

A SYNOPSIS OF THE MARINE PROSOBRANCH GASTROPOD
AND BIVALVE MOLLUSKS IN ALASKAN WATERS

RECOMMENDED:

Chairman, Advisory Committee

Program Head

Director of Division of Marine Science

APPROVED:

Dean of the College of Environmental Sciences

Date

Vice Chancellor for Research and Advanced Study

Date

A SYNOPSIS OF THE MARINE PROSOBRANCH GASTROPOD
AND BIVALVE MOLLUSKS IN ALASKAN WATERS

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Nora Rakestraw Foster, B.S.

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Abstract

This study presents information on the taxonomy and distribution of the marine prosobranch gastropod and bivalve mollusks from the waters surrounding Alaska. Three hundred fifty-two species of prosobranch gastropods and 202 species of bivalves are reported from these waters. Over 5,000 lots of specimens, representing 330 species and literature sources form the basis of this study. References, synonymy, geographic and bathymetric ranges are provided for each species. Characteristics used to identify the species of 66 genera are presented in tabular form. The greatest number of species is reported from the southern Bering Sea, the fewest from the Beaufort Sea. Most of the species have wide ranges in the eastern or western Pacific. New collecting records reported here extend the known ranges of 27 species. Eight species were previously unknown from Alaskan waters.

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GENERAL SECTION

Introduction

Purpose

Knowledge of taxonomy of marine mollusks of Alaska dates back to the earliest European exploration, but is still incomplete today. Alaska, with 6,640 miles of coastline and 830,000 square miles of continental shelf, has a diverse molluscan fauna which is comparatively poorly studied. A complete list of marine mollusks from Alaskan waters is unavailable but is needed because of the increased interest in the resources of the area. It is the purpose of this study to provide a synopsis of the taxonomy and distribution of the two largest and best known groups of Alaskan mollusks, the prosobranch gastropods and the bivalves. The synopsis is based on available literature and approximately 5,000 lots of new material.

History and Background Literature

A few of the species considered here were described by Linnaeus from the shores of northern Europe. For example, *Mytilus edulis* Linnaeus, 1758 and *Macoma balthica* (Linnaeus, 1758) are now known to have amphiboreal distributions, and are common along the shores of Alaska and eastern North America, as well as Europe.

In 1811, the first account of North Pacific fauna, Pallas' *Zoogeographia Russo-Asiatica*, I-III, was published. These volumes were based on collections made by the naturalists Steller and Krasheninnikov during Bering and Chirikov's expeditions from 1833 to 1843. Another major Russian publication from the early 19th century

is A. T. von Middendorff's (1847-1849) *Beiträge zu einer Malacozoologia Rossica*, I-III (Golikov in Pavlovskii, 1966). Sixteen of the Alaskan species considered in this synopsis were described by him from the Okhotsk and Bering Seas.

In 1826 and 1827, H. M. S. *Blossom*, commanded by Capt. F. W. Beechey, reached the Bering Sea and explored the coast of Alaska to Point Franklin. Collections made during this voyage are also among the first from the coast of Alaska. Broderip and Sowerby (1828) published descriptions of some of the mollusks in the *Proceedings of the Zoological Society of London*. The rest were described by Gray and Sowerby in *The Zoology of Captain Beechey's Voyage* (1839) (Rosewater, 1968).

Many species descriptions from the early 19th century are the work of Scandinavian naturalists. For example, twelve of the species described in *Index Molluscorum Groenlandias* (Möller, 1842) are also found in Alaskan waters.

The majority of the species considered in this thesis were described by the 19th and 20th century American malacologists A. A. Gould, P. P. Carpenter, and W. H. Dall. Augustus A. Gould described several species common to Alaska and eastern North America in his 1841 studies of the invertebrates of Massachusetts. Later, Gould described species from Puget Sound and California collected by Joseph P. Couthouy during the U. S. Exploring Expedition of 1838-1842. During the later North Pacific Exploring Expedition, William Stimpson made collections from Bering Sea and Aleutian Islands. Gould described Stimpson's collections in 1862. All told, Gould added 26 specific names to the Alaskan fauna (Johnson, 1964).

In 1855, the British Association for the Advancement of Science asked Philip P. Carpenter to report on the ". . . *State of Our Knowledge with Regard to the Mollusca of the West Coast of North America.*" Carpenter's report, published in 1857, and its supplement of 1864 brought together all information on West American molluscan species available at that time, and contained descriptions of new species. The species, however, were only briefly described, and the type specimens, not illustrated (Palmer, 1958). Katherine Van Winkle Palmer (1958) made Carpenter's work more understandable for modern malacologists by clarifying nomenclature, revising taxa, and illustrating Carpenter's type specimens.

Major collections of marine mollusks from Alaska were made by William Healey Dall. Over half the species and much of the distributional information on Alaskan mollusks derive from Dall's work. Between 1864 and 1919 he traveled extensively in Alaska, first with the Western Union Expedition, later with the U. S. Coast Survey and other expeditions. Beginning in 1884 Dall was associated with the U. S. National Museum, as a curator of mollusks (Bartsch, Rehder, and Shields, 1946). During this time he introduced 5,302 molluscan names, of which over 200 are from the Recent Alaskan fauna (Boss, Rosewater, and Ruhoff, 1968). In 1921 he published a summary of the marine shellbearing mollusks of the northwest coast of America (Dall, 1921). This remarkable list of 2,122 species is regarded as a foundation work in west coast malacology.

The original descriptions of species from the west coast of North America, along with their distributions, are reproduced in Ida Shepard Oldroyd's 1924 and 1927 compilations. These are valuable references since much of this original descriptive and illustrative material would otherwise be unavailable or difficult to obtain.

Important lists have also been compiled by Keen (1937), Burch (1944-46), La Rocque (1953), and Bernard (1970). The molluscan fauna of specific areas of Alaska, has been described, for example, Prince William Sound (Eyerdam, 1924; Talmadge, 1966), Kodiak and Sitkalidak Island (Eyerdam, 1938, 1960), Point Barrow (MacGinitie, 1958), and Port Moller (Corgan, 1969).

Alaskan representatives of several genera and families are now better understood through revision and reviews of their species, for example, MacNeil, 1967 (Pectinidae); Coan, 1971 (Tellinidae); 1977 (*Cyclocardia*); and Bernard, 1974 (Septibranchia).

Future Work

This synopsis is a first step and should serve as a basis for further taxonomic and systematic studies. Since 1927, only 23 new prosobranch gastropod and bivalve species have been described from Alaskan type localities. However, as more extensive collecting is done, additional new species will probably be found. Many genera which are widespread and common in northern waters, *Colus*, *Buccinum*, *Oeropota*, and *Astarte*, for example, are not well known. Studies of the taxonomy, distribution, and evolution of these genera are needed.

This synopsis also has applications in several areas outside of molluscan taxonomy. Because mollusks are frequently dominant organisms in Alaskan benthic communities, taxonomic and distributional information is important to ecological surveys and other studies of Alaska's marine systems and resources. In addition, the geographical distributions

included here will contribute to understanding of faunal provinces in Alaskan waters, where incomplete and inaccurate range data have made the faunal province boundaries unclear (Valentine, 1966).

Materials and Methods

"Alaskan waters", as used in this study, include the Beaufort Sea shelf to 141°W., the eastern Chukchi and Bering Sea coasts and shelf, the Alaska Peninsula and Aleutian Islands, the Gulf of Alaska and southeastern region. The depth range considered is from the intertidal to the continental shelf break. With few exceptions, deep water species from the Arctic and Pacific Basins are not included.

The specimens used in this study came from a variety of sources. Many were collected as part of ecological surveys, others are miscellaneous collections by many different individuals. The Bering and Chukchi Seas are well represented by these specimens, smaller samples are from the Beaufort sea, northeastern Gulf of Alaska, and Prince William Sound. Specimens were collected by grab, trawl, and pipe dredge. Intertidal collections are from scattered areas, do not represent a wide variety of habitats, and do not include all species. Even fewer specimens were available from the shallow subtidal. This material consisting of approximately 5,000 lots of specimens is deposited in the Aquatic Collections, University of Alaska Museum.

For comparison, about 400 lots of Alaskan specimens from the U. S. National Museum, the Los Angeles County Museum, the California Academy of Science, the U. S. Geological Survey, and private collections of Mr. Rae Baxter and Mr. Robert Talmadge were studied. These specimens represent 330 of the 554 species which have been reported from the area. Only about 30% of the Alaskan species are very common in collections.

Many have been described and re-described from different localities. The rest are less common, and a few are known only from their type localities.

Specimens have been identified to genus and, in most cases, to species. The identifications are based on: (1) the original description and illustration of the type, (2) other descriptions, diagnoses, or illustrations, (3) comparison with the type specimen, (4) comparison with other identified specimens in museums or private collections.

For each species, the name, references, and distribution are presented in the taxonomic section which follows. The detail with which each species is treated varies because only about half of the possible species have been seen. Information for each species is presented in the following format:

- (1) the currently acceptable name and author.
- (2) the name by which the species was originally described, author, date, and reference. If the original publication was not available (and many were not), an authority for that source is included.
- (3) a brief synonymy, using mostly 20th century sources which include useful illustrative or descriptive text and figures.
- (4) the type locality.
- (5) the recent geographic range, depth, and habitat, as this information is available from literature sources. The spelling of Alaskan place names, both here and for type localities, is from Orth (1967).

- (6) a list of Alaskan localities from which specimens have been examined and the number of lots studied from each area. Maps (Figures 1-20) indicating these localities are included for selected widespread genera and species. Symbols and/or screen indicate these localities, screen is used when single symbols would be crowded and the resulting map confusing.

The arrangement of families is based on Keen and Coan (1974). Generic names follow usage in Keen and Coan (1974) and other sources where appropriate. Generic names within each family, and specific names within each genus, are arranged in alphabetical order. Subgeneric and subspecific names are used where appropriate.

Tables of diagnostic features (Tables 5-62) are included for common or easily confused species of several genera to explain the basis for identification and to provide further information. The tables are based on University of Alaska specimens, other specimens, or on descriptions. The tables are complete only for those genera and species for which good descriptions or specimens were available. The *Singula*, *Buccinum*, and *Oenopota* tables, for example, do not include those species not examined.

Measurements (millimeters) were made on mature, undamaged specimens that seemed representative in size and proportions. Most of the anatomical terms used are defined in Arnold (1965).

Discussion

Alaskan waters include several distinct geographic areas and faunal provinces. The high Arctic which includes the Beaufort Sea from off Point Barrow to 141°W, may be inhabited by 54 prosobranch gastropod and 37 bivalve species. Characteristic genera include the bivalves *Portlandia* and *Astarte*, lamellariacean gastropods, *Velutina*, *Lamellaria*, and *Onchidiopsis*, *Capulaemaea*.

In the Chukchi Sea there is an increase over the Arctic in numbers of species, genera, and families. Ninety-seven prosobranch gastropod and 55 bivalve species may be present here. This increase results, not so much from additions to the Arctic species, but from replacement of them with species common to the Bering Sea.

In terms of fauna, the Bering Sea can be divided, near Nunivak Island, into northern and southern areas. Between Bering Strait and Nunivak Island there is a slight increase over the Chukchi Sea in species numbers; 100 prosobranch gastropod and 57 bivalve species have been reported.

A considerable increase in numbers is seen from south of Nunivak Island to the Aleutian Islands. Two hundred twenty-one prosobranch gastropod and 128 bivalve species may be present. Although the greatest number of species common to other Alaskan areas are found in the southern Bering Sea, the number of families, 53, and genera, 112, is less than in the eastern Gulf of Alaska, where 57 families and 137 genera may be represented.

A slight decrease in species numbers compared with the southern Bering Sea, 160 prosobranchs, 113 bivalves, is found in the western Gulf

of Alaska, from the south side of the Alaska Peninsula to the Kenai Peninsula. This may, however, result from a lack of collecting records and studies in the area.

From the Kenai Peninsula to Yakutat, the number of species which are typical of the southern Bering Sea becomes fewer, and the number of apparent southern taxa increases. One hundred eighty prosobranch gastropods and 125 bivalves have been reported from this area. More species in the families Tellinidae, Muricidae, and Fissurellidae, are found in this area than elsewhere in Alaskan waters. Species of more southern-ranging genera, such as *Epitonium*, *Calliostoma*, and *Caecum* first occur here.

South of Yakutat to Forrester Island and Dixon Entrance, the species numbers and composition seem to remain much the same as in the eastern Gulf of Alaska. One hundred eighty-six prosobranchs and 137 bivalves have been reported.

Many species have an apparent northern or southern boundary at Forrester Island, at the southeastern end of the Alexander Archipelago. This may reflect the large number of collecting records from that locality (see Willett, 1918-1919) compared to the rest of southeast Alaska, rather than a real faunal boundary.

Table 1 summarizes the above information.

The largest faunal element, approximately 30.4% (107) of the prosobranchs and 35.6 (72) of the bivalves included in this thesis are common to a large area of the west coast of North America. They are found in the Aleutian Province, an area defined by Valentine (1966) as 60°N to Dixon Entrance, and at least one other non-Alaskan faunal province. Of these, the greatest number has been found south only as far as Puget

Sound. A few, for example, *Granulina margaritula*, have been reported in shallow water as far south as Panama and the Galapagos Islands (Keen, 1971).

The second largest faunal element, 66 prosobranchs (20.4%) and 47 bivalves (20.8%), are arctic or boreal Pacific species. They are found in a large area of the north Pacific shelf, from the Chukchi Sea into the boreal areas of the east and west Pacific, as far south as Hokkaido, Japan on the west and Point Conception, California on the east (Briggs, 1974). Examples of boreal Pacific forms include several species of *Buccinum*, *Cylocardia* and *Macoma*.

A slightly smaller number of species, 79 prosobranchs (22.4%) and 18 bivalves (8.9%), have been found only within the Aleutian province. Examples include many Turridae, Buccinidae, and Neptuneidae. Collections from this area, however, are comparatively few, and many species are known only from their type localities. Further work may reveal them to be more widespread.

Alaska also has molluscan species in common with the Atlantic and Arctic waters. Forty-six prosobranch and 25 bivalve species are found in boreal areas of the Pacific and Atlantic Oceans as well as parts of the Arctic. Among these are *Natica clausa*, *Muscula tenuis*, and *Clinocardium ciliatum*. The greater number of these are discontinuously circumpolar, found in some arctic areas, but not others. Examples include *Tachyrhynchus reticulatus*, *Trichotropis bicarinata*, and *Musculana minuta*.

A few amphiboreal species, represented in the Alaskan fauna by 16 prosobranchs and 19 bivalves, are no longer found in the Arctic. Examples are *Mya arenaria*, *Spisula polyzona*, and *Colus spitzbergensis*.

Strictly Arctic species, a total of six, and Atlantic Arctic species, also six, make up a minor portion of the species considered in this study. These include the Beaufort Sea species *Oenopota novayasemliensis*, *Yoldia hyperborea*, and *Delectopecten greenlandicus*.

Table 2 includes the number and percent of total Alaskan species which are part of each faunal element.

Table 3 summarizes range extensions based on live-collected specimens from the University of Alaska collection. Range extensions over only a short distance or within Arctic waters are probably not significant. More interesting are range extensions from one faunal province to another, for example, *Moellaria costulata*, *Dacrydium vitreum*, and *Odontogena borealis*. Ten of the species included in Table 3 were not previously known from Alaska.

Table 4 presents a complete list of the species considered. The occurrence of each species within the areas discussed above is indicated by an X.

TABLE 1

NUMBER OF SPECIES WITHIN EACH GEOGRAPHIC AREA

	<u>Arctic</u>	<u>Chukchi</u>	<u>Northern Bering</u>	<u>Southern Bering</u>	<u>Western Gulf</u>	<u>Eastern Gulf</u>	<u>Southeast</u>
Prosobranchs	54	97	100	211	160	186	186
Bivalves	37	55	59	128	133	125	137
Total	91	152	159	339	293	311	323

TABLE 2

FAUNAL ELEMENTS

NUMBER OF SPECIES AND PERCENT OF TOTAL SPECIES EXCLUSIVE TO EACH AREA

	Aleutian and South		Arctic and Boreal Pacific		Amphiboreal Circumpolar		Aleutian Endemic		Amphiboreal		Oregonian and South		Atlantic Arctic		Arctic	
Prosobranchs	107	30.4%	72	20.4%	46	13.1%	79	22.4%	16	4.5%	20	5.7%	2	.6%	4	1.1%
Bivalves	72	35.6%	42	20.6%	25	12.4%	18	8.9%	19	9.4%	12	5.7%	4	2.0%	2	1.0%
Total	179	32.3%	114	20.5%	71	12.8%	97	17.5%	35	6.3%	32	5.8%	6	1.1%	6	1.1%

TABLE 3
RANGE EXTENSIONS

Species	Former Range	Source	New Collecting Record
<i>Aemcea triangularis</i>	Sitka, Alaska to Santa Barbara, California	1	Chiniak Bay, Kodiak Island
<i>Collisella persona</i>	Shumagin Islands, Alaska to Morro Bay, California	1	Eider Point, Unalaska Island, Aleutians
<i>Collisella strigatella</i>	Vancouver Island, British Columbia to Cape San Lucas, Baja California	1	Agattu Island, Aleutians
<i>Cryptobranchia alba</i>	Plover Bay, Siberia to Prince William Sound, Alaska	1	Torch Bay; Marble Island and Rush Point, Glacier Bay
<i>Gidarrina cidaris</i>	Prince William Sound, Alaska to Cape San Quentin, Baja California	2	Lower Cook Inlet
<i>Moellaria costulata</i>	Point Barrow, Alaska; Atlantic and Canadian Arctic	3	Taku Inlet
<i>Cocculina agassizii</i>	Gulf of Panama; Queen Charlotte Island, British Columbia	4	Prince William Sound
<i>Alvania kyskaensis</i>	Kiska Harbor, Aleutians (type locality)	5	Latouche Point
<i>Balcis columbiana</i>	Baranof Island, Alaska to Departure Bay, British Columbia	5	Unimak Island, Aleutians
<i>Trichotropis permabilis</i>	Shumagin Islands (type locality)	6	Kotzebue Sound and Northern Bering Sea
<i>Capulaemaea radiata</i>	Circumpolar to Aleutian Islands	3	Tuxedni Bay, Cook Inlet
<i>Marsenina glabra</i>	North Atlantic, Eastern Canadian, Siberian Arctic	7	Beaufort Sea

TABLE 3
CONTINUED

Species	Former Range	Source	New Collecting Record
<i>Buccinum solenum</i>	Southern Bering Sea	5	Beaufort and Chukchi Seas, to 142°W and 72°N
<i>Colus togatus</i>	North Atlantic and Arctic to MacKenzie Bay, Canadian Arctic	7	Beaufort Sea, west to 156°W
<i>Volutopsius filosus</i>	Pribilof and Aleutian Islands	5	Gulf of Alaska, west to 142°W
<i>Olivella baetica</i>	Kodiak Island, Alaska to Baja California	8	Southern Bering Sea
<i>Olivella biplicata</i>	Queen Charlotte Island, British Columbia to Baja California	8	Near Sitka, Alaska
<i>Denopota incisula</i>	Circumboreal to Bering Strait	7	Port Valdez
<i>Stanolobilia willetti</i>	Forrester Island, Alaska (type locality)	5	Gulf of Alaska 141° to 147°W
<i>Bathyporeia glacialis</i>	Circumarctic to East Siberia, Union Strait, Arctic Canada	9	Beaufort Sea 141° to 146°W
<i>Dacrydium vitreum</i>	Atlantic Arctic	9	Gulf of Alaska to 140°W
<i>Cyclopecten greenlandicus</i>	Arctic Ocean except Chukchi and Beaufort Seas	11	Beaufort Sea, west to 156°W
<i>Astarte crenata</i>	Atlantic Arctic	9	Beaufort Sea, west to 158°W
<i>Astarte polaris</i>	Aleutian and Shumagin Islands, Alaska (type locality)	5	Lower Cook Inlet and Gulf of Alaska, south to Auke Bay, Alaska

TABLE 3

CONTINUED

Species	Former Range	Source	New Collecting Record
<i>Odontogena borealis</i>	Strait of Georgia, British Columbia (type locality and others)	13	Bering Sea to 60°N Gulf of Alaska and Prince William Sound
<i>Macoma elimata</i>	Craig and Ketchikan, Alaska to Redondo Beach, California	14	Prince William Sound
<i>Tellina modesta</i>	Montague Island, Prince William Sound	14	Kasitsna Bay, Cook Inlet

Sources: 1 - McLean, 1966
 2 - Eyerdam, 1924
 3 - MacGinitie, 1959
 4 - Dall, 1908
 5 - Dall, 1921
 6 - Dall, 1871
 7 - Macpherson, 1971
 8 - Bernard, 1970
 9 - Ockelmann, 1958
 10 - MacNeil, 1967
 11 - Grau, 1959
 12 - Coan, 1977
 13 - Cowan, 1971
 14 - Coan, 1971

