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SURVEY OF THE BENTHIC INVERTEBRATE FAUNA OF THE EASTERN BERING SEA

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Patsy A. McLaughlin

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CONTENTS

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by

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ABSTRACT

The report presents a checklist of species of pelecypods, gastropods (exclusive of nudibranchs), barnacles, decapod crustaceans, tunicates, and the majority of echinoderms found on the Continental Shelf of the eastern Bering Sea during king crab studies of 1958 and 1959. In addition specific identifications are given for some of the bryozoans and hydroids, and a few of the annelids. Other organisms comprising otter trawl and dredge catches of the stations in the area are listed according to class or order.

INTRODUCTION

A phase of the research program conducted by the King Crab Investigation of the Bureau of Commercial Fisheries for the International North Pacific Fisheries Commission has included an ecological study of the eastern Bering Sea. During the summers of 1958 and 1959, samples of invertebrate bottom fauna were collected by king crab biologists aboard the chartered vessel M. V. *Tordenskjold*. The principal purpose of these collections was to aid in making specific identifications of food organisms of the king crab *(Paralithodes camtschatica)*, a commercially important anomuran. In addition, relationship of king crabs to other fauna of the area may be established through these surveys.

Invertebrate fauna of the eastern Bering Sea has been studied little since the Harriman Alaska Expedition and *Albatross* expedition in the late 1890's and early 1900's. Limited information can be obtained from the report of the pre-World War II king crab investigations (Fishery Market News, 1942) and from the report of the *Pacific Explorer's* fishing and processing operations in 1948 (Wigutoff and Carlson, 1950). Some information on species found in the area is included in reports of the U.S. Fish and Wildlife Service's Alaska exploratory fishing expedition in 1948 (Ellson, Knake, and Dassow, 1949) and the exploratory fishing expedition to the northern Bering Sea in 1949 (Ellson, Powell, and Hildebrand, 1950). Neuman (1960) has published a quantitative report, in Russian, on the molluscan communities of the eastern Bering Sea; however, reference is not made to his work since a translation is not available.

This report is restricted to a checklist of pelecypods, gastropods (exclusive of nudibranchs as identifications are not yet completed), barnacles, decapod crustaceans, tunicates, and the majority of echinoderms, collected in the eastern Bering Sea.

Several groups, such as annelids, forams, sponge, and the majority of coelenterates and bryozoans have not yet been identified due to the lack of available systematists or reference literature.

No attempt was made to conduct quantitative sampling of the invertebrate fauna since the needs of other king crab studies did not allow extensive sampling.

Note.--Presently employed as Assistant Zoologist, Department of Oceanography, University of Washington, Seattle, Washington.

The assistance of Dr. Fenner A. Chace, Jr., curator of the Division of Marine Invertebrates of the U. S. National Museum; Dr. L. B. Holthuis, Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands; and Drs. Dora P. Henry and Paul L. Illg, University of Washington, were particularly helpful in this study. Numerous systematists contributed considerably to the identification of specimens, in particular Dr. Dora P. Henry; Dr. L. B. Holthuis; Dr. Myra Keen, Stanford University; Mrs. Nettie MacGinitie, at that time director of the Kerckhoff Marine Laboratory; and Dr. Donald P. Abbott, Hopkins Marine Station, Stanford University.

PHYSICAL FEATURES OF AREA

The area of the eastern Bering Sea covered by the surveys (fig. 1) is characterized by a relatively flat sea bottom ranging in depth from 10 to 75 fathoms (fig. 2). Hebard (1959) describes a counterclockwise water circulation in the region, with a decrease in average current velocity with an increase in depth. Bottom sediments have been found to vary from fine mud in the western part to dark and coarse sand inshore (fig. 3). Temperature fluctuations during the sampling periods were considerable. Figures 4, 5, and 6 show the range of bottom temperatures observed during these surveys.

METHODS

The invertebrate fauna was collected by otter trawls towed on a straight-line course at approximately 3 miles per hour for 1-hour periods at stations spaced at 20-mile intervals throughout the area, as indicated in figure 1. The trawl used was a standard "400 mesh eastern" type, as described by Greenwood (1958), with a 94-foot-long foot rope. To assure the retention of smaller organisms, the trawl was modified by inserting a $1\frac{1}{2}$-inch mesh lining to the cod end. Additional sampling was done at some stations with a box-type dredge (fig. 7). The galvanized screening of the dredge had four openings to the inch; in addition, it was lined with 1/8-inch mesh netting.

In 1958 the station pattern was covered first in April and May and again in June and July.[1] The catch at each station was examined, and the groups represented were recorded. A random sample of each catch was preserved immediately by freezing and subsequently transferred to 10-percent buffered formalin solution upon the vessel's return to port.

[1] Stations C-4, 5, D-4, 6, and K-12 were omitted during the early cruise, and stations A-4, E-4, F-5, 14, G-6, 15, H-7, 15, I-8, 14, and K-11 were omitted during the later cruise due to inclement weather.

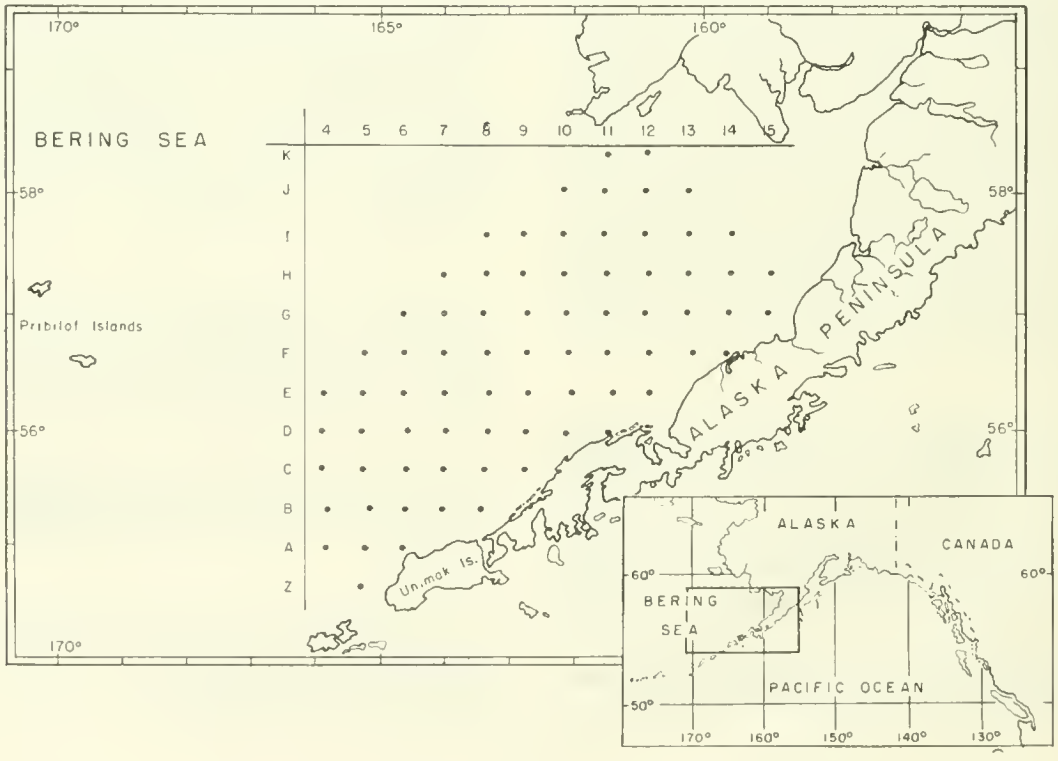

Figure 1.--Area of the eastern Bering Sea covered by the sampling program, showing the approximate locations of the stations. Dots indicate station locations.

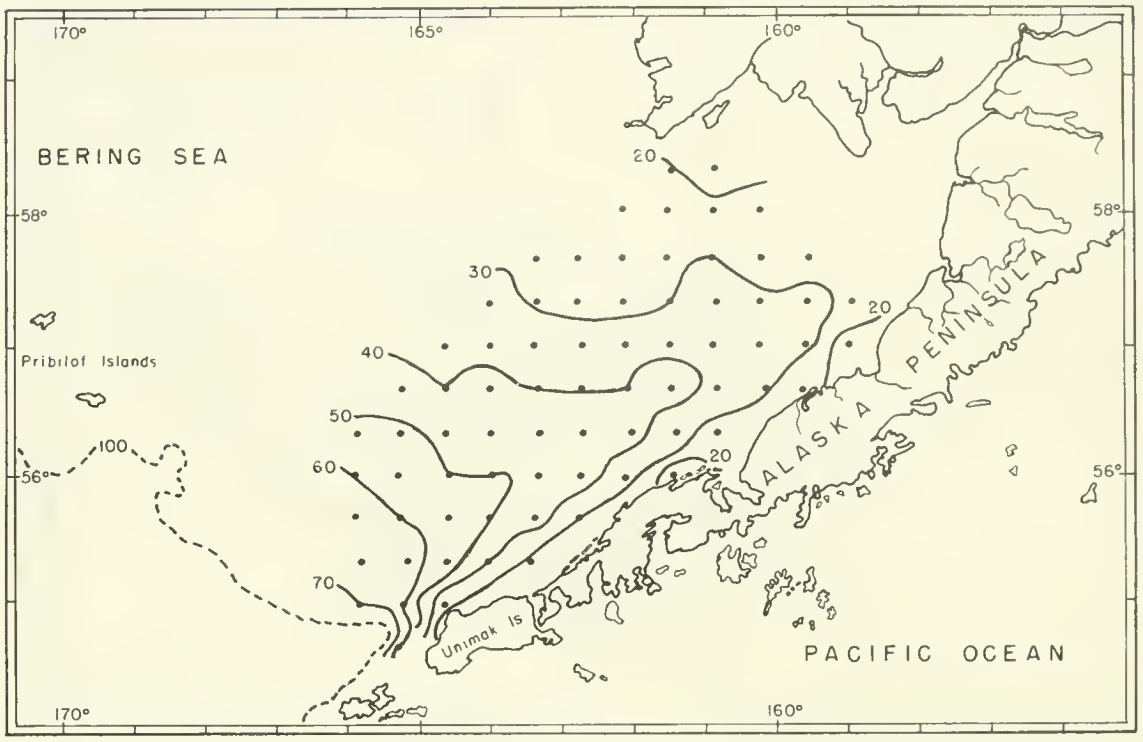

Figure 2.--Depth contours of the eastern Bering Sea area covered by the sampling program. Depths are given in fathoms.

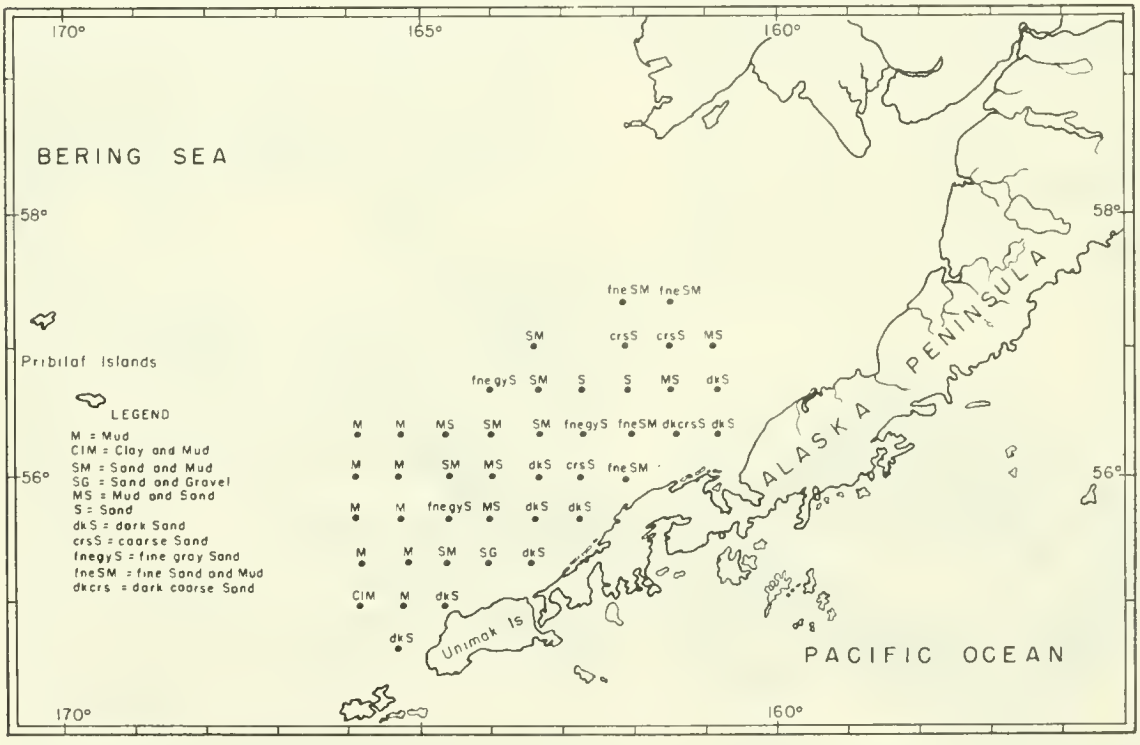

Figure 3.--Bottom sediment distribution, 1959. Sediment types are according to U. S. Coast and Geodetic Survey and U. S. Navy Hydrographic Office designations.

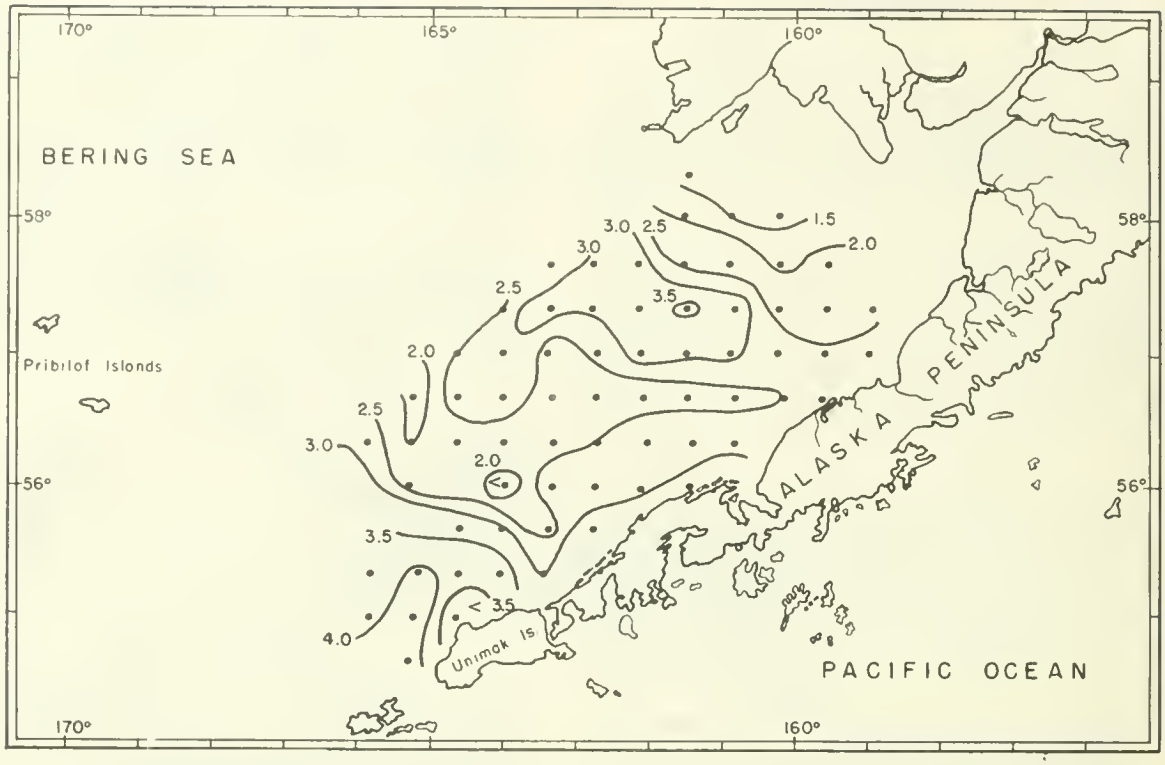

Figure 4.--Bottom temperature distribution, April and May 1958. Dots indicate station locations.

Figure 5.--Bottom temperature distribution, June and July 1958. Dots indicate station locations.

