellina carpenteri</i>	8	100.0	16.7	14.0
<i>Tellina bodegensis</i>	10	80.0	20.8	16.5
<i>Pandora</i> spp.	12	80.0	25.0	24.0

## Appendix Table 3.--Continued.

Station: 15-Continued. Date: 16 Oct 92

Sample size: 4

Taxon	Total number	Frequency of occurrence (%)	Mean number /m <sup>2</sup>	Standard deviation /m <sup>2</sup>
<i>Cylindroleberididae</i>	15	100.0	31.3	24.4
<i>Hemilamprops californica</i>	4	60.0	8.3	8.7
<i>Leucon</i> spp.	1	20.0	2.1	4.7
<i>Diastylopsis dawsoni</i>	2	20.0	4.2	9.3
<i>Diastylopsis tenuis</i>	19	100.0	39.6	25.9
<i>Colurostylis occidentalis</i>	7	60.0	14.6	15.8
<i>Gnorimosphaeroma oregonensis</i>	3	40.0	6.3	9.3
<i>Ancinus granulatus</i>	2	20.0	4.2	9.3
<i>Ancinus</i> spp.	1	20.0	2.1	4.7
<i>Synidotea</i> spp.	1	20.0	2.1	4.7
<i>Edotea sublittoralis</i>	12	80.0	25.0	28.2
<i>Caecianiropsis psammophila</i>	1	20.0	2.1	4.7
<i>Ampelisca macrocephala</i>	5	60.0	10.4	10.4
<i>Eohaustorius sencillus</i>	67	100.0	139.6	9.3
<i>Photis macinerneyi</i>	60	100.0	125.0	82.4
<i>Ischyroceridae</i>	1	20.0	2.1	4.7
<i>Monoculodes spinipes</i>	5	60.0	10.4	12.8
<i>Synchelidium shoemakeri</i>	3	60.0	6.3	5.7
<i>Mandibulophoxus</i> spp.	20	100.0	41.7	20.8
<i>Rhepoxynius abronius</i>	171	100.0	356.4	280.2
<i>Rhepoxynius vigitegus</i>	8	80.0	16.7	9.3
<i>Foxiphalus major</i>	5	60.0	10.4	12.8
<i>Pinnixa</i> spp.	1	20.0	2.1	4.7
<i>Ophiuroidea</i>	1	20.0	2.1	4.7
<i>Amphiodia urtica</i>	80	100.0	166.7	36.8
<i>Dendraster excentricus</i>	6,093	100.0	12,697.8	6,164.8
<i>Holothuroidea</i>	2	40.0	4.2	5.7

Number of taxa: 80

Mean number/sample: 1,460.8

Standard deviation/sample: 595.6

Mean number/m<sup>2</sup>: 15,221.5

Standard deviation: 6,206.3

H = 1.41 E = 0.22

Appendix Table 4.--Fishes and large epibenthic invertebrates captured by 8-m trawl at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

Scientific name	Common name	April	October
Rajidae			
<i>Raja binoculata</i>	big skate	x	x
Clupeidae			
<i>Clupea harengus pallasii</i>	Pacific herring	x	
Engraulidae			
<i>Engraulis mordax</i>	northern anchovy	x	
Osmeridae			
<i>Allosmerus elongatus</i>	whitebait smelt	x	
<i>Spirinchus starksi</i>	night smelt	x	
Gadidae			
<i>Microgadus proximus</i>	Pacific tomcod	x	x
Gasterosteidae			
<i>Aulorhynchus flavidus</i>	tube-snout		x
Syngnathidae			
<i>Syngnathus leptorhynchus</i>	bay pipefish	x	
Gobiidae			
	unidentified goby		x
Embiotocidae			
<i>Cymatogaster aggregata</i>	shiner perch	x	
Ammodytidae			
<i>Ammodytes hexapterus</i>	Pacific sandlance	x	
Scorpaenidae			
<i>Sebastes</i> spp.	unidentified rockfish	x	
Hexagrammidae			
<i>Ophiodon elongatus</i>	lingcod	x	
Cottidae			
<i>Hemilepidotus spinosus</i>	brown Irish lord	x	
<i>Leptocottus armatus</i>	Pacific staghorn sculpin	x	x
<i>Scorpaenichthys marmoratus</i>	Cabezon		x
Agonidae			
<i>Ocella verrucosa</i>	warty poacher	x	
<i>Pallasina barbata</i>	tubenose poacher	x	
<i>Stellerina xyosterna</i>	pricklebreast poacher	x	

Appendix Table 4.--Continued.