TABLE 4
SUMMARY OF
TAXONOMY AND DISTRIBUTION

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Alutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Haliotis</i>																
<i>kamoharuhau</i>								X	X							
<i>Faisanella</i>																
<i>crispata</i>							X	X					X			
<i>S. lamellata</i>											X					
<i>S. sogus</i>								X			X					
<i>Diodora</i>																
<i>aspera</i>						X	X	X	X							
<i>Megalebennus</i>																
<i>bicaulatus</i>								X						X		
<i>Prostauella</i>																
<i>ovallata</i>							X	X	X							
<i>P. laevovata</i>								X	X							
<i>P. major</i>					X	X	X	X				X				
<i>P. multistriata</i>					X	X	X	X	X							
<i>P. cooperi</i>							X	X	X							
<i>P. galeata</i>							X	X	X							
<i>P. noachina</i>			X	X		X	X	X							X	
<i>Serolidotoma</i>																
<i>bella</i>								X						X		
<i>Ammoa</i>																
<i>apicina</i>							X					X				
<i>A. funiculata</i>							X	X	X	X						
<i>A. mitra</i>						X	X	X	X	X						
<i>A. rosacea</i>								X	X							
<i>A. sibiratica</i>			X	X		X					X					
<i>A. triangularis</i>							X	X	X							

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Amathea rosea</i>					X	X	X					X				
<i>Collisella</i> <i>alveus</i>								X					X			
<i>C. asmi</i>								X	X							
<i>C. digitalis</i>					X	X	X	X	X							
<i>C. fenestrata</i>						X	X	X	X							
<i>C. boreana</i>								X	X							
<i>C. inatabilia</i>					X	X	X	X	X							
<i>C. ochyroea</i>					X	X	X	X	X							
<i>C. pelta</i>					X	X	X	X	X		X					
<i>C. personi</i>					X	X	X	X	X							
<i>C. acutum</i>			X	X	X	X	X	X	X		X					
<i>C. utrigatella</i>					X	X	X	X	X							
<i>Cryptobranchia</i> <i>alba</i>			X	X	X	X	X	X		X						
<i>C. concentrica</i>			X	X	X	X	X	X		X						
<i>Lepeta caesi</i>	X		X	X	X	X	X	X			X					
<i>Bathymbia</i> <i>bairdii</i>					X	X	X	X	X							
<i>Callinostoma</i> <i>arundinum</i>								X						X		
<i>C. corallicolum</i>								X						X		
<i>C. ligatum</i>							X	X	X							
<i>C. variegatum</i>								X						X		

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf
<i>Cidarina</i>							
<i>Cidarina</i> <i>cidaria</i>							X
<i>Halimogylus</i>							
<i>Halimogylus</i> <i>pupillinus</i>							
<i>Livularia</i>							
<i>Livularia</i> <i>lividata</i>							X
<i>L. parvipicta</i>							X
<i>L. macrinota</i>							X
<i>Myopites</i>							
<i>Myopites</i> <i>albolineatus</i>					X		
<i>M. beringensis</i>				X	X	X	X
<i>M. giganteus</i>			X	X	X		
<i>M. frigidus</i>			X	X	X	X	X
<i>M. helioides</i>		X	X	X	X	X	X
<i>M. marginatus</i>			X	X	X	X	X
<i>M. pribilof-</i> <i>fensis</i>		X	X	X	X		
<i>M. vahlæ</i>		X	X	X			
<i>M. costalis</i>		X	X	X	X	X	
<i>M. pupillus</i>					X	X	X
<i>M. rhodia</i>							X
<i>M. rudis</i>							X
<i>M. portisifera</i>		X	X	X	X	X	X
<i>Solaricella</i>							
<i>Solaricella</i> <i>nicornulax</i>					X	X	
<i>S. obscura</i>		X	X	X	X	X	X
<i>S. parumbilis</i>							X
<i>S. varicosa</i>		X	X	X	X	X	X

TABLE 4

CONTINUED

Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
X	X							
X					X			
X	X							
X	X							
X	X							
				X				
X	X							
X		X						
X		X						
X			X					
X			X					
	X							
			X					
X	X							
X	X							
				X				
				X				
X		X						
X	X							
X			X					

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South Pacific	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Tegula</i> <i>pulligo</i>								X	X							
<i>Hamlepora</i> <i>lacustris</i>							?	X								
<i>H. turidom</i>								X	X							
<i>Moellaria</i> <i>costulata</i>			X					X	X		X					
<i>M. diadema</i>					X	X	X	X				X				
<i>M. spicata</i>					X	X	X	X	X							
<i>Cosculina</i> <i>ajacisii</i>							X		X							
<i>Littorina</i> <i>oleacea</i>						X	X	X		X						
<i>L. ventralis</i>							X	X	X							
<i>L. nitens</i>					X	X	X	X	X							
<i>L. apiculata</i>			X	X	X					X						
<i>Aquilonaria</i> <i>turneri</i>	X		X													X
<i>Haloconcha</i> <i>reflexa</i>					X	X	X			X						
<i>Lacuna</i> <i>porrecta</i>					X	X	X	X	X							
<i>L. crassior</i>					X						X					
<i>L. marmorata</i>							X	X	X							
<i>L. variegata</i>							X	X	X							
<i>L. nitida</i>					X	X	X	X			X					

TABLE 4

CONTINUED

	Deep Water Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Alvinia</i>															
<i>alaskana</i>				X	X	X	X				X				
<i>A. aurivilli</i>				X							X				
<i>A. bakeri</i>						X					X				
<i>A. carpenteri</i>						X	X	X							
<i>A. castanella</i>				X							X				
<i>A. constricta</i>						X		X							
<i>A. dilli</i>						X					X				
<i>A. dimora</i>							X					X			
<i>A. filosa</i>							X	X							
<i>A. jamnyi</i>	X														
<i>A. kyakania</i>				X		X					X				X
<i>A. montenegroensis</i>							X	X							
<i>Andathyon</i>															
<i>aurifaci</i>				X							X				
<i>Barlecia</i>															
<i>subtemis</i>						X	X	X							
<i>Cingula</i>															
<i>alaskana</i>		X		X					X						
<i>C. aientosa</i>				X	X	X					X				
<i>C. agerhøvi</i>						X					X				
<i>C. ferretatorowia</i>							X					X			
<i>C. katherinæ</i>							X	X							
<i>C. martyni</i>		X	X	X	X				X						

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Alutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>C. asper</i>					X	X						X				
<i>C. corinella</i>					X	X	X					X				
<i>C. kyukensis</i>					X	X	X					X				
<i>C. pilosus</i>					X							X				
<i>Rissoina newcombii</i>								X						X		
<i>Epartulus occidentale</i>							X	X	X							
<i>Micranellum archibisulatum</i>							X	X	X							
<i>Skeneopsis alankana</i>					X							X				
<i>Leptogyne alankana</i>						X						X				
<i>Vitrinella alankensis</i>					X							X				
<i>Tachyhypochus erosus</i>	X	X	X	X							X					
<i>T. laeteolus</i>						X	X	X	X							
<i>T. pratensis</i>					X							X				
<i>T. reticulatus</i>	X	X	X	X	X	X	X	X			X					
<i>Barritalopsis aoticula</i>					X	X	X	X						X		
<i>Dendryponia lituella</i>							X	X	X							
<i>Bittium attenuatum</i>								X						X		
<i>B. eschscholtzii</i>							X	X	X							
<i>B. minutum</i>								X						X		
<i>Cerithiopsis alankana</i>								X						X		

TABLE 4

CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>C. stejnegeri</i>					X	X	X	X	X							
<i>C. stephensae</i>								X	X							
<i>Triphora peruviana</i>		X														
<i>Epitonium caerulescens</i>							X	X	X							X
<i>E. greenlandicum</i>	X		X	X	X	X	X	X								
<i>E. indianum</i>							X	X	X							
<i>Opalia montesquensis</i>								X								X
<i>O. websteri</i>							X	X	X							
<i>Baleia solisbiana</i>								X	X							
<i>B. minorum</i>							X	X	X							
<i>B. andolphii</i>					X	X	X	X	X							
<i>B. rutilla</i>								X								X
<i>Eulima alaokemina</i>					X							X				
<i>Autrophila japonica</i>			X	X												X
<i>Calyptopoda fustigata</i>							X	X	X							
<i>Crepidula dorsata</i>					X	X	X	X	X							
<i>C. grandis</i>			X	X	X	X	X	X		X						
<i>C. nummularia</i>			X	X	X	X	X	X	X							
<i>Torellia armonia</i>					X							X				

TABLE 4

CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>T. vallonis</i>					X							X				
<i>Trichotropis biscarinata</i>	X		X	X	X								X			
<i>T. borealis</i>	X		X	X	X								X			
<i>T. cancellata</i>					X	X	X	X		X						
<i>T. constricta</i>			X	X						X						
<i>T. insignis</i>				X	X	X				X						
<i>T. krogeri</i>	X		X	X	X	X							X			
<i>T. permittilla</i>			X	X	X	X				X						
<i>Carinaria laponica</i>								X					X			
<i>C. latiloba</i>								X						X		
<i>Cardisopoda placenta</i>								X						X		
<i>Amniscopus purpurus</i>	X		X	X									X			
<i>Bullus fragilis</i>			X	X	X								X			
<i>Natica clausa</i>	X		X	X	X	X	X	X					X			
<i>Noverila nova</i>			X	X	X	X	X	X					X			
<i>N. polittiana</i>					X								X			
<i>Pollinosa pallida</i>	X		X	X	X	X	X	X					X			
<i>Umbellaria utomatici</i>					X	X	X	X	X							
<i>Murexina glabra</i>	X													X		
<i>Oncidodonta glacialis</i>			X	X	X											X

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>O. homari</i>					X	X	X									
<i>Cyprina</i> <i>radiata</i>		X	X	X	X	X						X				
<i>Velutina</i> <i>conica</i>					X	X	X									
<i>V. lanigera</i>		X	X	X	X							X				
<i>V. pilcatilis</i>		X	X	X	X	X	X	X					X			
<i>V. prolongata</i>				X	X	X	X	X			X					
<i>V. rubra</i>							X	X		X						
<i>V. ussata</i>		X	X	X	X			X				X				
<i>V. velutina</i>		X	X	X	X	X	X	X				X				
<i>Pariteton</i> <i>engelmanni</i>					X	X	X	X		X						
<i>Dorcotrochan</i> <i>aluticum</i>					X			X								
<i>D. beringi</i>		X	X	X	X	X				X						
<i>D. clathrytus</i>		X	X	X	X	X	X	X								
<i>D. elegantulus</i>					X											
<i>D. multiseptatus</i>					X	X	X	X	X							
<i>D. muriciformis</i>		X	X	X	X	X	X	X		X						
<i>D. pacificus</i>			X	X	X	X	X	X		X						
<i>D. rotundatus</i>					X											
<i>D. ussata</i>					X	X	X	X	X							
<i>D. gnathi</i>					X	X	X	X	X							
<i>D. ataphytinus</i>								X	X							

	Deep Water	Arctic	Chukchi	North Berling	South Berling	West Gulf	East Gulf
<i>B. aberti</i>					X	X	X
<i>B. tenuisatus</i>		X	X	X			
<i>Ceratoloma foetidum</i>							X
<i>Cochlosia interfoam</i>					X	X	X
<i>Trophonopula subseriatus</i>						X	X
<i>Bronalpine livida</i>							X
<i>Strella omaliculata</i>					X	X	X
<i>N. emarginata</i>					X	X	X
<i>N. lamellosa</i>				X	X	X	X
<i>N. lima</i>				X	X	X	X
<i>Macrinon aleuticum</i>					X		
<i>B. amplicorn</i>	X		X	X	X		
<i>B. baeri</i>					X	X	X
<i>B. indimoldewen</i>						X	
<i>B. castaneum</i>					X		
<i>B. ciliatum</i>	X		X	X			
<i>B. onismatium</i>					X		
<i>B. diploetium</i>							
<i>B. eugrammatium</i>					X		
<i>B. fringillium</i>			X	X			

TABLE 4

CONTINUED

Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
X	X		X					
X	X							
X	X							
X	X							
X	X							
X	X							
X		X						
X		X						
X		X						
				X				
			X					
X		X						
				X				
				X				
				X				
X	X							
				X				
		X						

TABLE 4
CONTINUED

	Deep Water		Chukchi	North Berling	South Berling	West Gulf	East Gulf	Aleutian and Boreal		Amphiboreal	Aleutic Endemic	Atlantic Arctic	Deep Water
	Arctic	Arctic						South Pacific	Arctic				
<i>B. glabrate</i>	X		X	X	X	X	X			X			
<i>B. kadiakense</i>							X				X		
<i>B. evulsum</i>				X							X		
<i>B. peruvianum</i>			X	X					X				
<i>B. pleuratum</i>				X	X	X	X		X				
<i>B. planctonem</i>				X	X	X	X						
<i>B. plectra</i>	X		X	X	X	X	X		X				
<i>B. polare</i>	X		X	X	X				X				
<i>B. rossellianum</i>							X				X		
<i>B. walleyense</i>	X		X	X						X			
<i>P. isolatum</i>			X	X					X				
<i>P. atriatlanticum</i>							X						
<i>B. tenuillum</i>			X	X									
<i>Scaphella</i>													
<i>ditro</i>									X				
<i>Volubarya</i>							X						
<i>ampullacea</i>				X	X	X	X			X			
<i>Arctostylops</i>													
<i>beringianus</i>				X	X						X		
<i>A. exosmius</i>				X	X	X	X		X				
<i>Beringian</i>													
<i>atlanticum</i>				X	X	X	X						
<i>B. beringi</i>	X		X	X	X	X	X		X				
<i>B. crebricostatum</i>				X	X	X	X						

TABLE 4

CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Alutian and South	Arctic and Boreal Pacific	Amphiboreai Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>B. eyerdami</i>						X	X	X	X							
<i>B. frielei</i>					X					X						
<i>B. kennicottii</i>					X	X	X	X				X				
<i>B. atlapoani</i>	X		X	X					X							
<i>B. undatus</i>					X	X	X	X	X							
<i>Clinopopma magna</i>					X					X						
<i>Colus</i>																
<i>capponi</i>			X	X						X						
<i>C. martensii</i>	X		X	X						X						
<i>C. pulchra</i>			X							X						
<i>C. asomina</i>					X							X				
<i>C. salathus</i>					X							X				
<i>C. cyclops</i>			X	X	X					X						
<i>C. herculeseni</i>					X							X				
<i>C. nobilia</i>					X							X				
<i>C. embryus</i>					X							X				
<i>C. perissolida</i>					X							X				
<i>C. rotundus</i>	X		X	X	X					X						
<i>C. nigra</i>	X															X
<i>C. sibirica</i>			X	X	X	X	X	X					X			
<i>C. timetua</i>					X							X				
<i>C. togatus</i>	X														X	
<i>C. tremulus</i>					X							X				

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf
<i>C. aphelus</i>						X	X
<i>C. halli</i>					X	X	X
<i>C. hypolepis</i>			X	X	X	X	
<i>Exilioidea</i> <i>rectirostris</i>							
<i>Homocidus</i> <i>navalis</i>					X	X	
<i>H. mac</i>					X	X	
<i>H.oides</i>			X	X	X		
<i>Mohria corbis</i>	X						
<i>M. aspidata</i>	X						
<i>M. fridleyi</i>							
<i>M. robusta</i>	X						
<i>M. nipponoblen</i>					X		
<i>Morrisonella</i> <i>pacifica</i>	X						
<i>Neptocera</i> <i>emiliana</i>					X	X	X
<i>N. beringiana</i>			X	X	X		
<i>N. borealis</i>		X	X	X	X		
<i>N. heron</i>		X	X	X			
<i>N. lyrata</i> <i>lyrata</i>					X	X	
<i>N. lyrata</i> spp.						X	X
<i>N. phoenicia</i>							
<i>N. pibitof-</i> <i>fennia</i>					X	X	X
<i>N. sp.</i>							

TABLE 4

CONTINUED

Southwest	Aleutian and South Pacific	Arctic and Boreal	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
X	X							
X	X							
		X						
X						X		
				X				
				X				
		X						X
								X
X						X		X
				X				X
								X
X	X							
X	X							
X		X						

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Alentan and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Alentic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>M. tuberosa</i>							X	X	X							
<i>Naculus monticus</i>						X	X	X	X							
<i>Arctemelon steamsii</i>					X	X										
<i>Volvutera alaskana</i>					X	X	X	X	X			X				
<i>Etychiatractus occidentalis</i>			X	X	X											
<i>Olinella bectia</i>					X	X	X	X	X							
<i>O. biplicata</i>								X	X							
<i>Granulina marginatula</i>							X	X	X							
<i>Ambete couthouyi</i>		X	X	X	X	X	X	X					X			
<i>A. regina</i>			X	X	X	X										
<i>Wachete circumbeta</i>					X	X	X									
<i>N. molestus</i>					X	X	X	X	X			X				
<i>Afonta circinata</i>					X	X	X	X	X							
<i>A. cubrintriata</i>	X															
<i>Antiplano teringi</i>				X	X											X
<i>A. bulimoides</i>					X											
<i>A. pioni</i>					X	X						X				
<i>A. pernera</i>								X				X				
													X			

TABLE 4

CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>A. thalassae</i>					X	X	X	X		X						
<i>A. vinosa</i>					X	X	X	X		X						
<i>A. willetti</i>								X								
<i>Oenopota alaskanica</i>					X	X	X	X		X						
<i>O. albrechti</i>				X	X	X	X				X					
<i>O. alitakenica</i>					X	X	X					X				
<i>O. alutica</i>		X	X	X	X	X	X	X		X						
<i>O. althorpi</i>							X	X					X			
<i>O. arctica</i>						X	X					X				
<i>O. blawinata</i>	X		X	X	X	X	X	X		X						
<i>O. chichibiana</i>			X	X	X	X	X			X						
<i>O. crebricostata</i>							X	X		X						
<i>O. decussata</i>	X		X	X	X	X	X	X					X			
<i>O. elegans</i>			X	X				X								
<i>O. ecaevata</i>					X	X	X	X		X						
<i>O. grantiana</i>							X									
<i>O. harpa</i>			X	X	X	X	X	X								
<i>O. hopularia</i>	X		X	X	X	X	X	X		X						
<i>O. healyi</i>			X	X									X			
<i>O. imbecilla</i>			X	X	X	X	X									
<i>O. inletsula</i>	X		X	X	X	X	X	X								
<i>O. kraussi</i>							X	X		X						
<i>O. kyukara</i>				X	X	X	X			X						
<i>O. levidenina</i>				X	X	X	X	X								
<i>O. lutkeni</i>				X												
<i>O. marshalliana</i>			X	X	X					X						
<i>O. nonajuwenticata</i>	X		X													

	Deep Water	Arctic	Chukchi	North Bei Ing	South Bering	West Gulf	East Gulf	S
<i>O. parvovata</i>					X			
<i>O. popovii</i>					X	X	X	
<i>O. pleuro-</i> <i>tomaria</i>					X	X	X	
<i>O. pyramidi-</i> <i>alis</i>			X	X	X	X	X	
<i>O. quadra</i>					X	X	X	
<i>O. reticu-</i> <i>culata</i>		X	X	X	X	X	X	
<i>O. rosea</i>					X	X	X	
<i>O. rugulata</i>				X	X	X	X	
<i>O. sculptu-</i> <i>rata</i>					X	X	X	
<i>O. simplex</i>			X	X	X	X		
<i>O. stellata</i>					X			
<i>O. tabulata</i>							X	
<i>O. tenui-</i> <i>costata</i>			X	X	X	X	X	
<i>O. tenui-</i> <i>linata</i>			X	X	X			
<i>O. turri-</i> <i>cuba</i>			X	X	X	X	X	
<i>O. viridula</i>			X	X	X	X	X	
<i>Suavevirellia</i> <i>kennicottii</i>					X	X	X	
<i>S. willetti</i>					X	X	X	
<i>Turanin</i> <i>ulongi</i>								
<i>Acilla</i> <i>cautromin</i>					X	X	X	

TABLE 4
CONTINUED

Southeast	Aleutian and South Pacific	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor.	Orep.	Atlantic Arctic	Arctic	Deep Water
				X					
X	X								
X					X				
X			X						
X	X								
X			X						
X					X				
				X					
				X					
	X								
					X				
					X				
			X						
			X						
				X					
				X					
X						X			
X	X								

TABLE 4
CONTINUED

Deep Water	Arctic Chukchi	North Berling	South Berling	West Gulf	East Gulf	Southeast	Aleutian and Boreal		Amphiboreal Circumpolar	Aleutic Endemic	Amphibor., Oreg.	Atlantic Arctic	Deep Water
							South	Pacific					
<i>Macula tenuis</i>	X	X	X	X	X	X			X				
<i>Millepora pacificia</i>			X	X	X	X							X
<i>M. sinuata</i>													X
<i>M. talpina</i>			X							X			
<i>Halysidonia lunata</i>													X
<i>Mentha fronata</i>	X	X	X						X				
<i>N. spongo- tinea</i>			X	X	X	X							
<i>N. exornata</i>			X	X	X	X							
<i>N. fassa</i>		X	X	X	X	X							
<i>N. hibinaii</i>			X	X	X	X							
<i>N. ligona</i>			X	X	X	X							X
<i>N. minuta</i>	X	X	X	X	X	X				X			
<i>N. porula</i>	X								X				
<i>Portuladina arctica</i>		X							X				
<i>P. corinnetta</i>	X	X	X	X	X	X							
<i>P. dilii</i>			X										
<i>P. intermedia</i>		X								X			
<i>P. oblonga</i>		X											
<i>P. saucata</i>						X							
<i>Spinula calcar</i>													X
<i>Tindariu kamoharui</i>						X				X			

