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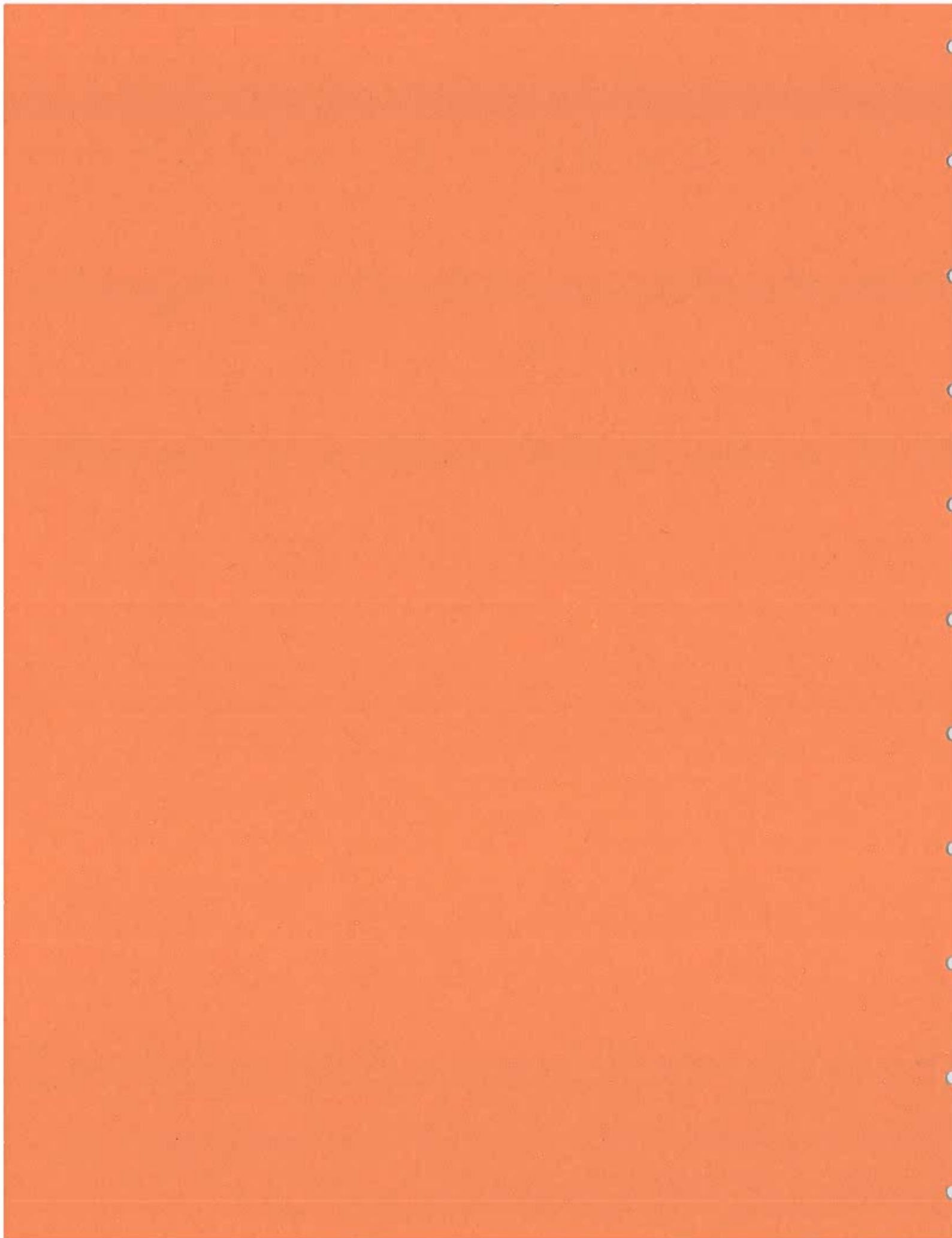
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**Zooplankton
of Shelikof Strait, Alaska, April 1988:
Data from Fisheries-Oceanography
Coordinated Investigations
(FOCI) Cruises**

February 1991



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Zooplankton of Shelikof Strait, Alaska, April 1988:
Data from Fisheries-Oceanography Coordinated Investigations
(FOCI) Cruises

by

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INTRODUCTION

The data in this report were collected as part of the NOAA program Fisheries-Oceanography Coordinated Investigations (FOCI). These data were obtained as part of an ongoing effort to describe the environment of the Shelikof Strait region of Alaska and understand how it relates to the recruitment of walleye pollock, Theragra chalcogramma. Background studies emphasizing areal distribution and seasonal development of zooplankton communities were conducted in 1985 (March to October) and 1986 (April to August); these data are reported in Siefert et al. (1988a) and Siefert and Incze (1989a), respectively. Zooplankton vertical distributions in areas of concentrated pollock larvae were studied in 1986 and in 1987; these data are reported in Siefert et al. (1988b) and Siefert et al. (1990), respectively. The data reported here are abundance and composition data collected from April 4-28, 1988 for seasonal and interannual comparisons of the Shelikof zooplankton community. These data augment similar data collected in 1987 (Siefert and Incze 1989b) and the data collected in 1985 and 1986. Proctor (1989) provides the details of the research cruises conducted in 1988. Data summarized in these various reports are undergoing analysis and will be the subjects of more detailed manuscripts, some currently in preparation.

METHODS

Two cruises were conducted in the Shelikof Strait region from 1-13 April and from 16 April to 2 May 1988. A transect of time series stations (line 8, see Fig. 1) was occupied during each cruise (Fig. 2) to provide data for seasonal and interannual comparisons.

Plankton samples were obtained by double-oblique tows of 60-cm bongo samplers (Posgay and Marak 1980) equipped with 333 μm mesh nets and 20-cm bongo samplers equipped with 150 μm mesh nets. At all stations described here, 20-cm bongo samplers were attached to the towing cable about 1 m above the 60-cm bongo. Mechanical flowmeters were installed in the mouth of each net to estimate the volume of water filtered by the nets, and a bathykymograph (BKG) was used to record maximum sampling depth and record the bongos' trajectories. Tows were taken from surface to near bottom (generally within 10-15m or less). Samples were preserved in 5% buffered formalin:seawater for later analysis.

In the laboratory, organisms were sorted into taxonomic categories selected to describe the seasonal development and interannual differences of zooplankton communities in Shelikof Strait, emphasizing the most abundant species. A list of these taxa is given in Table 1, with definitions of abbreviations used throughout this report.

Samples were sorted at the Plankton Sorting Center in Szczecin, Poland and identifications made in Poland were verified by a biologist in Seattle. Because all samples sorted were from paired 333 μm and 150 μm mesh nets, processing was designed to maximize the benefit of this complementarity; therefore, different organisms were enumerated from samples collected with each of the mesh sizes. For all samples, large organisms such as shrimp and jellyfish were first removed and noted, then sorting proceeded as follows.

The sample collected with 333 μm mesh was split with a Folsom plankton splitter to obtain a subsample with approximately 100-200 organisms $\geq 5\text{mm}$ in their maximum dimension (note that smaller organisms were much more numerous and were treated separately; see below). This first split was not made beyond 1/64 of the original sample. All organisms $\geq 5\text{mm}$ were enumerated except the following taxa: decapod larvae, euphausiid furciliae and larvaceans. These taxa have numerous individuals both larger and smaller than 5mm and were counted from a smaller subsample.

Other organisms smaller than 5mm were enumerated from either a smaller subsample of the 333 μm or the 150 μm mesh samples. The choice of mesh depended on the size of the organism/stage being counted. Organisms selected for enumeration from the two nets are listed in Table 2. A few taxa were counted from both nets: C2 calanoids later identified as Neocalanus cristatus, N. spp., Calanus marshallae, and C. pacificus; and "Other

Zooplankton <5mm". All taxa were ultimately counted so proper collation of data from the paired samples would enable comparison with samples processed differently from collections prior to 1988.

A subsample containing approximately 300-500 small zooplankton often provided sufficient counts (at least 30) of the taxa of particular interest to our study. If it did not, then a second subsample was sorted for these organisms.

RESULTS

A list of taxa found in each sample is contained in Appendices 1 and 2. Samples are identified by station numbers and mesh size. Data for concurrent bongo samples appear together: for each station, the first pages list results from the 333 μm mesh net; data from the 150 μm mesh net follow.

Taxa are listed in order of their abundance in each sample. Each list includes: the number of organisms counted; the fraction of the sample from which they were counted (sub/fac); and their abundance as number per 10m^3 and per m^2 . In each appendix, the station number corresponds to the station number in Figure 2, location is given to tenths of a degree of latitude and longitude, date and time are GMT, station depth and sample intervals are in meters, volume filtered is expressed in cubic meters and net mesh is in micrometers.

For some taxonomic categories, we did not spend the time to identify and record all species encountered; rather, notes were kept on the most abundant species in these categories. These species are listed in Table 3.

DISCUSSION

Care must be taken in using these data for quantitative comparisons. The size of the net mesh used to collect the samples, the sample splitting process, organism net avoidance behavior, and sample preservation all affect the estimates of taxa collected.

Nets with 333 μm mesh do not consistently retain organisms with a minimum dimension less than 471 μm (Miller et al. 1984); nets with 150 μm mesh do not consistently retain organisms with a minimum dimension less than 212 μm . On the basis of size, we consider that the following taxa were quantitatively retained when the 333 μm mesh nets were used: Calanus marshallae C3, C4, C5 and adults; C. pacificus C3, C4, C5 and adults; Eucalanus bungii C3, C4, C5 and adults; Metridia spp. C5 and adults; M. pacifica C5 and adults; Neocalanus cristatus C2, C3, C4, C5, and adults; N. spp. (N. plumchrus and/or N. flemingeri) C3, C4, C5 and adults; copepods $\geq 2\text{mm}$; decapod larvae; euphausiid furciliae, juveniles and adults; chaetognaths $\geq 20\text{mm}$; and other zooplankton $\geq 5\text{mm}$ in their maximum dimension. In addition to the above organisms, nets with 150 μm mesh should retain the following

taxa: C. marshallae C1 and C2; C. pacificus C1 and C2; E. bungii C1 and C2; N. cristatus C1; N. spp. (N. plumchrus and/or N. flemingeri) C1 and C2; Metriididae C2, C3, and C4; Pseudocalanus spp. C3, C4, C5, and adults; chaetognaths $\geq$ 5mm and euphausiid calyptopis C1, C2, and C3.

Estimates for gelatinous zooplankton (i.e. cnidarian medusae and larvaceans) are not quantitative because of the effects of sampling and preservation. The sample splitting process also affects estimates of thecosomate pteropods because they do not stay suspended in the sample. Finally, euphausiid adults and juveniles tend to avoid being caught in these nets.

ACKNOWLEDGMENTS

We thank all FOCI participants for their help with collections and other cruise details. We also thank officers and crew of the NOAA ship Miller Freeman for their efforts and the staff at the Plankton Sorting and Identification Center in Szczecin, Poland. We gratefully acknowledge Jay Clark for providing station data and mapping programs, Wendy Carlson and Jim Peacock for graphics; and John Richards for final report preparation.

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List of Tables

- Table 1. Taxonomic and size/life history stage categories identified in zooplankton samples from Shelikof Strait.
- Table 2. Organisms selected for enumeration from each mesh size used for sampling zooplankton.
- Table 3. Invertebrate zooplankton taxa not routinely identified to species, and the families, genera, or species most commonly encountered from these taxa in Shelikof Strait in 1988.

List of Figures

- Figure 1. Geography and bathymetry of Shelikof Strait, northwestern Gulf of Alaska.
- Figure 2. Station numbers and location of stations sampled for zooplankton on line 8: a) FOCI cruise 1MF88, 1-13 April 1988 and b) FOCI cruise 2MF88, 16 April-2 May 1988. In this figure commas separate station numbers when locations were sampled more than once.

List of Appendices

- Appendix 1. Abundance of zooplankton taxa at each station sampled during FOCI cruise 1MF88 in Shelikof Strait, 1-13 April 1988.
- Appendix 2. Abundance of zooplankton taxa at each station sampled during FOCI cruise 2MF88 in Shelikof Strait, 16 April-2 May 1988.

Table 1. Taxonomic and size/life history stage categories identified in zooplankton samples from Shelikof Strait.