Scientific name	Common name	April	
Bothidae			
<i>Citharichthys</i> spp.	unid. sanddab		x
<i>Citharichthys stigmaeus</i>	speckled sanddab	x	x
<i>Platichthys stellatus</i>	starry flounder		x
Pleuronectidae			
<i>Isopsetta isolepis</i>	butter sole	x	
<i>Parophrys vetulus</i>	English sole	x	
<i>Pleuronichthys coenosus</i>	C-O sole	x	
<i>Psettichthys melanostictus</i>	sand sole	x	x
Larval flatfish		x	x
Canceridae			
<i>Cancer magister</i>	Dungeness crab	x	x
<i>Cancer productus</i>	red rock crab	x	x
Crangonidae			
<i>Crangon alaskensis</i>	northern shrimp	x	x
<i>Crangon franciscorum</i>	California bay shrimp	x	
<i>Lissocrangon stylirostris</i>	smooth bay shrimp	x	x
<i>Heptocarpus brevisrostris</i>	stout coastal shrimp		x
<i>Crangon nigromaculata</i>	blue spot shrimp	x	x
Echinodermata			
<i>Pisaster brevispinus</i>	pink star		x
<i>Dendraster excentricus</i>	sand dollar	x	
Cephalapoda			
Unid. octopus		x	
Total number of taxa		30	18

Appendix Table 5.--Summary of 8-m trawling efforts at and adjacent to offshore disposal Site F off Coos Bay, Oregon, April and October 1992.

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Station: TR1  
 Gear: 8-m trawl  
 Date: 14 Apr 1992  
 Time: 1656  
 Depth: not recorded  
 Distance traveled: 263 m

Taxon	No. captured	Total wt. (g)	No. per hectare	Wt. (g) per hectare
Big skate	1	209	8	1,589
Night smelt	2	10	15	76
Whitebait smelt	4	25	30	190
Pacific tomcod	2	26	15	198
Bay pipefish	1	1	8	8
Shiner perch	2	19	15	144
<i>Sebastes</i> spp.	27	47	205	357
Lingcod	2	6	15	46
Tube-nose poacher	2	8	15	61
Speckled sanddab	876	1,734	6,662	13,189
Butter sole	4	204	30	1,551
English sole	3	15	23	114
C-O sole	1	3	8	23
Sand sole	3	638	23	4,852
Larval flatfish	1	1	8	8
Dungeness crab	3	858	23	6,525
Northern crangon	7	8	53	61
California bay shrimp	3	8	23	61
Blue spot shrimp	5	25	38	190
Unid. octopus	2	7	15	53
TOTALS	951	3,852	7,232	29,296

H = 0.67 E = 0.16

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## Appendix Table 5.--Continued.

Station: TR2  
 Gear: 8-m trawl  
 Date: 14 Apr 1992  
 Time: 1615  
 Depth: 20.1 m  
 Distance traveled: 269 m

Taxon	No. captured	Total wt. (g)	No. per hectare	Wt. (g) per hectare
Pacific herring	4	96	30	714
Night smelt	27	108	201	803
Whitebait smelt	99	456	736	3,390
Pacific tomcod	2	25	15	186
Bay pipefish	1	1	7	7
Shiner perch	2	33	15	245
<i>Sebastes</i> spp.	1	1	7	7
Lingcod	10	38	74	283
Brown Irish lord	1	1	7	7
Pacific staghorn sculpin	3	156	22	1,160
Warty poacher	1	<1	7	1
Tube-nose poacher	1	3	7	22
Pricklebreast poacher	1	2	7	15
Speckled sanddab	920	1,476	6,840	10,980
Butter sole	7	365	52	2,714
English sole	3	14	22	104
C-O sole	3	8	22	59
Sand sole	3	185	22	1,375
Dungeness crab	10	1,270	74	9,442
Red rock crab	1	268	7	1,993
Northern crangon	5	2	37	17
Blue spot shrimp	7	29	52	216
TOTALS	1,112	4,538	8,263	33,740

H = 1.13 E = 0.25

Appendix Table 5.--Continued.