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Yoldia</i>																
<i>Y. angulata</i>			X	X	X	X	X	X					X			
<i>Y. hyperborea</i>	X														X	
<i>Y. nipilina</i>			X	X	X	X	X	X					X			
<i>Y. beringiana</i>					X	X	X	X	X							
<i>Y. matyasia</i>							X	X	X							
<i>Y. montereyensis</i>					X	X	X	X	X							
<i>Y. thurstoni</i>						X	X	X								
<i>Y. setacea</i>			X	X	X	X	X	X		X			X			
<i>Y. tenuis</i>						X	X	X	X							
<i>Y. gibbata</i>	X															
<i>Glycymeris</i>																
<i>G. konoae</i>								X					X			
<i>G. subobovata</i>					X	X	X	X	X							
<i>Limeopsis</i>																
<i>L. albatrica</i>					X							X				
<i>L. skania</i>					X							X				
<i>L. vaginata</i>					X							X				
<i>Philebrya</i>																
<i>P. velosa</i>								X					X			
<i>Crenella</i>																
<i>C. decussata</i>					X	X	X	X					X			
<i>C. grisea</i>					X	X	X	X				X				
<i>C. leana</i>					X	X	X					X				
<i>Isoripium</i>																
<i>I. pacificum</i>	X															X
<i>I. vitreum</i>					X	X	X						X			

TABLE 4

CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Alutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Megaconella colombiana</i>					X	X	X	X	X							
<i>Modiolus mollisus</i>			X	X	X	X	X	X								X
<i>Musculus corrugatus</i>			X	X	X	X	X	X								X
<i>M. discors</i>	X	X	X	X	X	X	X	X			X					
<i>M. impressus</i>					X							X				
<i>M. niger</i>	X	X	X	X	X	X	X	X			X					
<i>M. olivaceus</i>					X	X	X	X	X							
<i>M. phoxus</i>					X							X				
<i>M. ventralis</i>					X	X	X	X				X				
<i>M. vermicosus</i>					X	X	X	X		X						
<i>Mytilus californianus</i>					X	X	X	X	X							
<i>M. edulis</i>	X	X	X	X	X	X	X	X								X
<i>Chlamys albida</i>					X					X						
<i>C. beringiana</i>				X	X					X						
<i>C. hastata heredia</i>								X	X	X						
<i>C. hindii</i>								X	X	X						
<i>C. pugnet- ensis</i>								X	X	X						
<i>C. pseudis- landica</i>			X	X						X						
<i>C. rubida</i>					X	X	X	X	X							
<i>C. scapulae- ensis</i>			X							X						
<i>Cyrtoplecton greenlandicum</i>	X															X

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Delostopeaton vankolphi</i>					X	X	X	X	X							
<i>D. tillamook- ensis</i>					X	X	X	X	X							
<i>D. vancouver- ensis</i>					X	X	X	X	X							
<i>Himantus giganteus</i>					X	X	X	X	X							
<i>Fosten aurivitta</i>						X	X	X	X							
<i>Propconus alutensis</i>						X	X	X		X						
<i>F. davidsoni</i>					X	X				X						
<i>Limatula attenuata</i>					X	X				X						
<i>L. subcarri- culata</i>					X	X	X	X					X			
<i>Polidroma microdrama</i>				X	X	X	X	X		X						
<i>Antarte compacta</i>								X					X			
<i>A. crenata</i>	X															X
<i>A. polaris</i>					X	X	X	X				X				
<i>A. villetti</i>								X						X		
<i>A. coquimbetti</i>					X	X	X	X	X							
<i>A. alankensis</i>					X	X	X	X		X						
<i>A. borealis</i>	X	X	X	X	X	X	X									X
<i>A. bonnetii</i>				X	X											X
<i>A. montagu</i>	X	X	X	X	X	X	X	X								X
<i>A. hollandi</i>					X	X	X									X
<i>A. verrucosa</i>			X	X	X					X						X

TABLE 4
CONTINUED

Deep Water	Arctic		Aleutian and Boreal		Arctic		Arctic		Arctic		Deep Water	
	Aleutian	Chukchi	North	South	West	East	Southeast	South	Arctic	Arctic	Arctic	Deep
			Beijing	Beijing	Gulf	Gulf	Gulf	South	Arctic	Arctic	Arctic	Water
<i>Laueneria yubra</i>							X					
<i>Kallia lapronaeii</i>				X	X	X	X	X				
<i>K. suborbicularis</i>						X						
<i>Saxidomus myracrodon</i>		X	X		X	X	X					
<i>Montacuta senatiki</i>		X							X			
<i>Aysella acutifera</i>				X	X	X	X	X				
<i>M. boebugensis</i>			X									
<i>M. planata</i>		X	X	X	X	X	X	X				
<i>M. lamella</i>				X	X	X	X	X				
<i>Montacuta borealis</i>				X	X	X	X	X				
<i>Tarletonia occidentalis</i>			X	X	X	X	X	X				
<i>Clibanella californiana</i>			X	X	X	X	X	X				
<i>C. ciliata</i>	X	X	X	X	X	X	X	X				
<i>C. nuttallii</i>			X	X	X	X	X	X				
<i>C. fusca</i>									X			
<i>Mamestra dentifilum</i>												
<i>Saxidomus myracrodon</i>		X	X	X	X	X	X	X				
<i>S. lapronaeii</i>			X	X	X	X	X	X				
<i>Campoplex subglobosus</i>			X	X	X	X	X	X				
<i>Itellina kamoharui</i>												
<i>Licopsis fluctuosa</i>	X	X	X	X	X	X	X	X				

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
<i>Pnephilia</i>																
<i>Lordi</i>					X	X	X	X	X							
<i>Protolitea</i>					X	X	X	X	X							
<i>staminea</i>					X	X	X	X	X							
<i>Saxidomus</i>					X	X	X	X	X							
<i>giganteus</i>					X	X	X	X	X							
<i>Transenella</i>									X	X						
<i>lucilla</i>									X	X						
<i>Petricola</i>																
<i>auriculata</i>									X							
<i>Spinata</i>																
<i>polypora</i>			X	X	X	X	X	X								
<i>Trochus</i>																
<i>capax</i>							X	X	X							
<i>Mysoma</i>																
<i>balthica</i>		X	X	X	X	X	X	X								X
<i>M. brota</i>		X	X	X	X	X	X	X		X						
<i>M. calcearia</i>		X	X	X	X	X	X	X								X
<i>M. carlottensis</i>					X	X	X	X	X							
<i>M. costata</i>		X	X	X												X
<i>M. dactyloptera</i>							X									X
<i>M. elirata</i>							X	X	X							
<i>M. egyptica</i>					X	X	X	X	X							
<i>M. imbricata</i>					X	X	X	X		X						
<i>M. loma</i>		X	X	X	X	X	X	X		X						
<i>M. litorea</i>					X	X	X	X	X							
<i>M. lobata</i>		X	X													X
<i>M. mikhalevskii</i>			X	X	X					X						

TABLE 4
CONTINUED

	Deep Water	Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southeast	Aleutian and South	Arctic and Boreal Pacific	Amphiboreal Circumpolar	Aleutic Endemic	Amphibor. Greg.	Atlantic Arctic	Arctic	Deep Water
<i>M. moesta alaskana</i>							X	X	X							
<i>M. moesta moesta</i>		X	X	X	X	X					X					
<i>M. navata</i>							X		X							
<i>M. obliqua</i>			X	X	X	X	X			X						
<i>M. goldiformis</i>							X	X	X							
<i>Tellina sarpentaria</i>								X	X							
<i>T. lutea alternidentata</i>	X		X	X	X	X				X						
<i>T. medeata</i>							X	X	X							
<i>T. maculoides</i>					X	X	X	X	X							
<i>Gari californica</i>					X	X	X	X		X						
<i>Gemma rubropicta</i>								X					X			
<i>Siliqua alta</i>				X	X	X						X				
<i>S. patula</i>				X	X	X	X			X						
<i>S. alvati</i>							X	X	X							
<i>Cryptosia californica</i>								X	X							
<i>Mya arenaria</i>							X	X					X			
<i>M. elegans</i>					X	X						X				
<i>M. japonica</i>			X	X	X					X						
<i>M. priapus</i>			X	X	X					X						
<i>M. pseudoxan- tharia</i>	X												X			
<i>M. truncata</i>	X		X	X	X	X	X	X					X			

	Deep Water Arctic	Chukchi	North Bering	South Bering	West Gulf	East Gulf	Southern
<i>Sphenia ovoides</i>				X	X	X	
<i>Cyrtodaria karlamu</i>	X	X	X				
<i>Hiatella arctica</i>	X	X	X	X	X	X	
<i>H. pholadica</i>		X	X	X	X	X	
<i>Panomya capla</i>		X	X	X	X	X	
<i>P. arctica</i>		X	X	X	X		
<i>P. beringiana</i>				X			
<i>Panopea generosa</i>							
<i>Bettanormella japonica</i>				X	X	X	
<i>Penitella gibbi</i>							X
<i>P. penita</i>				X	X	X	
<i>Zirfaea pilobryi</i>			X	X	X	X	
<i>Rinkia velacea</i>				X	X	X	
<i>Pandora filosa</i>				X	X	X	
<i>P. glacialis</i>	X	X	X	X	X	X	
<i>P. grandis</i>				X	X	X	
<i>Mitolemma muscicola</i>				X	X	X	

TABLE 4

CONTINUED

	Alaskan and South Pacific	Arctic and Boreal	Amphiboreal Circumpolar	Alutic Endemic	Amphibor. Oreg.	Atlantic Arctic	Arctic	Deep Water
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X X

X

X

X

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X

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X

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TAXONOMIC SECTION

Prosobranch Gastropods

Family Haliotidae

Haliotis

Haliotis kamtschatkana Jonas, 1845

Haliotis kamtschatkana Jonas, 1845, *Zeitsch. f. Malak.* 1:68. (McLean, 1966)

Haliotis kamtschatkana, Dall, 1921:184; pl. 19.

Haliotis kamtschatkana, Oldroyd, 1927, part 3:234; pl. 88, figs. 1, 2.

Haliotis kamtschatkana, McLean, 1966:165.

Haliotis kamtschatkana, Abbott, 1974:18; color pl. 1, fig. 28.

Type locality: near Unalaska, Kamchatka Sea - in error. (McLean, 1966)

Range: Sitka, Alaska to Turtle Bay, Baja California. (McLean, 1966)

Depth: intertidal to 30 m (Alaska and British Columbia). (McLean, 1966)

Localities:

Southeast: Still Harbor, Baranof Island (1) Yamani Cove, Baranof Island (1) Neva Island, Sitka Sound (1) Ketchikan (1).

Family Scissurellidae

*Scissurella**Scissurella crispata* Fleming, 1832

Scissurella crispata Fleming, 1832, *Wern. Nat. Hist. Soc., Mem.* 6:385; pl. 6, fig. 3. (McLean, 1967)

Scissurella (Schizotrochus) kelseyi Dall, 1905, *Nautilus* 18(11):124. (McLean, 1968)

Scissurella chiricova Dall, 1919, *Proc. U.S. Nat. Mus.* 56:370.

Scissurella chiricova, Dall, 1921:183.

Scissurella kelseyi, Dall, 1921:183.

Scissurella kelseyi, Oldroyd, 1927, part 3:228.

Scissurella (Anatoma) crispata, McLean, 1967:405; pl. 56, figs. 1-4.

Type locality: of *Scissurella crispata*, Noss Island, Shetland Island, Scotland.

of *Scissurella chiricova*, U.S.F.C. Sta. 3340; southeast of Chirikof Island, Alaska.

of *Scissurella kelseyi*, U.S.F.C. Sta. 4353; off Pt. Loma, California.

Range: East Atlantic: Spitzbergen south to the Mediterranean, Morocco and the Azores.

West Atlantic: New England, and the West Indies.

East Pacific: Chirikof Island, Alaska to Cedros Island, Baja, California.

West Pacific: Pacific coast of Japan to 33°. (McLean, 1967)

Depth: 4-1215 fms (Clarke, 1962)

600-1000 m (British Columbia). (Bernard, 1970)

500-800 m (Southern California). (McLean, 1967)

not seen.

Scissurella lamellata (A. Adams, 1862)

Anatanus lamellatus A. Adams, 1862, *Ann. Mag. Nat. Hist.* ser. 3;
10:344. (McLean, 1967)

Scissurella (Anatoma) lamellata, McLean, 1967:406; pl. 56, fig. 8.

Type locality: "Mino Sima, 63 fms Gotto, 71 fms; O-Sima (Japan)".
(McLean, 1967)

Range: Pacific coast of Japan to 33°N; McLeod Bay, Montague Island and
Port Dick, Kenai Pen., Alaska. (McLean, 1967)

Depth: 224 and 283 m (off Honshu, Japan).

25 fms (Prince William Sound, Alaska). (McLean, 1967)

fine sand. (McLean, 1967)

Localities:

Eastern Gulf: 59°01.6'N, 151°51.0'W, 140 m, hard sand (1).

Scissurella soyae (Habe, 1951)

Schizotrochus soyae Habe, 1951, *Illust. Catal. Japan. Shells*
(T. Kuroda, ed.) 1(11):66; pl. 11, figs. 3-4. (McLean, 1967)

Scissurella (Anatoma) soyae, McLean, 1967:407; pl. 56, fig. 7.

Type locality: off Tsugaru Peninsula, Northern Honshu, 86 m.

Range: Northern Honshu, Japan. Port Dick, Kenai Peninsula and McLeod
Bay, Montague Island, Prince William Sound, Alaska. (McLean,
1967)

Depth: 20-25 fms (Alaska). (McLean, 1967)

fine sandy-mud. (McLean, 1967)

not seen.

Family Fissurellidae

*Diodora**Diodora aspera* (Rathke, 1833)

Fissurella aspera Rathke, 1833, *Zoologischer Atlas*. part 5: 21;
pl. 23, fig. 5. (McLean, 1966)

Diodora aspera "Eschscholtz, 1833", Dall, 1921:185

Diodora aspera "Eschscholtz, 1833", Oldroyd, 1927, part 3:237; pl.
85, fig. 11; pl. 93, fig. 1.

Diodora aspera, McLean, 1966:200; pl. 7, figs. 13, 14.

Type locality: Sitka, Alaska.

Range: Afognak Island and Cook Inlet, Alaska to Canada and Baja
California. (McLean, 1966)

Depth: intertidal (Alaska to Pt. Conception, California).

subtidal (South Pt. Conception). (McLean, 1966)

Localities:

Southeast: Hole-in-the-Wall, Prince of Wales Island (1); Homestead
Beach, Ketchikan (1).

*Megatebennus**Megatebennus bimaculatus* (Dall, 1871)

Fissurellidaea bimaculata Dall, 1871, *Amer. J. Conchol.* 7(2):132;
pl. 15, fig. 7.

Megatebennus bimaculatus, Dall, 1921:185.

Megatebennus bimaculatus, Oldroyd, 1927, part 3:243; pl. 85, fig. 15.

Megatebennus bimaculatus, McLean, 1966:214; pl. 7, figs. 4, 5.

Megatebennus bimaculatus, Abbott, 1974:26; fig. 127.

Type locality: Monterey, California.

Range: Forrester Island, Alaska to Cape San Lucas, Baja California.
(McLean, 1966)

Depth: intertidal (north of Pt. Conception, California). (McLean, 1966)

Puncturella (Cranopsis)

Puncturella (Cranopsis) cucullata (Gould, 1846)

Rimula cucullata Gould, 1846, *Boston Soc. Nat. Hist., Proc.* 2:159.
(Johnson, 1964)

Puncturella cucullata, Dall, 1921:185.

Puncturella cucullata, Dall, 1925:24; pl. 26, figs. 6, 8.

Puncturella cucullata, Oldroyd, 1927, part 3:241; pl. 93, fig. 4.

Puncturella (Cranopsis) cucullata, McLean, 1966:183; pl. 6,
figs. 7-10.

Puncturella cucullata, Abbott, 1974:22, fig. 59.

Type locality: Puget Sound, Washington.

Range: Kodiak Island, Alaska to La Paz, Lower California. (Dall, 1921)

Depth: low tide level (Alaska).

subtidal to 100 m (British Columbia). (Bernard, 1970)

sublittoral (Central California). (McLean, 1966)

Puncturella (Cranopsis) decorata Cowan and McLean, 1968

Puncturella (Cranopsis) decorata Cowan and McLean, 1968, *Veliger*
11(2):105; pl. 13.

Type locality: off west coast of Queen Charlotte Island, British Columbia,
53°21.3'N, 133°0.41'W, 193 m.

Range: near Sitka, Alaska, to Cortez Bank, California. (McLean, 1968)

Depth: 30-50 fms (off San Nicolas Is., California) to 300-100 fms
(Matole Canyon, California). (Cowan and McLean, 1968)

Puncturella (Cranopsis) major Dall, 1891

Puncturella galeata var. *major* Dall, 1891, *Proc. U.S. Nat. Mus.* 14:189.

Puncturella major, Dall, 1895:712; pl. 26, fig. 4.

Puncturella major, Dall, 1921:185.

Puncturella major, Oldroyd, 1927, part 3:242.

Puncturella (Cranopsis) major, McLean, 1966:181; pl. 6, figs. 23, 24.

Puncturella major, Kosuge, 1973; pl. 1, fig. 3.

Type locality: U.S.F.C. Sta. 3262, off Akutan Island, Aleutians, 43 fms.

Range: Pribilof Islands, Bering Sea to Dixon Entrance, Alaska. (Dall, 1921)

Depth: sublittoral, 10-60 fms (Alaska). (McLean, 1966)

80-200 m (British Columbia). (Bernard, 1970)

Puncturella (Cranopsis) multistriata Dall, 1914

Puncturella multistriata, Dall, 1914, *Nautilus* 28(6):63.

Puncturella multistriata, Dall, 1921:186.

Puncturella multistriata, Oldroyd, 1927, part 3:241; pl. 93, fig. 2.

Puncturella (Cranopsis) multistriata, McLean, 1966:185; pl. 6, figs. 11-16.

Type locality: Strait of Juan de Fuca, Washington, U.S.F.C. Sta. 346, 56 fms.

Range: Atka Island, Aleutians to Puget Sound, Washington. (Dall, 1921; McLean, 1966)

Depth: sublittoral, 10 fms (Alaska) to 50 fms (Puget Sound). (McLean, 1966; Cowan and McLean, 1968)

intertidal to 100 m (British Columbia). (Bernard, 1970)

Puncturella (*Puncturella*)

Puncturella (*Puncturella*) *cooperi*, Carpenter, 1864

Puncturella cooperi, Carpenter, 1824, *Rept. Brit. Assoc. Adv. Sci.*
p. 612, 651. (Palmer, 1958)

Puncturella cooperi, Dall, 1921:186.

Puncturella eyerdami, Dall, 1924, *Nautilus* 37(4):133.

Puncturella cooperi, Oldroyd, 1927, part 3:240.

Puncturella cooperi, Palmer, 1958:120; pl. 18, figs. 16, 17.

Puncturella cooperi, McLean, 1966:191; pl. 5, figs. 25-31.

Type locality: of *P. cooperi*, Catalina Island, California.

of *P. eyerdami*, Drier Bay, off Knight Island, Prince William Sound,
Alaska.

Range: Knight Island, Prince William Sound, Alaska to San Diego,
California. (McLean, 1966)

Depth: 10-100 m (British Columbia). (Bernard, 1970)

Puncturella (Puncturella) galeata (Gould, 1846)

Rimula galeata, Gould, 1846, *Boston Soc. Nat. Hist., Proc.* 2:159.
(Johnson, 1964)

Puncturella galeata, Dall, 1921:185.

Puncturella galeata, Oldroyd, 1927, part 3:240; pl. 92, fig. 3.

Puncturella galeata, McLean, 1966:189; pl. 6, figs. 1-6.

Puncturella galeata, Abbott, 1974:22; fig. 58.

Type locality: Puget Sound, Washington.

Range: Unalaska, Aleutian Islands, Alaska to Redondo Beach, California.
(McLean, 1966)

Depth: sublittoral. 10 fms (Alaska) to 50 fms (California). (McLean,
1966; Bernard, 1970)

Localities:

Western Gulf: Cook Inlet, 31-90 m (3).

Eastern Gulf: Port Valdez, 15-20 m (2).

Southeast: Icy Strait, 52 m (1). Halibut Point, Baranof Island (1).