<u>Taxon</u>	<u>Size/Life History Stages*</u>
<u>Acartia</u> spp.	
Anomura	larva
Bivalvia	<5mm, veliger <5mm
Brachyura	larva
Bryozoa	cyphonautes <5mm
<u>Calanus marshallae</u>	adult F, adult M, C5, C4, C3, C2, C1
<u>C. pacificus</u>	adult F, adult M, C5, C4, C3, C2, C1
Cephalapoda	≥5mm, <5mm
Chaetognatha	≥20mm, <20mm and ≥5mm, <5mm
Cirripedia	nauplius <5mm, cypris <5mm
Cladocera	<5mm
Cnidaria	medusa ≥5mm, medusa <5mm
Ctenophora	≥5mm, <5mm
Cumacea	≥5mm, <5mm
Echinodermata	≥5mm, <5mm, larva <5mm
<u>Eucalanus bungii</u>	adult F, adult M, C5 F, C5 M, C4 F, C4 M, C3, C2, C1
Euphausiacea	furcilia; calyptopis 3, 2, 1; damaged A&J; nauplius/metanauplius
<u>Euphausia pacifica</u>	A&J
Foraminifera	<5mm
Gammaridea	≥5mm, <5mm
Gastropoda	<5mm, veliger <5mm
Gymnosomata	≥5mm, <5mm
Hyperiidea	≥5mm, <5mm

Table 1. Continued

<u>Taxon</u>	<u>Size/Life History Stages*</u>
Invertebrata	egg <5mm, ≥5mm, <5mm
Larvacea	
<u>Metridia</u> spp.	adult F, adult M, C5 F, C5 M, C4
<u>Metridia pacifica</u>	adult F, adult M, C5 F, C5 M, C4
Metriididae	C3, C2, C1
Mysidacea	≥5mm, <5mm
Natantia	larva, ≥5mm A&J, <5mm A&J
Nematoda	≥5mm, <5mm
<u>Neocalanus cristatus</u>	adult F, adult M, C5, C4, C3, C2, C1
<u>N.</u> spp.	adult F, adult M, C5, C4, C3, C2, C1
<u>Oithona</u> spp.	
Ostracoda	<5mm
Other Copepoda	nauplius, unidentified, ≥5mm, <5mm and ≥2mm, <2mm
Other zooplankton	≥5mm, <5mm
Polychaeta	≥5mm, <5mm
<u>Pseudocalanus</u> spp.	adult F, adult M, C5 F, C5 M, C4 F, C4 M
? <u>Pseudocalanus</u> spp.	C3, C2, C1
Radiolaria	<5mm
Siphonophora	≥5mm, <5mm
Teleostei	egg <5mm, larva ≥5mm, larva <5mm
<u>Tessarabrachion oculatum</u>	A&J
Thecosomata	≥5mm, <5mm
<u>Thysanoessa inermis</u>	A&J
<u>T. inspinata</u>	A&J

Table 1. Continued

<u>Taxon</u>	<u>Size/Life History Stages*</u>
<u>T. longipes</u>	A&J
<u>T. raschii</u>	A&J
<u>T. spinifera</u>	A&J
Unidentified Calanoida	C3, C2, C1

* Life history stage abbreviations:

F= female

M= male

C= copepodite

A&J= adults and juveniles combined

blank= stage not determined

Table 2. Organisms selected for enumeration from each mesh size used for sampling zooplankton.

333 μ m mesh

Neocalanus cristatus

Adult, C5, C4, C3, C2

N. spp.

Adult, C5, C4, C3, C2

Calanus marshallae

Adult, C5, C4, C3, C2

C. pacificus

Adult, C5, C4, C3, C2

Eucalanus bungii

Adult, C5, C4, C3

Metridia pacifica

Adult, C5

Metridia spp.

Adult, C5

Other Copepoda > 2mm

Euphausiacea

A&J, furcilliae

Decapoda (Crustacea) larvae

Larvacea

Other zooplankton $\geq$ or <5mm

150 μ m mesh

N. cristatus

C1

N. spp.

C2, C1

C. marshallae

C2, C1

C. pacificus

C2, C1

E. bungii

C2, C1

Metriididae

C4, C3, C2, C1

Other Copepoda <2mm
nauplii

Oithona spp.

Pseudocalanus spp.

Acartia spp.

Euphausiacea

Calyptope 3, 2, 1, nauplii

Other zooplankton <5mm

Table 3. Invertebrate zooplankton taxa not routinely identified to species, and the families, genera, or species most commonly encountered from these taxa in Shelikof Strait in 1988.

<u>Taxon</u>	<u>Composition</u>
<u>Acartia</u> spp.	<u>A. longiremis</u>
Anomura larva	Paguridae
Brachyura larva	Majidae
Chaetognatha	<u>Eukronia hamata</u> , <u>Sagitta elegans</u>
Cnidaria medusa	<u>Aglantha digitale</u>
Gammaridea	<u>Cyphocharis challengerii</u>
Gymnosomata	<u>Clione</u> spp.
Hyperiid	<u>Themisto pacifica</u> , <u>Primno macropa</u>
Larvacea	<u>Fritillaria</u> spp., <u>Oikopleura</u> spp.
Mysidacea	<u>Meterothrips</u> spp.
<u>Neocalanus</u> spp.	<u>N. flemingeri</u> , <u>N. plumchrus</u>
<u>Oithona</u> spp.	<u>O. similis</u>
Other Copepoda ≥ 5 mm	Euchaetidae
Other Copepoda ≥ 2 and < 5 mm	Euchaetidae
Other Copepoda < 2 mm	Scolecithricidae, <u>Microcalanus</u> spp., <u>Oncaea</u> spp.
Polychaeta	Tomopteridae
Thecosomata	<u>Limacina helicina</u>

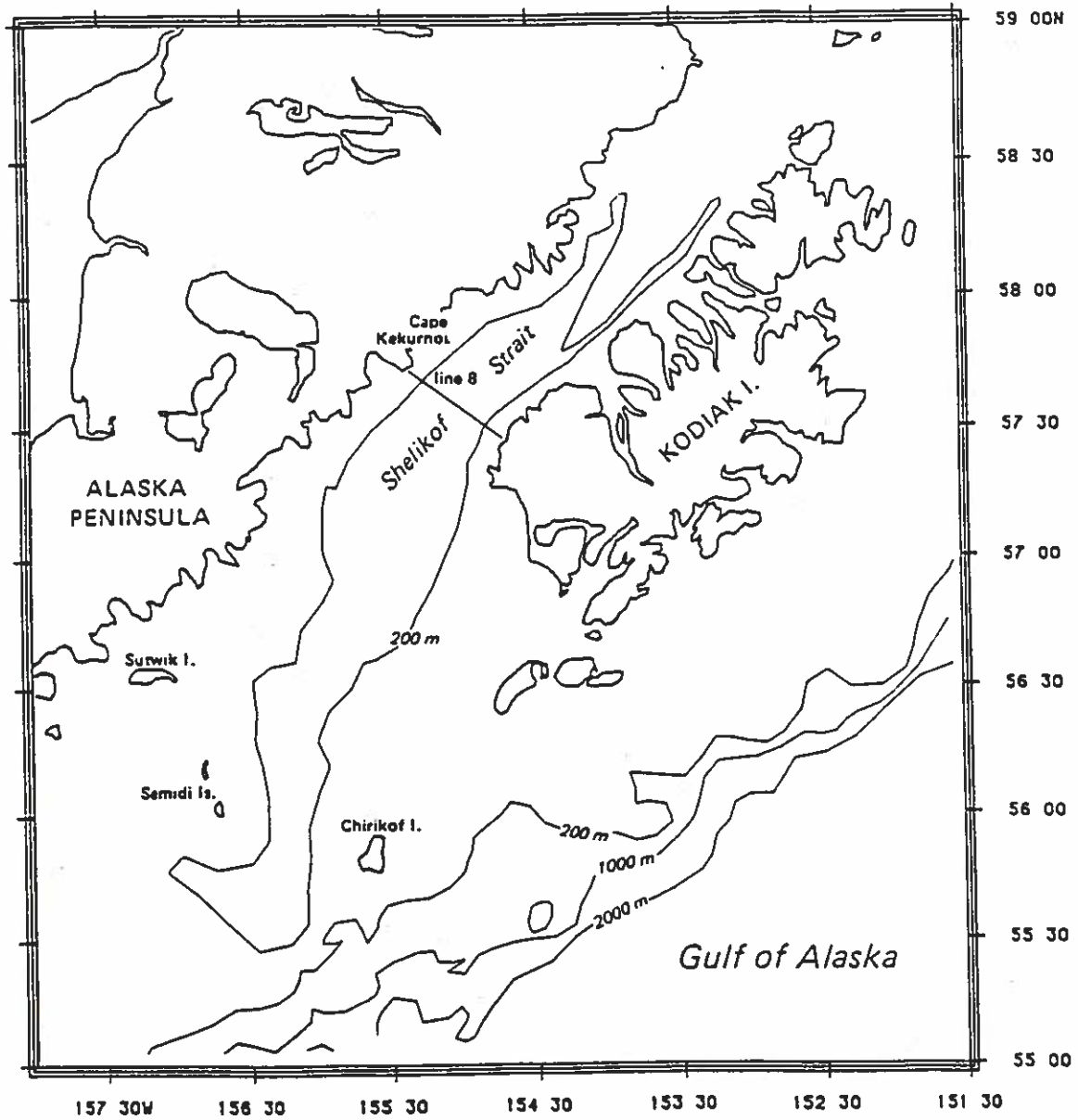


Figure 1. Geography and bathymetry of Shelikof Strait, northwestern Gulf of Alaska.

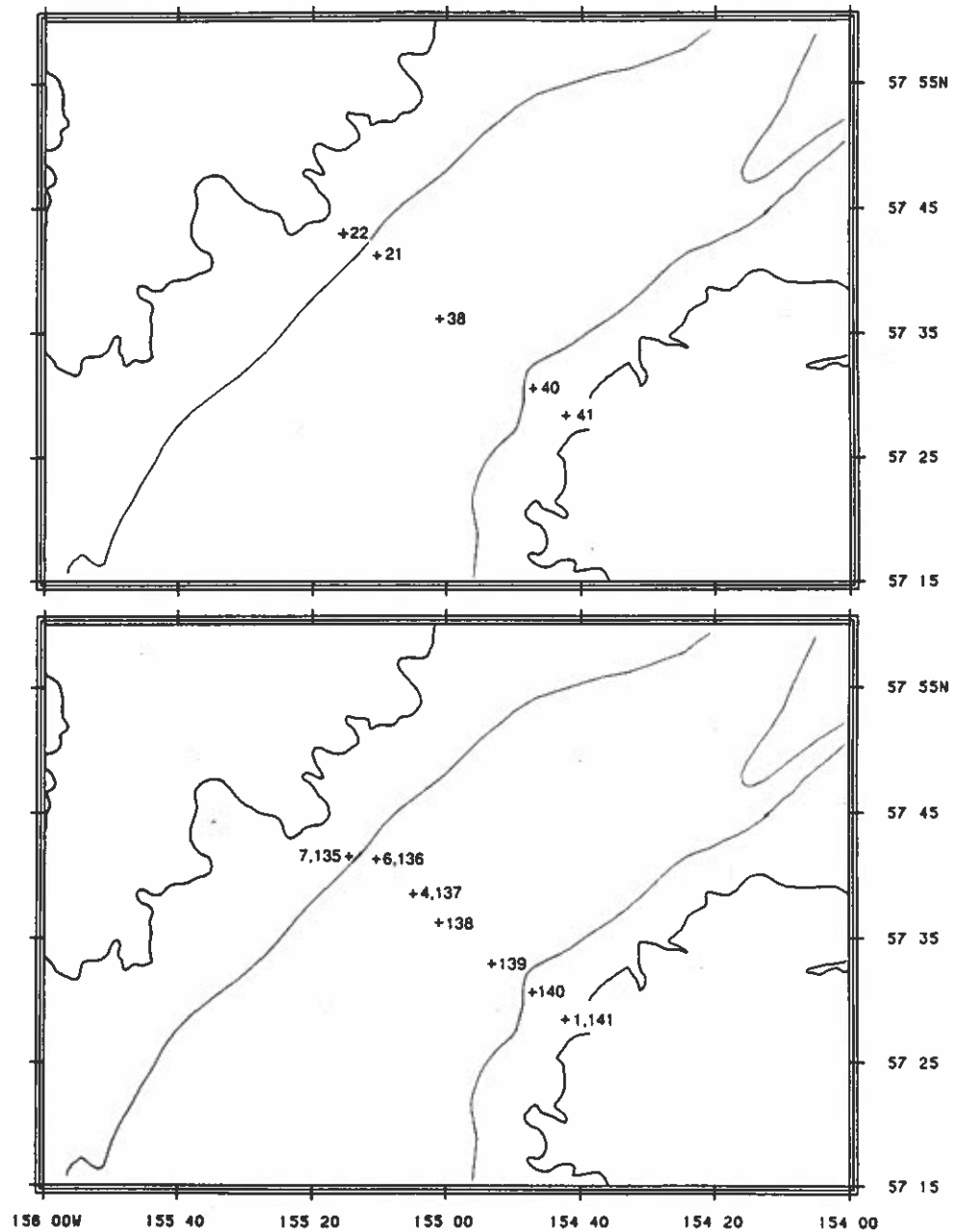
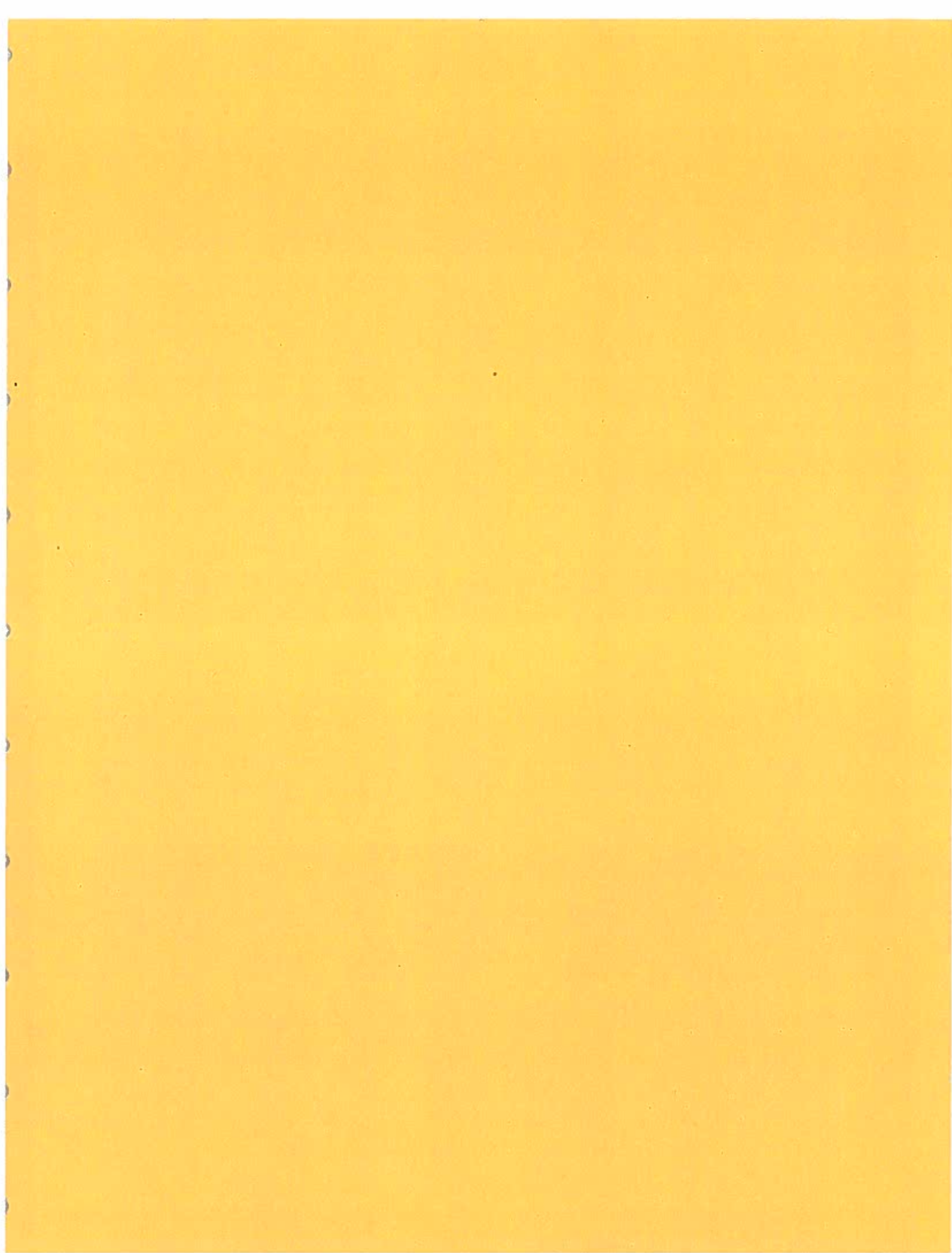