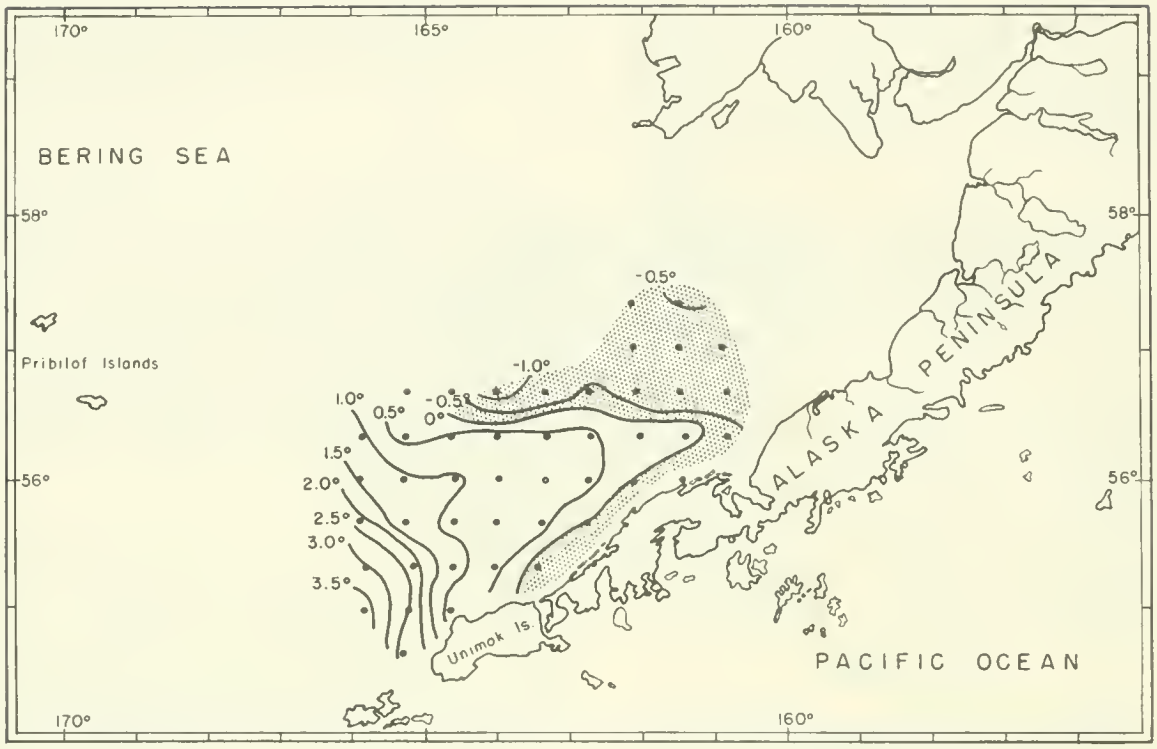

Figure 6.--Bottom temperature distribution, May 1959. Shading indicates area of negative temperatures. Dark dots indicate stations where fauna and temperature data were collected.

In 1959 the station pattern (fig. 6) was covered only once and was reduced considerably. The entire northern portion had to be omitted due to unfavorable weather conditions. As in 1958, the groups of organisms comprising each catch were recorded; however, samples were preserved from only a small number of stations.

Upon the vessel's return the samples were sorted into general groups. Tentative generic or specific identifications were made for the gastropods, pelecypods, decapod crustaceans, and the majority of the echinoderms. After the collections were categorized as specifically as possible, representative samples were sent to systematists for specific identification or verification.

Samples of the mollusks of the 1958 survey (exclusive of the nudibranchs) were sent to Mrs. Nettie MacGinitie. Samples of the 1959 mollusks (exclusive of the nudibranchs) were sent to Dr. Myra Keen. With the aid of their identifications, the author subsequently identified the remainder of the gastropods and pelecypods.

The author identified the decapods. The identifications of the species of brachyuran and anomuran crabs have been verified by comparison with the collections in the U. S. National Museum. Considerable time was devoted to the identification of the hermit crabs. The most recent work on the genus *Pagurus* (Makarov, 1938) has resulted in some confusion in synonymy. Upon the recommendations of Drs. Fenner A. Chace, Jr. and L. B. Holthuis, the nomenclature employed in the species identification of specimens of the genus *Pagurus* from these surveys is according to Benedict (1892,

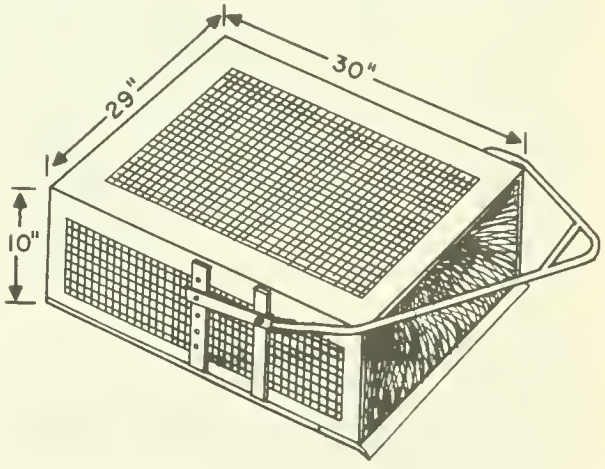

Figure 7.--Dredge used in bottom invertebrate sampling.

1901) or Stevens (1925), with the exception of *Pagurus munitus* (Benedict). Authorities tend to agree that *P. munitus* is actually *P. cavimanus* (Miers) as stated by Makarov.[2] Identifications of the macrurans were reviewed by Dr. Holthuis. Dr. Dora P. Henry identified all the barnacles.

The tunicates were all identified by Dr. Donald P. Abbott. The author identified a few of the bryozoans, hydroids, annelids, and the majority of the echinoderms. The asteroids have been sent to Dr. Patricio Sanchez, Universidad Catolica de Chile, Santiago, Chile, for verification.

Dr. Paul Illg, University of Washington, has undertaken the identifications of the echiuroids, and Dr. Henning Lemche, Universitets Zoologiske Museum, Denmark, is working on the nudibranchs. Complete information on these groups is not yet available. Other groups, as yet unidentified to species, will be examined in the future. The animals from which specific identifications have been made remain with the respective specialists.

DISCUSSION

In general, distribution of the commonest species, i.e., *Balanus hesperius, Pandalus borealis eous, Pagurus alaskensis, Paralithodes camtschatica, Chionoecetes* sp., *Hyas coarctatus alutaceus, Erimacrus isenbeckii, Neptunea lyrata, Asterias amurensis, Gornocephalus caryi,* and *Boltenia ovifera,* did not vary appreciably during the three sampling periods. Although variations in the distribution of species occurring less frequently were apparent, such variations were most probably attributable to inadequate sampling and gear selectivity rather than to real changes in distribution. For these reasons, no separation has been made of the invertebrate catch by sampling periods. As no specific identifications were made aboard the vessel and only random samples were preserved, it cannot be assumed that the stations listed were the only ones at which the species occurred.

Appendix A-1 lists those animals for which identifications have been completed and the stations at which these species were taken. The distribution of some species was so extensive that charts rather than station listings have been used. Whenever possible the original description of the species has been consulted. Appendix A-2 gives the sources used when the original descriptions were not available. Appendix B lists, by stations, both the species identified from the retained samples and the groups recorded at the time of catch as a composite of all three sampling periods.

The gastropods apparently dominate the surveyed area in species representation. Thirty-five genera, 71 species, and 2 varieties have been identified from these surveys. In addition, 14 specimens have been identified to probable genera, but species identifications have not been possible. In some instances the animals are very small, and reference material has not been available for comparison. Consequently, it is not possible to determine whether the animals are juvenile stages of large forms, or adults of smaller forms. It is possible that some are species not previously described.

Neptunea lyrata is the most widely distributed gastropod, occurring throughout most of the area (fig. 8). The genus *Oenopota* with 10 species, 1 variety, and 6 unidentified species has by far the most specific representation. Members of this genus and of the genera *Margaritopsis* and *Solariella* were taken exclusively with the dredge. Of the larger forms, species representation is greatest in the genus *Buccinum* with six species and one variety, and the genus *Colus* with six species. It is believed that two additional species of *Buccinum* and one additional species of *Colus* are present in the collections, but identifications are uncertain.

The pelecypods rank second in the number of genera and species found in the area. Of the 26 genera and 45 species represented, apparently no single species is extensively distributed.

Among the decapod representatives, the genus *Pagurus* is outstanding in its specific representation. Thirteen species, according to Benedict's classification, are represented in the area. This number, however, will be reduced considerably if Makarov's synonymies are found to be valid. The anomuran, *Paralithodes camtschatica* (fig. 9), and the brachyuran, *Erimacrus isenbeckii* (fig. 10), are particularly noteworthy because of their extensive distribution throughout the area. Distinction between the species of *Chionoecetes* was not made at the time of first examination; thus distribution of the two species *Chionoecetes opilio* (Fabricius, 1780) and *C. bairdi* Rathbun, 1924, could not be determined. The genus, however, is represented in almost the entire area (fig. 11).

Tunicates in the eastern Bering Sea are represented by 8 genera and 12 species. *Boltenia ovifera* appears to be the most widely distributed species. Members of all genera

[2] Makarov (1938) cites *Eupagurus munitus* Benedict as a synonym of *Pagurus cavimanus* in the Russian text of his paper; however, in his English summary of the possible synonymy of *Pagurus gilli* and *P. cavimanus*, he refers to *Pagurus gilli* = *Pagurus minutus*. The use of *P. minutus* rather than *P. munitus* is obviously a typographical error, as *P. minutus* is a species described from the Gulf of California bearing no resemblance to *P. cavimanus*.

Figure 8.--Distribution of *Neptunea lyrata* during spring and summer sampling, 1958 and 1959.

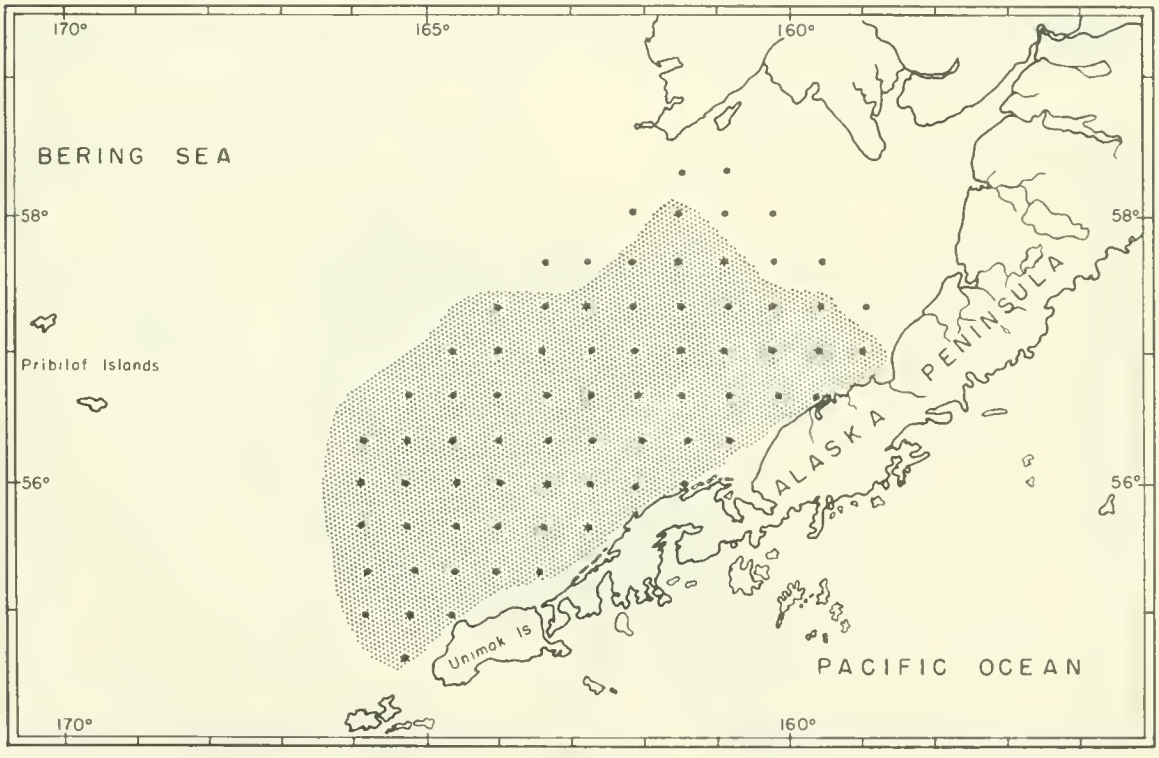

Figure 9.--Distribution of *Paralithodes camtschatica* during the spring and summer sampling, 1958 and 1959.

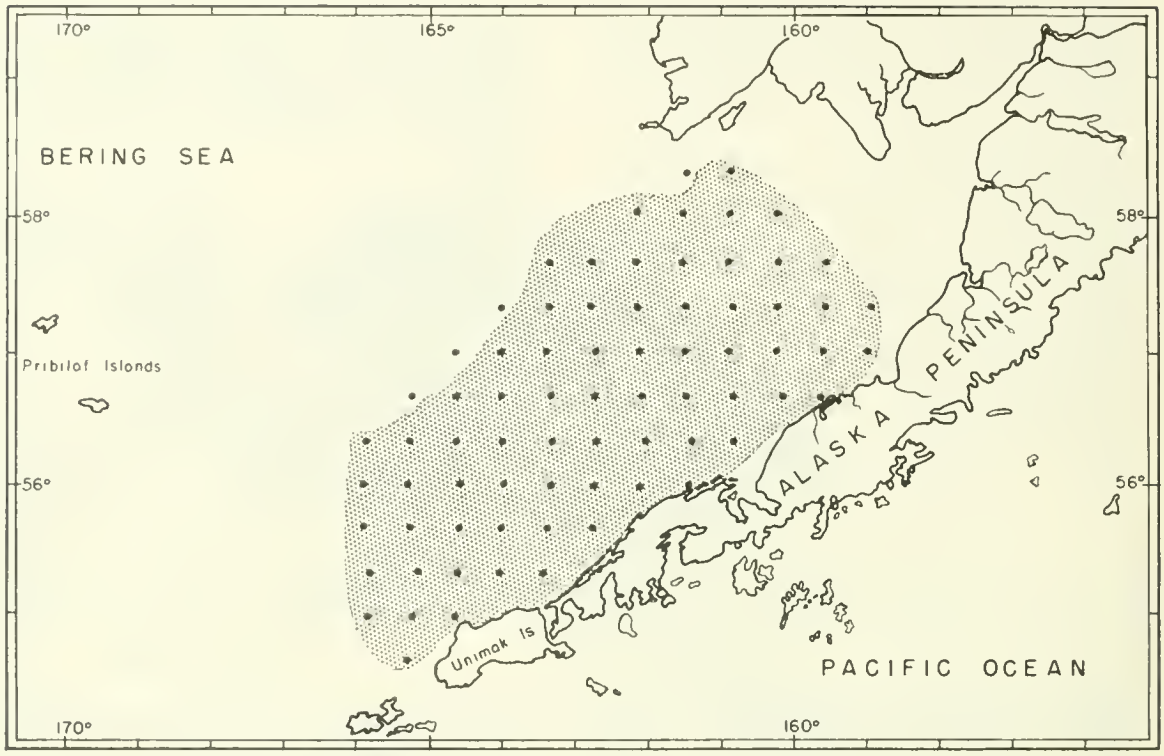

Figure 10.--Distribution of *Erimacrus isenbeckii* during spring and summer sampling, 1958 and 1959.