Puncturella (Puncturella) noachina (Linnaeus, 1771)

Patella noachina, Linnaeus, 1771, *Mantissa plantarum...*, appendix, p. 551. (MacGinitie, 1959)

Puncturella longifissa, Dall, 1914, *Nautilus* 28(6):63.

Puncturella longifissa, Dall, 1921:186.

Puncturella longifissa, Oldroyd, 1917, part 3:342.

Puncturella noachina, MacGinitie, 1959:76; pl. 2, fig. 5; pl. 4, figs. 2, 7.

Puncturella (Puncturella) noachina, McLean, 1966:187; pl. 6, figs. 20-22, 25-27.

Puncturella noachina, Macpherson, 1971:10; pl. 1, figs. 4, 5.

Puncturella noachina, Abbott, 1974:22, fig. 57.

Type locality: of *Patella noachina*, Drobak, Norway.
of *Puncturella longifissa*, off Bering Island, Bering Sea.

Range: East Atlantic: from Franz Joseph Island to Scotland; Norway to Spain.

West Atlantic: east and west Greenland; Hudson Bay to Cape Cod.

East Pacific: Pt. Barrow to south of Juneau. (MacGinitie, 1959; Macpherson, 1971)

Depth: 5-1210 fms. (Clarke, 1962)

Localities:

Northern Bering Sea: 63°16'N, 168°22'W (1).

Puncturella
major

Size - height	18.0
width	30.0
length	39.3
Outline	conic
Apex	slightly anterior
Axial ribs	
branching	3 orders - not well differentiated
outline	low, rounded
interspaces	narrow, shallow
Shelf	rounded, very slightly butressed

TABLE 5

Puncturella

<u><i>Puncturella</i></u> <u><i>noachina</i></u>	<u><i>Puncturella</i></u> <u><i>galeata</i></u>
7.0	5.3
11.0	8.2
13.5	10.5
high conic	high conic
slightly anterior	nearly central
3 orders - well differentiated	3 orders - well differentiated
moderately high, rounded	moderately high, rounded
moderately deep, wide	shallow, narrow
squarish, strongly buttressed	squarish, weakly buttressed

*Scelidotoma**Scelidotoma bella* (Gabb, 1865)

Emarginula bella, Gabb, 1865, *Calif. Acad. Sci., Proc.* 3:188.
(McLean, 1966)

Subemarginula yatesii, Dall, 1910, *Nautilus* 14(1):125. (Boss,
Rosewater, Ruhoff, 1968)

Subemarginula yatesii, Dall, 1902:555; pl. 38, figs. 1, 3.

Hemitoma bella, Dall, 1921:186.

Hemitoma yatesii, Dall, 1921:186.

Hemitoma bella, Oldroyd, 1927, part 3:238.

Hemitoma yatesii, Oldroyd, 1927, part 3:239; pl. 85, figs. 1, 3.

Scelidotoma bella, McLean, 1966:174; pl. 4, figs. 31, 32.

Type locality: of *Emarginula bella*, Monterey, California.

of *Subemarginula yatesii*, Monterey, California.

Range: Forrester Island, Alaska to San Diego, California. (McLean, 1966)

Depth: subtidal to 100 m (British Columbia). (Bernard, 1970)

rocks. (McLean, 1966)

not seen.

Family Acmaeidae

Acmaea

Acmaea apicina Dall, 1879

Acmaea (Collisella) apicina Dall, 1879, *Proc. U.S. Nat. Mus.* 1:341.
(Boss, Rosewater, Ruhoff, 1968)

Acmaea apicina, Dall, 1921:170.

Acmaea apicina, Oldroyd, 1927, part 3:150.

Acmaea (Acmaea) apicina, McLean, 1966:41; pl. 3, figs. 8-10.

Acmaea apicina, Kosuge, 1973, pl. 1, fig. 6.

Type locality: Chika Island, Akutan Pass, Alaska.

Range: Pribilof, Aleutian, and Shumagin Islands, Alaska. (McLean, 1966)

Acmaea funiculata (Carpenter, 1864)

Scurria funiculata Carpenter, 1864 *Rept. Brit. Assoc. Adv. Sci.*
p. 612, 650. (Palmer, 1958)

Acmaea mitra funiculata, Dall, 1921:168.

Acmaea mitra funiculata, Oldroyd, 1927, part 3:145.

Acmaea funiculata Palmer, 1958:123, pl. 17, fig. 24, 25.

Acmaea (Acmaea) funiculata, McLean, 1966:36; pl. 3, figs. 11-13.

Type locality: Monterey, California.

Range: Shumagin Islands, Alaska to Magdalena Bay, and La Paz, Baja
California. (McLean, 1966)

Depth: subtidal to 10 m. (Bernard, 1970)

Acmaea mitra Rathke, 1833

Acmaea mitra Rathke, 1833 *Zoologischer Atlas...* p. 18; pl. 23, fig. 4. (McLean, 1966)

Acmaea mitra "Eschscholtz, 1833," Dall, 1921:168.

Acmaea (Acmaea) mitra "Eschscholtz, 1833," Oldroyd, 1927, part 3:144; pl. 85, fig. 5.

Acmaea (Acmaea) mitra, McLean, 1966:33; pl. 2, figs. 32-35.

Acmaea (Acmaea) mitra, Abbott, 1974:29, fig. 145.

Type locality: Sitka, Alaska.

Range: Pribilof Islands. Kiska Island, Aleutians to San Martin Island, Baja, California. (McLean, 1966)

Depth: intertidal to 20 m. (Bernard, 1970)

Localities:

Northern Bering Sea: Kukuliat, St. Lawrence Island (empty) (1).

Western Gulf: Cold Bay, Alaska Peninsula (2).

Southeast: Little Branch Bay, Yamani Cove, Snipe Bay, Knudsen Cove (4).

Acmaea rosacea Carpenter, 1864

Acmaea (? *pileolus* var.) *rosacea* Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 614, 650., (Palmer, 1958)

Acmaea rosacea, Dall, 1921:170.

Acmaea rosacea, Oldroyd, 1927, part 3:156.

Acmaea rosacea, Abbott, 1974:30, fig. 147.

Acmaea rosacea, Palmer, 1958:125.

Acmaea (*Tectura*) *rosacea*, McLean, 1966:44; pl. 3, figs. 1-3.

Type locality: San Pedro, California.

Range: Ketchikan, Alaska to San Martin Island, Baja California. (McLean, 1966)

Depth: subtidal to 5 m. (Bernard, 1970)

Acmaea sybaritica (Dall, 1871)

Collisella sybaritica Dall, 1871, *Amer. J. Conchol.* 6(3):257,
p. 17, fig. 34.

Acmaea sybaritica, Dall, 1821:170.

Acmaea sybaritica, Oldroyd, 1927, part 3:154.

Acmaea (Tectura) sybaritica, McLean, 1966:47; pl. 3, figs. 6, 7.

Collisella sybaritica, Kosuge, 1973, pl. 1. fig. 7.

Type locality: St. George Island, Pribilof Islands, Alaska.

Range: West Pacific: Hakodate, Japan; Plover Bay, East Siberia.

East Pacific: Aleutian Islands to Chirikof Island, Alaska
(McLean, 1966)

Acmæa triangularis (Carpenter, 1864)

Nacella paleacea var. *triangularis* Carpenter, 1864 *Rept. Brit. Assoc. Adv. Sci.* p. 612, 650. (Palmer, 1958)

Acmæa triangularis, Dall, 1921:171.

Acmæa triangularis, Oldroyd, 1927, part 3:158.

Acmæa (Collisella) triangularis, Palmer, 1958:126; pl. 18, fig. 18.

Acmæa (Acmæa) triangularis, McLean, 1966:38; pl. 3, figs. 14-16.

Type locality: Monterey, California.

Range: Sitka, Alaska to Santa Barbara, California. (McLean, 1966)

Depth: subtidal to 2 m. (Bernard, 1970)

Localities:

Eastern Gulf: Chiniak Bay, Kodiak Island (1).

TABLE 6a

Acmaea

	<u><i>Acmaea</i></u> <u><i>mitra</i></u>	<u><i>Acmaea</i></u> <u><i>triangularis</i></u>
Size - height	18.8	5.0
length	26.4	7.8
width	22.7	3.7
Position of apex	slightly anterior	slightly anterior
Aperture	ovate, nearly circular	long, narrow, with parallel sides
Sculpture	lines of growth, often encrusted with coralline algae	obscured by algal growth
External color	white, pink- greenish algae	white, dark brown apex
Internal color	white	white, with brown spot near apex and brown rays

Acmaea
apicina

4

6

5

nearly central

sub-circular

obsolete lines of
growth and faint
radial ribs

whitish or yellow-
brown

buff, white, or
brown

from Dall, 1879 in
Oldroyd, 1927;
McLean, 1966

Acmaea
funiculata

Size - height	3
length	6
width	4.5
Position of apex	slightly anterior
Aperture	subcircular
Sculpture	strongly rounded, nodose riblets
External color	white
Internal color	glossy white

from Carpenter,
1864, in Oldroyd
1927; McLean, 1966

TABLE 6b

*Acmaea**Acmaea*
*rosacea**Acmaea*
sibaritica

3.3

6

8

20

6

18

slightly anterior subcentral

subcircular rounded oval

smooth, or with growth lines and
obsolete ribs faint irregular ribs
near marginsrosy brown, with clear rose, with
whitish streaks darker raysreflecting exter- bluish white, polished
nal colorfrom Carpenter,
1864, in Oldroyd
1927; McLean, 1966from Dall, 1871;
McLean, 1966

*Ansates**Ansates rosea* (Dall, 1872)

Nacella rosea Dall, 1872, *Calif. Acad. Sci., Proc.* 4:270; pl. 1, fig. 2. (Boss, Rosewater, Ruhoff, 1968)

? *Acmaea rosea*, Dall, 1921:171.

Acmaea rosea, Oldroyd, 1927, part 3:158.

Ansates (Rhodopetala) rosea, McLean, 1966:24, pl. 3, figs. 28-30.

Type locality: Simeonof Island, Shumagin Islands, Alaska.

Range: Kiska Island, Aleutians to Afognak Island, Alaska. (McLean, 1966)

not seen.

*Collisella**Collisella alveus* (Conrad, 1831)

Patella alveus Conrad, 1831, *J. Acad. Nat. Sci., Phila.* 6:267, pl. 11, fig. 20. (McLean, 1966)

Acmaea testudinalis var. *alveus* Dall, 1871a:250.

Acmaea parallela Dall, 1914 *Nautilus* 28(2):14, new name for *Acmaea alveus*, Dall, 1871, not Conrad, 1831. (Boss, Rosewater, Ruhoff, 1968)

Acmaea scutum parallela, Dall, 1921:169.

Collisella (Collisella) alveus, McLean, 1966:85; pl. 1, fig. 8.

Acmaea scutum parallela, Kosuge, 1973, pl. 1, fig. 9.

Type locality: of *Patella alveus*, "Massachusetts."

of *Acmaea parallela*, Sitka, Alaska.

Range: East Pacific: Sitka, Alaska; Victoria, British Columbia; on Eelgrass.

West Atlantic: coast of North America to Long Island. (McLean, 1966)

Localities:

Southeast: Kootznahoo Bay, Admiralty Island (1). Mountain Point, Revillagigedo Island (1).

Collisella asmi (Middendorff, 1847)

Patella (Acmaea) asmi Middendorff, 1847, *Bull. Acad. St. Petersbourg, Phys.-Math. Cl.* ser. 2, 6:318. (McLean, 1966)

Acmaea (Collisella) asmi, Dall, 1871a:252, pl. 14, fig. 7

Acmaea asmi, Dall, 1921:170.

Acmaea asmi, Oldroyd, 1926, part 3:157, pl. 94, figs. 15-16.

Collisella (Collisella) asmi, McLean, 1966:88, pl. 2, figs. 30-31.

Type locality: Sitka, Alaska.

Range: Sitka, Alaska to Cedros Island, Baja California. (McLean, 1966)

Depth: mid-intertidal, on *Fegula fimbriata*. (McLean, 1966)

Collisella digitalis (Rathke, 1833)

Acmaea digitalis Rathke, 1833, *Zoologischer Atlas...*, p. 20; pl. 23, figs. 7, 8. (McLean, 1966)

Acmaea digitalis "Eschscholtz, 1833," Dall, 1921:169.

Acmaea digitalis "Eschscholtz, 1833," Oldroyd, 1927, part 3:151; pl. 85, figs. 6, 9; pl. 94, figs. 10, 11.

Acmaea (Collisella) digitalis, Abbott, 1974:30, fig. 149.

Collisella (Collisella) digitalis, McLean, 1966:62; pl. 1, figs. 22, 23; pl. 2, figs. 14-19.

Type locality: Sitka, Alaska.

Range: Unimak Island, Aleutians to Cape San Lucas, Baja California.
(McLean, 1966)

Depth: upper intertidal. (McLean, 1966)

Localities:

Southern Bering: Sennett Point, Umiat Island (1).

Western Gulf: Cold Bay (1). Ugaiushak Island (1).

Eastern Gulf: Katalla Bay (1).

Southeast: Lituya Bay (1). Homestead Beach, Ketchikan (1).

intertidal.

Collisella fenestrata (Reeve, 1855)

Patella fenestrata "Nuttall" Reeve, 1855 *Conch. Icon.* 6, pl. 38.
(McLean, 1966)

Collisella (Notoacmaea) fenestrata, McLean, 1966:103; pl. 2, figs.
24-29.

Acmaea (Collisella) fenestrata, Abbott, 1974:31, fig. 156.

Type locality: "Upper California"

Range: Shumagin Islands, Alaska to Rancho Socorro, Baja California.
(McLean, 1966)

Depth: lower and middle intertidal. (McLean, 1966)

Localities:

Eastern Gulf: Tonsina Point, Resurrection Bay (1). Jackson Point,
Port Valdez (1).

Southeast: Sebree Cove, Glacier Bay (1). Point St. Mary, Berners
Bay (1).

Collisella insessa (Hinds, 1842)

Patella insessa Hinds, 1842, *Ann. Mag. Nat. Hist.* 10:82; pl. 6, fig. 3. (McLean, 1966)

Acmaea (Acmaea) insessa, Dall, 1871a:244, pl. 14, fig. 3.

Acmaea insessa, Dall, 1921:170.

Acmaea insessa, Oldroyd, 1927, part 3:156.

Collisella (Notoacmaea) insessa, McLean, 1966:107, pl. 2, figs. 11-13.

Acmaea (Collisella) insessa, Abbott, 1974:32, fig. 160.

Type locality: San Pedro, California.

Range: Wrangell, Alaska to Magdalena Bay, Baja California, on *Egregia*.
(McLean, 1966)

Collisella instabilis (Gould, 1846)

Patella instabilis Gould, 1846, *Boston Soc. Nat. Hist., Proc.*
2:150. (Johnson, 1964)

Acmaea instabilis, Dall, 1921:170.

Acmaea instabilis, Oldroyd, 1921, part 3:156; pl. 94, figs. 1, 2.

Collisella (Collisella) instabilis, McLean, 1966:83; pl. 2, figs.
7-10.

Acmaea (Collisella) instabilis, Abbott, 1974:32, fig. 163.

Type locality: Puget Sound, Washington.

Range: Amchitka, Aleutian Islands to San Pedro, California. (McLean,
1966)

Depth: subtidal, on laminarian algae. (McLean, 1966)

Collisella ochracea Dall, 1871

Collisella patina ochracea Dall, 1871, *Amer. J. Conchol.* 6(3):249, pl. 17, fig. 35.

Acmaea (Collisella) peramabilis Dall, 1873, *Calif. Acad. Sci., Proc.* 4:302. (Boss, Rosewater, Ruhoff, 1968)

Acmaea scutum ochracea, Dall, 1921:169.

Acmaea peramabilis, Dall, 1921:169.

Acmaea scutum ochracea, Oldroyd, 1927, part 3:149.

Acmaea peramabilis, Oldroyd, 1927, part 3, 150.

Acmaea peramabilis, Kosuge, 1973, pl. 1, fig. 8.

Collisella (Collisella) ochracea, McLean, 1966:76; pl. 2, figs. 1-3.

Type locality: of *Collisella patina ochracea*, Monterey, California.

of *Collisella peramabilis*, Simeonof Island, Shumagins.

Range: Unalaska, Alaska to Monterey, California. (McLean, 1966)

Depth: lowest intertidal to 30 ft. (McLean, 1966)

Localities:

Southern Bering: Nanvak Bay, Bristol Bay (Empty) (1).

Eastern Gulf: Kiliuda Bay, Kodiak Island, 27 m (1).

Collisella pelta (Rathke, 1833)

Acmaea pelta Rathke, 1833, *Zoologischer Atlas...*, p. 19. (McLean, 1966)

Acmaea cassis Rathke, 1833, *Zoologischer Atlas...*, p. 19; pl. 24, fig. 3. (McLean, 1966)

Acmaea (Collisella) pelta "Eschscholtz, 1833," Dall, 1871a:246; pl. 14, fig. 6.

Acmaea (Collisella) pelta var. *nacelloides*, Dall, 1871a:247, pl. 17, fig. 36, a-c.

Acmaea olympica Dall, 1914, *Nautilus* 28(2):14. (Boss, Rosewater, Ruhoff, 1968)

Acmaea cassis (and subspecies), Dall, 1921:168-169.

Acmaea cassis "Eschscholtz, 1833," Oldroyd, 1927, part 3:145; pl. 94, figs. 5, 6.

Acmaea cassis pelta "Eschscholtz, 1833," Oldroyd, 1927, part 3:146.

Collisella (Collisella) pelta, McLean, 1966:56; pl. 1, figs. 24-30.

Acmaea (Collisella) pelta, Abbott, 1974:30, fig. 149.

Type locality: of *Acmaea pelta*, Sitka, Alaska.

of *Acmaea cassis*, Sitka, Alaska

Range: East Pacific: Aleutian Islands to Rosario Bay, Baja California.

West Pacific: Northern Honshu and Hokkaido, Japan. (McLean, 1966)

Depth: intertidal. (McLean, 1966)

Collisella pelta (Continued)

Localities:

Southern Bering: Agattu Island (1). Buldir Island (1).

Western Gulf: Cold Bay (1). Ugaiushak Island (1).

Eastern Gulf: Tonsina Point, Resurrection Bay (2). Sundstrum Island (1). Jackson Point, Port Valdez (1). Old Valdez Townsite (2).

Southeast: Marble Island, Glacier Bay (1). Berners Bay (4). Snipe Bay, Baranof Island (1).

intertidal.

Collisella persona (Rathke, 1833)

Acmaea persona Rathke, 1833, *Zoologischer Atlas...*, p. 20, pl. 24, figs. 1, 2. (McLean, 1966)

Acmaea persona "Eschscholtz, 1833," Dall, 1921:170.

Acmaea persona "Eschscholtz, 1833," Oldroyd, 1927, part 3:154; pl. 85, figs. 13, 14.

Collisella (Notoacmaea) persona, McLean, 1966:100; pl. 1, figs. 16-21.

Acmaea (Notoacmaea) persona, Abbott, 1974:31, fig. 57.

Type locality: Sitka, Alaska.

Range: Shumagin Islands, Alaska to Morro Bay, California. (McLean, 1966)

Depth: upper intertidal and splash zone. (McLean, 1966)

Localities:

Western Gulf: Eider Point, Unalaska Island (1) Izembek Lagoon (1). Cold Bay (1).

Eastern Gulf: Nikishka Bay (1). Tonsina Point, Resurrection Bay (1). Port Valdez (1).

Southeast: Berners Bay (3). Snipe Bay, Baranof Island (1).

intertidal.

Collisella scutum (Rathke, 1833)

Acmaea scutum Rathke, 1833 *Zoologischer Atlas...*, p. 19; pl. 23, figs. 1-3. (McLean, 1966)

Acmaea scutum "Eschscholtz, 1833," Dall, 1921:169.

Acmaea scutum "Eschscholtz, 1833," Oldroyd, 1927 part 3:147, pl. 85, figs. 12, 17.

Collisella (Notoacmaea) scutum, McLean, 1966:92; pl. 1, figs. 1-7.

Type locality: Sitka, Alaska.

Range: East Pacific: Skull Cliff, off Pt. Barrow, Alaska; the Aleutian Islands to San Pedro, California.

West Pacific: Akkeshi Bay, Hokkaido, Japan; the Kurile Islands. (McLean, 1966)

Depth: low and middle intertidal. (McLean, 1966)

Localities:

Southern Bering: Grant Point, Izembek Lagoon (1). Buldir Island (1).

Western Gulf: Eider Point, Unalaska Island (1). Deer Island, Cold Bay (2). Ugaiushak Island (1).

Eastern Gulf: Anchor Cove, Olga Bay (1). Tutka Bay (1). Tonsina Point, Resurrection Bay (1). Jackson Point (1). Katalla Bay (1).

Southeast: Lemesurier Island, Glacier Bay (1). Berners Bay. Eagle River Landing (1). Snipe Bay, Baranof Island (1). Homestead Beach, Ketchikan (1).

intertidal.