Figure 2. Station numbers and location of stations sampled for zooplankton on line 8: a) FOCI cruise 1MF88, 1-13 April 1988 and b) FOCI cruise 2MF88, 16 April-2 May 1988. In this figure commas separate station numbers when locations were sampled more than once.



Appendix 1. Abundance of zooplankton taxa at each station sampled during FOCI cruise 1MF88 in Shelikof Strait, 1-13 April 1988. The location of each station is indicated by the matching number in Figure 2.

STA. G022Z 57 42.7 N 155 15.7 W 04 Apr 88 9:37

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
300 0 - 259 338.6 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Ostracoda <5mm	92	32.0	87	2608	18.3
Invertebrata - egg <5mm	70	32.0	66	1985	13.9
Neocalanus spp. C-2	303	6.4	57	1718	12.0
Metridia pacifica C-5 M	46	32.0	43	1304	9.1
Metridia pacifica C-5 F	28	32.0	26	794	5.6
Neocalanus spp. C-3	130	6.4	25	737	5.2
Metridia spp. - adult F	25	32.0	24	709	5.0
Teleostei - egg <5mm	18	32.0	17	510	3.6
Metridia pacifica - adult F	84	6.4	16	476	3.3
Cnidaria - medusa >5mm	105	4.0	12	372	2.6
Metridia spp. - adult M	13	32.0	12	369	2.6
Larvacea	12	32.0	11	340	2.4
Thecosomata <5mm	10	32.0	9	284	2.0
Calanus marshallae - adult F	49	6.4	9	278	1.9
Chaetognatha 5-20mm	74	4.0	9	262	1.8
Cirripedia - nauplius <5mm	9	32.0	9	255	1.8
Mysidacea <5mm	7	32.0	7	198	1.4
Calanus pacificus C-5	30	6.4	6	170	1.2
Natantia - larva	4	32.0	4	113	0.8
Thysanoessa spinifera A&J	29	4.0	3	103	0.7
Calanus marshallae - adult M	18	6.4	3	102	0.7
Metridia pacifica - adult M	13	6.4	2	74	0.5
Chaetognatha >20mm	17	4.0	2	60	0.4
Other Copepoda 2-5mm	2	32.0	2	57	0.4
Chaetognatha <5mm	2	32.0	2	57	0.4
Siphonophora <5mm	2	32.0	2	57	0.4
Neocalanus cristatus C-3	7	6.4	1	40	0.3
Hyperiidia <5mm	1	32.0	1	28	0.2
Gammaridea <5mm	1	32.0	1	28	0.2
Cnidaria - medusa <5mm	1	32.0	1	28	0.2
Neocalanus spp. C-5	4	6.4	1	23	0.2
Neocalanus cristatus C-2	4	6.4	1	23	0.2
Neocalanus cristatus C-4	5	4.0	1	18	0.1
Gammaridea >5mm	4	4.0	< 1	14	0.1
Other Copepoda >5mm	3	4.0	< 1	11	0.1
Mysidacea >5mm	3	4.0	< 1	11	0.1
Teleostei - larva >5mm	2	4.0	< 1	7	< 0.1
Neocalanus spp. - adult F	1	6.4	< 1	6	< 0.1
Calanus marshallae C-4	1	6.4	< 1	6	< 0.1
Neocalanus spp. - adult M	1	6.4	< 1	6	< 0.1
Calanus marshallae C-5	1	6.4	< 1	6	< 0.1
Calanus pacificus - adult F	1	6.4	< 1	6	< 0.1
Thysanoessa inspinata A&J	1	4.0	< 1	4	< 0.1
Thysanoessa raschii A&J	1	4.0	< 1	4	< 0.1
Siphonophora >5mm	1	4.0	< 1	4	< 0.1
Eucalanus bungii C-5 M	1	4.0	< 1	4	< 0.1

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476	14265	100.

STA. G022Z 57 42.7 N 155 15.7 W 04 Apr 88 9:37

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
300 0 - 259 34.4 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Cirripedia - nauplius <5mm	245	512.0	36441	109322	70.7
Oithona spp.	32	512.0	4760	142788	9.2
Other Copepoda <2mm	25	512.0	3718	111553	7.2
Invertebrata - egg <5mm	16	512.0	2380	71394	4.6
Other Copepoda - nauplius	7	512.0	1041	31235	2.0
Pseudocalanus spp. - adult F	40	30.1	350	10493	0.7
?Pseudocalanus spp. C-1	2	512.0	297	8924	0.6
Neocalanus spp. C-2	30	30.1	262	7870	0.5
Metriididae C-3	68	10.4	205	6163	0.4
Metridia pacifica C-4	55	10.4	166	4985	0.3
?Pseudocalanus spp. C-3	50	10.4	151	4532	0.3
Thecosomata <5mm	1	512.0	149	4462	0.3
Teleostei - egg <5mm	1	512.0	149	4462	0.3
?Pseudocalanus spp. C-2	1	512.0	149	4462	0.3
Polychaeta <5mm	1	512.0	149	4462	0.3
Foraminifera <5mm	1	512.0	149	4462	0.3
Metriididae C-1	1	512.0	149	4462	0.3
Cnidaria - medusa <5mm	1	512.0	149	4462	0.3
Ostracoda <5mm	1	512.0	149	4462	0.3
Metriididae C-2	41	10.4	124	3716	0.2
Neocalanus spp. C-1	12	30.1	105	3148	0.2
Pseudocalanus spp. C-4 M	27	10.4	82	2447	0.2
Pseudocalanus spp. C-4 F	26	10.4	79	2357	0.2
Pseudocalanus spp. C-5 M	24	10.4	73	2175	0.1
Pseudocalanus spp. - adult M	6	30.1	52	1574	0.1
Pseudocalanus spp. C-5 F	16	10.4	48	1450	0.1
Unidentified Calanoida C-1	1	30.1	9	262	< 0.1
			51533	1545986	100.

STA. G021Z 57 41.0 N 155 10.5 W 04 Apr 88 10:45

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
196 0 - 194 277.6 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-2	112	32.0	129	2531	22.3
Teleostei - egg <5mm	88	32.0	101	1989	17.6
Neocalanus spp. C-3	58	32.0	67	1311	11.6
Ostracoda <5mm	42	32.0	48	949	8.4
Metridia pacifica - adult F	117	6.4	27	529	4.7
Invertebrata - egg <5mm	21	32.0	24	475	4.2
Metridia pacifica C-5 F	20	32.0	23	452	4.0
Larvacea	20	32.0	23	452	4.0
Cirripedia - nauplius <5mm	18	32.0	21	407	3.6
Metridia pacifica C-5 M	16	32.0	18	362	3.2
Neocalanus cristatus C-3	12	32.0	14	271	2.4
Thecosomata <5mm	10	32.0	12	226	2.0
Chaetognatha 5-20mm	74	4.0	11	209	1.8
Metridia spp. - adult M	9	32.0	10	203	1.8
Cnidaria - medusa >5mm	40	4.0	6	113	1.0
Metridia spp. - adult F	5	32.0	6	113	1.0
Calanus marshallae - adult M	24	6.4	6	108	1.0
Calanus marshallae - adult F	22	6.4	5	99	0.9
Mysidacea <5mm	4	32.0	5	90	0.8
Metridia pacifica - adult M	11	6.4	3	50	0.4
Calanus pacificus C-5	11	6.4	3	50	0.4
Other Copepoda 2-5mm	2	32.0	2	45	0.4
Hyperiidia <5mm	2	32.0	2	45	0.4
Teleostei - larva >5mm	14	4.0	2	40	0.3
Chaetognatha <5mm	1	32.0	1	23	0.2
Calanus marshallae C-4	5	6.4	1	23	0.2
Natantia - larva	1	32.0	1	23	0.2
Neocalanus cristatus C-2	1	32.0	1	23	0.2
Gammaridea >5mm	5	4.0	1	14	0.1
Thysanoessa inermis A&J	5	4.0	1	14	0.1
Chaetognatha >20mm	5	4.0	1	14	0.1
Mysidacea >5mm	4	4.0	1	11	0.1
Siphonophora >5mm	4	4.0	1	11	0.1
Neocalanus cristatus C-4	4	4.0	1	11	0.1
Calanus marshallae C-5	2	6.4	< 1	9	0.1
Thysanoessa inspinata A&J	3	4.0	< 1	8	0.1
Other Copepoda >5mm	2	4.0	< 1	6	< 0.1
Eucalanus bungii C-3	1	6.4	< 1	5	< 0.1
Calanus pacificus - adult F	1	6.4	< 1	5	< 0.1
Eucalanus bungii C-4 F	1	6.4	< 1	5	< 0.1
Hyperiidia >5mm	1	4.0	< 1	3	< 0.1
Thysanoessa spinifera A&J	1	4.0	< 1	3	< 0.1
Polychaeta >5mm	1	4.0	< 1	3	< 0.1
			578	11329	100.

STA. G021Z 57 41.0 N 155 10.5 W 04 Apr 88 10:45

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
196 0 - 194 27.9 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Cirripedia - nauplius <5mm	132	64.0	3032	59427	28.2
Oithona spp.	116	64.0	2664	52224	24.8
Other Copepoda <2mm	50	64.0	1148	22510	10.7
Other Copepoda - nauplius	36	64.0	827	16207	7.7
?Pseudocalanus spp. C-3	55	21.3	420	8241	3.9
Pseudocalanus spp. - adult F	45	21.3	344	6743	3.2
?Pseudocalanus spp. C-1	11	64.0	253	4952	2.4
Pseudocalanus spp. C-4 F	25	21.3	191	3746	1.8
?Pseudocalanus spp. C-2	8	64.0	184	3602	1.7
Teleostei - egg <5mm	8	64.0	184	3602	1.7
Pseudocalanus spp. C-5 M	24	21.3	183	3596	1.7
Neocalanus spp. C-2	22	21.3	168	3296	1.6
Ostracoda <5mm	7	64.0	161	3151	1.5
Metriididae C-1	6	64.0	138	2701	1.3
Neocalanus spp. C-1	18	21.3	138	2697	1.3
Pseudocalanus spp. C-4 M	17	21.3	130	2547	1.2
Pseudocalanus spp. C-5 F	17	21.3	130	2547	1.2
Metridia pacifica C-4	31	9.1	101	1984	0.9
Pseudocalanus spp. - adult M	13	21.3	99	1948	0.9
Invertebrata - egg <5mm	3	64.0	69	1351	0.6
Metriididae C-3	20	9.1	65	1280	0.6
Acartia spp.	2	64.0	46	900	0.4
Metriididae C-2	8	9.1	26	512	0.2
Siphonophora <5mm	1	64.0	23	450	0.2
Polychaeta <5mm	1	64.0	23	450	0.2
			10748	210666	100.