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Station: TR3  
 Gear: 8-m trawl  
 Date: 14 Apr 1992  
 Time: 1555  
 Depth: 10.1 m  
 Distance traveled: 276 m

Taxon	No. captured	Total wt. (g)	No. per hectare	Wt. (g) per hectare
Northern anchovy	348	383	2,522	2,775
Night smelt	26	52	188	377
Bay pipefish	2	2	14	14
Shiner perch	1	26	7	188
Pacific sand lance	1	3	7	22
Sebastes spp.	1	2	7	14
Lingcod	10	34	72	246
Speckled sanddab	322	230	2,333	1,670
C-O sole	1	3	7	22
Sand sole	4	163	29	1,181
Larval flatfish	1	1	7	7
Dungeness crab	8	2,750	58	19,928
Smooth crangon	80	82	580	594
Sand dollar	7	362	51	2,623
TOTALS	812	4,093	5,882	29,661

H = 1.86 E = 0.49

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Appendix Table 5.--Continued.

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Station:TR1  
 Gear: 8-m trawl  
 Date: 13 Oct 1992  
 Time: 1215  
 Tide stage: Flood  
 Depth: 24.7 m  
 Distance traveled: 350 m

Species	No. Captured	Total Wt. (g)	No. Per Hectare	Wt. (g) Per Hectare
Big skate	1	224	6	1,280
Pacific tomcod	8	24	46	137
Tube-snout	1	2	6	11
Unidentified sanddab	2	0	11	5
Speckled sanddab	155	1,010	886	5,771
Sand sole	7	2,849	40	16,280
Dungeness crab	3	743	17	4,246
Red rock crab	1	3	6	17
Northern crangon	25	8	143	51
Smooth crangon	19	4	109	25
Stout coastal shrimp	1	0	6	1
TOTALS	223	4,869	1,276	27,824

H = 1.63 E = 0.47

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Appendix Table 5.--Continued.

Station:TR2

Gear: 8-m trawl

Date: 16 Oct 1992

Time: 1232

Tide stage: Flood

Depth: 23.5 m

Distance traveled: 329 m

Species	No. Captured	Total Wt. (g)	No. Per Hectare	Wt. (g) Per Hectare
Big skate	1	55	6	334
Pacific tomcod	2	6	12	36
Tube-snout	3	10	18	61
Unidentified goby	1	1	6	6
Pacific staghorn sculpin	2	37	12	225
Unidentified sanddab	2	0	12	0
Speckled sanddab	184	1,214	1,119	7,380
Sand sole	9	1,011	55	6,146
Dungeness crab	4	913	24	5,550
Smooth crangon	55	11	334	69
Blue spot shrimp	1	0	6	4
Giant pink star	1	160	6	973
TOTALS	265	3,418	1,610	20,784

H = 1.45 E = 0.40

Appendix Table 5.--Continued.

Station:TR3

Gear: 8-m trawl

Date: 16 Oct 1992

Time: 1257

Tide stage: Flood

Depth: 11.6 m

Distance traveled: 390 m

Species	No. Captured	Total Wt. (g)	No. Per Hectare	Wt. (g) Per Hectare
Cabazon	1	20	5	103
Unidentified sanddab	4	0	21	0
Speckled sanddab	131	603	672	3,092
Starry flounder	1	1,110	5	5,692
Sand sole	11	596	56	3,056
Unid. Pleuronectidae	1	0	5	0
Dungeness crab	2	3	10	15
Smooth crangon	32	97	164	501
Giant pink star	1	244	5	1,251
TOTALS	184	2,673	943	13,710

H = 1.39 E = 0.44