Collisella strigatella (Carpenter, 1864)

Acmaea strigatella Carpenter, 1864, *Ann. Mag. Nat. Hist.* ser. 3, 13:474. (Palmer, 1963)

Collisella strigatella, Dall, 1871a:253, pl. 14, fig. 5.

Acmaea persona strigillata, Dall, 1921:170.

Acmaea persona strigillata, Oldroyd, 1927, part 3:155.

Acmaea (Collisella) paradigitalis, Fritchman, 1960, *Veliger* 2(3):53, pl. 9, figs. 1-9; pl. 10, fig. 3.

Acmaea strigatella, Palmer, 1963:232; pl. 165, figs. 11-14.

Collisella (Collisella) strigatella, McLean, 1966:78; pl. 2, figs. 20-23.

Collisella strigatella, Keen, 1971:325, fig. 52.

Acmaea (Collisella) strigatella, Abbott, 1974:31, fig. 150.

Type locality: of *Acmaea strigatella*, Cape San Lucas, Baja California.

of *Acmaea paradigitalis*, Berkeley Yacht Harbor, California.

Range: Sitka, Alaska (Dall, 1921) to Cape San Lucas, Baja California. (McLean, 1966)

Depth: mid to upper intertidal. (McLean, 1966)

Localities:

Southern Bering: Aga Cove, Agattu Island (1).

Western Gulf: Izembek Lagoon (1).

Southeast: Sebree Cove, Muir Inlet (1). Taylor Bay, Cross Sound (1).

intertidal.

TABLE 7a
Collisella

	<u><i>Collisella scutum</i></u>	<u><i>Collisella persona</i></u>	<u><i>Collisella fenestrata</i></u>
Size - height	17	8	10
length	60	25	18
width	49	19	15
Outline of aperture	oval, nearly circular	oval	oval
Position of apex	nearly central	in anterior 1/4 to 1/3, pointed forward	in anterior 1/3 to 2/5
Anterior slope	slightly convex	straight, slightly concave below apex	slightly convex
Posterior slope	slightly convex	convex	slightly convex
Radial sculpture	narrow riblets	low threads	low threads
External color	gray-brown or olive- ochre with white rays or tessellate pattern	olive with tessellate pattern	olivaceous to gray with lighter dots or radiating lines
Internal color margin	dark, reflecting external color	dark	dark brown
intermediate	bluish	bluish	brownish
Apical spot	brown spot, often broken into irregular blotches	large dark brown spot	dark brown stain

TABLE 7b

Collisella

	<u><i>Collisella</i></u> <u><i>instabilis</i></u>	<u><i>Collisella</i></u> <u><i>alveus</i></u>
Size - height	19	4
width	22	4
length	40	6.6
Outline of aperture	long, narrow, oval with parallel sides and elevated ends	long, narrow, oval with parallel sides
Position of apex	slightly anterior	in anterior 1/3
Anterior slope	convex	straight to concave
Posterior slope	convex	convex
Radial sculpture	narrow riblets, broader near margin	absent
External color	chestnut brown to black, with white dots near apex	white to buff with brown tessellate pattern or radiating lines
Internal color margin	brown	alternating brown and white

Collisella
insessa

Collisella
asmi

13
12
19

7
8.5
10

short oval with
parallel sides

short oval with
elevated lateral
margins

1/3 to 2/5 shell
length from ante-
rior margin

1/4 to 1/3 shell
length from ante-
rior margin

convex

convex

convex

convex

striae

striae

light to dark brown, rusty black
white near apex

brown

black

TABLE 7b

Continued

	<i>Collisella</i> <u><i>instabilis</i></u>	<i>Collisella</i> <u><i>alveus</i></u>
Internal color continued intermediate	bluish white	bluish
Apical spot	brown smudge	2 brown stains anterior and posterior

From McLean, 1960

Collisella
insessa

bluish

dark brown

from McLean, 1966

Collisella
asmi

black, brown
just outside
muscle scar

black

from McLean, 1966

TABLE 7c

Collisella

	<u><i>Collisella</i> <i>pelta</i></u>	<u><i>Collisella</i> <i>digitalis</i></u>	<u><i>Collisella</i> <i>strigatella</i></u>	<u><i>Collisella</i> <i>ochracea</i></u>
Size - height	20.5	6.9	5.5	6.5
width	30.9	13.0	15	19
length	53.5	18.8	16	25.5
Outline	oval	oval	oval	oval
Position of apex	in anterior 1/3	in anterior 1/3 and slight- ly over- hanging	1/3 shell length from anterior margin	1/3 shell length from anterior margin
Anterior slope	straight	concave	concave	straight
Posterior slope	convex	convex	convex	straight
Radial sculpture	coarse to obsolete ribs	very heavy nodose ribs	narrow riblets	narrow riblets
External color	olive to brown with tessellate or rayed pat- tern in white or buff	white to buff with brown lines or tessellate pattern	olive with white tessellate pattern and radiating lines	pink-ochre with darker radiating lines, or buff

TABLE 7c

Continued

	<u><i>Collisella</i></u> <u><i>pelta</i></u>	<u><i>Collisella</i></u> <u><i>digitalis</i></u>	<u><i>Collisella</i></u> <u><i>strigatella</i></u>	<u><i>Collisella</i></u> <u><i>ochracea</i></u>
Internal color margin	alternating dark and light	radiating dark and light or solid brown	dark	alternating dark and light
internal inter- mediate	bluish-white	bluish-white occasionally with irregular brown blotches	bluish	bluish-white
Apical spot	dark brown, small or absent in large specimens	brown	absent	dark

Family Lepetidae

Cryptobranchia

Cryptobranchia alba, Dall, 1870.

Lepeta (Cryptobranchia) alba Dall, 1870, *Amer. J. Conchol.*
5(3):145; pl. 15, fig. 3, a-d.

Lepeta (Cryptoctenidia) alba, Dall, 1921:168.

Lepeta (Cryptoctenidia) alba, Oldroyd, 1927, part 3:143.

Cryptobranchia alba, McLean, 1966:134; pl. 4, figs. 11, 12.

Type locality: Plover Bay, East Siberia.

Range: Plover Bay, Siberia to Prince William Sound, Alaska. (McLean, 1966)

Depth: sublittoral. (McLean, 1966)

Localities:

Eastern Gulf: Sadie Cove (1). Tutka Bay (1). Seldovia Point (1).
MacDonald Spit (1).

Southeast: Torch Bay (1). Rush Point and Marble Island, Glacier
Bay (3). Tee Harbor (1).

intertidal.

Cryptobranchia concentrica (Middendorff, 1847)

Patella (*Aemaea*) *caeca* var. *concentrica* Middendorff, 1847, *Bull. Acad. St. Petersburg, Phys. Math. Cl.*, ser. 2, 6:319. (McLean, 1966)

Lepeta caecoides Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 603, 651, 683. (Palmer, 1958)

Lepeta (*Cryptobranchia*) *concentrica*, Dall, 1870, *Amer. J. Conchol.* 5:145; pl. 15, figs. 2 a-g.

Lepeta (*Cryptobranchia*) *instabilis* Dall 1870, *Amer. J. Conchol.* 5:145, pl. 15, fig. 6.

Lepeta (*Cryptoctenidia*) *concentrica*, Dall, 1921: 168.

Lepeta (*Cryptoctenidia*) *caecoides*, Dall, 1921: 168.

Lepeta (*Cryptoctenidia*) *alba instabilis*, Dall, 1921: 168.

Cryptobranchia concentrica, McLean, 1966:130; pl. 4, figs. 7-10, 13.

Type locality: of *Patella concentrica*, Okhotsk Sea.

of *Lepeta caecoides*, Puget Sound, Washington.

of *Lepeta instabilis*, Sitka, Alaska, 10 fms.

Range: West Pacific: Hakodate, Japan. Southeast Chukchi Sea.
Okhotsk Sea.

East Pacific: Bering Sea. Aleutian Islands to Puget Sound,
Washington. (McLean, 1966)

Depth: low tide (Alaska), subtidal to 200 m (British Columbia), subtidal
(Puget Sound). (Bernard, 1970; McLean, 1966)

Localities:

Southern Bering: Bristol Bay off Izembek Lagoon, 20 m (1).

Eastern Gulf: Lower Cook Inlet, 59 m (1). Kasitsna Bay (1).

Western Gulf: Galena Bay (1). Port Gravina (1). Olsen Bay (1).

Southeast: Redoubt Bay, Baranof Island, subtidal (3).

*Lepeta**Lepeta caeca* (Müller, 1776)

Patella caeca Müller, 1776, *Prodromus Zoologiae Danicae*, p. 237.
(MacGinitie, 1958)

Lepeta caeca, Dall, 1870: 141; pl. 15, fig. 1, a-d.

Cocculina casanica Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 356.

Cocculina casanica, Dall, 1921: 171.

Lepeta caeca, MacGinitie, 1958: 73; pl. 4, figs. 1, 1a. (includes
L. alba)

Lepeta (Lepeta) caeca, McLean, 1966: 123; pl. 4, figs. 1-6.

Lepeta caeca, Macpherson, 1971: 15, pl. 1, fig. 7.

Lepeta caeca, Abbott, 1974: 34; fig. 186.

Type locality: of *Cocculina casanica*, Kasa-an Bay, Alaska,
U. S. F. C. Sta. 4245, 95 fms.

of *Patella caeca*, "Daniae et Norvegiae." (Macpherson, 1971)

Range: West Atlantic: Arctic Canada. Labrador to New England.

East and West Greenland.

East Atlantic: Norway, Scotland, British Isles, Azores.

East Pacific: Pt. Barrow to La Jolla, California.

West Pacific: Soviet Arctic to Japan. (Thorson, 1944; McLean, 1966)

Depth: 3 m (Greenland) to 1200 m (Azores). (Thorson, 1944)

Lepeta caeca (Continued)

Localities:

Arctic: 56 and 110 m (2).

Northern Bering: North of St. Lawrence Island 40 m (1)

Southern Bering: Bristol Bay, 37 m (3).

Western Gulf: Cold Bay, Alaska Peninsula, 70 ft (1).

Eastern Gulf: Port Gravina, Prince William Sound (2).

Southeast: Auke Bay, 38 m (1).

TABLE 8
Lepetidae

	<u>Lepeta caeca</u>	<u>Cryptobranchia alba</u>	<u>Cryptobranchia concentrica</u>
Size - height	2.5	3.8	7.5
length	6.4	11.5	21
width	4.8	8.5	19
Outline	oval	oval	oval, broader to the posterior
Apex position	1/3 shell length from an- terior margin	1/4 to 1/5 shell length from anterior margin	1/3 to 1/4 shell length from anterior margin
Anterior slope	straight to slightly concave	slightly concave	slightly concave
Posterior slope	convex	convex	convex
Radial threads	granular	smooth	smooth
Width of interspaces	about equal to thread	about equal to thread	about 4 times width of thread
Color	white, stained with ochre	white	white, larger specimens stained with black

TABLE 8

Continued

	<u>Lepeta caeca</u>	<u>Cryptobranchia alba</u>
Radular teeth		
inner laterals	long, pointed central tooth longer, not split	squarish central tooth longer, not split
marginals	smooth	serrate

Cryptobranchia
concentrica

squarish
of equal length,
central tooth split

smooth

Family Trochidae

Bathybembix

Bathybembix bairdii (Dall, 1889)

Turricula bairdii Dall, 1889, *U.S. Geol. Zool. Bull.* 18: 337. (Boss, Rosewater, Ruhoff, 1968)

Turricula bairdii, Dall, 1890: 315; pl. 11, fig. 7.

Turricula bairdii, Dall, 1921: 177.

Turricula bairdii, Oldroyd, 1927, part 3: 191.

Lischkeia (Turricula) bairdii, Abbott, 1974: 39, fig. 263; color plate 2, fig. 263.

Type locality: off San Clemente Island, California, 414 fms.

Range: Bering Sea, northeast of Unimak Island, 27 fms. Coast of Washington to Coronado Islands. (Dall, 1921)

Depth: 200-1000 m (British Columbia). (Bernard, 1970)

*Calliostoma**Calliostoma annulatum* (Lightfoot, 1786)

Trochus annulatus [Lightfoot, 1786], *A catalogue of the Portland Museum...*, p. 101. (Rehder, 1967)

Calliostoma annulatum "Martyn, 1784," Dall, 1921: 176.

Calliostoma annulatum "Martyn, 1784," Oldroyd, 1927, part 3: 184, pl. 97, figs. 1, 3.

Calliostoma annulatum, Abbott, 1974: 47, fig. 355; color pl. 2, fig. 355.

Type locality: "K. George's Sound on the N.W. Coast of America."

Range: East Pacific: 33° N to 55° N. (Bernard, 1970)

Depth: intertidal to 20 m. (Bernard, 1970)

Calliostoma canaliculatum (Lightfoot, 1786)

Trochus canaliculatus [Lightfoot, 1786], *A catalogue of the Portland Museum...*, p. 101. (Rehder, 1967)

Calliostoma canaliculatum "Martyn, 1784," Dall, 1921, 176.

Calliostoma canaliculatum "Martyn, 1784," Oldroyd, 1927, part 3: 184; pl. 97, figs. 4, 6.

Calliostoma canaliculatum, Abbott, 1974: 47, fig. 356; color plate 2, fig. 356.

Type locality: "K. George's Sound on the N.W. Coast of America."

Range: Baja California (32° N) to Sitka, Alaska (57° N). (Bernard, 1970)

Depth: intertidal to 200 m (British Columbia). (Bernard, 1970)

Calliostoma ligatum (Gould, 1849)

Trochus costatus Martyn, 1784, *Univ. Conch.* table 1, pl. 34, (Grant and Gale, 1931) non-binomial (Abbott, 1974)

Trochus ligatus Gould, 1849, *Boston Soc. Nat. Hist. Proc.* 3:91. (Johnson, 1964)

Calliostoma costatum, Dall, 1921, 175.

Calliostoma costatum, Oldroyd, 1927, part 3: 183; pl. 97, figs. 8, 10.

Calliostoma ligatum, Abbott, 1974: 48, fig. 360; color plate 2, fig. 360.

Type locality: Puget Sound, Washington.

Range: Kodiak Island and Prince William Sound, Alaska (Talmadge, 1960) to Monterey, California. (Dall, 1921)

Depth: subtidal to 200 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Off Kodiak Island, 58° 18.9' N, 151° 51.3' W, 58 ft, rock and kelp (empty) (1).

Southeast: Little Branch Bay, Baranof Island, subtidal (2). Near Ketchikan (1).

Calliostoma variegatum Carpenter, 1864

Calliostoma (?var.) *variegatum* Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 603, 652. (Palmer, 1958)

Calliostoma variegatum, Dall, 1902: 552; pl. 39, fig. 10.

Calliostoma variegatum, Dall, 1921: 176.

Calliostoma variegatum, Oldroyd, 1927, part 3: 185; pl. 100, fig. 10.

Calliostoma variegatum, Palmer, 1958: 141; pl. 17, figs. 9, 10.

Calliostoma variegatum, Abbott, 1974: 47, fig. 357.

Type locality: Puget Sound, Washington

Range: East Pacific: 28° N to 57° N. (Bernard, 1970)

Depth: intertidal to 200 m (British Columbia). (Bernard, 1970)

TABLE 9
Calliostoma

	<u><i>Calliostoma ligatum</i></u>	<u><i>Calliostoma canaliculatum</i></u>	<u><i>Calliostoma annulatum</i></u>	<u><i>Calliostoma variegatum</i></u>
Size - height	21.8	27.9	16.5	28
diameter	20.2	28.5	15.5	26
Whorl profile	round	straight	straight	slightly concave
Periphery	round	angular	angular	round
Radial ribs	low, smooth, rounded	slightly beaded, angular	strongly beaded, angular	strongly beaded, angular
Color	chocolate-brown, tan cords	yellowish	yellow and mauve banded	yellowish pink
		specimen from Monterey, California	specimen from Monterey, California	from Dall, 1902

*Cidarina**Cidarina cidaris* (Adams in Carpenter, 1864)*Margaritas cidaris* A. Adams, Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 627, 653. (Palmer, 1958)*Cidarina cidaris* "A. Adams, 1864," Dall, 1921: 177.*Cidarina cidaris* "A. Adams, 1864," Oldroyd, 1927, part 3: 193; pl. 91, fig. 7.*Cidarina cidaris*, Palmer, 1958: 137; pl. 17, fig. 13.*Lischkeia (Cidarina) cidaris*, Abbott, 1974: 39, fig. 264.

Type locality: Neah Bay, Washington

Range: Prince William Sound, Alaska (Eyerdam, 1924) to Cape San Quentin, Baja, California. (Dall, 1921)

Depth: 50-300 m (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Lower Cook Inlet, 59°00'N, 152°40'W, 151 m (1).

Eastern Gulf: Columbia Bay (1) and Sheep Bay, Prince William Sound (1). Gulf of Alaska, 59°53'N, 146°51'W (1).

Southeast: Rudyerd Bay, 70 fms (1). Katlian Bay, 50 m (1).

*Halistylus**Halistylus pupoideus* (Carpenter, 1864)

Fenella pupoidea Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 613, 656. (Palmer, 1958)

Fenella subpupoidea Tryon, 1887, *Man. Conch.* 1X: 394; pl. 60
fig. 77. New name for *F. pupoidea* Carpenter, not *F. pupoides*
A. Adams, 1860. (Palmer, 1958)

Halistylus subpupoideus, Dall, 1921: 174.

Halistylus subpupoideus, Oldroyd, 1927, part 3: 173.

Halistylus pupoideus, Palmer, 1958: 142; pl. 19, fig. 4.

Halistylus pupoides, Abbott, 1974: 52, fig. 399.

Type locality: Monterey, California.

Range: East Pacific: 30°N (Bernard, 1970) to Forrester Island, Alaska.
(Willet, 1919)

Depth: 10 to 50 m (British Columbia). (Bernard, 1970)

*Lirularia**Lirularia lirulata* (Carpenter, 1864)

Margarita lirulata (and varieties), Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 603, 653. (Palmer, 1958)

Margarites (Lirularia) lirulata (and varieties), Dall, 1921: 179-180, pl. 17, fig. 1.

Margarites (Lirularia) lirulata (and varieties), Oldroyd, 1927, part 3: 207, 208; pl. 101, fig. 1.

Margarites (Pupillaria) lirulatus (and varieties), Palmer, 1958: 132-133; pl. 17, figs. 18-21.

Margarites (Pupillaria) lirulatus, Abbott, 1974: 37, figs. 218, 219.

Type locality: Puget Sound, Washington.

Range: East Pacific: 23°N to 60°N (Port Etches, Alaska). (Dall, 1921; Bernard, 1970)

Depth: intertidal to 20 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Sundstrum Island, intertidal (1).

Lirularia parcipicta (Carpenter, 1864)

Gibbula parcipicta Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 627, 653. (Palmer, 1958)

Margarites (Lirularia) parcipicta, Dall, 1921, 179; pl. 17, fig. 3.

Margarites parcipicta, Oldroyd, 1927, part 3: 199, pl. 101, fig. 4.

Margarites (Pupillaria) parcipictus, Palmer, 1958: 134; pl. 17,
figs. 5, 6.

Lirularia parcipicta, McLean, 1969: 20; pl. 8, fig. 2.

Type locality: Santa Cruz Island, California.

Range: Prince William Sound, Alaska (Talmadge, 1966) to San Geronimo
Island, Baja California. (McLean, 1969)

Depth: intertidal to 20 m (British Columbia). (Bernard, 1970)

not seen.

Lirularia succincta (Carpenter, 1864)

Gibbula succincta Carpenter, 1864, *Sept. Brit. Assoc. Adv. Sci.*
p. 627, 653. (Palmer, 1958)

Margarita (Lirularia) succincta, Dall, 1921: 179; pl. 17, fig. 9.

Margarites (Lirularia) succincta, Oldroyd, 1927, part 3: 205.

Margarites (Pupillaria) succincta, Palmer, 1958: 136.

Lirularia succincta, McLean, 1969: 21; pl. 8, fig. 3.

Margarites (Pupillaria) succincta, Abbott, 1974: 37, fig. 222.

Type locality: Lower California.

Range: Prince William Sound, Alaska (Talmadge, 1966) to Santo Tomas,
Baja California. (McLean, 1969)

Depth: subtidal (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Latouche Point (1).

Southeast: Starrigavan Bay, Sitka (1).

TABLE 10

Lirularia

	<u><i>Lirularia succincta</i></u>	<u><i>Lirularia limulata</i></u>	<u><i>Lirularia parcipicta</i></u>
Size - height	4		
diameter	4		
Number of whorls	5	5	5
Whorl outline	sub-quadrate	sub-quadrate	rounded
Sutures	impressed	impressed, sub-canaliculate	
Periphery	angular	angular	rounded
Radial sculpture	low riblets, stronger at angle and on base	2 - 4 strong ribs on spire and above periphery, 8 weaker riblets on base	3 narrow ribs on spire, 6 on body whorl, 4 on base
Color	tawny, with purple-brown threads	purplish	mottled tawny purple
		from Carpenter, 1864 in Oldroyd, 1927	from Carpenter, 1864 in Oldroyd, 1927

Margarites (Margarites)

Margarites (Margarites) albolineatus (Smith, 1889)

Valvatella albolineata, *Malac. Soc. London Proc.*, 3: 206, fig. 2.
(Oldroyd, 1927)

Margarites (Margarites) albolineatus, Dall, 1921: 180; pl. 16,
figs, 3, 4.