STA. G038Z 57 36.0 N 155 00.5 W 04 Apr 88 11:58

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
242 0 - 235 313.3 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Invertebrata - egg <5mm	91	64.0	186	4499	22.2
Neocalanus spp. C-3	55	64.0	112	2719	13.4
Neocalanus spp. C-2	48	64.0	98	2373	11.7
Teleostei - egg <5mm	38	64.0	78	1879	9.3
Ostracoda <5mm	34	64.0	69	1681	8.3
Metridia pacifica C-5 M	77	12.8	31	761	3.8
Metridia pacifica - adult F	77	12.8	31	761	3.8
Metridia spp. - adult F	12	64.0	25	593	2.9
Mysidacea <5mm	12	64.0	25	593	2.9
Calanus pacificus C-5	42	12.8	17	415	2.0
Metridia pacifica C-5 F	42	12.8	17	415	2.0
Chaetognatha >20mm	60	8.0	15	371	1.8
Metridia pacifica - adult M	36	12.8	15	356	1.8
Chaetognatha 5-20mm	43	8.0	11	266	1.3
Calanus marshallae - adult M	26	12.8	11	257	1.3
Larvacea	5	64.0	10	247	1.2
Other Copepoda 2-5mm	5	64.0	10	247	1.2
Metridia spp. - adult M	4	64.0	8	198	1.0
Calanus marshallae - adult F	19	12.8	8	188	0.9
Cnidaria - medusa >5mm	26	8.0	7	161	0.8
Thecosomata <5mm	3	64.0	6	148	0.7
Neocalanus cristatus C-3	3	64.0	6	148	0.7
Cirripedia - nauplius <5mm	3	64.0	6	148	0.7
Gammaridea <5mm	2	64.0	4	99	0.5
Neocalanus cristatus C-2	2	64.0	4	99	0.5
Hyperiidea <5mm	2	64.0	4	99	0.5
Mysidacea >5mm	11	8.0	3	68	0.3
Thysanoessa spinifera A&J	9	8.0	2	56	0.3
Siphonophora <5mm	1	64.0	2	49	0.2
Metridia spp. C-5 M	1	64.0	2	49	0.2
Neocalanus spp. - adult F	1	64.0	2	49	0.2
Gammaridea >5mm	7	8.0	2	43	0.2
Neocalanus cristatus C-5	7	8.0	2	43	0.2
Other Copepoda >5mm	5	8.0	1	31	0.2
Siphonophora >5mm	5	8.0	1	31	0.2
Neocalanus cristatus C-4	4	8.0	1	25	0.1
Neocalanus spp. C-4	2	16.0	1	25	0.1
Thysanoessa inspinata A&J	3	8.0	1	19	0.1
Teleostei - larva >5mm	3	8.0	1	19	0.1
Thysanoessa longipes A&J	2	8.0	1	12	0.1
Eucalanus bungii C-3	1	12.8	< 1	10	< 0.1
Calanus marshallae C-5	1	12.8	< 1	10	< 0.1
Decapoda (Mollusca) >5mm	1	8.0	< 1	6	< 0.1
Euphausia pacifica A&J	1	8.0	< 1	6	< 0.1
Eucalanus bungii - adult M	1	8.0	< 1	6	< 0.1
			838	20278	100.

STA. G038Z 57 36.0 N 155 00.5 W 04 Apr 88 11:58

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
242 0 - 235 32.4 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	139	64.0	2747	66472	33.2
Other Copepoda <2mm	123	64.0	2431	58820	29.4
Cirripedia - nauplius <5mm	26	64.0	514	12434	6.2
Other Copepoda - nauplius	22	64.0	435	10521	5.3
Invertebrata - egg <5mm	18	64.0	356	8608	4.3
?Pseudocalanus spp. C-3	109	7.1	239	5783	2.9
?Pseudocalanus spp. C-1	12	64.0	237	5739	2.9
Pseudocalanus spp. - adult F	95	7.1	208	5040	2.5
Ostracoda <5mm	10	64.0	198	4782	2.4
?Pseudocalanus spp. C-2	6	64.0	119	2869	1.4
Metriididae C-1	6	64.0	119	2869	1.4
Neocalanus spp. C-2	40	7.1	88	2122	1.1
Metridia pacifica C-4	38	7.1	83	2016	1.0
Pseudocalanus spp. C-4 F	32	7.1	70	1698	0.8
Metriididae C-3	30	7.1	66	1592	0.8
Pseudocalanus spp. - adult M	29	7.1	64	1539	0.8
Pseudocalanus spp. C-5 F	25	7.1	55	1326	0.7
Pseudocalanus spp. C-5 M	22	7.1	48	1167	0.6
Metriididae C-2	20	7.1	44	1061	0.5
Pseudocalanus spp. C-4 M	18	7.1	39	955	0.5
Acartia spp.	1	64.0	20	478	0.2
Gammaridea <5mm	1	64.0	20	478	0.2
Polychaeta <5mm	1	64.0	20	478	0.2
Teleostei - egg <5mm	1	64.0	20	478	0.2
Chaetognatha <5mm	1	64.0	20	478	0.2
Neocalanus spp. C-1	9	7.1	20	477	0.2
Neocalanus cristatus C-2	1	7.1	2	53	< 0.1
Calanus marshallae C-1	1	7.1	2	53	< 0.1
			8280	200385	100.

STA. G040Z 57 30.6 N 154 46.7 W 04 Apr 88 13:16

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH

208 0 - 198 272.3 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Metridia spp. - adult F	104	64.0	244	5085	21.1
Ostracoda <5mm	90	64.0	212	4400	18.2
Neocalanus spp. C-3	46	64.0	108	2249	9.3
Invertebrata - egg <5mm	32	64.0	75	1565	6.5
Neocalanus spp. C-2	32	64.0	75	1565	6.5
Metridia spp. - adult M	25	64.0	59	1222	5.1
Metridia pacifica C-5 M	91	12.8	43	890	3.7
Teleostei - egg <5mm	15	64.0	35	733	3.0
Calanus marshallae - adult M	66	12.8	31	645	2.7
Metridia pacifica C-5 F	58	12.8	27	567	2.4
Metridia pacifica - adult F	55	12.8	26	538	2.2
Calanus marshallae - adult F	53	12.8	25	518	2.1
Hyperiidea <5mm	9	64.0	21	440	1.8
Calanus pacificus C-5	43	12.8	20	420	1.7
Larvacea	8	64.0	19	391	1.6
Metridia pacifica - adult M	39	12.8	18	381	1.6
Siphonophora <5mm	7	64.0	16	342	1.4
Other Copepoda 2-5mm	7	64.0	16	342	1.4
Chaetognatha >20mm	41	8.0	12	251	1.0
Neocalanus cristatus C-3	4	64.0	9	196	0.8
Cnidaria - medusa >5mm	28	8.0	8	171	0.7
Chaetognatha 5-20mm	24	8.0	7	147	0.6
Cirripedia - nauplius <5mm	3	64.0	7	147	0.6
Calanus marshallae C-5	15	12.8	7	147	0.6
Mysidacea <5mm	3	64.0	7	147	0.6
Natantia - larva	2	64.0	5	98	0.4
Neocalanus cristatus C-5	13	8.0	4	79	0.3
Eucalanus bungii - adult F	8	8.0	2	49	0.2
Thecosomata <5mm	1	64.0	2	49	0.2
Polychaeta <5mm	1	64.0	2	49	0.2
Mysidacea >5mm	8	8.0	2	49	0.2
Gammaridea <5mm	1	64.0	2	49	0.2
Other Copepoda >5mm	5	8.0	1	31	0.1
Gammaridea >5mm	5	8.0	1	31	0.1
Neocalanus spp. C-4	3	12.8	1	29	0.1
Euphausia pacifica A&J	3	8.0	1	18	0.1
Hyperiidea >5mm	3	8.0	1	18	0.1
Eucalanus bungii - adult M	2	8.0	1	12	0.1
Eucalanus bungii C-3	1	12.8	< 1	10	< 0.1
Eucalanus bungii C-4 F	1	12.8	< 1	10	< 0.1
Neocalanus spp. - adult F	1	12.8	< 1	10	< 0.1
Eucalanus bungii C-4 M	1	12.8	< 1	10	< 0.1
Thysanoessa inermis A&J	1	8.0	< 1	6	< 0.1
Eucalanus bungii C-5 F	1	8.0	< 1	6	< 0.1
Siphonophora >5mm	1	8.0	< 1	6	< 0.1
Polychaeta >5mm	1	8.0	< 1	6	< 0.1

1160

24124

100.

STA. G040Z 57 30.6 N 154 46.7 W 04 Apr 88 13:16

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
208 0 - 198 26.7 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Other Copepoda <2mm	179	32.0	2147	44649	29.8
Oithona spp.	153	32.0	1835	38164	25.4
Invertebrata - egg <5mm	102	32.0	1223	25443	17.0
Other Copepoda - nauplius	27	32.0	324	6735	4.5
Ostracoda <5mm	17	32.0	204	4240	2.8
Foraminifera <5mm	17	32.0	204	4240	2.8
?Pseudocalanus spp. C-1	15	32.0	180	3742	2.5
Pseudocalanus spp. - adult F	65	6.4	156	3243	2.2
?Pseudocalanus spp. C-3	43	6.4	103	2145	1.4
Metriididae C-1	8	32.0	96	1996	1.3
Neocalanus spp. C-2	40	6.4	96	1996	1.3
Metridia pacifica C-4	37	6.4	89	1846	1.2
Metriididae C-3	28	6.4	67	1397	0.9
Metriididae C-2	18	6.4	43	898	0.6
Pseudocalanus spp. C-4 F	17	6.4	41	848	0.6
Pseudocalanus spp. C-4 M	15	6.4	36	748	0.5
Hyperiididae <5mm	3	32.0	36	748	0.5
?Pseudocalanus spp. C-2	3	32.0	36	748	0.5
Cirripedia - nauplius <5mm	3	32.0	36	748	0.5
Thecosomata <5mm	3	32.0	36	748	0.5
Bivalvia - veliger <5mm	2	32.0	24	499	0.3
Acartia spp.	2	32.0	24	499	0.3
Gastropoda <5mm	2	32.0	24	499	0.3
Pseudocalanus spp. C-5 M	10	6.4	24	499	0.3
Teleostei - egg <5mm	2	32.0	24	499	0.3
Mysidacea <5mm	2	32.0	24	499	0.3
Siphonophora <5mm	2	32.0	24	499	0.3
Neocalanus spp. C-1	10	6.4	24	499	0.3
Pseudocalanus spp. C-5 F	8	6.4	19	399	0.3
Pseudocalanus spp. - adult M	6	6.4	14	299	0.2
			7212	150012	100.

STA. G041Z 57 28.5 N 154 41.8 W 04 Apr 88 13:54

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
66 0 - 60 96.3 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-2	260	16.0	432	2852	46.7
Neocalanus spp. C-3	166	16.0	276	1821	29.8
Larvacea	15	16.0	25	165	2.7
Teleostei - egg <5mm	13	16.0	22	143	2.3
Metridia pacifica C-5 M	109	1.8	20	134	2.2
Cirripedia - nauplius <5mm	11	16.0	18	121	2.0
Invertebrata - egg <5mm	10	16.0	17	110	1.8
Siphonophora <5mm	9	16.0	15	99	1.6
Neocalanus cristatus C-3	8	16.0	13	88	1.4
Metridia pacifica - adult F	49	1.8	9	60	1.0
Metridia pacifica C-5 F	47	1.8	9	58	0.9
Chaetognatha 5-20mm	83	1.0	9	57	0.9
Calanus marshallae - adult F	43	1.8	8	53	0.9
Cnidaria - medusa <5mm	3	16.0	5	33	0.5
Metridia spp. - adult F	3	16.0	5	33	0.5
Thecosomata <5mm	3	16.0	5	33	0.5
Cnidaria - medusa >5mm	47	1.0	5	32	0.5
Neocalanus spp. C-4	22	1.8	4	27	0.4
Neocalanus cristatus C-2	2	16.0	3	22	0.4
Cumacea <5mm	2	16.0	3	22	0.4
Ostracoda <5mm	2	16.0	3	22	0.4
Metridia spp. - adult M	2	16.0	3	22	0.4
Natantia - larva	2	16.0	3	22	0.4
Chaetognatha <5mm	2	16.0	3	22	0.4
Calanus marshallae - adult M	11	1.8	2	14	0.2
Invertebrata <5mm	1	16.0	2	11	0.2
Metridia pacifica - adult M	7	1.8	1	9	0.1
Calanus pacificus C-5	6	1.8	1	7	0.1
Teleostei - larva >5mm	7	1.0	1	5	0.1
Chaetognatha >20mm	4	1.0	< 1	3	< 0.1
Neocalanus cristatus C-4	4	1.0	< 1	3	< 0.1
Eucalanus bungii C-3	2	1.8	< 1	2	< 0.1
Thysanoessa raschii A&J	3	1.0	< 1	2	< 0.1
Gammaridea >5mm	2	1.0	< 1	1	< 0.1
Eucalanus bungii C-4 F	1	1.8	< 1	1	< 0.1
Calanus marshallae C-5	1	1.8	< 1	1	< 0.1
Eucalanus bungii C-4 M	1	1.8	< 1	1	< 0.1
Thysanoessa inermis A&J	1	1.0	< 1	1	< 0.1
Eucalanus bungii C-5 F	1	1.0	< 1	1	< 0.1
Other Copepoda >5mm	1	1.0	< 1	1	< 0.1
Polychaeta >5mm	1	1.0	< 1	1	< 0.1
Eucalanus bungii - adult F	1	1.0	< 1	1	< 0.1
			926	6113	100.