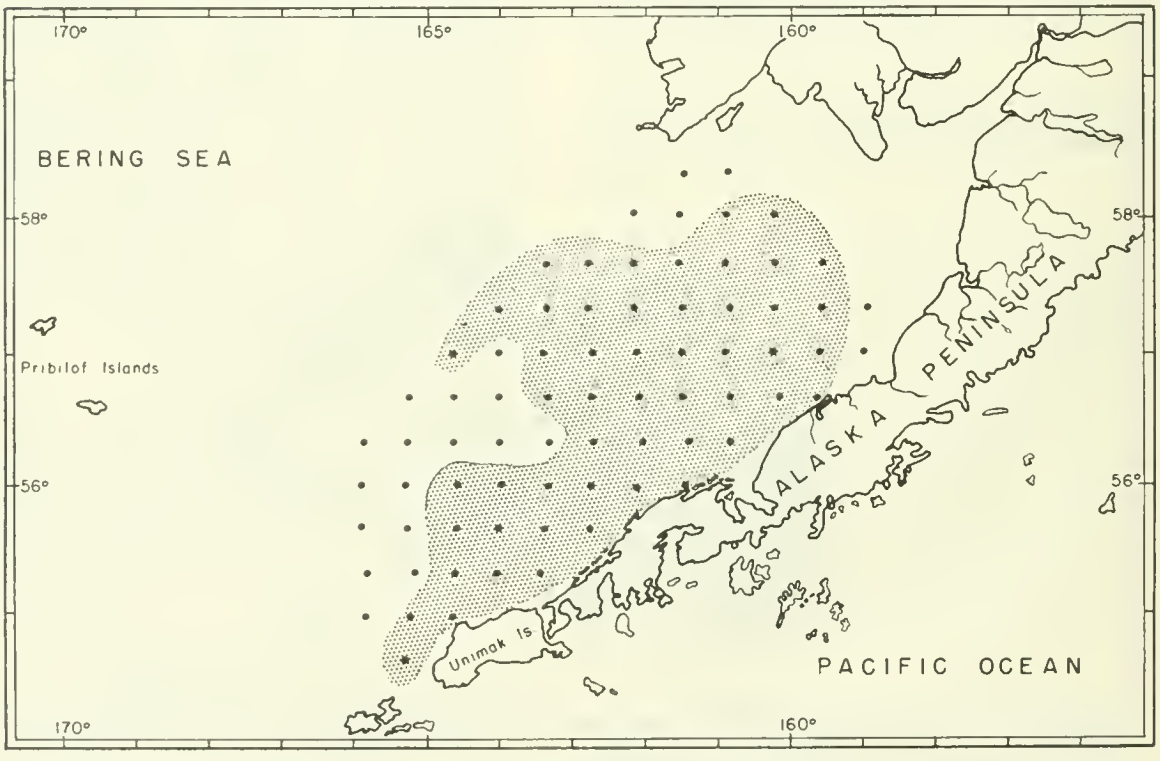

Figure 11.--Distribution of *Chionoecetes* sp. during spring and summer sampling, 1958 and 1959.

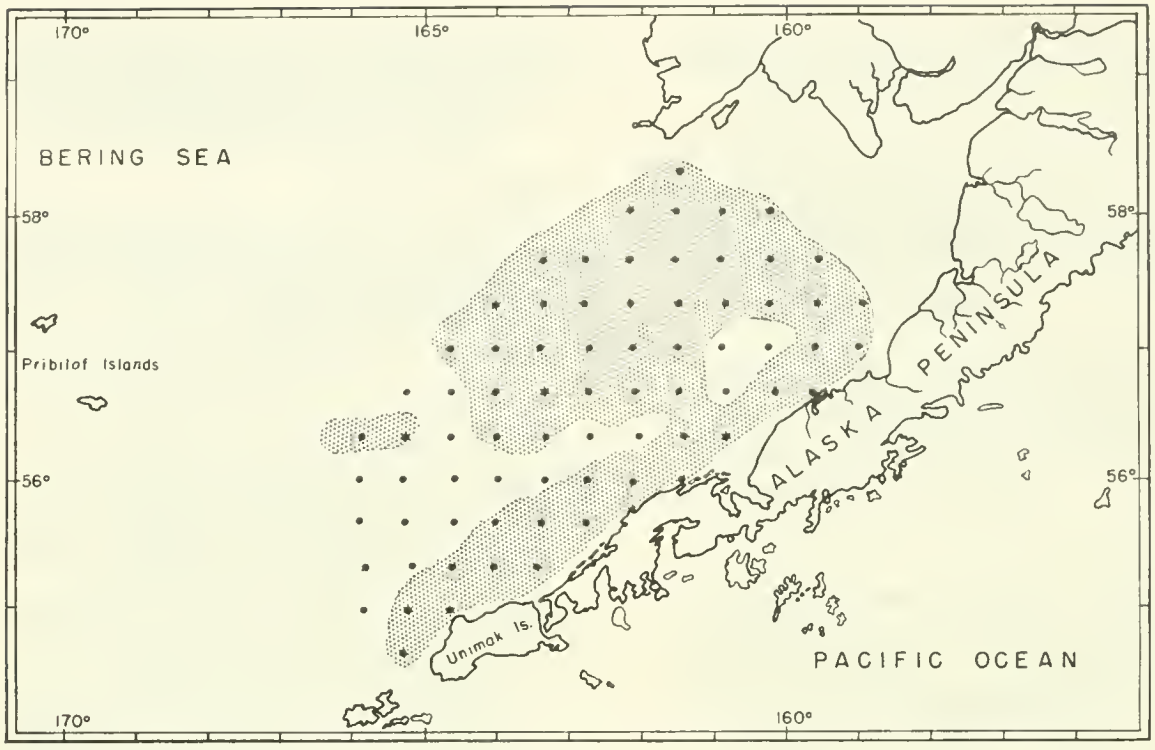

Figure 12.--Distribution of *Asterias amurensis* during spring and summer sampling, 1958 and 1959.

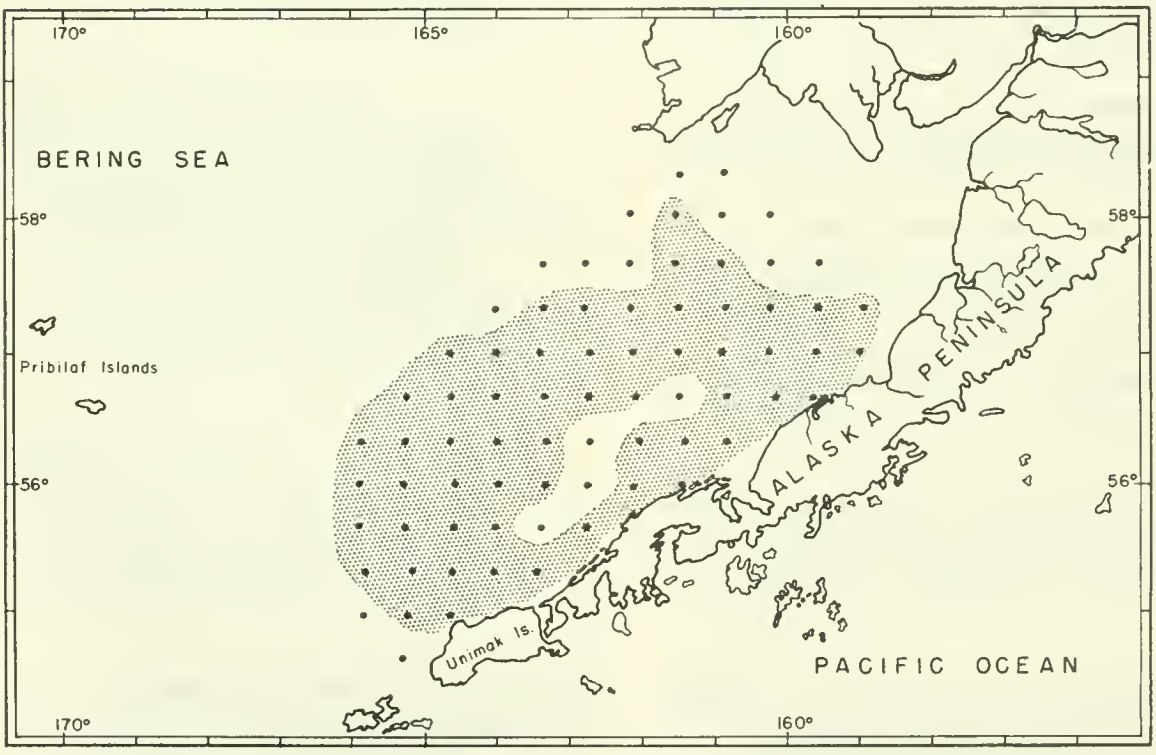

Figure 13.--Distribution of *Gorgonocephalus caryi* during spring and summer sampling, 1958 and 1959.

apparently are restricted in their distribution to the northeastern part of the sampling area.

The echinoderms are, for the most part, apparently limited in their distribution, with the exception of the asteroid, *Asterias amurensis* (fig. 12), and the ophiuroid, *Gorgonocephalus caryi* (fig. 13). These two species are widely distributed in the eastern Bering Sea.

SUMMARY

This report is presented as a limited checklist of benthic invertebrate species found during the king crab surveys of 1958 and 1959 in the eastern Bering Sea. The samples were collected throughout the area by means of an otter trawl, supplemented in some places by a dredge.

Specific identifications were made for the gastropods (exclusive of nudibranchs), pelecypods, barnacles, decapod crustaceans, tunicates, the majority of the echinoderms, a small number of bryozoans, hydroids, and annelids. Other organisms are classified generally to class or order.

The surveys indicate that the gastropods rank first in species representation, followed by the pelecypods. Of the decapods, the genus *Pagurus* is represented by the largest number of species.

A number of species are widely distributed throughout the surveyed area: *Neptunea lyrata, Erimacrus isenbeckii, Paralithodes camtschatica, Asterias amurensis*, and *Gorgonocephalus caryi*.

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APPENDIX A

A-1.--List of species and area of occurrence

Major group	Current name	Original name	Station
CRUSTACEA:			
Cirripedia	*Balanus balanus balanus* (Linnaeus, 1758)	*Lepas balanus*	D-11 H-9 E-12 H-11 F-11 H-12 F-13 H-13 G-9 H-14 G-10 I-8 G-12 I-11 G-13 J-11 G-14 J-13 H-8 Z-5
	Balanus crenatus Bruguière, 1789	*Balanus crenatus*	A-6 D-9 D-10 E-12 F-11 F-13 H-11 Z-5 Unalaska Bay
	Balanus evermanni Pilsbry, 1907	*Balanus evermanni*	E-8 Z-5
	Balanus hesperius Pilsbry, 1916	*Balanus hesperius*	C-5 E-5 F-13 H-13 C-6 E-6 F-14 H-14 C-7 E-7 G-6 H-15 D-4 E-8 G-7 I-8 D-5 E-9 G-8 I-10 D-6 E-12 G-9 I-11 D-7 F-5 G-12 I-12 D-8 F-6 G-15 I-14 D-9 F-7 H-9 K-11 D-10 F-11 H-11 Z-5
	Balanus rostratus apertus Pilsbry, 1911	*Balanus rostratus apertus*	A-6 F-14 B-7 G-12 B-8 H-11 D-9 I-8 D-11 J-11 E-10 Z-5 E-11 E-12 F-11 F-13

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda: Macrura	*Pandalus borealis eous* Makarov, 1935[1]	*Pandalus borealis eous*	A-4 D-4 E-9 G-7 A-5 D-5 E-10 G-8 B-4 D-6 E-11 G-9 B-5 D-7 F-5 G-12 B-6 D-8 F-6 H-14 C-4 E-4 F-8 I-11 C-5 E-5 F-9 I-12 C-6 E-6 F-10 I-13 C-7 E-7 F-11 I-14 C-8 E-8 G-6 Z-5
	Pandalus goniurus Stimpson, 1860	*Pandalus goniurus*	B-4 G-10 C-9 G-13 D-4 G-14 D-7 H-7 E-8 H-14 E-12 H-15 F-5 I-8 F-12 J-11 F-13 J-13 G-8 K-11
	Eualus sp.		G-12
	Lebbeus groenlandicus (Fabricius, 1775)	*Astacus Groenlandicus*	G-14
	Crangon communis Rathbun, 1899[2]	*Crangon communis*	C-7 E-7 E-8 G-12
	Crangon dalli Rathbun, 1902	*Crangon dalli*	B-8 E-12 G-12 I-9 C-6 F-6 G-13 I-10 C-7 F-7 G-14 I-11 C-8 F-8 H-7 I-12 C-9 F-9 H-8 I-14 D-9 F-12 H-9 J-11 D-10 F-13 H-11 J-12 D-11 G-7 H-13 J-13 E-7 G-9 H-14 K-11 E-10 G-10 H-15 Z-5 E-11 G-11 I-8
	Crangon sp.?		I-14

[1] Makarov (1935) cites *P. borealis eous* as a variation of *P. borealis*. Dr. Holthuis believes that it must have the rank of subspecies (personal conversation).

[2] Kobiakova (1937) and other Russian systematists consider *C. communis* to be a member of the genus *Sclerocrangon*.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con.			
Macrura--Con.	*Sclerocrangon boreas* (Phipps, 1774)	*Cancer boreas*	H-15
	Argis dentata (Rathbun, 1902)	*Nectocrangon dentata*	D-7 E-5 E-7 F-5 F-6 F-7 F-8 G-7 G-8 H-7
Anomura	*Pagurus alaskensis* (Benedict, 1892)	*Eupagurus alaskensis*	A-6 E-12 H-9 J-13 B-6 F-11 H-11 K-11 C-6 F-12 H-13 D-5 F-13 H-14 D-6 F-14 H-15 D-8 G-11 I-12 D-10 G-12 I-13 D-11 G-13 I-14 E-9 G-14 J-10 E-11 G-15 J-11
	Pagurus aleuticus (Benedict, 1892)	*Eupagurus aleuticus*	B-4 C-5 C-6 C-9 D-5 E-5 E-6 F-7 F-11 Z-5
	Pagurus brandti (Benedict, 1892)	*Eupagurus brandti*	C-5 F-6 G-12 C-7 F-7 H-7 D-9 F-8 H-8 D-10 F-9 H-11 D-11 F-10 H-13 E-5 F-11 I-11 E-6 F-14 E-7 G-7 E-8 G-8 F-5 G-9
	Pagurus cavimanus (Miers, 1879)	*Eupagurus cavimanus*	D-5 Z-5

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con. Anomura--Con.	*Pagurus confragosus* (Benedict, 1892)	*Eupagurus confragosus*	C-6 C-8 D-5 D-6 E-5 E-6 Z-5
	Pagurus hirsutiusculus (Dana, 1851) [1851b]	*Bernhardus hirsutiusculus*	Unalaska Bay
	Pagurus kennerlyi (Stimpson, 1864)[3]	*Eupagurus kennerlyi*	A-6 E-7 F-13 G-7 G-9 I-12
	Pagurus rathbuni (Benedict, 1892)	*Eupagurus rathbuni*	Unknown
	Pagurus sp.		D-10 G-8 G-12 Z-5
	Pagurus sp.		B-8 E-7 H-13 C-9 E-10 H-14 D-4 F-9 I-8 D-5 F-13 I-11 D-6 G-8 J-11 D-8 G-10 Z-5 D-9 G-12 E-4 G-14 E-5 H-8 E-6 H-9
	Pagurus splendescens Owen, 1839	*Pagurus splendescens*	D-10 H-11 E-12 I-8 F-6 I-9 F-7 I-10 F-8 I-12 F-9 J-11 G-7 G-8 H-7 H-8

[3] Stevens (1925) gives the date as 1894, which is incorrect.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--con.			
Decapoda--Con. Anomura--Con.	*Pagurus tenuimanus* (Dana, 1851) [1851b]	*Bernhardus tenuimanus*	A-6 C-9 D-11 E-12 F-11 F-13 Z-5
	Pagurus trigonocheirus (Stimpson, 1858)	*Eupagurus trigonocheirus*	Uncertain
	Paralithodes camtschatica (Tilesius, 1815)[4]	*Maja camtschatica*	See figure 9 Unalaska Bay
	Placetron wosnessenskii Schalfeew, 1892	*Placetron wosnessenskii*	Unalaska Bay
	Phyllolithodes papillosus Brandt, 1848 [1848a]	*Phyllolithodes papillosus*	Unalaska Bay
Brachyura	*Oregonia gracilis* Dana, 1851 [1851a]	Oregonia *gracilis*	B-7 G-12 C-9 G-14 D-10 H-13 E-11 H-14 E-12 H-15 F-10 Z-5 F-11 F-12 F-13 G-11
	Chionoecetes sp.		See figure 11.
	Hyas lyratus Dana, 1851 [1851a]	*Hyas lyratus*	C-9 E-11 J-11 D-5 F-11 J-13 D-7 F-12 K-11 D-10 F-13 Z-5 D-11 G-12 E-6 G-13 E-7 G-14 E-8 H-13 E-9 H-15 E-10 I-13