Margarites (Margarites) albolineatus, Oldroyd, 1927, part 3: 212;
pl. 99, figs. 4, 5.

Type locality: Bering Sea.

Range: all coasts of Bering Sea. (Dall, 1921)

not seen.

Margarites (Margarites) beringensis (Smith, 1899)

Valvatella beringensis Smith, 1899, *Malac. Soc. London Proc.* 3: 206, fig. 1. (Oldroyd, 1927)

Margarites helicius elevatus Dall, 1919, *Proc. U. S. Nat. Mus.* 56: 366.

Margarites helicius excavatus, Dall, 1919, *Proc. U. S. Nat. Mus.* 56: 366.

Margarites (Margarites) beringensis, Dall, 1921: 180; pl. 16, figs. 5, 6.

Margarites (Margarites) helicius elevatus, Dall, 1921: 180.

Margarites (Margarites) helicius excavatus, Dall, 1921: 180.

Margarites (Margarites) beringensis, Oldroyd, 1927, part 3: 211; pl. 99, figs. 7, 8.

Margarites (Margarites) helicius elevata, Oldroyd, 1927, part 3: 211.

Margarites (Margarites) helicius excavata, Oldroyd, 1927, part 3: 210.

Margarites helicius elevatus, Kosuge, 1973, pl. 3, fig. 9.

Margarites helicius excavatus, Kosuge, 1973, pl. 4, fig. 2.

Type locality: of *Valvatella beringensis*. "Arctic "

of *Margarites helicius elevatus*, Bear Bay, Baranof Island, Alaska.

of *Margarites helicius excavatus*, Amchitka Island, Aleutians and Middletown Island.

Range: Arctic Ocean and Bering Sea coasts. Baranof, Amchitka and Middleton Islands. (Dall, 1921)

Margarites (Margarites) beringensis (Continued)

Localities:

Southern Bering: Northwest bight, Buldir Island, Aleutians (1).

Western Gulf: Ugaiushak Island (1). Tutka Bay (1).

Eastern Gulf: Zaikof Bay, Montague Island, Prince William Sound (1).

Southeast: Marble Island, Glacier Bay (2). Porpoise Island (1).

intertidal.

Margarites (Margarites) frigidus Dall, 1919

Margarites frigidus Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 357.

Margarites (Margarites) frigidus, Dall, 1921: 180.

Margarites (Margarites) frigidus, Oldroyd, 1927, part 3: 213.

Margarites frigidus, MacGinitie, 1959: 78; pl. 2, fig. 7; pl. 3, fig. 7.

Margarites frigidus, Kosuge, 1973, pl. 4, fig. 5.

Type locality: Arctic Ocean, north of Bering Strait.

Range: Chukchi, Bering and Okhotsk Seas. Pacific coast of North America to Admiralty Island, Alaska. (Galkin, 1955)

Depth: 42-80 m. (Galkin, 1955)

not seen.

Margarites (Margarites) giganteus Leche, 1878

Margarita argentata var. *gigantea* Leche, 1878, *Kongl. Sv. Vetenskapsakad. Handl.* 16, 2: 261. (Galkin, 1955)

Margarites giganteus, Galkin, 1955: 83; fig. 26.

Margarites (Margarites) giganteus, Petrov, 1966: 143; pl. 1, fig. 10.

Type locality: not known.

Range: Chukchi, Bering and Okhotsk Seas.

Depth: 6-189 m, most common 20 to 100 m.

Silt. (Galkin, 1955)

Localities:

Chukchi: 71°26'N, 162°01'W, 43 m (1). 71°12'N, 163°05'W, 50 m (1).
67°41'N, 168°00'W (1). 67°43.9'N, 167°41.9'W, 34 m (1).

Northern Bering: Bering Strait (1).

Margarites (Margarites) helicius (Phipps, 1774)

Turbo helicius Phipps, 1774, *A Voyage Toward the North Pole* p. 198.
(Macpherson, 1971)

Margarites (Margarites) helicius, Dall, 1921: 180.

Margarites (Margarites) helicius, Oldroyd, 1927, part 3: 210.

Margarites helicius, Macpherson, 1971: 20; pl. 1, fig. 11.

Type locality: Spitzbergen.

Range: Arctic Ocean to the British Isles. Massachusetts Bay and Gulf of St. Lawrence. Aleutian Islands and Sea of Okhotsk. (Macpherson, 1971) Prince William Sound. (Talmadge, 1966)

Localities:

Western Gulf: Tutka Bay (1). Sadie Cove (1).

Southeast: Bartlett Cove, Young Island and Rush Point, Glacier Bay (3). Lemesurier Island (1).

intertidal.

Margarites (Margarites) marginatus Dall, 1919

Margarites marginatus Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 367.

Margarites (Margarites) marginatus, Dall, 1921: 180; pl. 16, figs. 1, 2.

Margarites (Margarites) marginatus, Oldroyd, 1927, part 3: 213, pl. 99, figs. 1, 2.

Margarites marginatus, Kosuge, 1973; pl. 4, fig. 1.

Margarites (Margarites) olivaceus marginatus, Abbott, 1974: 36, fig. 210.

Type locality: Adak Island, Aleutians.

Range: White, Barents, Kara, Laptev and East Siberian Seas.
Chuckchi, Bering, Okhotsk and Japanese Seas. Pacific coast of
North America to Oregon. (Galkin, 1955)

Depth: 5-136 m. (Galkin, 1955)

Localities:

Northern Bering: 64°21'N, 170°42'W (1). 66°34'N, 167°32'W (1).

Southern Bering: 56° to 59°N and 152° to 172°W (7).

Margarites (Margarites) pribiloffensis Dall, 1919

Margarites pribiloffensis Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 366.

Margarites (Margarites) pribiloffensis, Dall, 1921: 180.

Margarites (Margarites) pribiloffensis, Oldroyd, 1927, part 3: 212.

Margaritopsis pribiloffensis, MacGinitie, 1959: 79; pl. 2, fig. 10;
pl. 8, fig. 1.

Margarites pribiloffensis, Kosuge, 1973, pl. 4, fig. 3.

Type locality: U.S.F.C. Sta. 3504, near Pribilof Islands, Bering Sea.

Range: Pt. Barrow. Pribilof Islands. Near Pt. Belcher and Bernard Harbor, Northwest Territories, Canada. (MacGinitie, 1959)

Depth: 741 and 477 ft. (MacGinitie, 1959)

not seen.

Margarites (Margarites) vahli Möller, 1842

Margarites vahlii Möller, 1842, *Index Molluscorum Groenlandiae*
p. 8. (Macpherson, 1971)

Margarites hypolispus, Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 367.

Margarites (Margarites) hypolispus, Dall, 1921: 181.

Margarites (Margarites) hypolispus, Oldroyd, 1927, part 3: 213.

Margarites vahli, MacGinitie, 1959: 79; pl. 4, figs. 8, 9.

Margarites vahli, Macpherson, 1971: 25; pl. 2, fig. 3.

Margarites hypolispus, Kosuge, 1973; pl. 3, fig. 6.

Type locality: of *Margarites vahlii*, Greenland.

of *Margarites hypolispus*, Arctic Ocean north of Bering Strait.

Range: Soviet and Canadian Arctic. East and West Greenland. New
England. Spitzbergen. Pt. Barrow. Bering Sea. Okhotsk Sea.
Japan Sea. (Macpherson, 1971; Galkin, 1955)

Depth: 20 to 414 m. (Galkin, 1955)

mud and rock. (Macpherson, 1971)

not seen.

*Margarites (Pupillaria)**Margarites (Pupillaria) costalis* (Gould, 1841)

Turbo cinereus Couthouy, 1838, *Boston J. Nat. Hist.* 2: 99; pl. 3, fig. 9. (Johnson, 1946). Not Born, 1778. (MacGinitie, 1958)

Trochus costalis Gould, (ex Loven MS), 1841, *A Report on the Invertebrata of Massachusetts* p. 252. (MacGinitie, 1959)

Margarita sordida Hancock, 1846, *Ann. Mag. Nat. Hist.* ser. 1, 18: 324. (MacGinitie, 1959)

Margarites (Pupillaria) cinerea, Dall, 1921: 178.

Margarites (Pupillaria) sordida, Dall, 1921: 178; pl. 17, figs. 11, 12.

Margarites (Pupillaria) cinerea, Oldroyd, 1927, part 3: 201.

Margarites costalis, MacGinitie, 1959: 75; pl. 1, figs. 1-7.

Margarites costalis, Macpherson, 1971: 16; pl. 1, fig. 9.

Margarites (Pupillaria) costalis, Abbott, 1974: 36, fig. 212.

Type locality: of *Turbo cinereus*, off Lynn, Massachusetts and on Phillips Beach, Massachusetts, from fish stomachs.

of *Trochus costalis*, Massachusetts Bay.

Range: Arctic Ocean. East Atlantic: Barents, White and Norwegian Seas.

West Atlantic: Coasts of Greenland and New England.

East Pacific: Bering Sea and Gulf of Alaska.

West Pacific: Okhotsk, Bering and Japanese Seas. (Thorson, 1944; Galkin, 1955; Macpherson, 1971)

Depth: 0-2440 m. (Galkin, 1955)

8-660 m. (Thorson, 1944)

clay, mud, sand and rock. (Macpherson, 1971)

Margarites (Pupillaria) costalis (Continued)

Localities:

Arctic: 70° to 72°N and 141° to 164°W, 31 to 150 m (27).

Chukchi: 68° to 71°N and 157° to 176°W, 20 to 50 m (4).

Northern Bering: 59°57'N, 171°56.1'W, 65 m (1). St. Lawrence Island to Bering Strait (5).

Margarites (Pupillaria) pupillus (Gould, 1849)

Trochus pupillus Gould, 1849, *Boston Soc. Nat. Hist., Proc.* 3: 91.
(Johnson, 1964)

Margarites (Pupillaria) pupilla, Dall, 1921: 178; pl. 17, figs.
2, 10.

Margarites (Pupillaria) pupilla, Oldroyd, 1927, part 3: 200; pl. 101,
figs. 2, 3.

Margarites (Pupillaria) pupillus, Abbott, 1974: 36, fig. 217.

Type locality: "New Zealand." imported as ballast. (Oldroyd, 1927)

Range: Nunivak Island, Bering Sea to San Pedro, California. (Dall, 1921)

Depth: intertidal to 5 m (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Cold Bay, Alaska Peninsula (3). Lower Cook Inlet
(empty)(1). Tutka Bay (1).

Southeast: Glacier Bay (4). Berners Bay (3). Taku Inlet (3).
Sitka (1) and Ketchikan (1)

intertidal and subtidal, to 40 feet.

Margarites (Pupillaria) rhodia, Dall, 1921

Margarites (Pupillaria) rhodia, Dall, 1921, *U.S. Nat. Mus. Bull.* 112: 179; pl. 17, fig. 4. New name for *Margarita inflata* Carpenter, 1865, not Totten, 1834.

Margarites (Pupillaria) rhodia, Oldroyd, 1927, part 3: 204; pl. 101, fig. 5.

Type locality: Neah Bay, Washington.

Range: Prince William Sound, Alaska (Talmadge, 1966) to San Diego, California. (Dall, 1921)

Depth: 40-100 m (British Columbia). (Bernard, 1970)

Margarites (Pupillaria) rudis Dall, 1919

Margarites (Pupillaria) rudis Dall, 1919, *Proc. U.S. Nat. Mus.*
56: 364.

Margarites (Pupillaria) rudis, Dall, 1921: 179; pl. 18, figs.
13, 14.

Margarites (Pupillaria) rudis, Oldroyd, 1927, part 3: 204.

Margarites (Pupillaria) rudis, Kosuge, 1973; pl. 2, fig. 5.

Type locality: Coal Harbor, Shumagin Islands.

Range: Bering Sea to Cook Inlet, Alaska. (Dall, 1921)

Localities:

Lower Cook Inlet, 59°15.4'N, 153°40'W, 31 m (1).

Margarites (Pupillaria) vorticifera (Dall, 1873)

Margarita vorticifera Dall, 1873, *Calif. Acad. Sci., Proc.* April 9, p. 3, pl. 2, figs. 4a, b (preprint). (Boss, Rosewater, Ruhoff, 1968)

Margarita sharpii Pilsbry, 1898, *Phila. Acad. Nat. Sci., Proc.* 486. (Oldroyd, 1927)

Margarites ecarinatus, Dall, 1919, *Rept. Com. Arctic Exped.* vol. 8, part A: 22 A; pl. 2, figs. 5, 6.

Margarites (Pupillaria) vorticifera, Dall, 1921: 178.

Margarites (Pupillaria) vorticifera (and subspecies), Oldroyd, 1921, part 3: 201-202; pl. 100, figs. 7, 8.

Margarites avenosooki MacGinitie, 1959, *Proc. U.S. Nat. Mus.* 109: 77; pl. 1, fig. 8; pl. 3, figs. 8, 9.

Margarites ecarinatus, Kosuge, 1973; pl. 3, figs. 1, 2.

Margarita vorticifera, Kosuge, 1973; pl. 3, figs. 3, 4.

Type locality: of *Margarita vorticifera*, Iliuliuk Harbor, Captain's Bay, Unalaska Island, Alaska.

of *Margarita sharpii*, Dutch Harbor, Unalaska Island, Alaska.

of *Margarita ecarinatus*, 69°35'N, 163°27'W, off Cape Lisburne, Alaska.

of *Margarites avenosooki*, 4 mi off Pt. Barrow Base, Alaska, 217 ft.

Range: North Pacific: Chuckchi, Bering, Okhotsk and Japanese Seas. (Galkin, 1955). Bering Sea. Southwest of Pt. Barrow. South and east to Unalaska and Port Althorp, Alaska. (Dall, 1921)

Depth: 5-120 (10-50) m. (Galkin, 1955)

Rocks and pebbles. (Galkin, 1955)

Localities:

Bering Sea, North of St. Lawrence Island (1).

TABLE 11a

Margarites (*Margarites*)

	<i>Margarites</i> <u><i>giganteus</i></u>	<i>Margarites</i> <u><i>marginatus</i></u>	<i>Margarites</i> <u><i>beringensis</i></u>	<i>Margarites</i> <u><i>helacinus</i></u>
Size - height	11.0	5.5	6.4	6.0
diameter	12.0	7.2	7.7	6.8
Number of whorls	4 - 5	4	4 - 5	4 - 5
Overall shape	high trochiform	low trochiform	low trochiform	high trochiform
Whorl profile	round	oval	oval	round
Suture	shallow	deeply impressed	slightly im- pressed	slightly im- pressed
Aperture	round, slightly oblique	oval, oblique	oval, oblique	round, slightly oblique
Inner lip	thin, narrow slightly refle- xed	thick, narrow, slightly refle- xed	slightly thick- ened, reflexed	slightly thick- ened, not much reflexed
Parietal callus	thin	rather thick	variable	rather thick
Umbilicus	deep	deep	deep, wide	deep

TABLE 11a

Continued

	<u>Margarites giganteus</u>	<u>Margarites marginatus</u>	<u>Margarites beringensis</u>	<u>Margarites helacinus</u>
Radial sculpture	closely spaced narrow threads	closely spaced narrow threads	very shallow, widely spaced grooves on base	very shallow, closely spaced grooves
Color	grayish to yellow-brown	pale grayish	very glossy, smooth purple- brown	smooth, purple-pink

TABLE 11b

Margarites (Margarites)

	<i>Margarites albolineatus</i>	<i>Margarites frigidus</i>	<i>Margarites pribiloffensis</i>	<i>Margarites vahlii</i>
Size - height diameter	4.5 8	9 3	8 8.5	4.1 4.8
Number of whorls	5	6	5.5	5 - 6
Overall shape	low trochiform	conic	high trochiform	high trochiform
Whorl profile	rounded	moderately rounded	slightly quadrate	rounded
Suture	shallow	distinct	slightly adpressed	shallow
Aperture	large, oblique	round	round	round
Inner lip	reflexed, cover- ing umbilicus	broad, reiflexed	thickened, not reflexed	slightly reflexed
Parietal callus	thin	thin	thin	
Umbilicus	nearly covered	closed or reduc- ed to a slit	deep	small

TABLE 11b

Continued

	<u>Margarites albolineatus</u>	<u>Margarites frigidus</u>	<u>Margarites pribiloffensis</u>	<u>Margarites vahlii</u>
Radial sculpture	"filiform white lines"	faint lines in the umbilical region	very fine striae	none
Color	rosy, polished	silky, pale flesh	pale straw, dull	shiny, white
	from E.A. Smith, 1899 in Oldroyd, 1927	from Dall, 1919; MacGinite, 1959	from Dall, 1919	from Macpherson, 1971

TABLE 11c

Margarites (Pupillaria)

	<u><i>Margarites pupillus</i></u>	<u><i>Margarites costalis</i></u>	<u><i>Margarites rudis</i></u>	<u><i>Margarites rhodia</i></u>	<u><i>Margarites vorticifera</i></u>
Size - height	16	16	12	10	7.5
diameter	15	16	12.5	11	11.6
Shape	high trochiform	trochiform turbinate	trochiform	trochiform	depressed trochiform
Number of whorls	6	6	6	6	4.5
Radial sculpture	flat ribs, may be divided by a narrow groove	narrow triangular ribs	narrow triangular ribs, slightly noded	sharp, triangular ribs	narrow flat ribs and fine threads
Number of ribs on penultimate	5	3 - 6	2	8	13
suture to base on body whorl	6 - 8	5 - 6	3		18
base	10 or more	10 or more	6 - 7	approximately 20	14

TABLE 11c

Continued

	<u>Margarites pupillus</u>	<u>Margarites costalis</u>	<u>Margarites rudis</u>
Axial sculpture	fine lamel- lar lines of growth	fine lamel- lar lines of growth	axial waves, strongest at suture
Base	flat to slightly rounded	round	flat
Umbilicus	narrow, sometimes slit-like	open round	open round

Margarites
rhodia

Margarites
vorticifera

fine lamel-
lar lines
of growth

fine lines
of growth

flat

round to
sharply
flattened

open
round

very wide,
open, round

from Carpenter, 1864
in Oldroyd, 1927;
Plamer, 1958

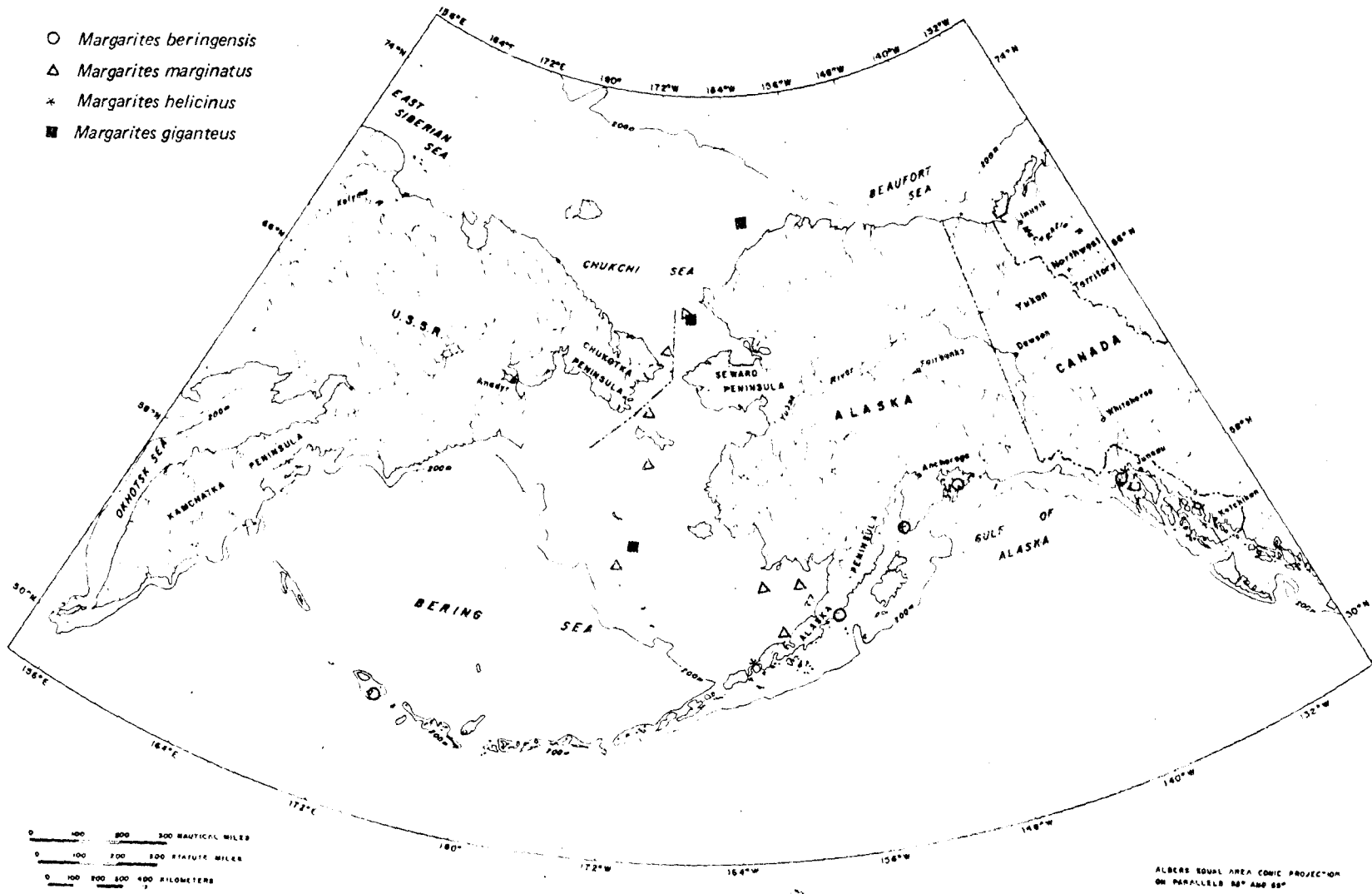


Figure 1. Localities for specimens of *Margarites* (*Margarites*).