STA. G041Z 57 28.5 N 154 41.8 W 04 Apr 88 13:54

DEPTH 66 SAMPLING INTERVAL 0 - 60 VOLUME FILTERED 8.9 NET MESH 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	297	16.0	5357	35357	42.1
Other Copepoda <2mm	77	16.0	1389	9167	10.9
Invertebrata - egg <5mm	59	16.0	1064	7024	8.4
Other Copepoda - nauplius	55	16.0	992	6548	7.8
Cirripedia - nauplius <5mm	47	16.0	848	5595	6.7
Neocalanus spp. C-2	30	16.0	541	3571	4.2
Pseudocalanus spp. - adult F	20	16.0	361	2381	2.8
Metriididae C-1	19	16.0	343	2262	2.7
Foraminifera <5mm	18	16.0	325	2143	2.5
?Pseudocalanus spp. C-1	12	16.0	216	1429	1.7
Metriididae C-3	83	1.8	168	1112	1.3
Pseudocalanus spp. - adult M	9	16.0	162	1071	1.3
Metriididae C-2	66	1.8	134	884	1.1
?Pseudocalanus spp. C-3	63	1.8	128	844	1.0
Neocalanus spp. C-1	7	16.0	126	833	1.0
?Pseudocalanus spp. C-2	7	16.0	126	833	1.0
Metridia pacifica C-4	45	1.8	91	603	0.7
Thecosomata <5mm	3	16.0	54	357	0.4
Pseudocalanus spp. C-5 M	24	1.8	49	321	0.4
Pseudocalanus spp. C-5 F	21	1.8	43	281	0.3
Pseudocalanus spp. C-4 F	19	1.8	39	254	0.3
Acartia spp.	2	16.0	36	238	0.3
Bivalvia - veliger <5mm	2	16.0	36	238	0.3
Polychaeta <5mm	2	16.0	36	238	0.3
Pseudocalanus spp. C-4 M	17	1.8	34	228	0.3
Teleostei - egg <5mm	1	16.0	18	119	0.1
Ostracoda <5mm	1	16.0	18	119	0.1
			12735	84050	100.

Appendix 2. Abundance of zooplankton taxa at each station sampled during FOCI cruise 2MF88 in Shelikof Strait, 16 April-2 May 1988. The location of each station is indicated by the matching number in Figure 2.

STA. G001A 57 29.1 N 154 42.4 W 17 Apr 88 12:15

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH

85 0 - 76 152.9 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-3	105	128.0	879	7471	35.2
Cirripedia - nauplius <5mm	57	128.0	477	4056	19.1
Neocalanus spp. C-4	44	128.0	368	3131	14.7
Larvacea	22	128.0	184	1565	7.4
Neocalanus spp. C-2	21	128.0	176	1494	7.0
Invertebrata - egg <5mm	9	128.0	75	640	3.0
Chaetognatha <5mm	8	128.0	67	569	2.7
Metridia pacifica C-5 M	72	14.2	67	568	2.7
Natantia - larva	7	128.0	59	498	2.3
Thecosomata <5mm	5	128.0	42	356	1.7
Other Copepoda damaged	5	128.0	42	356	1.7
Calanus marshallae C-2	2	128.0	17	142	0.7
Other Copepoda 2-5mm	1	128.0	8	71	0.3
Anomura - larva	1	128.0	8	71	0.3
Metridia pacifica C-5 F	7	14.2	7	55	0.3
Chaetognatha 5-20mm	76	1.0	5	42	0.2
Metridia pacifica - adult F	24	3.1	5	41	0.2
Calanus marshallae - adult F	20	3.1	4	34	0.2
Cnidaria - medusa >5mm	22	1.0	1	12	0.1
Thysanoessa inermis A&J	21	1.0	1	12	0.1
Metridia pacifica - adult M	4	3.1	1	7	< 0.1
Neocalanus spp. C-5	4	3.1	1	7	< 0.1
Neocalanus cristatus C-4	12	1.0	1	7	< 0.1
Calanus pacificus C-5	3	3.1	1	5	< 0.1
Eucalanus bungii C-3	2	3.1	< 1	3	< 0.1
Calanus marshallae - adult M	1	3.1	< 1	2	< 0.1
Eucalanus bungii C-4 M	1	3.1	< 1	2	< 0.1
Calanus pacificus - adult M	1	3.1	< 1	2	< 0.1
Eucalanus bungii C-4 F	1	3.1	< 1	2	< 0.1
Eucalanus bungii C-5 F	3	1.0	< 1	2	< 0.1
Thysanoessa raschii A&J	2	1.0	< 1	1	< 0.1
Eucalanus bungii C-5 M	2	1.0	< 1	1	< 0.1
Thysanoessa inspinata A&J	2	1.0	< 1	1	< 0.1
Polychaeta >5mm	2	1.0	< 1	1	< 0.1
Neocalanus cristatus C-5	1	1.0	< 1	1	< 0.1
Euphausia pacifica A&J	1	1.0	< 1	1	< 0.1
			2498	21230	100.

STA. G001A 57 29.1 N 154 42.4 W 17 Apr 88 12:15

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
85 0 - 76 11.4 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	166	64.0	9346	79441	44.0
Other Copepoda - nauplius	47	64.0	2646	22492	12.5
Cirripedia - nauplius <5mm	40	64.0	2252	19142	10.6
Pseudocalanus spp. - adult F	49	21.3	918	7804	4.3
?Pseudocalanus spp. C-2	16	64.0	901	7657	4.2
Invertebrata - egg <5mm	14	64.0	788	6700	3.7
?Pseudocalanus spp. C-3	42	21.3	787	6689	3.7
Pseudocalanus spp. C-5 M	23	21.3	431	3663	2.0
?Pseudocalanus spp. C-1	7	64.0	394	3350	1.9
Pseudocalanus spp. - adult M	21	21.3	393	3345	1.9
Pseudocalanus spp. C-4 F	19	21.3	356	3026	1.7
Pseudocalanus spp. C-4 M	19	21.3	356	3026	1.7
Euphausiacea - nauplius	6	64.0	338	2871	1.6
Pseudocalanus spp. C-5 F	11	21.3	206	1752	1.0
Neocalanus spp. C-2	34	5.8	173	1475	0.8
Chaetognatha <5mm	3	64.0	169	1436	0.8
Acartia spp.	3	64.0	169	1436	0.8
Metriididae C-3	33	5.8	168	1431	0.8
Metriididae C-2	31	5.8	158	1344	0.7
Other Copepoda <2mm	2	64.0	113	957	0.5
Metridia pacifica C-4	42	2.4	89	754	0.4
Calanus marshallae C-1	10	5.8	51	434	0.2
Neocalanus spp. C-1	5	5.8	26	217	0.1
Calanus marshallae C-2	4	5.8	20	173	0.1
			21249	180616	100.

STA. G004A 57 38.6 N 155 04.3 W 17 Apr 88 16:05

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
257 0 - 237 297.0 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-3	65	256.0	560	14400	25.6
Neocalanus spp. C-4	50	256.0	431	11077	19.7
Invertebrata - egg <5mm	31	256.0	267	6868	12.2
Neocalanus spp. C-2	25	256.0	216	5539	9.9
Cirripedia - nauplius <5mm	22	256.0	190	4874	8.7
Metridia pacifica C-5 M	38	85.3	109	2805	5.0
Metridia pacifica C-5 F	25	85.3	72	1845	3.3
Chaetognatha >20mm	97	16.0	52	1343	2.4
Larvacea	5	256.0	43	1108	2.0
Metridia pacifica - adult M	52	23.3	41	1049	1.9
Neocalanus cristatus C-3	3	256.0	26	665	1.2
Metridia pacifica - adult F	29	23.3	23	585	1.0
Thecosomata <5mm	2	256.0	17	443	0.8
Calanus marshallae C-2	2	256.0	17	443	0.8
Siphonophora <5mm	2	256.0	17	443	0.8
Neocalanus cristatus C-4	26	16.0	14	360	0.6
Calanus pacificus C-5	14	23.3	11	282	0.5
Chaetognatha 5-20mm	20	16.0	11	277	0.5
Metridia spp. C-5 F	1	256.0	9	222	0.4
Brachyura - larva	1	256.0	9	222	0.4
Ostracoda <5mm	1	256.0	9	222	0.4
Natantia - larva	1	256.0	9	222	0.4
Anomura - larva	1	256.0	9	222	0.4
Polychaeta <5mm	1	256.0	9	222	0.4
Calanus marshallae - adult F	6	23.3	5	121	0.2
Neocalanus spp. C-5	5	23.3	4	101	0.2
Neocalanus cristatus C-5	4	16.0	2	55	0.1
Cnidaria - medusa >5mm	4	16.0	2	55	0.1
Calanus marshallae - adult M	1	23.3	1	20	< 0.1
Thysanoessa spinifera A&J	1	16.0	1	14	< 0.1
Other Copepoda >5mm	1	16.0	1	14	< 0.1
Thysanoessa inermis A&J	1	16.0	1	14	< 0.1
Gammaridea >5mm	1	16.0	1	14	< 0.1
			2185	56143	100.

STA. G004A 57 38.6 N 155 04.3 W 17 Apr 88 16:05

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
257 0 - 237 25.1 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	187	128.0	9520	244661	50.5
Other Copepoda <2mm	32	128.0	1629	41867	8.6
Invertebrata - egg <5mm	28	128.0	1425	36634	7.6
Other Copepoda - nauplius	19	128.0	967	24859	5.1
?Pseudocalanus spp. C-3	52	25.6	529	13607	2.8
Cirripedia - nauplius <5mm	8	128.0	407	10467	2.2
Pseudocalanus spp. - adult F	37	25.6	377	9682	2.0
Euphausiacea - nauplius	6	128.0	305	7850	1.6
Chaetognatha <5mm	6	128.0	305	7850	1.6
?Pseudocalanus spp. C-1	12	64.0	305	7850	1.6
?Pseudocalanus spp. C-2	10	64.0	255	6542	1.3
Metriididae C-1	10	64.0	255	6542	1.3
Metriididae C-2	64	9.8	249	6411	1.3
Neocalanus spp. C-2	62	9.8	242	6211	1.3
Metriididae C-3	61	9.8	238	6110	1.3
Metridia pacifica C-4	53	9.8	207	5309	1.1
Polychaeta <5mm	4	128.0	204	5233	1.1
Pseudocalanus spp. C-4 M	19	25.6	193	4972	1.0
Pseudocalanus spp. - adult M	18	25.6	183	4710	1.0
Pseudocalanus spp. C-5 M	46	9.8	179	4608	1.0
Pseudocalanus spp. C-4 F	17	25.6	173	4448	0.9
Acartia spp.	2	128.0	102	2617	0.5
Teleostei - egg <5mm	2	128.0	102	2617	0.5
Ostracoda <5mm	2	128.0	102	2617	0.5
Pseudocalanus spp. C-5 F	26	9.8	101	2604	0.5
Neocalanus spp. C-1	19	9.8	74	1903	0.4
Gammaridea <5mm	1	128.0	51	1308	0.3
Gastropoda <5mm	1	128.0	51	1308	0.3
Hyperiididae <5mm	1	128.0	51	1308	0.3
Cladocera <5mm	1	128.0	51	1308	0.3
Calanus marshallae C-1	4	9.8	16	401	0.1
Calanus marshallae C-2	2	9.8	8	200	< 0.1
Euphausiacea - calyptopis 1	1	9.8	4	100	< 0.1
			18860	484714	100.

STA. G006A 57 41.0 N 155 09.8 W 17 Apr 88 19:01

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
291 0 - 290 319.0 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-3	129	128.0	518	15063	34.2
Cirripedia - nauplius <5mm	55	128.0	221	6422	14.6
Invertebrata - egg <5mm	44	128.0	177	5138	11.7
Metridia pacifica C-5 M	37	128.0	148	4320	9.8
Neocalanus spp. C-2	21	128.0	84	2452	5.6
Metridia pacifica C-5 F	15	128.0	60	1751	4.0
Larvacea	11	128.0	44	1284	2.9
Neocalanus spp. C-4	120	11.6	44	1270	2.9
Metridia pacifica - adult F	28	42.7	37	1091	2.5
Neocalanus cristatus C-3	8	128.0	32	934	2.1
Calanus marshallae C-2	5	128.0	20	584	1.3
Neocalanus cristatus C-4	66	8.0	17	482	1.1
Natantia - larva	4	128.0	16	467	1.1
Thecosomata <5mm	4	128.0	16	467	1.1
Chaetognatha 5-20mm	46	8.0	12	336	0.8
Calanus marshallae - adult F	27	11.6	10	286	0.6
Gastropoda <5mm	2	128.0	8	234	0.5
Mysidacea <5mm	2	128.0	8	234	0.5
Ostracoda <5mm	2	128.0	8	234	0.5
Gammaridea <5mm	2	128.0	8	234	0.5
Metridia pacifica - adult M	5	42.7	7	195	0.4
Siphonophora <5mm	1	128.0	4	117	0.3
Cnidaria - medusa >5mm	12	8.0	3	88	0.2
Chaetognatha >20mm	11	8.0	3	80	0.2
Calanus pacificus C-5	7	11.6	3	74	0.2
Neocalanus spp. C-5	6	11.6	2	63	0.1
Calanus marshallae - adult M	4	11.6	1	42	0.1
Gammaridea >5mm	4	8.0	1	29	0.1
Thysanoessa inspinata A&J	3	8.0	1	22	< 0.1
Calanus marshallae C-4	2	11.6	1	21	< 0.1
Thysanoessa inermis A&J	2	8.0	1	15	< 0.1
Euphausia pacifica A&J	2	8.0	1	15	< 0.1
Mysidacea >5mm	1	8.0	< 1	7	< 0.1
Other Copepoda >5mm	1	8.0	< 1	7	< 0.1
			1514	44056	100.