[4] Marukawa (1933), and several other authors cite the date as 1812. Makarov (1938) and Rathbun (1904) cite the date as 1815. The original description is published in the volume for 1812, however, the date of publication is 1815.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
CRUSTACEA--Con.			
Decapoda--Con. Brachyura--Con.	*Hyas coarctatus alutaceus* Brandt, 1851	*Hyas coarctatus alutaceus*	C-8 E-11 G-7 H-12 D-4 E-12 G-8 H-13 D-5 F-6 G-10 H-14 D-7 F-7 G-11 I-8 D-8 F-8 G-12 I-9 E-4 F-9 G-13 I-11 E-5 F-10 G-14 I-12 E-6 F-11 H-7 I-13 E-7 F-12 H-8 I-14 E-8 F-13 H-9 J-10 E-9 F-14 H-10 J-13 E-10 G-6 H-11 Z-5
	Telmessus cheiragonus (Tilesius, 1815)	*Cancer cheiragonus*	J-11 K-12 Walrus Islands
	Erimacrus isenbeckii (Brandt, 1848) [1848b]	*Platycorystes (Podacanthus) isenbeckii*	See figure 12
	Cancer oregonensis (Dana, 1852) (Juveniles)	*Trichocera oregonensis*	A-6 G-8 C-6 G-12 C-8 Z-5 D-9 D-10 E-10 E-11 E-12 F-11 F-12
PELECYPODA	*Nucula bellotii* Adams, 1856[5]	*Nucula bellotii*	D-6 D-9 F-11 G-8 G-12 H-10 H-11
	Nuculana radiata (Krause, 1885)	*Leda pernula* var. *radiata*	C-6 E-5 E-7 F-8 G-8 H-11

[5] *N. bellotii* antecedes *N. quirica* Dall, 1916 (Schenck, 1939).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	*Yoldia myalis* (Couthouy, 1838)	*Nucula myalis*	D-10 E-11 E-12 F-11 G-8 G-9 G-11
	Yoldia seminuda Dall, 1871	*Yoldia seminuda*	D-9
	Yoldia scissurata Dall, 1898	*Yoldia scissurata*	D-9 H-8 H-11
	Yoldia sp		F-5
	Limopsis akutanica Dall, 1916	*Limopsis akutanica*	E-12
	Chlamys behringiana (Middendorff, 1849) [1849b]	*Pecten islandicus* var. *beringianus*	E-12
	Chlamys rubida (Hinds, 1845)[6]	*Pecten rubidus*	Z-5
	Chlamys islandica (Müller, 1776)	*Pecten islandicus*	E-8
	Pododesmus macroschisma (Deshayes, 1839)	*Anomia macroschisma*	E-7 E-8 E-12 H-12 Z-5
	Mytilus edulis Linnaeus, 1758	*Mytilus edulis*	E-10 E-12 H-11
	Musculus discors var. *laevigatus forma substriata* (Gray, 1824)	*Modiola laevigatus* var. *substriata*	G-6 G-7 G-8 H-9 Z-5
	Musculus niger (Gray, 1824)	*Modiola nigra*	D-9
	Modiolus modiolus (Linnaeus, 1758)	*Mytilus modiolus*	B-7 D-5 D-11 E-8 G-14 H-11 H-12 K-12 Z-5

[6] As pointed out by Grau (1959) there is now an earlier name for *Pecten hindsii*, Carpenter, 1864. Since official rejection of Martyn's "Universal Conchologist" (Internatiooal Commission, Opinion 456, 1957), *P. rubidus (Chlamys rubidus)* Hinds is no longer preoccupied so that name can now be used for *Chlamys hindsii*, Carpenter (Myra Keen, personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	*Thracia myopsis* (Möller, 1842, ex Beck MS.) ?	*Thracia myopsis*	H-11
	Thracia beringi Dall, 1915	*Thracia beringi*	H-11
	Lyonsia norvegica (Gmelin, 1791)[7]	*Mya norvegica*	G-8
	Lyonsia sp.		D-9 H-11
	Astarte alaskensis Dall, 1903	*Astarte alaskensis*	D-9
	Astarte montagui (Dillwyn, 1817) (probably) (Juveniles)	*Venus montagui*	F-11 G-12
	Cardita crebricostata Krause, 1885	*Cardita borealis* var. *crebricostata*	A-6 C-9 D-9 D-10 E-10 E-11 G-12 H-11 I-14 Z-5
	Thyasira flexuosa var. *sarsi* Philippi, 1845	*Tellina flexuosa* Montagu *Axinus sarsii* Philippi	F-8
	Diplodonta aleutica Dall, 1901	*Diplodonta aleutica*	F-11
	Diplodonta orbella (Gould, 1852)	*Lucina orbella*	D-9 H-11
	Pseudopythina compressa Dall, 1899	*Erycina (pseudopythina) compressa*	H-11
	Clinocardium ciliatum (Fabricius, 1780)	*Cardium ciliatum*	D-9 E-5 F-5 G-6 G-7 G-8 H-7

[7] The date is wrongly cited as 1790 in Sherborn (1902) and later authors, but Dr. Keen feels there is good evidence that it should be 1791 (personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	*Serripes grönlandicus* (Bruguière, 1789)	*Cardium grönlandicum*	A-6 F-6 H-10 B-8 F-7 H-11 C-7 F-13 I-8 C-9 G-6 I-10 D-9 G-7 I-11 D-10 G-8 J-13 E-6 G-13 Z-5 E-7 H-7 E-12 H-8 F-5 H-9
	Saxidomus giganteus (Deshayes, 1839)[8]	*Venerupis gigantea*	Uncertain
	Liocyma beckii Dall, 1870[9]	*Liocyma beckii*	G-8
	Psephidia ovalis Dall, 1902 [1902b]	*Psephidia ovalis*	Z-5
	Tellina lutea Wood, 1828	*Tellina lutea*	D-9 D-10 E-12 F-11 H-11 I-8 J-10 J-13
	Macoma brota Dall, 1916	*Macoma brota*	G-12
	Macoma brota lipara Dall, 1916	*Macoma brota lipara*	B-8 C-9 E-8 E-11
	Macoma calcarea (Gmelin, 1791)[10]	*Tellina calcarea*	D-9 E-4 E-8 G-9 G-12 H-8 H-10 H-11
	Macoma incongrua (Martens, 1865)	*Tellina incongrua*	B-8 C-9 D-9 E-8 E-11 H-11 Z-5

[8] Grant and Gale (1931) consider *S. giganteus* a variety of *S. nuttalli* Conrad.

[9] MacGinitie (1959) lists *L. beckii* and *L. fluctuosa* Gould in synonymy.

[10] MacGinitie (1959) and Grant and Gale (1931) give 1792 as the date. Dr. Keen believes there is good evidence for the date of 1791 (personal correspondence).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
PELECYPODA--Con.	*Macoma moesta* (Deshayes, 1854)	*Tellina moesta*	D-5 D-9 H-11
	Macoma planiuscula Grant and Gale, 1931	*Macoma planiuscula*	F-11
	Siliqua alta (Broderip and Sowerby, 1829)	*Solen altus*	D-9 E-12
	Siliqua media (Sowerby, 1839)[11]	*? Solen medius*	E-12
	Siliqua patula (Dixon, 1788)[12]	*Solen patulus*	B-8
	Spisula voyi (Gabb, 1869)	*Callista voyi*	B-8 G-12 I-11 C-7 G-13 I-12 D-10 G-14 I-13 D-11 G-15 I-14 E-11 H-8 J-11 E-12 H-11 J-12 F-11 H-13 J-13 F-12 H-14 F-13 H-15 G-10 I-10
	Mya japonica Jay, 1856[13]	*Mya japonica*	G-15
	Mya pseudoarenaria Schlesch, 1931	*Mya pseudoarenaria*	D-10 H-11
	Hiatella arctica (Linnaeus, 1767)	*Saxicava arctica*	D-11 E-8 G-12 G-15 H-11
	Hiatella striata (Fleuriau de Bellevue, 1802)	*Saxicava rugosa*	D-11 K-11 E-6 E-8 E-12 F-12 F-13 G-13 G-14 H-14 J-11

[11] Considered a synonym for *S. alta* by Grant and Gale (1931).

[12] "Apparently the only differences between *Siliqua media* and *S. patula* are that the rib on the inside is more nearly vertical in *S. media*, and *S. media* is heavier than *S. patula*. Future study may show that these differences are invalid for there may be intergrades as far as the ribs are concerned. And the heaviness or thickness of the shell is a common characteristic of Arctic shells and is not a reliable diagnostic characteristic." (N. MacGinitie, personal correspondence).

[13] Considered by Grant and Gale (1931) as a variety of *Mya arenaria* (Linnaeus).

A-1.- -List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA.....	*Lepeta concentrica* (Middendorff, 1851) ?	*Patella (Cryptobranchia) caeca* var. *concentrica*	D-11
	Acmaea scutum Eschscholtz, 1833 ?	*Acmaea scutum*	Unalaska Bay
	Margaritopsis grosvenori (Dall, 1926)	*Margarites grosvenori*	D-9 H-11
	Solariella obscura (Couthouy, 1838)	*Turbo obscurus*	D-9 H-11 G-12
	Epitonium greenlandicum (Perry, 1811)	*Scalaria greenlandica*	Z-5
	Aquilonaria turneri Dall, 1887	*Aquilonaria turneri*	F-14
	Tachyrhynchus erosum (Couthouy, 1838)	*Turritella erosa*	A-6 D-6 D-9 E-9 F-8 F-11 G-8 G-10 H-11
	Tachyrhynchus sp. or *Ptychatractus* sp.		I-11
	Crepidula grandis Middendorff, 1849 [1849a]	*Crepidula grandis*	E-8 H-12 F-5 H-13 F-9 H-14 F-11 Z-5 F-12 F-13 G-8 G-13 H-8 H-11
	Trichotropis cancellata Hinds, 1843	*Trichotropsis cancellata*	A-6
	Trichotropis coronata Gould, 1860	*Trichotropis (Iphinöe) coronata*	G-8
	Trichotropis kroyeri Philippi, 1849	*Trichotropis kroyeri*	G-8

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	*Trichotropis* sp. (possibly)		G-8 H-7 H-8
	Cryptonatica aleutica Dall, 1919[14] [1919b]	*Cryptonatica aleutica*	D-11 E-12
	Natica clausa Broderip & Sowerby, 1829	*Natica clausa*	D-9 G-8 H-11 Z-5
	Polinices nanus (Möller, 1842)	*Natica nana*	F-11 H-11
	Polinices pallidus (Broderip and Sowerby, 1829)	*Natica pallida*	D-10 D-11 F-6 F-7 H-8 H-10
	Polinices sp.		D-9 H-11
	Bulbus apertus (Loven, 1846)	*Natica apertus*	Uncertain
	Fusitriton oregonensis (Redfield, 1848)	*Triton oregonensis*	A-4 E-6 A-6 E-8 B-7 E-12 C-5 F-7 C-6 F-11 C-7 F-12 C-8 F-13 D-5 Z-5 D-7 D-8
	Cerithiopsis stejnegeri Dall, 1884	*Cerithiopsis stejnegeri*	E-9 E-11 G-11 G-12 H-13
	Velutina plicatilis var. *cryptospira* Middendorff, 1849 [1849a]	*Velutina cryptospira*	H-11 I-8
	Velutina velutina (Müller, 1776)	*Bulla velutina*	D-11 G-12

[14] Grant and Gale (1931) consider *C. aleutica* a synonym of *Natica russa* Gould.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	*Boreotrophon clathratus* (Linnaeus, 1767)	*Murex clathratus*	C-5 C-8 E-7 E-8 E-9 G-8 H-7
	Boreotrophon dalli (Kobelt, 1878)	*Trophon dalli*	G-7 G-8
	Boreotrophon, cf. *B. smithi* Dall, 1902[15] [1902a]	*Boreotrophon* (stuarti var?) *smithi*	G-8
	Thais emarginata (Deshayes, 1839)	*Purpura emarginata*	Unalaska Bay
	Thais lima (Gmelin, 1791)	*Murex lima*	I-11
	Buccinum angulosum Gray, 1839	*Buccinum angulosum*	G-6 G-7 G-8
	Buccinum angulosum var. *transliratum* Dall, 1919 [1919b]	*Buccinum angulosum* var. *transliratum*	C-9 E-12
	Buccinum glaciale Linnaeus, 1761	*Buccinum glaciale*	E-7
	Buccinum, cf. *B. plectrum* Stimpson, 1865	*Buccinum plectrum*	E-12 G-8
	Buccinum orotundum Dall, 1921[16]	*Buccinum pemphigus orotundum*	G-8
	Buccinum polare Gray, 1839	*Buccinum polare*	C-5 D-11 F-5 F-6 F-7 G-6 G-7 G-8 H-7 J-10

[15] Abbot (1954) considers *B. smithi* a synonym of *B. stuarti* E. A. Smith.

[16] MacGinitie (1959) cited *B. orotundum* Dall, and *B. pemphigus orotundum* Dall, as synonyms of *B. polare*, Gray.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	*Buccinum tenue* Gray, 1839	*Buccinum tenue*	F-6 F-7 G-6 G-7 Z-5
	Buccinum undatum var. *striatum* Pennant, 1812	*Buccinum undatum* var. *striatum*	F-6 F-7
	Buccinum sp. (Possibly) (Juveniles)		G-12
	Volutharpa perryi (Jay, 1856)	*Bullia perryi*	G-7
	Pyrulofusus deformis (Reeve, 1847)	*Fusus deformis*	F-6 G-8 J-12 Z-5
	Beringius kennicotti (Dall, 1871)[17]	*Buccinum kennicotti*	E-12
	Beringius stimpsoni (Gould, 1860)	*Buccinum stimpsoni*	H-7 H-13
	Beringius undatus Dall, 1919 [1919b]	*Beringius crebricostatus undatus*	D-11 Z-5
	Beringius sp., possibly young of *B. stimpsoni* (Juveniles)		D-9
	Liomesus canaliculatus (Dall, 1874)	*Buccinopsis canaliculatus*	H-14
	Mohnia sp., (perhaps a variant of *M. robusta* or *M. frielei*		D-6 F-10 Z-5
	Mohnia sp. ? (probably)		D-7 E-5
	Mohnia sp. ?		D-9
	Ancistrolepis magnus Dall, 1895	*Chrysodomus (Ancistrolepis) magnus*	E-5 F-5
	Colus barbarinus Dall, 1919 ? [1919b]	*Colus (Aulacofusus) barbarinus*	E-8

[17] The date given by Dall (1921) as 1907 was corrected by Dall (1923) to read 1871. LaRocque (1953) did not correct the 1907 date.

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA --Con.	*Colus halli* (Dall, 1873)	*Sipho hallii*	G-8
	Colus, cf. *C. herendeeni* (Dall, 1902) [1902a] (Juveniles)	*Tritonofusus (Plicifusus) herendeeni*	E-12
	Colus jordani (Dall, 1913)	*Tritonofusus jordani*	D-11 E-8
	Colus spitzbergensis (Reeve, 1855)	*Fusus spitzbergensis*	D-8 E-6 E-8 F-6 F-7 F-13
	Colus, cf. *C. trophius* (Dall, 1919) [1919b]	*Aulacofusus (Limatofusus) trophius*	G-8
	Colus sp.		E-8
	Neptunea beringiana var. *varicifera* (Dall, 1907)	*Chrysodomus beringiana varicifera*	H-11
	Neptunea heros (Gray, 1850)	*Chrysodomus heros*	D-10 H-11 E-6 H-14 E-9 I-13 F-7 J-11 F-8 F-9 G-7 G-8 G-9
	Neptunea lyrata (Gmelin, 1791)[18]	*Murex lyrata*	See figure 8
	Neptunea pribiloffensis (Dall, 1919) [1919b]	*Chrysodomus pribiloffensis*	B-4 C-6 D-5 E-5 F-7 F-9 F-13
	Plicifusus brunneus (Dall, 1877)	*Chrysodomus brunneus*	F-11
	Plicifusus kroyeri (Möller, 1842)	*Fusus krőyeri*	F-9 Z-5

[18] Abbott (1954) considers *N. lyrata* (Gmelin) a synonym of *N. lirata* (Martyn).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	*Volutopsius castaneus* (Mörch, 1858)	*Neptunea castanea*	G-8
	Volutopsius fragilis (Dall, 1891)	*Strombella fragilis*	F-5 F-7 G-6 G-7 H-7 H-11
	Volutopsius melonis (Dall, 1891)	*Strombella melonis*	Z-5
	Volutopsius middendorffi (Dall, 1891) (possibly) (Juveniles)	*Strombella middendorffi*	G-8
	Admete couthouyi (Jay, 1839)	*Cancellaria couthouyi*	F-11
	Admete couthouyi middendorffiana (Dall, 1885)	*Admete middendorffiana*	G-8
	Leucosyrinx circinata (Dall, 1873)	*Pleurotoma circinata*	C-8 F-7
	Oenopota elegans (Möller, 1842)	*Defrancia elegans*	D-9
	Oenopota harpa (Dall, 1885)	*Bela harpa*	D-9 G-12
	Oenopota (Nodotoma) impressa (Mörch, 1869)	*Pleurotom impressa*	G-8
	Oenopota krausei (Dall, 1886) (possibly)	*Bela krausei*	D-9
	Oenopota kyskana (Dall, 1919) ? [1919a]	*Lora kyskana*	D-9 H-11
	Oenopota quadra (Dall, 1919)? [1919a]	*Lora quadra*	D-9
	Oenopota (Propebela) rugulata (Reeve, 1843 ex Möller MS)	*Pleurotoma rugulata*	H-11
	Oenopota solida (Dall, 1886)	*Bela solida*	H-11
	Oenopota (Obesotoma) tenuilirata (Dall, 1871)	*Bela tenuilirata*	G-8
	Oenopota tenuilirata cymata (Dall, 1919) [1919a]	*Lora tenuilirata cymata*	D-9
	? Oenopota tenuissima (Dall, 1919) [1919a]	*Lora tenuissima*	H-11

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
GASTROPODA--Con.	*Oenopota (Turritomella)* sp.		F-11 G-12 H-11 Z-5
	Oenopota sp. ?		G-8
	Oenopota sp. ?		H-11
	Oenopota sp. ?		D-9
	Oenopota sp. ?		G-12
	Oenopota sp. ?		G-12
	Propebela excurvata (Carpenter, 1865)	*Bela excurvata ?*	H-11
	Nemotoma hokkaidoensis Bartsch, 1941 ?	*Nemotoma hokkaidoensis*	D-9 H-11
	Odostomia martensi Dall and Bartsch, 1906	*Odostomia (Amaura) martensi*	G-8
Tectibranchiata.....	*Cylichna nucleola* (Reeve, 1855)[19]	*Bulla nucleola*	D-9 G-8 H-11
ASTEROIDEA.....	*Ctenodiscus crispatus* (Retzius, 1805)	*Asterias crispata*	B-4 B-5 C-4 C-5 D-4
	Pseudarchaster parelii (Düben and Koren, 1844) ?	*Astropecten parelii*	Z-5
	Ceramaster patagonicus (Sladen, 1889) ?	*Pentagonaster patagonicus*	Z-5
	Henricia sanguinolenta (Müller, 1776) ?	*Asterias sanquinolenta*	D-11 E-7 E-8 F-8 F-11 G-7 G-8 H-7 H-8

[19] According to Lemche (1948) *C. nucleola* is synonymous with *Cylichna alba* (Brown).