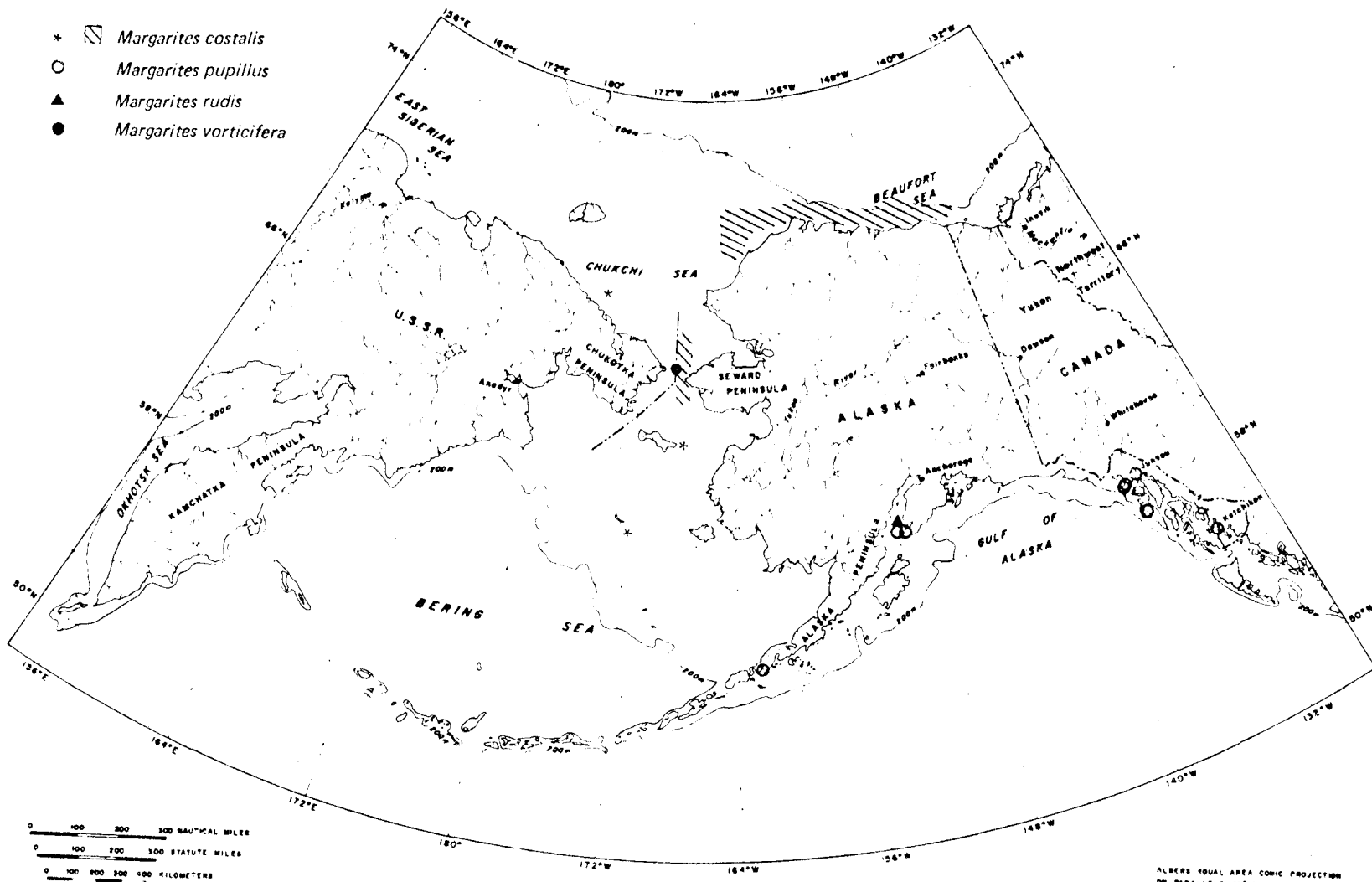


Figure 2. Localities for specimens of *Margarites* (*Pupillaria*).

Solariella

Solariella micraulax McLean, 1964

Solariella micraulax McLean, 1964, *Veliger* 7(2): 130; pl. 24, figs. 3, 4.

Type locality: U.S. F.C. Sta. 2948, off Alaska peninsula near Shumagin Islands, 55°10'N, 160°18'W, 110 fms.

Range: type locality, and Captain's Bay, Unalaska Island, Alaska.
(McLean, 1964)

Solariella obscura (Couthouy, 1838)

Turbo obscurus Couthouy, 1838, *Boston J. Nat. Hist.* 2: 100; pl. 3, fig. 2. (Johnson, 1946)

Solariella (Machaeroplax) obscurus, Dall, 1921: 178; pl. 18, figs. 11, 12.

Solariella obscura, Oldroyd, 1927, part 3: 198.

Solariella lewisae Willett, 1946, *So. Calif. Acad. Sci., Bull.* 45(1): 32; pl. 7.

Solariella obscura, MacGinitie, 1959: 80; pl. 1, fig. 9; pl. 2, fig. 11.

Solariella obscura, Macpherson, 1971: 25, pl. 1, fig. 17.

Solariella obscura, Abbott, 1974: 40, fig. 271.

Type locality: of *Turbo obscurus*, Massachusetts Bay.

of *Solariella lewisae*, Spiridon Bay, Kodiak Island, Alaska, 15 fms.

Range: Arctic Ocean and Seas.

East Atlantic: Arctic to the Hebrides Islands.

West Atlantic: Arctic to New England.

East Pacific: Arctic to Straits of Juan de Fuca. Bering, Okhotsk, and Japanese seas. (Thorson, 1944; MacGinitie, 1959)

Depth: 3 to 355 m, to 917 m. (Thorson, 1944)

sand, silt and silty clay. (Galkin, 1955)

Localities:

Chukchi Sea: 66° to 71°N, and 158° to 176°W, 24 to 50 m (6).

Northern Bering: Norton Sound (3). North of St. Lawrence Island, 27-58 m (11).

Solariella obscura (Continued)

Localities (Continued):

Southern Bering: 56° to 59° N and 159° to 173°W, 20 to 111 m (11).

Western Gulf: Lower Cook Inlet (1).

Eastern Gulf: Prince William Sound (1). Port Valdez (1). South of Prince William Sound (2).

Southeast: Stephens Passage (1).

Solariella peramabilis Carpenter, 1864

Solariella peramabilis Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 612, 653. (Palmer, 1958)

Solariella peramabilis, Dall, 1921, 177; pl. 17, fig. 8.

Solariella peramabilis, Oldroyd, 1927, part 3: 195; pl. 91, fig. 8; pl. 101, fig. 7.

Solariella peramabilis, Palmer, 1958, 138; pl. 17, fig. 3, 4.

Solariella peramabilis, Abbott, 1974: 41, fig. 296.

Type locality: Catalina Island, California.

Range: East Pacific: Montague Channel, Prince William Sound, Alaska (Talmadge, 1966) to San Diego, California and the Coronado Islands.

West Pacific: Japan. (Dall, 1921)

Depth: 15 to 100 m (British Columbia). (Bernard, 1970)

Solariella varicosa (Mighels and Adams, 1842)

Margarita varicosa Mighels and Adams, 1842, *Boston J. Nat. Hist.* 4(1): 46; pl. 4, fig. 4. (Macpherson, 1971)

Margarites pauperculus Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 361.

Solariella (Machaeroplax) varicosus, Dall, 1921: 178.

Solariella (Machaeroplax) pauperculus, Dall, 1921: 178; pl. 18, fig. 15.

Solariella (Machaeroplax) paupercula, Oldroyd, 1927, part 3: 198.

Solariella (Machaeroplax) varicosa, Oldroyd, 1927, part 3: 197.

Solariella varicosa, Macpherson, 1971: 28; pl. 2, figs. 4a, 4b.

Margarites pauperculus, Kosuge, 1973, pl. 4, fig. 4.

Type locality: of *Margarita varicosa*, Chaleur Bay, Gaspé Peninsula, Quebec, Canada.

of *Margarites pauperculus*, Arctic Ocean, north of Bering Strait.

Range: Arctic Ocean, except Norwegian, Greenland, and Baffin Seas. New England. Bering, Okhotsk, and Japan Seas. Pacific coast of North America to San Diego, California. (Galkin, 1955)

Depth: 0 to 355 (20 to 120 m). (Galkin, 1955).

silt, sand, silty sand. (Galkin, 1955)

Localities:

Arctic: 71°13'N, 151°23'W, 50 m (1). 71°16'N, 151°33'W, 50 m (1).

Chukchi: 68° to 71°N and 160° to 168°W, 43 to 51 m (5).

Northern Bering: west of cape Romanzof, 30 m (1). North of St. Lawrence Island, 30 m (1). Bering Strait, 42 m (1).

Southern Bering: 57° to 58°N and 166° to 169°W (6).

Eastern Gulf: Sheep Bay, Prince William Sound (1). 59°36'N, 146°27'W (1).

Southeast: Stephens Passage (1).

TABLE 12

Solariella

	<i>Solariella varicosa</i>	<i>Solariella obscura</i>	<i>Solariella permabilis</i>	<i>Solariella micraulax</i>
Size - height	9.4	6.0	8	7
diameter	10.5	7.5	8	8
Whorl profile	slightly rounded to straight	slightly rounded	tabulate	rounded, inflated
Periphery	angular	rounded	rounded	rounded
Sutures	deep	shallow		deep
Radial sculpture	faint threads, low riblets marking periphery	faint threads and prominent carina	prominent ribs	fine threads
Numbers on spine whorls		2 carinae	2 - 3 ribs	23 threads
On body whorl	5 - 7	2 - 3 carinae	11 ribs	100 threads
axial sculpture	low, curved folds	low, curved folds occasionally producing nodos	fine, dense ridges	raised lines of growth

TABLE 12

Continued

	<u><i>Solariella</i></u> <u><i>varicosa</i></u>	<u><i>Solariella</i></u> <u><i>obscura</i></u>	<u><i>Solariella</i></u> <u><i>permabilis</i></u>	<u><i>Solariella</i></u> <u><i>micraulax</i></u>
Color	olivaceous to pale purplish	pale olivaceous occasionally purplish above the carina	rufous brown spotted	brownish above periphery, cream base
			from Carpenter, 1864 in Oldroyd, 1927	from McLean, 1964

*Tegula**Tegula pulligo* (Gmelin, 1791)

Tegula (Promartynia) pulligo "Martyn, 1784," Dall, 1921: 175; pl. 17, figs. 5, 6.

Tegula (Promartynia) pulligo "Martyn, 1784," Oldroyd, 1921: 179; pl. 91, figs. 1, 4.

Tegula (Promartynia) pulligo, Abbott, 1974: 51, fig. 389.

Type locality: not known.

Range: Sitka, Alaska to Santa Barbara Islands, California. (Dall, 1921)

Depth: intertidal to 10 m (British Columbia). (Bernard, 1970)

Localities:

Southeast: Still Harbor and Little Branch Bay, Baranof Island (3).
Duke Island (1).

subtidal.

Family Turbinidae

*Homalopoma**Homalopoma lacunatum* (Carpenter, 1864)

Gibbula lacunata Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 603, 653. (Palmer, 1958)

Eucosmia lurida Dall, 1897, *Nat. Hist. Soc. Brit. Colum., Bull.* 2:
15; pl. 1, fig. 11.

Margarites (Lirularia) lacunata, Dall, 1921; 179.

Phasianella (Eulithidium) luridum, Dall, 1921: 172.

Margarites (Lirularia) lacunata, Oldroyd, 1927, part 3: 206.

Phasianella lurida, Oldroyd, 1927, part 3: 163; pl. 91, fig. 10.

Leptothyra engbergi Willett, 1929, *Nautilus* 42: 27; pl. 3, fig. 4.

Margarites lacunatus, Palmer, 1958: 129; pl. 17, figs. 22, 23.

Type locality: of *Gibbula lacunata*, Neah Bay, Washington.

of *Eucosmia lurida*, Skidgate Harbor, Queen Charlotte Is.,
British Columbia.

of *Leptothyra engbergi*, Olga, Washington.

Range: Port Dick, Alaska to San Diego, California. (Dall, 1921; Cowan,
1964a)

Depth: intertidal to 10 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Three Saints Bay, Kodiak Island, intertidal (1).
Sundstrum Island, intertidal (1).

Homalopoma luridum (Dall, 1885)

Leptothyra sanguinea lurida Dall in Orcutt, 1885, *Proc. U.S. Nat. Mus.* 8: 542. (Boss, Rosewater, Ruhoff, 1968)

Leptothyra lurida, Dall, 1921: 173.

Leptothyra lurida, Oldroyd, 1927, part 3: 167.

Homalopoma luridum, McLean, 1969: 23; pl. 10, fig. 2.

Homalopoma luridum, Abbott, 1974: 60, fig. 492.

Type locality: none given.

Range: Sitka Sound, Alaska to San Diego, California. (Dall, 1921)

Depth: subtidal to 50 m (British Columbia). (Bernard, 1970)

not seen.

*Moellaria**Moellaria costulata* (Möller, 1842)

Margarita costulata Möller, 1842, *Index Molluscorum Groenlandiae*
p. 10. (MacGinitie, 1958)

Molleria costulata, MacGinitie, 1959: 81; pl. 3, figs. 2-5.

Moellaria costulata, Macpherson, 1971: 29; pl. 2, fig. 5.

Moellaria costulata, Abbott, 1974: 61, fig. 501.

Type locality: Greenland.

Range: Off Point Barrow, Alaska. Parry Islands and New Foundland to
Cape Cod. Great Britain, Sweden, Norway, Iceland, Greenland
(Macpherson, 1971) to East of Morocco. (Thorson, 1944)

Depth: 7.5 m (Arctic Canada) to 1943 m (off Morocco). (Macpherson,
1971)

Localities:

Western Gulf: Kasitsna Bay (1).

Southeast: Taku Inlet (empty) (1).

Moellaria drusiana Dall, 1919

Mollaria drusiana Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 358.

Mollaria drusiana, Dall, 1921, 174.

Mollaria drusiana, Oldroyd, 1927, part 3: 172.

Type locality: Constatine Harbor, Amchitka Island, Aleutians.

Range: Amchitka Island to Glacier Bay, Alaska. (Dall, 1921)

Localities:

Southern Bering: Chapel Cove, Adak Island, intertidal (1).

Western Gulf: MacDonald Spit, Kasitsna Bay, intertidal (1).

Moellaria quadrae Dall, 1897

Mollaria quadrae Dall, 1897, *Nat. Hist. Soc. Brit. Colum., Bull.* 2:15; pl. 1, figs. 14, 14a.

Mollaria quadrae, Dall, 1921: 174.

Mollaria quadrae, Oldroyd, 1927, part 3: 171; pl. 91, fig. 11.

Type locality: Cumshewa Inlet, British Columbia.

Range: Amchitka Island, Aleutians to Queen Charlotte Is., British Columbia. (Dall, 1921)

Depth: subtidal to 30 m (British Columbia). (Bernard, 1970)

Localities:

Southern Bering: Chapel Cove, Adak Island, intertidal. (1).

Western Gulf: Seldovia Point (1). Tutka Bay (1).

Southeast: Rush Point, Glacier Bay (1).

TABLE 13

Moellaria

	<u><i>Moellaria quadrae</i></u>	<u><i>Moellaria drusiana</i></u>
Size - height	1.0	1.0
diameter	1.8	1.5
Number of whorls	3	3
Radial sculpture	faint riblets becoming stronger on the base	none
Axial sculpture	prominent growth lines	fine growth lines

Moellaria costulata

not measured

3

beaded spiral cords
around umbilicus

broken, curving,
irregular ribs

Family Cocculinidae

Cocculina

Cocculina agassizii Dall, 1903

Cocculina agassizii Dall, 1908, *Mus. Comp. Zool., Bull.* 43(6): 340.

Cocculina agassizii, Dall, 1921: 171.

Cocculina agassizii, Oldroyd, 1927, part 3: 160.

Cocculina agassizii, Keen, 1971: 361, fig. 173.

Type locality: Albatross Sta. 4603, Gulf of Panama, 556 fms.

Range: off Queen Charlotte Island, British Columbia, and Gulf of Panama.
(Dall, 1921)

Depth: 145 fms (Queen Charlotte es.) 145 fms (Gulf of Panama). (Dall,
1921)

Localities:

Eastern Gulf: Prince William Sound, 60°42.6'N, 148°04.0'W, 424-430 m
in dead *Bankia* holes.

Family Littorinidae

*Littorina**Littorina aleutica* Dall, 1872

Littorina aleutica Dall, 1872, *Calif. Acad. Sci., Proc.* Oct. 8, p. 1 (preprint). (Boss, Rosewater, Ruhoff, 1968)

Littorina aleutica, Dall, 1902: 551; pl. 39, figs. 4, 6.

Littorina aleutica, Dall, 1921: 153.

Littorina aleutica, Oldroyd, 1927, part 3: 60; pl. 100, figs. 4, 6.

Type locality: Gull Rocks, Akutan Pass, Aleutian Islands.

Range: Pribilof Islands, and the Aleutians from Kyska to the Chika Islands, on isolated islets. (Dall, 1921) Izhut Bay, Afognak Island, Alaska. (Eyerdam, 1960) Northern Japan and Coast of Asia, 46 to 56°N. (Karoda and Habe, 1952)

Localities:

Southern Bering: Akun Island (1) and Buldir Island, Aleutians, intertidal (1).

Western Gulf: Sud Island, intertidal (1).

Littorina scutulata Gould, 1849

Littorina scutulata Gould, 1849, *Boston Soc. Nat. Hist., Proc.*
3: 83. (Johnson, 1964)

Littorina (Melahaphe) scutulata, Dall, 1921: 153.

Littorina (Melarhaphe) scutulata, Oldroyd, 1921, part 3: 62.

Littorina scutulata, Abbott, 1974: 67, fig. 554.

Type locality: Puget Sound, Washington.

Range: Kodiak Island, Alaska to Turtle Bay, Lower California. (Dall,
1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Kasitsna Bay (1).

Eastern Gulf: Resurrection Bay (1).

Southeast: Katlian Bay (1). Boswell Bay (1).

intertidal.

Littorina sitkana Philippi, 1845

Littorina sitkana Philippi, 1840, *Zool. Soc. London, Proc.*, p. 140.
(Dall, 1921)

Littorina sitkana atkana Dall, 1886, *Proc. U.S. Nat. Mus.* 9:
211. (Boss, Rosewater, Ruhoff, 1968)

Littorina atkana, Dall, 1902: 551; pl. 39, fig. 11.

Littorina stichana, Dall, 1921: 153.

Littorina atkana, Dall, 1921, 153.

Littorina atkana, Oldroyd, 1921, part 3: 60; pl. 101, fig. 11.

Littorina stichana, Oldroyd, 1921, part 3: 60.

Littorina sitkana, Abbott, 1974: 67, fig. 552.

Type locality: of *Littorina sitkana*, Vancouver Island, British Columbia.
of *Littorina atkana*, Bering, Atka, and Kyska Islands.

Range: East Pacific: Southern Bering Sea to Puget Sound. (Dall, 1921)

West Pacific: Japan Sea Coast, 36 to 56°N. (Kuroda and Habe, 1952)

Depth: intertidal.

Localities:

Southern Bering: Cape Peirce (1). Namvak Bay (1). Grant Point,
Izembek Lagoon (1). Aga Cove Agattu Island (1). Buldir Island (1).
Chapel Cove, Adak Island (1).

Western Gulf: Deer Island, Cold Bay (1). Tuxidne Bay (1).
Nikishka Bay (1).

Eastern Gulf: Tonsina (1) and Lowell (1) Points, Resurrection Bay.
Sundstrom Island (1). Boswell Bay, Prince William Sound (1).
Port Valdez (1).