STA. G006A 57 41.0 N 155 09.8 W 17 Apr 88 19:01

DEPTH 291 SAMPLING INTERVAL 0 - 290 VOLUME FILTERED 27.6 NET MESH 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	119	256.0	11024	320784	42.7
Other Copepoda - nauplius	48	256.0	4446	129392	17.2
Other Copepoda <2mm	21	256.0	1945	56609	7.5
?Pseudocalanus spp. C-1	19	256.0	1760	51218	6.8
Invertebrata - egg <5mm	17	256.0	1575	45826	6.1
?Pseudocalanus spp. C-2	8	256.0	741	21565	2.9
Teleostei - egg <5mm	5	256.0	463	13478	1.8
Pseudocalanus spp. - adult F	24	51.2	445	12939	1.7
?Pseudocalanus spp. C-3	56	19.7	399	11617	1.5
Metriididae C-2	48	19.7	342	9957	1.3
Metriididae C-3	46	19.7	328	9542	1.3
Metridia pacifica C-4	46	19.7	328	9542	1.3
Pseudocalanus spp. C-5 M	33	19.7	235	6846	0.9
Cirripedia - nauplius <5mm	2	256.0	185	5391	0.7
Gastropoda <5mm	2	256.0	185	5391	0.7
Acartia spp.	2	256.0	185	5391	0.7
Pseudocalanus spp. - adult M	9	51.2	167	4852	0.6
Neocalanus spp. C-2	22	19.7	157	4564	0.6
Pseudocalanus spp. C-5 F	21	19.7	150	4356	0.6
Pseudocalanus spp. C-4 M	21	19.7	150	4356	0.6
Pseudocalanus spp. C-4 F	18	19.7	128	3734	0.5
Euphausiacea - nauplius	14	19.7	100	2904	0.4
Thecosomata <5mm	1	256.0	93	2696	0.4
Chaetognatha <5mm	1	256.0	93	2696	0.4
Foraminifera <5mm	1	256.0	93	2696	0.4
Neocalanus spp. C-1	5	19.7	36	1037	0.1
Metriididae C-1	5	19.7	36	1037	0.1
Calanus marshallae C-1	3	19.7	21	622	0.1
Euphausiacea - calyptopis 1	1	19.7	7	207	< 0.1
			25816	751247	100.

STA. G007A 57 42.0 N 155 15.3 W 17 Apr 88 20:38

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
298 0 - 289 369.7 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-3	111	1024.0	3074	91610	36.0
Neocalanus spp. C-4	98	1024.0	2714	80881	31.8
Neocalanus spp. C-2	32	1024.0	886	26410	10.4
Metridia pacifica C-5 M	42	341.3	388	11553	4.5
Cirripedia - nauplius <5mm	11	1024.0	305	9078	3.6
Metridia pacifica C-5 F	30	341.3	277	8252	3.2
Thecosomata <5mm	6	1024.0	166	4952	1.9
Invertebrata - egg <5mm	6	1024.0	166	4952	1.9
Larvacea	5	1024.0	138	4127	1.6
Neocalanus cristatus C-3	4	1024.0	111	3301	1.3
Metridia pacifica - adult F	36	93.1	91	2701	1.1
Natantia - larva	3	1024.0	83	2476	1.0
Metridia pacifica - adult M	22	93.1	55	1651	0.6
Neocalanus cristatus C-4	72	16.0	31	928	0.4
Chaetognatha 5-20mm	49	16.0	21	632	0.2
Neocalanus spp. C-5	16	23.8	10	307	0.1
Calanus marshallae - adult F	14	23.8	9	269	0.1
Cnidaria - medusa >5mm	6	16.0	3	77	< 0.1
Thysanoessa inermis A&J	5	16.0	2	64	< 0.1
Calanus marshallae C-4	2	23.8	1	38	< 0.1
Calanus marshallae - adult M	2	23.8	1	38	< 0.1
Calanus pacificus C-5	1	23.8	1	19	< 0.1
Calanus pacificus - adult F	1	23.8	1	19	< 0.1
Chaetognatha >20mm	1	16.0	< 1	13	< 0.1
Thysanoessa spinifera A&J	1	16.0	< 1	13	< 0.1
Other Copepoda >5mm	1	16.0	< 1	13	< 0.1
			8536	254377	100.

STA. G007A 57 42.0 N 155 15.3 W 17 Apr 88 20:38

DEPTH 298 SAMPLING INTERVAL 0 - 289 VOLUME FILTERED 31.1 NET MESH 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	162	256.0	13345	397694	39.1
Other Copepoda - nauplius	42	256.0	3460	103106	10.1
Invertebrata - egg <5mm	39	256.0	3213	95741	9.4
Cirripedia - nauplius <5mm	24	256.0	1977	58918	5.8
Other Copepoda <2mm	17	256.0	1400	41733	4.1
?Pseudocalanus spp. C-1	15	256.0	1236	36823	3.6
?Pseudocalanus spp. C-2	11	256.0	906	27004	2.7
Metriididae C-3	31	85.3	851	25357	2.5
Foraminifera <5mm	10	256.0	824	24549	2.4
Metriididae C-2	58	36.6	683	20356	2.0
?Pseudocalanus spp. C-3	51	36.6	601	17900	1.8
Metriididae C-1	7	256.0	577	17184	1.7
Thecosomata <5mm	6	256.0	494	14729	1.4
Metridia pacifica C-4	41	36.6	483	14390	1.4
Neocalanus spp. C-2	17	85.3	467	13906	1.4
Pseudocalanus spp. - adult F	16	85.3	439	13088	1.3
Acartia spp.	5	256.0	412	12274	1.2
Euphausiacea - nauplius	5	256.0	412	12274	1.2
Echinodermata - larva <5mm	5	256.0	412	12274	1.2
Pseudocalanus spp. - adult M	14	85.3	384	11452	1.1
Pseudocalanus spp. C-5 F	27	36.6	318	9476	0.9
Neocalanus spp. C-1	11	85.3	302	8998	0.9
Pseudocalanus spp. C-5 M	23	36.6	271	8072	0.8
Pseudocalanus spp. C-4 F	23	36.6	271	8072	0.8
Pseudocalanus spp. C-4 M	22	36.6	259	7721	0.8
Polychaeta <5mm	1	256.0	82	2455	0.2
Calanus marshallae C-2	2	85.3	55	1636	0.2
Calanus marshallae C-2	1	85.3	27	818	0.1
			34161	1018003	100.

STA. G135A 57 41.5 N 155 14.6 W 27 Apr 88 14:20

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
300 0 - 259 416.3 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	147	512.0	1808	54242	38.9
Neocalanus spp. C-5	38	512.0	467	14022	10.1
Metridia pacifica C-5 M	33	512.0	406	12177	8.7
Metridia pacifica - adult M	27	512.0	332	9963	7.1
Neocalanus spp. C-3	25	512.0	307	9225	6.6
Metridia pacifica C-5 F	24	512.0	295	8856	6.4
Cirripedia - nauplius <5mm	22	512.0	271	8118	5.8
Larvacea	11	512.0	135	4059	2.9
Metridia pacifica - adult F	10	512.0	123	3690	2.6
Calanus marshallae C-2	5	512.0	61	1845	1.3
Invertebrata - egg <5mm	5	512.0	61	1845	1.3
Calanus marshallae C-3	5	512.0	61	1845	1.3
Thecosomata <5mm	3	512.0	37	1107	0.8
Neocalanus spp. C-2	3	512.0	37	1107	0.8
Siphonophora <5mm	3	512.0	37	1107	0.8
Neocalanus cristatus C-4	44	32.0	34	1015	0.7
Calanus pacificus C-4	24	56.9	33	984	0.7
Natantia - larva	2	512.0	25	738	0.5
Chaetognatha >20mm	25	32.0	19	577	0.4
Chaetognatha 5-20mm	20	32.0	15	461	0.3
Ostracoda <5mm	1	512.0	12	369	0.3
Echinodermata - larva <5mm	1	512.0	12	369	0.3
Mysidacea <5mm	1	512.0	12	369	0.3
Gammaridea <5mm	1	512.0	12	369	0.3
Calanus pacificus C-5	8	56.9	11	328	0.2
Calanus pacificus - adult F	4	56.9	5	164	0.1
Calanus marshallae C-4	3	56.9	4	123	0.1
Cnidaria - medusa >5mm	5	32.0	4	115	0.1
Neocalanus cristatus C-5	2	32.0	2	46	< 0.1
Calanus marshallae C-5	1	56.9	1	41	< 0.1
Calanus pacificus - adult M	1	56.9	1	41	< 0.1
Thysanoessa inermis A&J	1	32.0	1	23	< 0.1
Thysanoessa spinifera A&J	1	32.0	1	23	< 0.1
Gammaridea >5mm	1	32.0	1	23	< 0.1
Other Copepoda >5mm	1	32.0	1	23	< 0.1
			4647	139407	100.

STA. G135A 57 41.5 N 155 14.6 W 27 Apr 88 14:20

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH

300 0 - 259 35.2 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	208	128.0	7573	227190	35.9
Other Copepoda - nauplius	59	128.0	2148	64443	10.2
Other Copepoda <2mm	57	128.0	2075	62259	9.8
?Pseudocalanus spp. C-1	25	128.0	910	27306	4.3
Pseudocalanus spp. - adult F	93	25.6	677	20316	3.2
?Pseudocalanus spp. C-3	92	25.6	670	20098	3.2
Metridia pacifica C-4	83	25.6	604	18132	2.9
Metriididae C-1	16	128.0	583	17476	2.8
?Pseudocalanus spp. C-2	15	128.0	546	16384	2.6
Metriididae C-2	70	25.6	510	15292	2.4
Echinodermata - larva <5mm	13	128.0	473	14199	2.2
Euphausiacea - nauplius	13	128.0	473	14199	2.2
Invertebrata - egg <5mm	13	128.0	473	14199	2.2
Metriididae C-3	55	25.6	400	12015	1.9
Pseudocalanus spp. C-4 F	49	25.6	357	10704	1.7
Pseudocalanus spp. C-5 M	46	25.6	335	10049	1.6
Pseudocalanus spp. C-4 M	44	25.6	320	9612	1.5
Pseudocalanus spp. C-5 F	42	25.6	306	9175	1.4
Cirripedia - nauplius <5mm	8	128.0	291	8738	1.4
Pseudocalanus spp. - adult M	38	25.6	277	8301	1.3
Gastropoda <5mm	7	128.0	255	7646	1.2
Calanus marshallae C-2	20	25.6	146	4369	0.7
Calanus marshallae C-1	18	25.6	131	3932	0.6
Ostracoda <5mm	3	128.0	109	3277	0.5
Acartia spp.	3	128.0	109	3277	0.5
Chaetognatha <5mm	2	128.0	73	2185	0.3
Euphausiacea - calyptopis 1	87	2.8	69	2079	0.3
Neocalanus spp. C-3	6	25.6	44	1311	0.2
Other zooplankton <5mm	1	128.0	36	1092	0.2
Cirripedia - cypris <5mm	1	128.0	36	1092	0.2
Siphonophora <5mm	1	128.0	36	1092	0.2
Polychaeta <5mm	1	128.0	36	1092	0.2
Neocalanus spp. C-1	2	25.6	15	437	0.1
Euphausiacea - calyptopis 2	8	2.8	6	191	< 0.1
			21105	633159	100.

STA. G136A 57 41.3 N 155 10.5 W 27 Apr 88 16:29

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
295 0 - 245 422.8 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	134	256.0	811	23933	30.3
Metridia pacifica C-5 F	39	256.0	236	6966	8.8
Neocalanus spp. C-5	38	256.0	230	6787	8.6
Metridia pacifica - adult M	36	256.0	218	6430	8.1
Metridia pacifica C-5 M	32	256.0	194	5715	7.2
Metridia pacifica - adult F	32	256.0	194	5715	7.2
Cirripedia - nauplius <5mm	26	256.0	157	4644	5.9
Neocalanus spp. C-3	25	256.0	151	4465	5.6
Invertebrata - egg <5mm	20	256.0	121	3572	4.5
Larvacea	15	256.0	91	2679	3.4
Neocalanus spp. C-2	9	256.0	54	1607	2.0
Ostracoda <5mm	5	256.0	30	893	1.1
Thecosomata <5mm	5	256.0	30	893	1.1
Calanus marshallae C-2	4	256.0	24	714	0.9
Chaetognatha >20mm	50	16.0	19	558	0.7
Calanus marshallae C-3	3	256.0	18	536	0.7
Gastropoda <5mm	3	256.0	18	536	0.7
Neocalanus cristatus C-4	44	16.0	17	491	0.6
Cirripedia - cypris <5mm	2	256.0	12	357	0.5
Chaetognatha 5-20mm	26	16.0	10	290	0.4
Calanus marshallae - adult F	12	28.4	8	238	0.3
Calanus marshallae C-5	10	28.4	7	198	0.3
Gammaridea <5mm	1	256.0	6	179	0.2
Neocalanus cristatus C-3	1	256.0	6	179	0.2
Calanus marshallae C-4	8	28.4	5	159	0.2
Neocalanus cristatus C-5	13	16.0	5	145	0.2
Calanus pacificus C-5	5	28.4	3	99	0.1
Thysanoessa inermis A&J	6	16.0	2	67	0.1
Cnidaria - medusa >5mm	2	16.0	1	22	< 0.1
Calanus pacificus - adult F	1	28.4	1	20	< 0.1
Other Copepoda >5mm	1	16.0	< 1	11	< 0.1
Gammaridea >5mm	1	16.0	< 1	11	< 0.1
			2682	79111	100.