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASTEROIDEA--Con.	*Pteraster obscura* (Perrier, 1891)	*Hexaster obscura*	C-7 G-13 C-8 H-7 D-5 F-5 F-7 F-8 F-11 G-7 G-8 G-12
	Asterias amurensis Lütken, 1871	*Asterias amurensis*	See figure 12
	Leptasterias camtschatica (Brandt, 1835) ?	*Asterias camtschatica*	G-8
	Leptasterias groenlandica (Lütken, 1857) ?	*Asteracanthion groenlandicus*	F-7 G-7
	Leptasterias polaris (Müller and Troschel, 1842) ?	*Asteracanthion polaris*	E-5 E-12 F-7 Z-5
	Leptasterias polaris acervata (Stimpson, 1862) ?	*Asterias acervata*	E-4 F-5 F-6 F-8
	Leptasterias polaris katherinae (Gray, 1840) ?	*Asterias katherinae*	D-5 E-5 E-6 F-7 G-6 G-7 G-8
	Evasterias echinosoma Fisher, 1926 ?	*Evasterias echinosoma*	F-14
	Evasterias troschelii (Stimpson, 1862) ?	*Asterias troschelii*	D-8 G-7 D-9 G-8 E-7 G-14 E-11 G-15 F-6 H-7 F-7 H-9 F-8 H-15 F-13 F-14 G-6

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
OPHIUROIDEA.....	*Ophiura sarsii* Lütken, 1854	*Ophiura sarsii*	A-6 G-6 D-6 G-7 E-6 G-8 E-7 H-14 E-8 F-5 F-6 F-7 F-8 F-10
	Ophiopholis aculeata (Linnaeus, 1767)	*Asterias aculeata*	C-7 E-6 E-8 F-10 F-11 F-12 F-13 G-11 G-12 G-13
	Gorgonocephalus caryi (Lyman, 1860)	*Astrophyton caryi*	See figure 13.
ECHINOIDEA.....	*Strongylocentrotus drobachiensis* (Müller, 1776) ?	*Echinus drobachiensis*	A-6 D-10 D-11 E-7 E-8 F-7 G-14 H-12 H-14
ASCIDIACEA.....	*Dendrodoa aggregata* (Rathke, 1806)	*Ascidia aggregata*	G-8 G-12
	Dendrodoa pulchella (Verrill, 1871)	*Cynthia pulchella*	F-5 F-7 F-8 G-6 G-7 G-8 G-12 H-11 H-15

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASCIDIACEA--Con.	*Styela coriacea* (Alder and Hancock, 1848)	*Cynthia coriacea*	E-6 E-11 F-8 G-7 G-9 G-10 H-8 H-14 H-15 I-8
	Styela rustica macrenteron Ritter, 1913	*Styela macrenteron*	E-11 H-13 G-7 H-14 G-8 H-15 G-9 I-8 G-11 I-9 G-12 I-13 H-8 J-11 H-9 H-11 H-12
	Boltenia ovifera (Linnaeus, 1767)	*Vorticelli ovifera*	B-6 G-10 H-13 C-6 G-11 H-14 F-7 G-12 H-15 F-8 G-13 I-12 F-9 G-14 I-13 F-10 G-15 I-14 F-11 H-8 J-11 F-13 H-10 J-13 G-8 H-11 J-14 G-9 H-12
	Halocynthia aurantium (Pallas, 1787)	*Ascidia aurantium*	Z-5
	Molgula retortiformis Verrill, 1871	*Molgula retortiformis*	G-15 I-14
	Molgula (1 or 2 species)		G-12 G-14 H-13 H-14 I-14 J-11
	Aplidium sp.		G-7 H-8 H-15
	Synoicum sp.		G-12 G-14 H-15 I-8 J-13

A-1.--List of species and area of occurrence (Continued)

Major group	Current name	Original name	Station
ASCIDIACEA--Con.	*Tridemnum strangulatum* (Ritter, 1901)	*Didemnum strangulatum*	E-8 G-7 H-15
	Tridemnum sp. (possibly *T. tenerum ?)*		G-7

A-2.--Sources from which information was obtained when original descriptions were not available

Source of information	Species
Pilsbry, 1916	*Balanus crenatus*
Grant and Gale, 1931	*Pododesmus macroschisma* *Saxidomus giganteus* *Macoma calcarea* *Siliqua patula* *Mya japonica* *Boreotrophon smithi* *Thais emarginata*
MacGinitie, 1959	*Lyonsia norvegica* *Thyasira flexuosa* var. *sarsi* *Serripes grönlandicus* *Hiatella arctica* *Boreotrophon clathratus* *Buccinum angulosum* *Buccinum undatum* var. *striatum* *Oenopota elegans* *Oenopota (Nodotoma) impressa* *Oenopota (Obesotoma) tenuilirata*
Dall, 1902a	*Volutopsius castaneus*
Dall, 1921	*Acmaea scutum*
La Rocque, 1953	*Trichotropis kroyeri*
Fisher, 1911-1930	*Ctenodiscus crispatus* *Pseudarchaster parelii* *Leptasterias camtschatica*
Clark, 1911	*Ophiura sarsii* *Ophiopholis aculeata*
Ritter, 1913	*Boltenia ovifera*
Van Name, 1945	*Dendrodoa aggreata* *Styela coriacea*
Myra Keen (Personal correspondence)	*Hiatella striata* *Thais lima* *Neptunea lyrata* *Oenopota (Propebela) rugulata* *Chlamys rubida*

APPENDIX B

Invertebrate catch by stations [1]

Station: A-4
Range of depth: 69-74 fathoms
Bottom type: clay and mud
Range of temp.: 3.6° to 3.8° C.

Coelenterata
  Anemones
Arthropoda
 Crustacea
  Decapoda
   Pandalus borealis eous
   Paralithodes camtschatica
   Chionoecetes sp.
Mollusca
 Gastropoda
   Fusitriton oregonensis
  Opisthobranchiata
   Nudibranchs

Station: A-5
Range of depth: 54-63 fathoms
Bottom type: mud
Range of temp.: 3.0° to 4.6° C.

Coelenterata
  Anemones
  Pennatulids
Annelida
 Polychaeta (tube worms)
 Hirudinidae
Arthropoda
 Crustacea
  Isopoda
  Decapoda
   Pandalus borealis eous
   Paralithodes camtschatica
   Chionoecetes sp.
   Erimacrus isenbeckii
Echinodermata
 Asteroidea
   Asterias amurensis
 Ophiuroidea
   Gorgonocephalus caryi

Station: A-6
Range of depth: 34-37 fathoms
Bottom type: dark sand
Range of temp.: 0.9° to 6.6° C.

Porifera
Coelenterata
  Anemones
Annelida
 Polychaeta (tube worms)
 Other annelids
Arthropoda
 Crustacea
  Cirripedia
   Balanus crenatus
   Balanus rostratus apertus
  Decapoda
   Pagurus alaskensis
   Pagurus kennerlyi
   Pagurus tenuimanus
   Paralithodes camtschatica
   Chionoecetes sp.
   Erimacrus isenbeckii
   Cancer oregonensis (juvenile)
Mollusca
 Pelecypoda
   Cardita crebricostata
   Serripes gronlandicus
   Hiatella sp.
 Gastropoda
   Tachyrhynchus erosum
   Trichotropis cancellata
   Fusitriton oregonensis
Echinodermata
 Asteroidea
   Asterias amurensis
 Ophiuroidea
   Ophiura sarsii
   Gorgonocephalus caryi
 Echinoidea
   Strongylocentrotus drobachiensis
   Sand dollars
Chordata
 Ascidiacea
   Tunicates

[1] Temperature ranges for all stations are inclusive of the lows and highs recorded during both 1958 and 1959 king crab cruises.

Invertebrate catch by stations (Continued)

Station:	B-4
Range of depth:	66-68 fathoms
Bottom type:	mud
Range of temp.:	3.4° to 4.5° C.

Coelenterata
  Anemones
Annelida
 Polychaeta (tube worms)
Bryozoa
Arthropoda
 Crustacea
  Isopoda
  Decapoda
   Pandalus borealis eous
   Pandalus goniurus
   Pagurus aleuticus
   Paralithodes camtschatica
   Chionoecetes sp.
Mollusca
 Gastropoda
   Neptunea pribiloffensis
 Cephalopoda
   Octopus (juvenile)
Echinodermata
 Asteroidea
   Ctenodiscus crispatus
 Ophiuroidea
   Gorgonocephalus caryi

Station:	B-5
Range of depth:	61-63 fathoms
Bottom type:	mud
Range of temp.:	2.5° to 4.1° C.

Coelenterata
  Anemones
Arthropoda
 Crustacea
  Isopoda
  Decapoda
   Pandalus borealis eous
   Paralithodes camtschatica
   Chionoecetes sp.
Echinodermata
 Asteroidea
   Ctenodiscus crispatus
 Ophiuroidea
   Gorgonocephalus caryi

Station:	B-6
Depth:	57 fathoms
Bottom type:	sandy mud
Range of temp.:	1.2° to 4.9° C.

Porifera
Coelenterata
  Hydroids
Arthropoda
 Crustacea
  Decapoda
   Pandalus borealis eous
   Pagurus alaskensis
   Paralithodes camtschatica
   Chionoecetes sp.
   Erimacrus isenbeckii
Echinodermata
 Asteroidea
   Asterias amurensis
 Ophiuroidea
   Gorgonocephalus caryi
Chordata
 Ascidiacea
   Boltenia ovifera

Station:	B-7
Range of depth	35-43 fathoms
Bottom type:	sand and gravel
Range in temp.:	0.6° to 5.1° C.

Porifera
Coelenterata
  Anemones
Annelida
 Polychaeta (tube and scale worms)
Arthropoda
 Crustacea
  Cirripedia
   Balanus rostratus apertus
  Decapoda
   Pagurus sp.
   Paralithodes camtschatica
   Oregonia gracilis
   Chionoecetes sp.
   Erimacrus isenbeckii
Mollusca
 Pelecypoda
   Modiolus modiolus
 Gastropoda

Station: B-7 (cont.)
Fusitriton oregonensis
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Echinoidea
Sand dollars
Holothuroidea
Cucumbers

Station: B-8
Range in depth: 26-30 fathoms
Bottom type: dark sand
Range of temp.: -0.4° to +6.2° C.

Porifera
Coelenterata
Anemones
Arthropoda
Crustacea
Amphipoda
Cirripedia
Balanus rostratus apertus
Decapoda
Crangon dalli
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Macoma brota lipara
Macoma incongrua
Siliqua patula
Spisula voyi
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiscea
Colonial tunicate of family Synoicidae

Station: C-4
Range of depth: 64-66 fathoms
Bottom type: mud
Range of temp.: 2.3° to 4.6° C.

Coelenterata
Anemones
Pennatulids
Arthropoda
Crustacea
Decapoda
Pandalus borealis eous
Paralithodes camtschatica
Chionoecetes sp.
Mollusca
Ophistobranchiata
Nudibranchs
Echinodermata
Asteroidea
Ctenodiscus crispatus
Ophiuroidea
Gorgonocephalus caryi

Station: C-5
Range of depth: 59-61 fathoms
Bottom type: mud
Range of temp.: 1.1° to 4.0°C.

Coelenterata
Pennatulids
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus aleuticus
Pagurus brandti
Paralithodes camtschatica
Chionoecetes sp.
Mollusca
Gastropoda
Fusitriton oregonensis
Boreotrophon clathratus
Buccinum polare
Neptunea lyrata
Opisthobranchiata
Nudibranchs
Echinodermata
Asteroidea
Ctenodiscus crispatus
Ophiuroidea
Gorgonocephalus caryi

Invertebrate catch by stations (Continued)

Station: C-6
Range of depth: 52-56 fathoms
Bottom type: fine gray sand
Range of temp.: 0.9° to 3.5° C.

Porifera
Coelenterata
  Hydroids
  Pennatulids
Annelida
  Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
  Crustacea
    Cirripedia
      Balanus hesperius
    Decapoda
      Pandalus borealis eous
      Crangon dalli
      Pagurus alaskensis
      Pagurus aleuticus
      Pagurus confragosus
      Paralithodes camtschatica
      Chionoecetes sp.
      Erimacrus isenbeckii
      Cancer oregonensis
Mollusca
  Pelecypoda
    Nuculana radiata
  Gastropoda
    Fusitriton oregonensis
    Neptunea lyrata
    Neptunea pribiloffensis
    Opisthobranchiata
      Nudibranchs
Echinodermata
  Ophiuroidea
    Gorgonocephalus caryi
Chordata
  Ascidiacea
    Boltenia ovifera

Station: C-7
Depth: 52 fathoms
Bottom type: muddy sand
Range in temp.: 0.8° to 3.6° C.

Porifera
Coelenterata
  Anemones
Annelida
  Polychaeta (tube worms)
Bryozoa
    Mesenteripora meandrina
Arthropoda
  Crustacea
    Cirripedia
      Balanus hesperius
    Decapoda
      Pandalus borealis eous
      Crangon communis
      Crangon dalli
      Pagurus brandti
      Paralithodes camtschatica
      Chionoecetes sp.
      Erimacrus isenbeckii
Mollusca
  Pelecypoda
    Serripes grönlandicus
    Spisula voyi
  Gastropoda
    Fusitriton oregonensis
    Neptunea lyrata
  Cephalopoda
    Octopus
Echinodermata
  Asteroidea
    Pteraster obscura
    Asterias amurensis
  Ophiuroidea
    Ophiopholis aculeata
    Gorgonocephalus caryi
  Holothuroidea
    Cucumbers

Station: C-8
Range in depth: 43-48 fathoms
Bottom type: dark sand
Range in temp.: 0.7° to 4.8° C.

Porifera
Annelida
  Polychaeta (scale and tube worms)
    Serpula vermicularis
Arthropoda
  Crustacea

Invertebrate catch by stations (Continued)

Station: C-8 (cont.)

Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus confragosus
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Cancer oregonensis
Mollusca
Gastropoda
Fusitriton oregonensis
Boreotrophon clathratus
Neptunea lyrata
Leucosyrinx circinata
Echinodermata
Asteroidea
Pteraster obscura
Asterias amurensis

Station: C-9
Range of depth: 27-30 fathoms
Bottom type: dark sand
Range of temp.: -0.3° to +6.4° C.