STA. G136A 57 41.3 N 155 10.5 W 27 Apr 88 16:29

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH

295 0 - 245 35.5 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	126	256.0	9090	268166	43.5
Other Copepoda - nauplius	44	256.0	3174	93645	15.2
Other Copepoda <2mm	25	256.0	1804	53208	8.6
Invertebrata - egg <5mm	25	256.0	1804	53208	8.6
?Pseudocalanus spp. C-1	11	256.0	794	23411	3.8
Pseudocalanus spp. - adult F	37	51.2	534	15749	2.6
Euphausiacea - nauplius	7	256.0	505	14898	2.4
?Pseudocalanus spp. C-2	7	256.0	505	14898	2.4
?Pseudocalanus spp. C-3	30	51.2	433	12770	2.1
Cirripedia - nauplius <5mm	4	256.0	289	8513	1.4
Pseudocalanus spp. C-5 M	59	12.2	203	5984	1.0
Pseudocalanus spp. C-5 F	59	12.2	203	5984	1.0
Pseudocalanus spp. C-4 M	57	12.2	196	5781	0.9
Pseudocalanus spp. C-4 F	57	12.2	196	5781	0.9
Metridia pacifica C-4	48	12.2	165	4868	0.8
Pseudocalanus spp. - adult M	11	51.2	159	4682	0.8
Metriididae C-2	40	12.2	138	4057	0.7
Metriididae C-3	38	12.2	131	3854	0.6
Euphausiacea - calyptopis 1	34	12.2	117	3449	0.6
Acartia spp.	1	256.0	72	2128	0.3
Chaetognatha <5mm	1	256.0	72	2128	0.3
Polychaeta <5mm	1	256.0	72	2128	0.3
Echinodermata - larva <5mm	1	256.0	72	2128	0.3
Calanus marshallae C-1	16	12.2	55	1623	0.3
Neocalanus spp. C-2	14	12.2	48	1420	0.2
Calanus marshallae C-2	12	12.2	41	1217	0.2
Metriididae C-1	5	12.2	17	507	0.1
Neocalanus spp. C-1	5	12.2	17	507	0.1
Euphausiacea - calyptopis 2	1	12.2	3	101	< 0.1
			20908	616797	100.

STA. G137A 57 38.5 N 155 04.9 W 27 Apr 88 18:27

DEPTH	SAMPLING INTERVAL	VOLUME FILTERED	NET MESH
260	0 - 229	394.3	333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	76	256.0	493	12830	25.0
Neocalanus spp. C-5	33	256.0	214	5571	10.9
Metridia pacifica C-5 M	30	256.0	195	5065	9.9
Cirripedia - nauplius <5mm	27	256.0	175	4558	8.9
Metridia pacifica - adult M	19	256.0	123	3208	6.3
Larvacea	18	256.0	117	3039	5.9
Metridia pacifica - adult F	17	256.0	110	2870	5.6
Metridia pacifica C-5 F	13	256.0	84	2195	4.3
Invertebrata - egg <5mm	12	256.0	78	2026	4.0
Neocalanus spp. C-3	10	256.0	65	1688	3.3
Calanus marshallae C-3	7	256.0	45	1182	2.3
Neocalanus spp. C-2	7	256.0	45	1182	2.3
Calanus marshallae C-2	7	256.0	45	1182	2.3
Thecosomata <5mm	5	256.0	32	844	1.6
Neocalanus cristatus C-4	66	16.0	27	696	1.4
Neocalanus cristatus C-3	3	256.0	19	506	1.0
Brachyura - larva	2	256.0	13	338	0.7
Gastropoda <5mm	2	256.0	13	338	0.7
Chaetognatha 5-20mm	30	16.0	12	317	0.6
Calanus marshallae C-4	14	28.4	10	262	0.5
Calanus marshallae - adult F	11	28.4	8	206	0.4
Chaetognatha >20mm	18	16.0	7	190	0.4
Hyperiidia <5mm	1	256.0	6	169	0.3
Natantia - larva	1	256.0	6	169	0.3
Invertebrata <5mm	1	256.0	6	169	0.3
Cirripedia - cypris <5mm	1	256.0	6	169	0.3
Neocalanus cristatus C-5	6	16.0	2	63	0.1
Calanus marshallae - adult M	3	28.4	2	56	0.1
Cnidaria - medusa >5mm	5	16.0	2	53	0.1
Calanus marshallae C-5	2	28.4	1	37	0.1
Thysanoessa inermis A&J	3	16.0	1	32	0.1
Calanus pacificus C-5	1	28.4	1	19	< 0.1
Hyperiidia >5mm	1	16.0	< 1	11	< 0.1
Siphonophora >5mm	1	16.0	< 1	11	< 0.1
Other Copepoda >5mm	1	16.0	< 1	11	< 0.1
			1971	51259	100.

STA. G137A 57 38.5 N 155 04.9 W 27 Apr 88 18:27

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
260 0 - 229 33.2 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%

Oithona spp.	232	128.0	8954	232813	43.8
Other Copepoda <2mm	46	128.0	1775	46161	8.7
Invertebrata - egg <5mm	39	128.0	1505	39137	7.4
Other Copepoda - nauplius	31	128.0	1196	31109	5.9
?Pseudocalanus spp. C-1	25	128.0	965	25088	4.7
Metriididae C-2	48	42.7	618	16069	3.0
Metriididae C-1	14	128.0	540	14049	2.6
Pseudocalanus spp. - adult F	39	42.7	502	13056	2.5
Euphausiacea - nauplius	12	128.0	463	12042	2.3
?Pseudocalanus spp. C-3	34	42.7	438	11382	2.1
?Pseudocalanus spp. C-2	11	128.0	425	11039	2.1
Metridia pacifica C-4	32	42.7	412	10712	2.0
Metriididae C-3	32	42.7	412	10712	2.0
Cirripedia - nauplius <5mm	9	128.0	347	9032	1.7
Echinodermata - larva <5mm	9	128.0	347	9032	1.7
Pseudocalanus spp. C-5 M	18	42.7	232	6026	1.1
Thecosomata <5mm	6	128.0	232	6021	1.1
Pseudocalanus spp. - adult M	17	42.7	219	5691	1.1
Pseudocalanus spp. C-5 F	16	42.7	206	5356	1.0
Pseudocalanus spp. C-4 F	25	18.3	138	3587	0.7
Pseudocalanus spp. C-4 M	24	18.3	132	3443	0.6
Bivalvia - veliger <5mm	2	128.0	77	2007	0.4
Calanus marshallae C-1	27	8.5	69	1799	0.3
Euphausiacea - calyptopis 1	18	8.5	46	1200	0.2
Polychaeta <5mm	1	128.0	39	1004	0.2
Chaetognatha <5mm	1	128.0	39	1004	0.2
Gastropoda <5mm	1	128.0	39	1004	0.2
Calanus marshallae C-2	14	8.5	36	933	0.2
Neocalanus spp. C-2	8	8.5	21	533	0.1
Neocalanus spp. C-1	4	8.5	10	267	0.1
Euphausiacea - calyptopis 2	1	8.5	3	67	< 0.1

			20437	531371	100.

STA. G138A 57 36.2 N 155 01.1 W 27 Apr 88 20:22

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
244 0 - 212 334.2 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	106	256.0	812	19815	33.4
Metridia pacifica C-5 M	33	256.0	253	6169	10.4
Neocalanus spp. C-5	31	256.0	237	5795	9.8
Neocalanus spp. C-3	22	256.0	169	4113	6.9
Metridia pacifica C-5 F	19	256.0	146	3552	6.0
Metridia pacifica - adult M	19	256.0	146	3552	6.0
Larvacea	19	256.0	146	3552	6.0
Metridia pacifica - adult F	15	256.0	115	2804	4.7
Cirripedia - nauplius <5mm	12	256.0	92	2243	3.8
Invertebrata - egg <5mm	9	256.0	69	1682	2.8
Neocalanus spp. C-2	8	256.0	61	1495	2.5
Neocalanus cristatus C-4	59	16.0	28	689	1.2
Ostracoda <5mm	3	256.0	23	561	0.9
Thecosomata <5mm	3	256.0	23	561	0.9
Chaetognatha >20mm	44	16.0	21	514	0.9
Chaetognatha 5-20mm	34	16.0	16	397	0.7
Cirripedia - cypris <5mm	1	256.0	8	187	0.3
Metridia spp. - adult F	1	256.0	8	187	0.3
Siphonophora <5mm	1	256.0	8	187	0.3
Polychaeta <5mm	1	256.0	8	187	0.3
Natantia - larva	1	256.0	8	187	0.3
Calanus marshallae C-3	1	256.0	8	187	0.3
Calanus marshallae C-2	1	256.0	8	187	0.3
Calanus marshallae - adult F	8	28.4	7	166	0.3
Cnidaria - medusa >5mm	11	16.0	5	129	0.2
Calanus marshallae C-4	6	28.4	5	124	0.2
Calanus marshallae C-5	2	28.4	2	41	0.1
Calanus pacificus C-5	1	28.4	1	21	< 0.1
Hyperiidia >5mm	1	16.0	< 1	12	< 0.1
Other Copepoda >5mm	1	16.0	< 1	12	< 0.1
Eucalanus bungii - adult M	1	16.0	< 1	12	< 0.1
Eucalanus bungii - adult F	1	16.0	< 1	12	< 0.1
Gammaridea >5mm	1	16.0	< 1	12	< 0.1
			2432	59341	100.

STA. G138A 57 36.2 N 155 01.1 W 27 Apr 88 20:22

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH

244 0 - 212 28.8 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	177	256.0	15729	383780	51.4
?Pseudocalanus spp. C-1	27	256.0	2399	58543	7.8
Other Copepoda - nauplius	23	256.0	2044	49870	6.7
Other Copepoda <2mm	18	256.0	1600	39028	5.2
?Pseudocalanus spp. C-2	15	256.0	1333	32524	4.4
Cirripedia - nauplius <5mm	9	256.0	800	19514	2.6
Metridia pacifica C-4	80	28.4	789	19243	2.6
Invertebrata - egg <5mm	8	256.0	711	17346	2.3
Euphausiacea - nauplius	8	256.0	711	17346	2.3
?Pseudocalanus spp. C-3	64	28.4	631	15395	2.1
Metriididae C-3	54	28.4	532	12989	1.7
Metriididae C-2	46	28.4	453	11065	1.5
Metriididae C-1	5	256.0	444	10841	1.5
Pseudocalanus spp. - adult F	43	28.4	424	10343	1.4
Echinodermata - larva <5mm	3	256.0	267	6505	0.9
Pseudocalanus spp. C-5 M	27	28.4	266	6495	0.9
Pseudocalanus spp. - adult M	22	28.4	217	5292	0.7
Pseudocalanus spp. C-4 M	20	28.4	197	4811	0.6
Acartia spp.	2	256.0	178	4336	0.6
Pseudocalanus spp. C-4 F	16	28.4	158	3849	0.5
Euphausiacea - calyptopis 1	31	10.2	110	2678	0.4
Pseudocalanus spp. C-5 F	11	28.4	108	2646	0.4
Foraminifera <5mm	1	256.0	89	2168	0.3
Gastropoda <5mm	1	256.0	89	2168	0.3
Polychaeta <5mm	1	256.0	89	2168	0.3
Calanus marshallae C-1	25	10.2	89	2160	0.3
Neocalanus spp. C-2	22	10.2	78	1901	0.3
Calanus marshallae C-2	17	10.2	60	1469	0.2
Neocalanus spp. C-1	5	10.2	18	432	0.1
Euphausiacea - calyptopis 2	2	10.2	7	173	< 0.1
			30618	747077	100.