Porifera
Annelida
Polychaeta (scale worms)
Arthropoda
Crustacea
Amphipoda
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus sp.
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Cardita crebricostata
Serripes grönlandicus
Macoma brota lipara
Macoma incongrua
Gastropoda
Buccinum angulosum var. *transliratum*
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Colonial tunicate of family Synoicidae

Station: D-4
Range of depth: 55-63 fathoms
Bottom type: mud
Range of temp.: 1.5° to 3.4° C.

Coelenterata
Anemones
Pennatulids
Annelida
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Mollusca
Gastropoda
Neptunea lyrata
Opisthobranchiata
Nudibranchs
Cephalopoda
Octopus (juvenile)
Echinodermata
Asteroidea
Ctenodiscus crispatus
Ophiuroidea
Gorgonocephalus caryi

Station: D-5
Range of depth: 53-54 fathoms
Bottom type: mud

Invertebrate catch by stations (Continued)

Station: D-5 (cont.)
Range of temp.: 1.2° to 2.5°C.

Porifera
Coelenterata
  Hydroids
  Pennatulids
Annelida
 Polychaeta (tube worms)
  Serpula vermicularis
Arthropoda
 Crustacea
  Cirripedia
   Balanus hesperius
  Decapoda
   Pandalus borealis eous
   Pagurus alaskensis
   Pagurus aleuticus
   Pagurus cavimanus
   Pagurus confragosus
   Pagurus sp.
   Paralithodes camtschatica
   Chionoecetes sp.
   Hyas coarctatus alutaceus
  Cancer sp.
Mollusca
 Pelecypoda
  Modiolus modiolus
  Macoma moesta
 Gastropoda
  Fusitriton oregonensis
  Neptunea lyrata
  Neptunea pribiloffensis
Echinodermata
 Asteroidea
  Leptasterias polaris katherinae ?
 Ophiuroidea
  Gorgonocephalus caryi
 Holothuroidea
  Cucumbers

Station: D-6
Depth: 51 fathoms
Bottom type: sandy mud
Range of temp.: 1.1° to 2.6° C.

Porifera
Coelenterata
  Hydroids
  Pennatulids
Annelida
 Polychaeta (scale worms)
Bryozoa
  Mesenteripora meandrina
Arthropoda
 Crustacea
  Cirripedia
   Balanus hesperius
  Decapoda
   Pandalus borealis eous
   Pagurus alaskensis
   Pagurus confragosus
   Pagurus sp.
   Paralithodes camtschatica
   Chionoecetes sp.
   Erimacrus isenbeckii
Mollusca
 Pelecypoda
  Nucula bellotii
 Gastropoda
  Tachyrhynchus erosum
  Mohnia sp. (perhaps *M. robusta* or *M. frielei)*
  Neptunea lyrata
Echinodermata
 Asteroidea
 Ophiuroidea
  Ophiura sarsii
  Gorgonocephalus caryi
 Holothuroidea
  Cucumbers

Station: D-7
Range of depth: 49-50 fathoms
Bottom type: muddy sand
Range of temp.: 0.6° to 2.8° C.

Porifera
Coelenterata
  Hydroids
Annelida
 Polychaeta (tube and scale worms)
Bryozoa
  Mesenteripora meandrina
Arthropoda
 Crustacea
  Cirripedia
   Balanus hesperius

Invertebrate catch by stations (Continued)

Station: D-7 (cont.)

Decapoda
Pandalus borealis eous
Pandalus goniurus
Crangon communis
Argis dentata
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca
Gastropoda
Fusitriton oregonensis
Mohnia sp. ? (probably)
Neptunea lyrata

Echinodermata
Asteroidea
Ophiuroidea
Brittle stars
Gorgonocephalus caryi
Holothuroidea
Cucumbers

Station: D-8
Range of depth: 48-49 fathoms
Bottom type: dark sand
Range of temp.: 0.9° to 2.6°C.

Porifera
Coelenterata
Hydroids
Annelida
Polychaeta (scale worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca
Gastropoda
Fusitriton oregonensis
Colus spitzbergensis
Neptunea lyrata

Echinodermata
Asteroidea
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers

Station: D-9 *
Range of depth: 43-44 fathoms
Bottom type: coarse sand
Range of temp.: 0.1° to 3.7° C.

Porifera
Coelenterata
Hydroids
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Amphipoda
Cirripedia
Balanus hesperius
Balanus crenatus
Balanus rostratus apertus
Decapoda
Crangon dalli
Pagurus brandti
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii

Mollusca
Pelecypoda
Nucula bellotii
Yoldia seminuda
Yoldia scissurata
Musculus niger
Lyonsia sp.
Astarte alaskensis
Cardita crebricostata
Diplodonta orbella
Clinocardium ciliatum

* Station at which both otter trawl and dredge used.

Station: D-9 (cont.)

Serripes grönlandicus
Tellina lutea
Macoma calcarea
Macoma incongrua
Macoma moesta
Siliqua alta

Gastropoda
Margaritopsis grosvernori
Solariella obscura
Tachyrhynchus erosum
Natica clausa
Polinices sp.
Beringius sp. possibly *B. stimpsoni* (juvenile)
Mohnia sp. ?
Neptunea lyrata
Oenopota elegans
Oenopota harpa
Oenopota krausei (possibly)
Oenopota kyskana ?
Oenopota quadra ?
Oenopota tenuilirata cymata
Oenopota sp.?
Nemotoma hokkaidoensis

Opisthobranchiata
Cylichna nucleola

Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Brittle stars
Holothuroidea
Cucumbers

Station: D-10 *
Range of depth: 35-36 fathoms
Bottom type: fine sandy mud
Range of temp.: -0.1° to +4.1° C.

Porifera
Coelenterata
Anemones
Annelida
Polychaeta (tube worms)
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Balanus crenatus
Decapoda
Crangon dalli
Pagurus alaskensis
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas lyratus
Erimacrus isenbeckii

Mollusca
Pelecypoda
Yoldia myalis
Cardita crebricostata
Serripes grönlandicus
Tellina lutea
Spisula voyi
Mya pseudoarenaria
Hiatella sp.

Gastropoda
Polinices pallidus
Neptunea heros
Neptunea lyrata

Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Sand dollars
Holothuroidea
Cucumbers

Station: D-11
Range of depth: 16-20 fathoms
Bottom type: Unknown
Range of temp.: 3.4° to 8.7° C.

Porifera
Coelenterata
Anemones
Annelida
Polychaeta (scale worms)

* Station at which both otter trawl and dredge used

Invertebrate catch by stations (Continued)

Station: D-11 (cont.)

Arthropoda
- Crustacea
  - Cirripedia
    - *Balanus rostratus apertus*
    - *Balanus balanus balanus*
  - Decapoda
    - *Crangon dalli*
    - *Pagurus alaskensis*
    - *Pagurus brandti*
    - *Pagurus tenuimanus*
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas lyratus*
    - *Erimacrus isenbeckii*

Mollusca
- Pelecypoda
  - *Modiolus modiolus*
  - *Spisula voyi*
  - *Hiatella arctica*
  - *Hiatella striata*
- Gastropoda
  - *Lepeta concentrica ?*
  - *Cryptonatica aleutica*
  - *Polinices pallidus*
  - *Velutina velutina*
  - *Buccinum polare*
  - *Beringius undatus*
  - *Colus jordani*

Echinodermata
- Asteroidea
  - *Henricia sanguinolenta ?*
  - *Asterias amurensis*
- Echinoidea
  - *Strongylocentrotus drobachiensis ?*

Chordata
- Ascidiacea
  - *Boltenia ovifera*

Station: E-4
Range of depth: 51-53 fathoms
Bottom type: mud
Range of temp.: 1.2° to 2.8° C.

Porifera
Coelenterata
- Hydroids
- Anemones

Arthropoda
- Crustacea
  - Decapoda
    - *Pandalus borealis eous*
    - *Pagurus* sp.
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas coarctatus alutaceus*

Mollusca
- Pelecypoda
  - *Macoma calcarea*
- Gastropoda
  - *Neptunea lyrata*

Echinodermata
- Asteroidea
  - *Asterias amurensis*
  - *Leptasterias polaris acervata ?*
- Ophiuroidea
  - *Brittle* stars
  - *Gorgonocephalus caryi*

Chordata
- Ascidiacea
  - Colonial tunicates of family Synoicidae

Station: E-5
Range of depth: 49-53 fathoms
Bottom type: mud
Range of temp.: 0.3° to 2.1°C.

Porifera
Coelenterata
- Hydroids
- Aneomones
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale and tube worms)
- Hirudinidae

Bryozoa
- *Mesenteripora meandrina*

Arthropoda
- Crustacea
  - Cirripedia
    - *Balanus hesperius*
    - Rhizocephalans
  - Decapoda
    - *Pandalus borealis eous*
    - *Argis dentata*
    - *Pagurus aleuticus*

Invertebrate catch by stations (Continued)

Station: E-5 (cont.)
- *Pagurus brandti*
- *Pagurus confragosus*
- *Pagurus* sp.
- *Paralithodes camtschatica*
- *Chionoecetes* sp.
- *Hyas coarctatus alutaceus*

Mollusca
- Pelecypoda
  - *Nuculana radiata*
  - *Clinocardium ciliatum*
- Gastropoda
  - *Mohnia* sp. ? (probably)
  - *Ancistrolepis magnus*
  - *Neptunea lyrata*
  - *Neptunea pribiloffensis*

Echinodermata
- Asteroidea
  - *Asterias amurensis*
  - *Leptasterias polaris katherinea ?*
- Ophiuroidea
  - *Gorgonocephalus caryi*
- Holothuroidea
  - Cucumbers

Chordata
- Ascidiacea
  - Colonial tunicates of family Synoicidae

Station: E-6
Range of depth: 47-50 fathoms
Bottom type: muddy sand
Range of temp.: 0.5° to 2.4° C.

Coelenterata
- Hydroids
- Anemones
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale and tube worms)
- Hirudinidae

Bryozoa
- *Mesenteripora meandrina*

Arthropoda
- Crustacea
  - Cirripedia
    - *Balanus hesperius*
  - Decapoda
    - *Pandalus borealis eous*
    - *Pagurus aleuticus*
    - *Pagurus brandti*
    - *Pagurus confragosus*
    - *Pagurus* sp.
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas coarctatus alutaceus*
    - *Hyas lyratus*

Mollusca
- Pelecypoda
  - *Serripes grönlanicus*
  - *Hiatella striata*
- Gastropoda
  - *Fusitriton oregonensis*
  - *Colus spitzbergensis*
  - *Neptunea heros*
  - *Neptunea lyrata*

Echinodermata
- Asteroidea
  - *Leptasterias polaris katherinea ?*
- Ophiuroidea
  - *Ophiopholis aculeata*
  - *Ophiura sarsii*
  - *Gorgonocephalus caryi*
- Echinoidea
  - Sand dollars
- Holothuroidea
  - Cucumbers

Chordata
- Ascidiacea
  - *Styela coriacea*

Station: E-7
Range of depth: 46-48 fathoms
Bottom type: sandy mud
Range of temp.: 0.6° to 2.6° C.

Porifera

Coelenterata
- Hydroids
- Anemones
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale and tube worms)

Bryozoa
- *Mesenteripora meandrina*

Arthropoda

Invertebrate catch by stations (Continued)

Station: E-7 (cont.)

Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Crangon communis
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus kennerlyi
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Mollusca
Pelecypoda
Nuculana radiata
Pododesmus macroschisma
Serripes grönlandicus
Gastropoda
Boreotrophon clathratus
Buccinum glaciale
Neptunea lyrata
Cephalopoda
Octopus
Echinodermata
Asteroidea
Henricia sanguinolenta ?
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Holothuroidea
Cucumbers

Station: E-8
Range of depth: 45-47 fathoms
Bottom type: sandy mud
Range of temp.: 0.5° to 2.6° C.

Porifera
Coelenterata
Hydroids
Anemones
Alcyonacea
Gersemia rubriformis
Annelida
Hirudiniae
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus evermanni
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Crangon communis
Pagurus brandti
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Mollusca
Pelecypoda
Chlamys islandica
Pododesmus macroschisma
Modiolus modiolus
Macoma brota lipara
Macoma calcarea
Macoma incongrua
Hiatella arctica
Hiatella striata
Gastropoda
Crepidula grandis
Fusitriton oregonensis
Boreotrophon clathratus
Colus barbarinus ?
Colus jordani
Colus spitzbergensis
Colus sp.
Neptunea lyrata
Echinodermata
Asteroidea
Henricia sanguinolenta ?
Asterias amurensis
Ophiuroidea
Ophiopholis aculeata
Ophiura sarsii
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis
Holothuroidea

Station: E-8 (cont.)
Cucumbers
Chordata
Ascidiacea
Tridemnum strangulatum

Station: E-9
Range of depth: 42-44 fathoms
Bottom type: fine gray sand
Range of temp.: 0.6° to 3.7° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Gastropoda
Tachyrhynchus erosum
Cerithiopsis stejnegeri
Boreotrophon clathratus
Neptunea heros
Neptunea lyratus
Echinodermata
Asteroidea
Ophiuroidea
Brittle stars
Holothuroidea
Cucumbers

Station: E-10
Range of depth: 40-48 fathoms
Bottom type: fine sandy mud
Range of depth: 0.2° to 3.9° C.

Porifera
Bryozoa
Mesenteripora meandrina
Anthropoda
Crustacea
Cirripedia
Balanus rostratus apertus
Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juvenile)
Mollusca
Pelecypoda
Mytilus edulis
Cardita crebricostata
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Ophiuroidea
Brittle stars
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Colonial tunicate of family
Synoicidae

Station: E-11
Range of depth: 33-35 fathoms
Bottom type: dark, coarse sand
Range of temp.: 0.1° to 5.1° C.

Porifera
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus rostratus apertus
Decapoda

Invertebrate catch by stations (Continued)

Station: E-11 (Cont.)

Pandalus borealis eous
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juveniles)

Mollusca
Pelecypoda
Yoldia myalis
Cardita crebricostata
Macoma brota lipara
Macoma incongrua
Spisula voyi
Gastropoda
Cerithiopsis stejnegeri
Neptunea lyrata

Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Brittle stars
Gorgonocephalus caryi
Echinoidea
Sand dollars
Holothuroidea
Cucumbers

Chordata
Ascidiacea
Styela coriacea
Styela rustica macrenteron
Boltenia ovifera

Station: E-12 *
Range of depth: 26-28 fathoms
Bottom type: dark sand
Range of temp.: -0.4° to +6.1°C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis

Annelida
Polychaeta (tube and scale worms)

Bryozoa
Mesenteripora meandrina

Anthropoda
Crustacea
Amphipoda
Cirripedia
Balanus crenatus
Balanus hesperius
Balanus rostratus apertus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus splendescens
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii

Mollusca
Pelecypoda
Yoldia myalis
Limopsis akutanica
Chlamya behringiana
Pododesmus macsoachisma
Mytilis edulis
Serripes grönlandicus
Tellina lutea
Siliqua alta
Siliqua media
Spisula voyi
Hiatella striata
Gastropoda
Cryptonatica aleutica
Fusitriton oregonensis
Buccinum angulosum transliratum
Buccinum plectrum
Beringius kennicotti
Colus of. C. *herendeeni*
Neptunea lyrata

Echinodermata
Asteroidea
Asterias amurensis

* Station at which both otter trawl and dredge used

Station: E-12 (Cont.)
Leptasterias polaris ?
Ophiuroidea
Brittle stars
Gorgonocephalus caryi
Chordata
Ascidiacea
Colonial tunicate of family Synoicidae

Station: F-5
Depth: 42 fathoms
Bottom type: Unknown
Temp.: 1.9°C.

Porifera
Coelenterata
Hydroids
Annelida
Polychaeta (scale and tube worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Argis dentata
Pagurus brandti
Chionoecetes sp.
Mollusca
Pelecypoda
Yoldia sp.
Clinocardium ciliatum
Serripes grönlandicus
Gastropoda
Crepidula grandis
Buccinum polare
Ancistrolepis magnus
Neptunea lyrata
Volutopsius fragilis
Echinodermata
Asteroidea
Pteraster obscura
Leptasterias polaris acervata ?
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Holothuroidea
Cucumber
Chordata
Ascidiacea
Dendrodoa pulchella

Station: F-6
Range of depth: 39-41 fathoms
Bottom type: Unknown
Range of temp.: 2.7° to 2.9° C.