STA. G139A 57 32.9 N 154 53.2 W 27 Apr 88 22:23

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
236 0 - 193 324.6 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	92	256.0	726	17124	24.5
Cirripedia - nauplius <5mm	49	256.0	386	9120	13.1
Metridia pacifica C-5 M	43	256.0	339	8004	11.5
Neocalanus spp. C-3	31	256.0	244	5770	8.3
Neocalanus spp. C-5	29	256.0	229	5398	7.7
Metridia pacifica C-5 F	26	256.0	205	4839	6.9
Larvacea	24	256.0	189	4467	6.4
Metridia pacifica - adult M	19	256.0	150	3536	5.1
Metridia pacifica - adult F	17	256.0	134	3164	4.5
Neocalanus spp. C-2	8	256.0	63	1489	2.1
Ostracoda <5mm	5	256.0	39	931	1.3
Calanus marshallae C-2	5	256.0	39	931	1.3
Calanus marshallae C-3	4	256.0	32	745	1.1
Metridia spp. - adult F	3	256.0	24	558	0.8
Invertebrata - egg <5mm	3	256.0	24	558	0.8
Neocalanus cristatus C-4	78	8.0	19	454	0.7
Natantia - larva	2	256.0	16	372	0.5
Cirripedia - cypris <5mm	2	256.0	16	372	0.5
Thecosomata <5mm	2	256.0	16	372	0.5
Chaetognatha >20mm	47	8.0	12	273	0.4
Chaetognatha 5-20mm	42	8.0	10	244	0.4
Calanus marshallae C-5	17	15.1	8	187	0.3
Polychaeta <5mm	1	256.0	8	186	0.3
Other Copepoda 2-5mm	1	256.0	8	186	0.3
Cnidaria - medusa >5mm	22	8.0	5	128	0.2
Calanus marshallae - adult F	9	15.1	4	99	0.1
Calanus marshallae C-5	7	15.1	3	77	0.1
Calanus pacificus C-5	6	15.1	3	66	0.1
Calanus marshallae - adult M	3	15.1	1	33	< 0.1
Neocalanus cristatus C-5	3	8.0	1	17	< 0.1
Thysanoessa spinifera A&J	3	8.0	1	17	< 0.1
Other Copepoda >5mm	2	8.0	< 1	12	< 0.1
Calanus pacificus - adult F	1	15.1	< 1	11	< 0.1
Euphausia pacifica A&J	1	8.0	< 1	6	< 0.1
Siphonophora >5mm	1	8.0	< 1	6	< 0.1
			2956	69753	100.

STA. G139A 57 32.9 N 154 53.2 W 27 Apr 88 22:23

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
236 0 - 193 28.4 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	179	128.0	8058	190158	43.1
Other Copepoda - nauplius	34	128.0	1530	36119	8.2
Other Copepoda <2mm	26	128.0	1170	27621	6.3
Invertebrata - egg <5mm	22	128.0	990	23371	5.3
?Pseudocalanus spp. C-1	17	128.0	765	18060	4.1
?Pseudocalanus spp. C-2	16	128.0	720	16997	3.9
?Pseudocalanus spp. C-3	39	42.7	586	13821	3.1
Acartia spp.	12	128.0	540	12748	2.9
Pseudocalanus spp. - adult F	34	42.7	511	12049	2.7
Metridia pacifica C-4	32	42.7	481	11340	2.6
Cirripedia - nauplius <5mm	10	128.0	450	10623	2.4
Pseudocalanus spp. C-4 M	23	42.7	345	8151	1.8
Metriididae C-2	53	18.3	341	8050	1.8
Pseudocalanus spp. C-4 F	21	42.7	315	7442	1.7
Pseudocalanus spp. C-5 F	19	42.7	285	6733	1.5
Metriididae C-3	44	18.3	283	6683	1.5
Pseudocalanus spp. C-5 M	18	42.7	270	6379	1.4
Pseudocalanus spp. - adult M	16	42.7	240	5670	1.3
Metriididae C-1	4	128.0	180	4249	1.0
Calanus marshallae C-1	23	18.3	148	3493	0.8
Euphausiacea - nauplius	3	128.0	135	3187	0.7
Gastropoda <5mm	2	128.0	90	2125	0.5
Calanus marshallae C-2	13	18.3	84	1974	0.4
Other zooplankton <5mm	1	128.0	45	1062	0.2
Ostracoda <5mm	1	128.0	45	1062	0.2
Echinodermata - larva <5mm	1	128.0	45	1062	0.2
Neocalanus spp. C-2	2	18.3	13	304	0.1
Neocalanus spp. C-1	1	18.3	6	152	< 0.1
Euphausiacea - calyptopis 1	3	3.3	3	82	< 0.1
			18677	440770	100.

STA. G140A 57 30.6 N 154 47.3 W 28 Apr 88 0:13

DEPTH 212 SAMPLING INTERVAL 0 - 184 VOLUME FILTERED 302.8 NET MESH 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	97	256.0	820	17388	21.8
Cirripedia - nauplius <5mm	61	256.0	516	10934	13.7
Invertebrata - egg <5mm	46	256.0	389	8246	10.3
Metridia pacifica C-5 F	39	256.0	330	6991	8.7
Neocalanus spp. C-5	38	256.0	321	6812	8.5
Metridia pacifica - adult M	35	256.0	296	6274	7.9
Metridia pacifica C-5 M	29	256.0	245	5198	6.5
Metridia pacifica - adult F	22	256.0	186	3944	4.9
Larvacea	19	256.0	161	3406	4.3
Neocalanus spp. C-3	17	256.0	144	3047	3.8
Calanus marshallae C-2	10	256.0	85	1793	2.2
Cirripedia - cypris <5mm	6	256.0	51	1076	1.3
Neocalanus cristatus C-4	52	16.0	27	583	0.7
Neocalanus spp. C-2	3	256.0	25	538	0.7
Thecosomata <5mm	3	256.0	25	538	0.7
Chaetognatha >20mm	44	16.0	23	493	0.6
Chaetognatha 5-20mm	34	16.0	18	381	0.5
Ostracoda <5mm	2	256.0	17	359	0.4
Polychaeta <5mm	2	256.0	17	359	0.4
Natantia - larva	2	256.0	17	359	0.4
Calanus marshallae C-4	11	28.4	10	219	0.3
Siphonophora <5mm	1	256.0	8	179	0.2
Chaetognatha <5mm	1	256.0	8	179	0.2
Calanus marshallae - adult F	8	28.4	8	159	0.2
Calanus marshallae C-5	6	28.4	6	119	0.1
Calanus pacificus C-5	4	28.4	4	80	0.1
Calanus marshallae - adult M	4	28.4	4	80	0.1
Cnidaria - medusa >5mm	5	16.0	3	56	0.1
Neocalanus cristatus C-5	4	16.0	2	45	0.1
Other Copepoda >5mm	3	16.0	2	34	< 0.1
Thysanoessa spinifera A&J	1	16.0	1	11	< 0.1
Thysanoessa inermis A&J	1	16.0	1	11	< 0.1
Siphonophora >5mm	1	16.0	1	11	< 0.1
Euphausia pacifica A&J	1	16.0	1	11	< 0.1
			3769	79908	100.

STA. G140A 57 30.6 N 154 47.3 W 28 Apr 88 0:13

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
212 0 - 184 25.7 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	134	256.0	13370	283438	30.9
Other Copepoda - nauplius	108	256.0	10776	228442	24.9
Other Copepoda <2mm	34	256.0	3392	71917	7.8
Invertebrata - egg <5mm	28	256.0	2794	59226	6.5
Euphausiacea - nauplius	20	256.0	1995	42304	4.6
?Pseudocalanus spp. C-1	18	256.0	1796	38074	4.2
Metriididae C-1	9	256.0	898	19037	2.1
Cirripedia - nauplius <5mm	9	256.0	898	19037	2.1
?Pseudocalanus spp. C-2	9	256.0	898	19037	2.1
Pseudocalanus spp. - adult F	38	51.2	758	16076	1.8
?Pseudocalanus spp. C-3	30	51.2	599	12691	1.4
Metriididae C-2	68	19.7	522	11068	1.2
Pseudocalanus spp. C-5 M	26	51.2	519	10999	1.2
Pseudocalanus spp. C-5 F	21	51.2	419	8884	1.0
Acartia spp.	4	256.0	399	8461	0.9
Metridia pacifica C-4	44	19.7	338	7162	0.8
Euphausiacea - calyptopis 1	42	19.7	322	6836	0.7
Pseudocalanus spp. C-4 M	16	51.2	319	6769	0.7
Gastropoda <5mm	3	256.0	299	6346	0.7
Polychaeta <5mm	3	256.0	299	6346	0.7
Pseudocalanus spp. C-4 F	14	51.2	279	5923	0.6
Metriididae C-3	71	8.8	244	5162	0.6
Echinodermata - larva <5mm	2	256.0	200	4230	0.5
Ostracoda <5mm	2	256.0	200	4230	0.5
Pseudocalanus spp. - adult M	9	51.2	180	3807	0.4
Calanus marshallae C-1	22	19.7	169	3581	0.4
Cirripedia - cypris <5mm	1	256.0	100	2115	0.2
Hyperiididae <5mm	1	256.0	100	2115	0.2
Calanus marshallae C-2	9	19.7	69	1465	0.2
Euphausiacea - calyptopis 2	7	19.7	54	1139	0.1
Neocalanus spp. C-1	2	19.7	15	326	< 0.1
Neocalanus spp. C-2	1	19.7	8	163	< 0.1
Unidentified Calanoida C-2	1	19.7	8	163	< 0.1
			43234	916569	100.

STA. G141A 57 28.4 N 154 42.3 W 28 Apr 88 1:39

DEPTH SAMPLING INTERVAL VOLUME FILTERED NET MESH
66 0 - 64 102.6 333

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Neocalanus spp. C-4	84	64.0	524	3458	19.8
Cirripedia - nauplius <5mm	64	64.0	399	2635	15.1
Calanus marshallae C-2	12	256.0	299	1976	11.3
Neocalanus spp. C-5	38	64.0	237	1564	8.9
Metridia pacifica - adult M	38	64.0	237	1564	8.9
Cirripedia - cypris <5mm	23	64.0	143	947	5.4
Neocalanus spp. C-3	18	64.0	112	741	4.2
Metridia pacifica C-5 M	18	64.0	112	741	4.2
Larvacea	15	64.0	94	617	3.5
Metridia pacifica C-5 F	13	64.0	81	535	3.1
Calanus marshallae C-3	3	256.0	75	494	2.8
Thecosomata <5mm	11	64.0	69	453	2.6
Metridia pacifica - adult F	7	64.0	44	288	1.6
Invertebrata - egg <5mm	7	64.0	44	288	1.6
Natantia - larva	6	64.0	37	247	1.4
Chaetognatha 5-20mm	77	4.0	30	198	1.1
Neocalanus cristatus C-3	1	256.0	25	165	0.9
Neocalanus cristatus C-4	54	4.0	21	139	0.8
Anomura - larva	3	64.0	19	123	0.7
Polychaeta <5mm	2	64.0	12	82	0.5
Chaetognatha <5mm	1	64.0	6	41	0.2
Neocalanus spp. C-2	1	64.0	6	41	0.2
Siphonophora <5mm	1	64.0	6	41	0.2
Calanus marshallae C-4	9	7.1	6	41	0.2
Cnidaria - medusa >5mm	11	4.0	4	28	0.2
Neocalanus cristatus C-5	4	4.0	2	10	0.1
Chaetognatha >20mm	4	4.0	2	10	0.1
Calanus marshallae - adult F	2	7.1	1	9	0.1
Calanus marshallae - adult M	1	7.1	1	5	< 0.1
Siphonophora >5mm	1	4.0	< 1	3	< 0.1
Eucalanus bungii - adult M	1	4.0	< 1	3	< 0.1
			2650	17488	100.

STA. G141A 57 28.4 N 154 42.3 W 28 Apr 88 1:39

DEPTH 66 SAMPLING INTERVAL 0 - 64 VOLUME FILTERED 8.3 NET MESH 150

Taxon	Number counted	Sub/ fac	No./ 10m3	No./ m2	%
Oithona spp.	115	64.0	8820	58210	31.8
Other Copepoda - nauplius	38	64.0	2914	19235	10.5
Other Copepoda <2mm	32	64.0	2454	16198	8.8
Euphausiacea - nauplius	26	64.0	1994	13161	7.2
?Pseudocalanus spp. C-1	23	64.0	1764	11642	6.4
Acartia spp.	18	64.0	1380	9111	5.0
Pseudocalanus spp. - adult F	31	32.0	1189	7846	4.3
Cirripedia - nauplius <5mm	15	64.0	1150	7593	4.1
Polychaeta <5mm	9	64.0	690	4556	2.5
Pseudocalanus spp. C-5 F	17	32.0	652	4302	2.3
Pseudocalanus spp. - adult M	16	32.0	614	4049	2.2
Pseudocalanus spp. C-5 M	13	32.0	499	3290	1.8
Cirripedia - cypris <5mm	5	64.0	383	2531	1.4
Metriididae C-1	5	64.0	383	2531	1.4
Metriididae C-2	81	3.6	349	2306	1.3
?Pseudocalanus spp. C-3	79	3.6	341	2249	1.2
?Pseudocalanus spp. C-2	4	64.0	307	2025	1.1
Gastropoda <5mm	4	64.0	307	2025	1.1
Pseudocalanus spp. C-4 F	67	3.6	289	1908	1.0
Pseudocalanus spp. C-4 M	66	3.6	285	1879	1.0
Metriididae C-3	65	3.6	280	1851	1.0
Calanus marshallae C-1	42	3.6	181	1196	0.7
Metridia pacifica C-4	41	3.6	177	1167	0.6
Invertebrata - egg <5mm	2	64.0	153	1012	0.6
Euphausiacea - calyptopis 1	22	3.6	95	626	0.3
Calanus marshallae C-2	21	3.6	91	598	0.3
Neocalanus spp. C-2	5	3.6	22	142	0.1
Euphausiacea - calyptopis 2	1	3.6	4	28	< 0.1
			27768	183267	100.