Coelenterata
Hydroids
Anemones
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale and tube worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Amphipoda
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Mollusca
Pelecypoda
Serripes grönlandicus
Tellina lutea
Gastropoda
Polinices pallidus
Buccinum polare
Buccinum tenue
Buccinum undatum var. *striatum*
Pyrulofusus deformis
Colus spitzbergensis
Neptunea lyrata

Station: F-6 (Cont.)

Echinodermata
- Asteroidea
  - *Leptasterias polaris acervata ?*
  - *Evasterias troschelii ?*
- Ophiuroidea
  - *Ophiura sarsii*
  - *Gorgonocephalus caryi*

Chordata
- Ascidiacea
  - Colonial tunicates of family Synoicidae

Station: F-7
Range of depth: 40-42 fathoms
Bottom type: fine grey sand
Range of temp.: -1.4° to +2.8° C.

Coelenterata
- Hydroids
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale worms)
- Hirudinidae

Bryozoa
- *Mesenteripora meandrina*
- Other bryozoans

Anthropoda
- Crustacea
  - Cirripedia
    - *Balanus hesperius*
  - Decapoda
    - *Crangon dalli*
    - *Argis dentata*
    - *Pagurus aleuticus*
    - *Pagurus brandti*
    - *Pagurus splendescens*
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas coarctatus alutaceus*

Mollusca
- Pelecypoda
  - *Clinocardium ciliatum*
  - *Serripes grönlandicus*
  - *Hiatella* sp.
- Gastropoda
  - *Crepidula grandis*
  - *Polinices pallidus*
  - *Fusitriton oregonensis*
  - *Buccinum polare*
  - *Buccinum tenue*
  - *Buccinum undatum* var. *striatum*
  - *Pyrulofusus deformis*
  - *Colus spitzbergensis*
  - *Neptunea heros*
  - *Neptunea lyrata*
  - *Neptunea pribiloffensis*
  - *Volutopsius fragilis*
  - *Leucosyrinx circinata*

Echinodermata
- Asteroidea
  - *Pteraster obscura*
  - *Asterias amurensis*
  - *Leptasterias groenlandica ?*
  - *Leptasterias polaris ?*
  - *Leptasterias polaris katherinea ?*
  - *Evasterias troschelii ?*
- Ophiuroidea
  - *Ophiura sarsii*
  - *Gorgonocephalus caryi*
- Echinoidea
  - *Strongylocentrotus drobachiensis ?*
- Holothuroidea
  - Cucumbers

Chordata
- Ascidiacea
  - *Dendrodoa pulchella*
  - *Boltenia ovifera*

Station: F-8
Range of depth: 39-42 fathoms
Bottom type: sandy mud
Range of temp.: -0.7° to +2.8° C.

Coelenterata
- Hydroids
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale and tube worms)

Bryozoa
- *Mesenteripora meandrina*
- Other bryozoans

Arthropoda
- Crustacea
  - Amphipoda
  - Decapoda

Station: F-8 (Cont.)

Pandalus borealis eous
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca
Pelecypoda
Nuculana radiata
Thyasira flexuosa var. *sarsi*
Clinocardium ciliatum
Hiatella sp.
Gastropoda
Tachyrhynchus erosum
Mohnia sp.
Neptunea heros
Neptunea lyrata

Echinodermata
Asteroidea
Henricia sanguinolenta ?
Asterias amurensis
Leptasterias polaris acervata ?
Evasterias troschelii ?
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Holothuroidea
Cucumbers

Chordata
Ascidiacea
Dendrodoa pulcheilla
Styela coriacea
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: F-9
Range of Depth: 38-42 fathoms
Bottom type: Sand
Range of temp.: -0.4° to +3.1° C.

Coelenterata
Alcyonacea
Gersemia rubriformis

Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii

Mollusca
Gastropoda
Crepidula grandis
Neptunea heros
Neptunea lyrata
Neptunea pribiloffensis
Plicifusus kroyeri

Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi

Chordata
Ascidiacea
Boltenia ovifera
Colonial tunicate of family Synoicidae

Station: F-10
Range of depth: 38-41 fathoms
Bottom type: sand
Range of temp.: -0.6° to +3.6° C.

Porifera
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Decapoda
Pandalus borealis eous
Pagurus brandti
Paralithodes camtschatica
Oregonia gracilis

Invertebrate catch by stations (Continued)

Station: F-10 (Cont.)

Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Gastropoda
Mohnia sp. (Perhaps *M. robusta* or *M. frielei*)
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Ophiopholis aculeata
Ophiura sarsii
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera

Station: F-11*
Range of depth: 47-48 fathoms
Bottom type: muddy sand
Range of temp.: -0.9° to +3.8° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Arthropoda
Crustacea
Amphipoda
Isopoda
Cirripedia
Balanus hesperius
Balanus crenatus
Balanus rostratus apertus
Balanus balanus balanus
Decapoda
Pandalus borealis eous
Pagurus alaskensis
Pagurus aleuticus
Pagurus brandti
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juveniles)
Mollusca
Pelecypoda
Nucula bellotii
Yoldia myalis
Astarte montagui (probably)
Cardita crebricostata
Diplodonta aleutica
Tellina lutea
Macoma planiuscula
Spisula voyi
Gastropoda
Solariella obscura
Tachyrhynchus erosum
Crepidula grandis
Polinices nanus
Fusitriton oregonensis
Neptunea lyrata
Plicifusus brunneus
Admete couthouyi
Oenopota (Turritomella) sp.
Echinodermata
Asteroidea
Henricia sanguinolenta ?
Pteraster obscura
Asterias amurensis
Ophiuroidea
Ophiopholis aculeata
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: F-12
Range of depth: 37-38 fathoms
Bottom type: dark sand
Range of temp.: -0.8° to +4.3° C.

* Dredge and otter trawl used.

Station: F-12 (Cont.)
Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubiformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Cancer oregonensis (juveniles)
Mollusca
Pelecypoda
Spisula voyi
Hiatella striata
Gastropoda
Crepidula grandis
Fusitriton oregonensis
Neptunea lyrata
Echinodermata
Ophiuroidea
Ophiopholis aculeata
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Psolus sp.
Chordata
Ascidiacea
Colonial tunicates of family Synoicidae

Station: F-13
Range of depth: 32-33 fathoms
Bottom type: Unknown
Range of temp.: 2.5° to 4.7° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubiformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Balanus crenatus
Balanus hesperius
Balanus rostratus apertus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus kennerlyi
Pagurus sp.
Pagurus tenuimanus
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Spisula voyi
Hiatella striata
Gastropoda
Crepidula grandis
Fusitriton oregonensis
Colus spitzbergensis
Neptunea lyrata
Neptunea pribiloffensis
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Ophiopholis aculeata
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera
Colonial tunicate of family Synoicidae

Invertebrate catch by stations (Continued)

Station: F-14
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 2.6° C.

Porifera
Coelenterata
  Alcyonacea
    Gersemia rubiformis
Annelida
  Polychaeta (tube worms)
Arthropoda
  Crustacea
    Cirripedia
      Balanus hesperius
      Balanus rostratus apertus
    Decapoda
      Pagurus alaskensis
      Paralithodes camtschatica
      Chionoecetes sp.
      Hyas coarctatus alutaceus
      Erimacrus isenbeckii
Mollusca
  Gastropoda
    Aquilonaria turneri
    Neptunea lyrata
Echinodermata
  Asteroidea
    Asterias amurensis
    Evasterias echinosoma ?
    Evasterias troschelii ?
  Ophiuroidea
    Gorgonocephalus caryi
  Holothuroidea
    Cucumbers
Chordata
  Ascidiacea
    Colonial tunicates of family Synoicidae

Station: G-6
Depth: 38 fathoms
Bottom type: Unknown
Temp.: 2.5° C.

Coelenterata
  Hydroids
  Alcyonacea
    Gersemia rubriformis
Annelida
  Polychaeta (tube and scale worms)
Bryozoa
    Porella saccata ?
Arthropoda
  Crustacea
    Amphipoda
    Cirripedia
      Balanus hesperius
    Decapoda
      Pandalus borealis eous
      Pagurus brandti
      Chionoecetes sp.
      Hyas coarctatus alutaceus
      Erimacrus isenbeckii
Mollusca
  Pelecypoda
    Musculus discors laevigatus forma substriata
    Clinocardium ciliatum
    Serripes grönlandicus
  Gastropoda
    Buccinum angulosum
    Buccinum polare
    Buccinum tenue
    Neptunea lyrata
    Volutopsius fragilis
    Opisthobranchiata
      Nudibranchs
Echinodermata
  Asteroidea
    Asterias amurensis
    Leptasterias polaris katherinea ?
    Evasterias troschelii ?
  Ophiuroidea
    Ophiura sarsii
    Gorgonocephalus caryi
  Holothuroidea
    Cucumbers
Chordata
  Ascidiacea
    Dendrodoa pulchella

Station: G-7
Range of depth: 36-37 fathoms
Bottom type: Unknown
Range of temp.: 2.9° to 3.0° C.

Coelenterata

Station: G-7 (Cont.)

Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus kennerlyi
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Mollusca
Pelecypoda
Musculus discors laevigatus forma substriata
Clinocardium ciliatum
Serripes grönlandicus
Gastropoda
Boreotrophon dalli
Buccinum angulosum
Buccinum polare
Buccinum tenue
Volutharpa perryi
Neptunea heros
Neptunea lyrata
Volutopsius fragilis
Echinodermata
Asteroidea
Henricia sanguinolenta ?
Pteraster obscura
Leptasterias groenlandica ?
Leptasterias polaris katherinea ?
Evasterias troschelii ?
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Ascidiacea
Dendrodoa pulchella
Styela coriacea
Styela rustica macrenterom
Aplidium sp.
Trididemnum strangulatum
Trididemnum sp. (possibly T. *tenerum ?)*
Colonial tunicates of family Synoicidae

Station: G-8*
Range of depth: 35-36 fathoms
Bottom type: sandy mud
Range of temp.: 2.4° to 2.9° C.

Foraminifera
Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (tube, scale, and grub-type worms)
Hirudinidea
Bryozoa
Fasciculiporoides americana ?
Porella saccata ?
Arthropoda
Crustacea
Amphipoda
Cumacea
Isopoda
Cirripedia
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Argis dentata
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Cancer oregonensis (juveniles).
Mollusca
Pelecypoda
Nucula bellotii
Nuculana radiata.

* Dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: G-8 (Cont.)

Yoldia myalis
Musculus discors laevigatus forma substriata
Lyonsia norvegica
Clinocardium ciliatum
Serripes grönlandicus
Liocyma beckii

Gastropoda
Tachyrhynchus erosum
Crepidula grandis
Trichotropis coronata
Trichotropis kroyeri
Trichotropis sp. (possibly)
Natica clausa
Boreotrophon clathratus
Boreotrophon dalli
Boreotrophon cf. B. smithi
Buccinum angulosum
Buccinum plectrum
Buccinum polare
Buccinum orotundum
Pyrulofusus deformis
Colus halli
Colus cf. C. trophius
Neptunea heros
Neptunea lyrata
Volutopsius castaneus
Volutopsius middendorffi (possibly)
Admete couthouyi middendorffiana
Oenopota (Nodotoma) impressa
Oenopota (Obesotoma) tenuilirata
Oneopota sp. ?
Odostomia martensi
Opisthobranchiata
Cylichna nucleola

Echinodermata
Asteroidea
Henricia sanguinolenta ?
Pteraster obscura
Asterias amurensis
Leptasterias camtschatica ?
Leptasterias polaris katherinea ?
Evasterias troschelii ?
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Echinoidea
Sand dollars

Chordata
Ascidiacea
Dendrodoa aggregata
Dendrodoa pulchella
Styela rustica macrenteron
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: G-9
Range of depth: 33 fathoms
Bottom type: Unknown
Range of temp.: 2.7° to 3.4° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis

Annelida
Polychaeta (tube and scale worms)

Bryozoa

Arthropoda
Crustacea
Isopoda
Cirripedia
Balanus balanus balanus
Balanus hesperius
Decapoda
Pandalus borealis eous
Crangon dalli
Pagurus brandti
Pagurus kennerlyi
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii

Mollusca
Pelecypoda
Yoldia myalis
Macoma calcarea
Gastropoda
Neptunea heros
Neptunea lyrata

Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi

Chordata
Ascidiacea
Styela coriacea

Invertebrate catch by stations (Continued)

Station: G-9 (Cont.)
Styela rustica macrenteron
Boltenia ovifera
Tridemnum strangulatum
Colonial tunicate of family Synoicidae

Station: G-10
Range of depth: 33-36 fathoms
Bottom type: coarse sand
Range of temp.: -0.9° to +3.8° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (tube and scale worms)
Spirorbis sp.
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Tachyrhynchus erosum
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiacea
Styela coriacea
Boltenia ovifera

* Dredge and otter trawl used.

Colonial tunicate of family Synoicidae

Station: G-11
Range of depth: 36-38 fathoms
Bottom type: coarse sand
Range of temp.: -0.8° to +3.8° C.

Porifera
Colenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Isopoda
Decapoda
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Yoldia myalis
Gastropoda
Cerithiopsis stejnegeri
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Ophiopholis aculeata
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela rustica macrenteron
Boltenia ovifera

Station: G-12*
Range of depth: 34-37 fathoms

Invertebrate catch by stations (Continued)

Station: G-12 (cont.) *
Bottom type: muddy sand
Range of temp.: -0.8° to +4.0° C.

Porifera
Coelenterata
  Hydroids
Annelida
  Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
  Crustacea
    Amphipoda
    Isopoda
    Cirripedia
      Balanus balanus balanus
      Balanus hesperius
      Balanus rostratus apertus
    Decapoda
      Pandalus borealis eous
      Eualus sp.
      Crangon communis
      Crangon dalli
      Pagurus alaskensis
      Pagurus brandti
      Pagurus sp.
      Pagurus sp.
      Paralithodes camtschatica
      Oregonia gracilis
      Chionoecetes sp.
      Hyas coarctatus alutaceus
      Hyas lyratus
      Erimacrus isenbeckii
      Cancer oregonensis (juveniles)
Mollusca
  Pelecypoda
    Nucula bellotii
    Astarte montagui (probably)
    Cardita crebricostata
    Macoma brota
    Macoma calcarea
    Spisula voyi
    Hiatella arctica
  Gastropoda
    Solariella obscura
    Polinices nanus
    Cerithiopsis stejnegeri
    Velutina velutina
    Buccinum sp. (possibly)
    Neptunea heros
    Neptunea lyrata
    Oenopota harpa
    Oenopota (Turritomella) sp.
    Oenopota sp. ?
    Oenopota sp. ?
Echinodermata
  Asteroidea
    Pteraster obscura
  Ophiuroidea
    Ophiopholis aculeata
    Gorgonocephalus caryi
  Holothuroidea
    Cucumbers
Chordata
  Ascidiacea
    Dendrodoa aggregata
    Styela rustica macren
    Boltenia ovifera
    Molgula sp.
    Synoicum sp.
    Tridemnum strangula
    Colonial tunicates of family Synoicidae

Station: G-13
Range of depth: 34-36 fathoms
Bottom type: Unknown
Range of temp.: 2.6° to 4.6° C.

Porifera
Coelenterata
  Hydroids
Annelida
  Polychaeta (scale worms)
Arthropoda
  Crustacea
    Cirripedia
      Balanus balanus balanus
    Decapoda
      Pandalus goniurus
      Crangon dalli
      Pagurus alaskensis
      Paralithodes camtschatica

* Dredge and otter trawl used.

Station: G-13 (Cont.)
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Spisula voyi
Hiatella striata
Gastropoda
Crepidula grandis
Neptunea lyrata
Echinodermata
Asteroidea
Pteraster obscura
Ophiuroidea
Ophiopholis aculeata
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera

Station: G-14
Depth: 31 fathoms
Bottom type: unknown
Range of temp.: 2.5° to 5.5° C.

Porifera
Coelenterata
Hydroids
Anemones
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale and tube worms)
Arthropoda
Crustacea
Amphipoda
Cirripedia
Balanus balanus balanus
Decapoda
Pandalus goniurus
Lebbeus groenlandicus
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Modiolus modiolus
Spisula voyi
Hiatella sp.
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera
Molgula sp.
Synoicum sp.

Station: G-15
Depth: 19 fathoms
Bottom type: unknown
Temp.: 2.8° C.

Coelenterata
Hydroids
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pagurus alaskensis
Paralithodes camtschatica
Chionoecetes sp.
Mollusca
Pelecypoda
Spisula voyi
Mya japonica
Hiatella arctica

Invertebrate catch by stations (Continued)

Station: G-15 (Cont.)

Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiacea
Boltenia ovifera
Molgula retortiformis

Station: H-7
Depth: 35 fathoms
Bottom type: Unknown
Temp.: 2.5° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Decapoda
Pandalus goniurus
Crangon dalli
Argis dentata
Pagurus brandti
Pagurus splendescens
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Clinocardium ciliatum
Serripes grönlandicus
Gastropoda
Trichotropis sp. (possibly)
Boreotrophon clathratus
Buccinum polare
Beringius stimpsoni
Neptunea lyrata
Volutopsius fragilis
Echinodermata
Asteroidea
Henricia sanguinolenta ?
Pteraster obscura
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Brittle stars

Station: H-8
Depth: 28 fathoms
Bottom type: Unknown
Range of temp.: 3.2° to 3.9° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale and tube worms)
Bryozoa
Arthropoda
Crustacea
Isopoda
Cirripedia
Balanus balanus balanus
Decapoda
Crangon dalli
Pagurus brandti
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Yoldia scissurata
Serripes grönlandicus
Macoma calcarea
Spisula voyi
Gastroposa
Crepidula grandis
Trichotropis sp. (possibly)
Polinices pallidus
Neptunea lyrata
Echinodermata
Asteroidea
Henricia sanguinolenta ?

Station: H-8 (Cont.)
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiacea
Styela coriacea
Styela rustica macrenteron
Boltenia ovifera
Aplidium sp.

Station: H-9
Depth:. · 26 fathoms
Bottom type: Unknown
Range of temp.: 3.2° to 4.0° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Arthropoda
Crustacea
Isopoda
Cirripedia
Balanus balanus balanus
Balanus hesperius
Decapoda
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Musculus discors laevigatus forma substriata
Serripes grönlandicus
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiacea
Styela rustica macrenteron
Colonial tunicates of family Synoicidae

Station: H-10
Range of depth: 27-28 fathoms
Bottom type: fine sandy mud
Range of temp.: -0.7° to +5.3° C.

Arthropoda
Crustacea
Decapoda
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Nucula bellotii
Serripes grönlandicus
Macoma calcarea
Gastropoda
Polinices pallidus
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Chordata
Ascidiacea
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: H-11 *
Range of depth: 29-30 fathoms
Bottom type: fine sandy mud
Range of temp.: -0.1° to +4.2° C.

Foraminifera
Porifera
Coelenterata
Hydroids
Alcyonacea

* Both dredge and otter trawl used.

Station: H-11 * (Cont.)

Gersemia rubriformis
Annelida
Polychaeta (tube and scale worms)
Bryozoa
Arthropoda
Crustacea
Amphipoda
Isopoda
Cirripedia
Balanus balanus balanus
Balanus crenatus
Balanus hesperius
Balanus rostratus apertus
Rhizocephalans
Decapoda
Crangon dalli
Pagurus alaskensis
Pagurus brandti
Pagurus spendescens
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Nucula bellotii
Nuculana radiata
Yoldia scissurata
Mytilus edulis
Modiolus modiolus
Thracia beringi
Thracia myopsis ?
Lyonsia sp.
Cardita crebricostata
Diplodonta orbella
Pseudopythina compressa
Serripes grönlandicus
Tellina lutea
Macoma calcarea
Macoma incongrua
Macoma moesta
Spisula voyi
Mya pseudoarenaria
Hiatella arctica
Gastropoda
Margaritopsis grosvenori
Solariella obscura
Tachyrhynchus erosum
Crepidula grandis
Natica clausa
Polinices nanus
Polinices sp.
Velutina plicatilis cryptospira
Neptunea beringiana varicifera
Neptunes heros
Neptunea lyrata
Volutopsius fragilis
Oenopota kyskana ?
Oenopota (Propebela) rugulata
Oenopota solida
? Oenopota tenuissima
Oenopota (Turritomella) sp.
Oenopota sp. ?
Propebela excurvata
Nemotoma hokkaidoensis ?
Opisthobranchiata
Cylichna nucleola
Echuroidea
Echiuras sp.
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Dendrodoa pulchella
Styela rustica macrenteron
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: H-12
Range of depth: 32-34 fathoms
Bottom type: Unknown
Range of temp.: 3.2° to 4.0° C.

Coelenterata
Hydroids
Annelida
Polychaeta (tube worms)
Bryozoa

* Both dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: H-12 (Cont.)
Arthropoda
Crustacea
Amphipoda
Cirripedia
Balanus balanus balanus
Decapoda
Paralithodes camtschatica
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Pododesmus macroschisma
Modiolus modiolus
Gastropoda
Crepidula grandis
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela rustica macrenteron
Boltenia ovifera

Station: H-13
Depth: 32 fathoms
Bottom type: Unknown
Range of temp.: 2.4° to 5.5° C.

Porifera
Coelenterata
Hydroids
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Balanus hesperius
Decapoda
Crangon dalli
Pagurus alaskensis
Pagurus brandti
Pagurus sp.
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Crepidula grandis
Cerithiopsis stejnegeri
Beringius stimpsoni
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela rustica macrenteron
Boltenia ovifera
Molgula sp.

Station: H-14
Depth: 31 fathoms
Bottom type: Unknown
Range of temp.: 2.7° to 6.2° C.

Porifera
Coelenterata
Hydroids
Anemones
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Bryozoa
Mesenteripora meandrina
Arthropoda
Crustacea
Amphipoda

Invertebrate catch by stations (Continued)

Station: H-14 (Cont.)

Cirripedia
Balanus balanus balanus
Balanus hesperius
Decapoda
Pandalus borealis eous
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Paralithodes camtschatica
Oregonia gracilis
Chionoecetes sp.
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Hiatella striata
Gastropoda
Crepidula grandis
Liomesus canaliculatus
Neptunea heros
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Ophiura sarsii
Gorgonocephalus caryi
Echinoidea
Strongylocentrotus drobachiensis ?
Sand dollars
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela coriacea
Styela rustica macrenteron
Boltenia ovifera
Molgula sp.
Colonial tunicates of family Synoicidae

Station: H-15
Depth: 29 fathoms
Bottom type: Unknown
Temp.: 2.8° C.

Coelenterata
Hydroids
Annelida
Polychaeta (tube worms)
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus goniurus
Crangon dalli
Sclerocrangon boreas
Pagurus alaskensis
Paralithodes camtschatica
Oregonia gracilis
Hyas lyratus
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Evasterias troschelii ?
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Dendrodoa pulchella
Styela coriacea
Styela rustica macrenteron
Boltenia ovifera
Aplidium sp.
Synoicum sp.
Tridemnum strangulatum

Station: I-8
Depth: 24 fathoms
Bottom type: Unknown
Temp.: 2.6° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis

Invertebrate catch by stations (Continued)

Station: I-8 (Cont.)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Balanus hesperius
Balanus rostratus apertus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Tellina lutea
Gastropoda
Velutina plicatilis cryptospira
Echinodermata
Asteroidea
Asterias amurensis
Chordata
Ascidiacea
Styela coriacea
Styela rustica macrenteron
Synoicum sp.

Station: I-9
Range of depth: 23-24 fathoms
Bottom type: Unknown
Range of temp.: 3.1° to 4.5° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Bryozoa
Arthropoda
Crustacea
Decapoda
Crangon dalli
Pagurus splendescens
Paralithodes camtschatica
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Chordata
Ascidiacea
Styela rustica macrenteron

Station: I-10
Depth: 25 fathoms
Bottom type: Unknown
Range of temp.: 3.3° to 4.6° C.

Coelenterata
Alcyonacea
Gersemia rubriformis
Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Crangon dalli
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Spisula voyi
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Chordata
Ascidiacea
Colonial tunicates of family Synoicidae

Station: I-11
Range of depth: 28-29 fathoms
Bottom type: Unknown
Range of temp.: 2.4° to 4.4° C.

Invertebrate catch by stations (Continued)

Station: I-11 (Cont.)

Coelenterata
- Hydroids
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (scale worms)

Arthropoda
- Crustacea
  - Cirripedia
    - *Balanus balanus balanus*
    - *Balanus hesperius*
  - Decapoda
    - *Pandalus borealis eous*
    - *Crangon dalli*
    - *Pagurus brandti*
    - *Pagurus* sp.
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas coarctatus alutaceus*
    - *Erimacrus isenbeckii*

Mollusca
- Pelecypoda
  - *Serripes grönlandicus*
  - *Spisula voyi*
- Gastropoda
  - *Tachyrhynchus* or *Ptychatractus* sp.
  - *Thais lima*

Echinodermata
- Asteroidea
  - *Asterias amurensis*
- Ophiuroidea
  - *Gorgonocephalus caryi*

Station: I-12
Range of depth: 29-33 fathoms
Bottom type: Unknown
Range of temp.: 2.3° to 4.9° C.

Porifera

Coelenterata
- Hydroids
- Anemones

Annelida
- Polychaeta (scale worms)

Arthropoda
- Crustacea
  - Isopoda
  - Cirripedia
    - *Balanus hesperius*
  - Decapoda
    - *Pandalus borealis eous*
    - *Crangon dalli*
    - *Pagurus alaskensis*
    - *Pagurus kennerlyi*
    - *Pagurus splendescens*
    - *Paralithodes camtschatica*
    - *Chionoecetes* sp.
    - *Hyas coarctatus alutaceus*
    - *Erimacrus isenbeckii*

Mollusca
- Pelecypoda
  - *Spisula voyi*
- Gastropoda
  - *Neptunea lyrata*

Echinodermata
- Asteroidea
  - *Asterias amurensis*
- Ophiuroidea
  - *Gorgonocephalus caryi*
- Holothruoidea
  - Cucumbers

Chordata
- Ascidiacea
  - *Boltenia ovifera*
  - Colonial tunicates of family Synoicidae

Station: I-13
Range of depth: 20-21 fathoms
Bottom type: Unknown
Range of temp.: 1.9° to 5.6° C.

Porifera

Coelenterata
- Hydroids
- Alcyonacea
  - *Gersemia rubriformis*

Annelida
- Polychaeta (tube worms)

Bryozoa

Arthropoda
- Crustacea
  - Cirripedia
    - *Balanus rostratus apertus*
  - Decapoda
    - *Pandalus borealis eous*
    - *Pagurus alaskensis*

Invertebrate catch by stations (Continued)

Station: I-13 (Cont.)

Paralithodes camtschatica
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Neptunea heros
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Styela rustica macrenteron
Boltenia ovifera
Colonial tunicates of family Synoicidae

Station: I-14
Depth: 26 fathoms
Bottom type: Unknown
Temp.: 2.1° C.

Arthropoda
Crustacea
Cirripedia
Balanus hesperius
Decapoda
Pandalus goniurus
Crangon dalli
Crangon sp
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Cardita crebricostata
Spisula voyi
Echinodermata
Asteroidea
Asterias amurensis
Chordata
Ascidiacea
Boltenia ovifera
Molgula sp.

Station: J-10
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 5.6° C.

Arthropoda
Crustacea
Decapoda
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Mollusca
Pelecypoda
Tellina lutea
Gastropoda
Buccinum polare
Echinodermata
Asteroidea
Asterias amurensis

Station: J-11
Range of depth: 25-30 fathoms
Bottom type: Unknown
Range of temp.: 1.7° to 5.5° C.

Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Annelida
Polychaeta (scale worms)
Bryozoa
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Balanus rostratus apertus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Pagurus sp.
Pagurus splendescens
Paralithodes camtschatica
Chionoecetes sp.

Invertebrate catch by stations (Continued)

Station: J-11 (Cont.)
Hyas lyratus
Telmessus cheiragonus
Mollusca
Pelecypoda
Spisula voyi
Iliatella striata
Gastropoda
Neptunea heros
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Ophiuroidea
Gorgonocephalus caryi
Holothuroidea
Cucumbers
Psolus sp.
Chordata
Ascidiacea
Styela rustica macrenteron
Boltenia ovifera
Molgula sp.
Colonial tunicates of family Synoicidae

Station: J-12
Depth: 23 fathoms
Bottom type: Unknown
Range of temp.: 1.5° to 5.6° C.

Arthropoda
Crustacea
Decapoda
Crangon dalli
Paralithodes camtschatica
Erimacrus isenbeckii
Mollusca
Pelecypoda
Spisula voyi
Gastropoda
Pyrulofusus deformis
Echinodermata
Asteroidea
Asterias amurensis
Holothuroidea
Cucumbers

Station: J-13
Range of depth: 26-27 fathoms
Bottom type: Unknown
Range of temp.: 1.4° to 5.5° C.

Porifera
Coelenterata
Hydroids
Alcyonacea
Gersemia rubriformis
Arthropoda
Crustacea
Cirripedia
Balanus balanus balanus
Decapoda
Pandalus goniurus
Crangon dalli
Pagurus alaskensis
Paralithodes camtschatica
Hyas coarctatus alutaceus
Hyas lyratus
Erimacrus isenbeckii
Mollusca
Pelecypoda
Serripes grönlandicus
Tellina lutea
Spisula voyi
Gastropoda
Neptunea lyrata
Echinodermata
Asteroidea
Asterias amurensis
Holothuroidea
Cucumbers
Chordata
Ascidiacea
Boltenia ovifera
Synoicum sp.

Station: K-11
Depth: 21 fathoms
Bottom type: Unknown
Temp.: 1.3° C.

Coelenterata
Anemones
Arthropoda

Station: K-11 (Cont.)

- Crustacea
  - Cirripedia
    - *Balanus hesperius*
  - Decapoda
    - *Pandalus goniurus*
    - *Crangon dalli*
    - *Pagurus alaskensis*
    - *Hyas lyratus*
- Mollusca
  - Pelecypoda
    - *Hiatella striata*
  - Gastropoda
    - *Neptunea lyrata*
- Echinodermata
  - Asteroidea
    - *Asterias amurensis*
  - Holothuroidea
    - Cucumbers
- Chordata
  - Ascidiacea
    - *Boltenia ovifera*

Station: K-12
Depth: 13 fathoms
Bottom type: Unknown
Temp.: 8.2° C.

- Anthropoda
  - Crustacea
    - Decapoda
      - *Telmessus cheiragonus*
- Echinodermata
  - Asteroidea

Station: Z-5 *
Range of depth: 46-60 fathoms
Bottom type: dark sand
Range of temp.: 2.4° to 5.4° C.

- Porifera
- Coelenterata
  - Anemones
  - Hydroids
  - Alcyonacea
    - *Gersemia rubriformis*
- Annelida
- Arthropoda
  - Crustacea
    - Isopoda
    - Cirripedia
      - *Balanus balanus balanus*
      - *Balanus crenatus*
      - *Balanus evermanni*
      - *Balanus hesperius*
      - *Balanus rostratus apertus*
      - Rhizocephalans
    - Decapoda
      - *Pandalus borealis eous*
      - *Crangon dalli*
      - *Pagurus aleuticus*
      - *Pagurus cavimanus*
      - *Pagurus confragosus*
      - *Pagurus* sp.
      - *Pagurus* sp.
      - *Pagurus tenuimanus*
      - *Paralithodes camtschatica*
      - *Oregonia gracilis*
      - *Chionoecetes* sp.
      - *Hyas coarctatus alutaceus*
      - *Hyas lyratus*
      - *Erimacrus isenbeckii*
      - *Cancer oregonensis* (juvenile)
- Mollusca
  - Pelecypoda
    - *Chlamys rubidus*
    - *Pododesmus macroschisma*
    - *Musculus discors laevigatus forma substriata*
    - *Modiolus modiolus*
    - *Cardita crebricostata*
    - *Serripes grönlandicus*
    - *Psephidia ovalis*
    - *Macoma incongrua*
  - Gastropoda
    - *Epitonium greenlandicum*
    - *Crepidula grandis*
    - *Natica clausa*
    - *Fusitriton oregonensis*
    - *Buccinum tenue*
    - *Pyrulofusus deformis*
    - *Mohnia* sp. (perhaps *M. robusta* or *M. frielei*)
    - *Neptunea lyrata*

* Both dredge and otter trawl used.

Invertebrate catch by stations (Continued)

Station: Z-5 * (Cont.)

Plicifusus kroyeri
Volutopsius melonis
Oenopota (Turritomella) sp.

Echinodermata
Asteroidea
Pseudarchaster parelii?
Cermaster patogonicus ?
Asterias amurensis
Leptasterias polaris ?
Echinoidea
Sand dollars

Chordata
Ascidiacea
Halocynthia aurantium

* Both dredge and otter trawl used.

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