Southeast: Harbor Point, Lutuya Bay (1). Lemesurier Island (1).
Taylor Bay, Cross Sound (1). Sebree Island, Muir Inlet (1).
Point Bridget, Lynn Canal (1). Still Harbor (1), Snipe Bay (1),
Katlian Bay (1), and Kootznahoo Bay, Baranof Island (1).

intertidal.

Littorina squalida Broderip and Sowerby, 1829

Littorina squalida Broderip and Sowerby, 1829, *Zool.* 5. 4: 360.
(Dall, 1921)

Littorina (Algaroda) squalida, Dall, 1921: 153.

Littorina (Algaroda) squalida, Oldroyd, 1927, part 3: 59.

Littornia (Ezolittorina) squalida, Habe and Ito, 1974: 25, pl. 7,
fig. 8.

Type locality: "Oceano Boreali"

Range: Cape York, Arctic Ocean to Pribilof Islands and Okhotsk Sea.
(Dall, 1921) Japan and Asian Coasts, 42 to 72°N. (Kuroda and Habe,
1952) Brackish Lagoons. (Rowland, 1973)

Localities:

Northern Bering: Norton Sound, 22 m (empty) (1).
Stuart Island, Norton Sound (1).

TABLE 14

Littorina

	<u><i>Littorina</i></u> <u><i>aleutica</i></u>	<u><i>Littorina</i></u> <u><i>scutulata</i></u>	<u><i>Littorina</i></u> <u><i>sitkana</i></u>	<u><i>Littorina</i></u> <u><i>squalida</i></u>
Size - height diameter	7.5 6.0	12.5 8.4	13.3 11.4	32.5 25.0
Overall shape	depressed-low turbinata	high turbinata	subglobose	turbinata
Sutures	shallow	deep	shallow	slightly adpressed
Periphery	rounded	angular	rounded	rounded
Radial sculpture	3 nodose ridges on body whorl with finer threads in interspaces	fine lines, stronger below periphery	variable, up to 8 strong cords on body whorl, 4 on penul- timate, cords may be obsolete, expressed as color banding, or absent	closely packed threads
Color	dark brown, purple, white banded	variegated dark and light checkered bands	chocolate, through yel- lowish brown reddish, gray, or white banded	banded red-yellow- purple

Family Lacunidae

Aquilonaria

Aquilonaria turneri Dall, 1886

Aquilonaria turneri Dall, 1886, *Proc. U.S. Nat. Mus.* 9: 204;
pl. 3, figs. 1-3.

Aquilonaria turneri, Dall, 1921: 155.

Aquilonaria turneri, Oldroyd, 1927, part 3: 69.

Aquilonaria turneri, MacGinitie, 1959, 83; pl. 2, figs. 8, 9.

Aquilonaria turneri, Macpherson, 1971: 30.

Type locality: Labrador's Reef, Ungava Bay, Canadian Arctic.

Range: Pt. Barrow, Alaska. (MacGinitie, 1959) north of Bering Strait.
(Dall, 1921) Arctic Canada. (Macpherson, 1971)

Depth: 151 to 477 ft (off Point Barrow, Alaska). (MacGinitie, 1959)

not seen.

*Haloconcha**Haloconcha reflexa* (Dall, 1884)

Lacunella reflexa Dall, 1884, *Proc. U.S. Nat. Mus.* 7: 344; pl. 2, figs. 1-3. (Boss, Rosewater, Ruhoff, 1968)

Lacunella reflexa, Dall, 1884, *Proc. U.S. Nat. Mus.* 7: 348. (Boss, Rosewater, Ruhoff, 1968)

Haloconcha minor, Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 350.

Haloconcha reflexa, Dall, 1921: 155.

Haloconcha minor, Dall, 1921: 155.

Haloconcha reflexa, Oldroyd, 1927, part 3: 68.

Haloconcha minor, Oldroyd, 1927, part 3: 68.

Haloconcha minor, Kosuge, 1973; pl. 5, fig. 3.

Lacunella reflexa, Kosuge, 1973; pl. 5, fig. 4.

Type locality: of *Lacunella reflexa*, Pribilof and Aleutian Islands.

of *Haloconcha minor*, English Bay, St. Paul Island, Pribilof Islands.

Range: East Pacific: Commander, Pribilof, and Aleutian Islands to Chirikoff Island, Alaska. (Dall, 1921) Afognak Island, Alaska. (Eyerdam, 1960)

West Pacific: Northern Japan and Coast of Asia, 45 to 56°N. (Kuroda and Habe, 1952)

Localities:

Zapadni Point, St. George Is., Pribilofs, intertidal (1).

*Lacuna**Lacuna glacialis* Möller, 1842

Lacuna glacialis Möller, 1842, *Index Molluscorum Groenlandiae*
p. 9. (Macpherson, 1971)

Lacuna glacialis, Dall, 1921: 154.

Lacuna glacialis, Oldroyd, 1927, part 3: 65.

Lacuna cf. *glacialis*, Macpherson, 1971: 29; pl. 1, fig. 18.

Type locality: Greenland.

Range: Pribiloff Islands. north shore, Gulf of St. Lawrence.
Greenland. Arctic Canada. (Dall, 1921; LaRocque, 1953;
Macpherson, 1971)

Depth: 5-10 to 183-208 m (Arctic Canada). (Macpherson, 1971)

rock.

not seen.

Lacuna marmorata Dall, 1919

Lacuna marmorata Dall, 1919, *Proc. U.S. Nat. Mus.* 56: 348.

Lacuna marmorata, Dall, 1921: 154.

Lacuna marmorata, Oldroyd, 1927, part 3: 67.

Type locality: Monterey, California.

Range: Saginaw Bay, Alaska to San Diego, California. (Dall, 1921)

Lacuna porrecta Carpenter, 1864

Lacuna porrecta Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 114, 142. (Palmer, 1958)

Lacuna porrecta, Dall, 1921: 154; pl. 14, fig. 2.

Lacuna porrecta, Oldroyd, 1927, part 3: 64; part 2; pl. 32,
fig. 9.

Lacuna porrecta, Palmer, 1958: 154; pl. 19, figs. 18, 19.

Type locality: Neah Bay, Washington.

Range: Commander Is., Bering Sea to San Diego, California. (Dall, 1921)

Localities:

Stargavan Creek Flats, Sitka, with eelgrass (1).

Lacuna variegata Carpenter, 1864

Lacuna variegata Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 656. (Palmer, 1958)

Lacuna variegata, Dall, 1921: 154.

Lacuna variegata, Oldroyd, 1927, part 3: 66.

Lacuna variegata, Palmer, 1958: 157; pl. 19, figs. 23, 29.

Lacuna variegata, Abbott, 1974: 66, fig. 540.

Type locality: Neah Bay, Washington.

Range: Drier Bay, Alaska (Cowan, 1964a) to Santa Monica, California.
(Abbott, 1974)

Localities:

Western Gulf: Cold Bay (1). Spectacle Island, Shumagin Islands
(1).

Southeast: Murphy Cove, Glacier Bay (1). Kootznahoo Bay,
Admiralty Island (1).

intertidal. Tentative identification.

Lacuna vineta (Montagu, 1803)

Turbo vinetus Montagu, 1803, *Testacea Britannica*, Ed. 1. 2: 307.
(Macpherson, 1971)

Lacuna vineta, Galkin and Scarlato in Pavlovkii, 1955: 233;
pl. 44, fig. 18.

Lacuna vineta, Abbott, 1974: 65, fig. 536.

Type locality: Salcombe, England.

Range: New England. southwest Greenland. Iceland. British Isles.
France. Norway. White Sea. Bering Sea. Japan. Northwest
America. (Macpherson, 1971)

Depth: 0-64 m (Macpherson, 1971)

Localities:

Western Gulf: Tuxendni Bay (1).

Eastern Gulf: Tonsina Point, Resurrection Bay (1).

Southeast: Murphy Cove (1). Kootznahoo Bay (1).

intertidal.

TABLE 15

Lacuna

	<u><i>Lacuna vineta</i></u>	<u><i>Lacuna variegata</i></u>	<u><i>Lacuna porrecta</i></u>
Size - height	9.2	8.0	6.4
diameter	5.5	5.0	4.8
Periphery	rounded to angular	angular, sometimes slightly keeled	angular, carinated
Radial threads	present	very weak	present
Columella	narrow	wide	wide
Gutter	narrow, deep	very deep, wide	wide, not as deep
Umbilical chink	narrow	open	narrow
Parietal callus	thin	thick	thick
Color pattern	banded or solid	variegated	banded

Family Rissoidae

Alvania

Alvania alaskana Dall, 1887

Alvania castanea Möller, var. *alaskana* Dall, 1887, *Proc. U.S. Nat. Mus.* 9: 307; pl. 4, fig. 9.

Alvania alaskana, Bartsch, 1911d: 343; pl. 30, fig. 1.

Alvania alaskana, Dall, 1921: 159.

Alvania alaskana, Oldroyd, 1927, part 3: 92.

Alvania alaskana, Abbott, 1974: 74, fig. 632.

Type locality: Nunivak Island, Alaska.

Range: Nunivak Island, Bering Sea (Dall, 1921) to Windfall Harbor, Alaska. (Abbott, 1974)

not seen.

Alvania aurivillii Dall, 1887

Alvania aurivillii Dall, 1887, *Proc. U.S. Nat. Mus.* 9: 308;
pl. 4, fig. 8.

Alvania aurivillii, Bartsch, 1911d: 336; pl. 29, fig. 5.

Alvania aurivillii, Dall, 1921: 158.

Alvania aurivillii, Oldroyd, 1927, part 2: 88; pl. 80, fig. 5.

Alvania aurivillii, Abbott, 1974: 73; fig. 628.

Type locality: Adak Island. Constantine Harbor, Amchitka Island,
Aleutians.

Range: Kiska, Amchitka, and Adak Islands, Aleutians. (Dall, 1921)

Localities:

Southern Bering: Akun Island, Aleutians, intertidal (1).

Chapel Cove, Adak Island, Aleutians, intertidal (1).

Alvania bakeri Bartsch, 1910

Alvania bakeri Bartsch, 1910, *Nautilus* 23 (11): 137; pl. 11, fig. 8.

Alvania bakeri, Dall, 1921: 158.

Alvania bakeri, Oldroyd, 1927, part 3: 88; pl. 80, fig. 2.

Type locality: Port Graham, Alaska.

Range: Port Graham, Cook Inlet, Alaska. (Dall, 1921)

Localities:

Southeast: Near Turner Creek, Taku Inlet, 48-60 m (empty) (1).

Alvania carpenteri (Weinkauff, 1885)

Rissoa carpenteri Weinkauff, 1885, *Conch. Cab.* p. 192A. (Bartsch, 1911d)

Alvania carpenteri, bartsch, 1911d: 341; pl. 29, fig. 8.

Alvania carpenteri, Dall, 1921: 158.

Alvania carpenteri, Oldroyd, 1927, part 3: 91; pl. 80, fig. 8.

Alvania carpenteri, Palmer, 1958: 162.

Alvania carpenteri, Abbott, 1974: 73, fig. 614.

Type locality: Neah Bay, Washington.

Range: Prince William Sound, Alaska (Eyerdam, 1938) to Baja California. (Abbott, 1974)

Depth: intertidal to 20 m. (Bernard, 1970)

not seen.

Alvania castanella Dall, 1887

Alvania castanella Dall, 1887, *Proc. U.S. Nat. Mus.* 9: 307; pl. 3, fig. 5.

Alvania castanella, Bartsch, 1911d: 336; pl. 29, fig. 1.

Alvania castanella, Dall, 1921: 153.

Alvania castanella, Oldroyd, 1927, part 3: 87; pl. 80, fig. 1.

Alvania castanella, Abbott, 1974: 73, fig. 626.

Type locality: none given.

Range: Kiska to Atka Island, Aleutians. (Dall, 1921)

not seen.

Alvania compacta (Carpenter, 1864)

Rissoa compacta Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 603, 656. (Palmer, 1958)

Alvania compacta, Dall, 1921: 159.

Alvania compacta, Oldroyd, 1927; part 3: 95; pl. 82, fig. 7.

Alvania compacta, Palmer, 1958: 162; pl. 20, figs. 16, 17, 18a-e.

Alvania compacta, Abbott, 1974: 72, fig. 607.

Type locality: Puget Sound, Washington.

Range: Afognak Island, Alaska (Eyerdam, 1960) to Baja California
(Abbott, 1974), 33°N. (Bernard, 1970)

Depth: intertidal to 10 m (British Columbia). (Bernard, 1970)

on nullipores. (Eyerdam, 1960)

Localities:

Eastern Gulf: Zaikof Bay, Montague Island, intertidal (1).

Head of Simpson Bay, Prince William Sound, intertidal (1).

Alvania dalli Bartsch, 1927

Alvania dalli Bartsch, 1927, *Proc. U.S. Nat. Mus.* 70: 30; pl. 3, fig. 6. (Ruhoff, 1973)

Alvania dalli, Oldroyd, 1927, part 3: 103.

Type locality: Shuyak Straits, Afognak Island, Alaska.

Range: Shuyak Straits, Afognak Island. (Oldroyd, 1927)

not seen.

Alvania dinora Bartsch, 1917

Alvania dinora Bartsch, 1917, *Proc. U.S. Nat. Mus.* 52: 673; pl. 46, fig. 5. (Ruhoff, 1973)

Alvania dinora, Dall, 1921: 159.

Alvania dinora, Oldroyd, 1927, part 3: 101, part 2, pl. 67, fig. 5.

Alvania dinora, Abbott, 1974: 74, fig. 633.

Type locality: Forrester Island, Alaska.

Range: Forrester Island, Alaska. (Dall, 1921)

not seen.

Alvania filosa Carpenter, 1864

Alvania filosa Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 628, 656. (Palmer, 1958)

Alvania filosa, Bartsch, 1911d: 342; pl. 30, fig. 7.

Alvania filosa, Dall, 1921: 159.

Alvania filosa, Oldroyd, 1927, part 3: 92.

Alvania filosa, Palmer, 1958: 163.

Type locality: Neah Bay, Washington.

Range: Hoonah, Alaska to Neah Bay, Washington. (Palmer, 1958)

Depth: 60-100 m (British Columbia). (Bernard, 1970)

not seen.

Alvania janmayeni (Friele, 1886)

Rissoa (Alvania) jan-mayeni Friele, 1886, *Den Norske Nordkava - Ekspedition 1876-78 Zoologi Mollusca* II p. 27; pl. 11, figs. 6, 7. (MacGinitie, 1959)

Alvania jan-mayeni, MacGinitie, 1959: 85.

Alvania janmayeni, Macpherson, 1971: 38; pl. 2, fig. 11.

Type locality: Jan Mayen.

Range: Eastern Canada. Arctic Canada. New England. East and West Greenland. Iceland. Spitzbergen. Soviet Arctic to Siberian Ice Sea. Point Barrow, Alaska. (Macpherson, 1971)

Depth: 5-8 m (Point Barrow) to 2358 m (East Greenland). (MacGinitie, 1959; Macpherson, 1971)

not seen.

Alvania kyskaensis Bartsch, 1917

Alvania kyskaensis Bartsch, 1917, *Proc. U.S. Nat. Mus.* 52: 677;
pl. 46 fig. 6. (Ruhoff, 1973)

Alvania kyskaensis, Dall, 1921: 159.

Alvania kyskaensis, Oldroyd, 1927, part 3: 99; part 2, pl. 67, fig. 6.

Alvania kyskaensis, Abbott, 1974: 73, fig. 625.

Type locality: Kiska Harbor, Aleutians.

Range: Kiska Harbor, Aleutians. (Dall, 1921)

Localities:

Eastern Gulf: Latouche Point, intertidal (1).

Alvania montereyensis Bartsch, 1911

Alvania montereyensis Bartsch, 1911, *Proc. U.S. Nat. Mus.* 41: 343;
pl. 30, fig. 2.

Alvania montereyensis, Dall, 1921: 159.

Alvania montereyensis, Oldroyd, 1927, part 3: 93.

Alvania montereyensis, Abbott, 1974: 73, fig. 619.

Type locality: Monterey, California.

Range: Sitka Harbor, Alaska to Monterey, California. (Bartsch, 1911d)

not seen.

TABLE 16

Alvania

	<i>Alvania aurivillii</i>	<i>Alvania compacta</i>	<i>Alvania kyskaensis</i>	<i>Alvania bakeri</i>
Size - height diameter	4 2	2.5 1.2	2.2 less than 1	2.4
Overall shape	elongate - conic	ovate	elongate - ovate	elongate - conic
Number of whorls	6	5	5	5
Nuclear whorls	2, rounded	2 1/4, well- rounded, smooth	1 1/2, well- rounded	1, well-rounded, with finely radiat- ing striae
Whorl profile	rounded, shouldered at summit	rounded	rounded, slightly shouldered	angular, keeled
Sutures	constricted	slightly impressed	constricted	constricted

TABLE 16

Continued

	<i>Alvania</i> <u><i>aurivillii</i></u>	<i>Alvania</i> <u><i>compacta</i></u>	<i>Alvania</i> <u><i>kyskaensis</i></u>	<i>Alvania</i> <u><i>bakeri</i></u>
Radial sculpture	angular ribs interspaces 4x rib width 2 - 3 on spire, 3 - 4 on penultimate, 7 - 8 on body whorl	narrow ribs 6 - 7 on spire	narrow ribs 4 on spire	angular ribs, with fine threads between 1 on spire whorls, 3 - 4 on body whorl
Axial sculpture	close, small threads between keels	low, narrow ribs to periphery of body whorl	low narrow ribs	minute incremental lines
Cancellate sculpture pattern	not present	not nodose	nodose	not present

*Anabathron**Anabathron muriei* Bartsch and Rehder, 1939*Anabathron muriei* Bartsch and Rehder, 1939, *Nautilus* 52(4): 110;
pl. 8, figs. 2, 2a.

Type locality: Ogliuga Island, Aleutians.

not seen.

Barleeia

Barleeia subtenuis Carpenter, 1864

Barleeia subtenuis Carpenter, 1864, *Reps. Brit. Assoc. Adv. Sci.*
p. 546, 523, 656, 699. (Palmer, 1958)

Barleeia subtenuis, Dall, 1921:156.

Barleeia subtenuis, Oldroyd, 1927, part 3:74.

Barleeia subtenuis, Palmer, 1958:165; pl. 20, figs. 1-3.

Barleeia subtenuis, McLean, 1969:28; pl. 12, fig. 11.

Barleeia subtenuis, Abbott, 1974: 78, fig. 708.

Type locality: San Diego, California.

Range: Afognak Island, Alaska to San Ignacio Lagoon, Baja California
(McLean, 1969)

Depth: low tide to sublittoral. (McLean, 1969)

Localities:

Eastern Gulf: Latouche Point (1). Port Dick, Kenai Peninsula (1).

intertidal.

*Cingula (Cingula)**Cingula (Cingula) alaskana* Bartsch, 1912

Cingula alaskana Bartsch, 1912, *Proc. U.S. Nat. Mus.* 41:486; pl. 41, fig. 4.

Cingula alaskana, Dall, 1921:157.

Cingula alaskana, Oldroyd, 1927, part 3:79; pl. 84, fig. 4.

Cingula castanea Möller, 1842, var. *alaskana*, MacGinitie, 1959:84; pl. 17, figs. 8, 9.

Type locality: Amchitka Island, Aleutians.

Range: Amchitka Island, Aleutians. (Dall, 1921) Pt. Barrow, Alaska.
(MacGinitie, 1959)

Depth: 175 to 741 ft (Pt. Barrow). (MacGinitie, 1959)

not seen.

Cingula (Cingula) aleutica (Dall, 1886)

Onoba aleutica Dall, 1886, *Proc. U.S. Nat. Mus.* 9:307; pl. 3, fig. 11.

Cingula aleutica, Dall, 1921:157.

Cingula aleutica, Oldroyd, 1927, part 3:80; pl. 84, fig. 2.

Type locality: Unalaska Island, Aleutians.

Range: Pribilof Islands, Bering Sea to the Aleutians, to Windfall Harbor, Admiralty Island, Alaska. (Dall, 1921)

Localities:

Southern Bering: Adak Island and Akun Island, Aleutians, subtidal (2).

Western Gulf: Ugaiushak Island, intertidal (1). Kasitsna Bay, Cook Inlet, subtidal (1).

Cingula (Cingula) eyerdami Willett, 1934

Cingula eyerdami Willett, 1934, *Nautilus* 47(3):103; pl. 8, fig. 9.

Cingula eyerdami, Abbott, 1974:74.

Type locality: Elrington Island, Alaska.

Range: Afognak Island to Prince William Sound, Alaska. (Eyerdam, 1960)

Depth: intertidal, in nullipores. (Eyerdam, 1960)

not seen.

Cingula (Cingula) forresterensis Willett, 1934

Cingula forresterensis Willett, 1934, *Nautilus* 47(13):103; pl. 8, fig. 8.

Type locality: Forrester Island, Alaska.

Range: known only from type locality.

not seen.

Cingula (Cingula) katherinae Bartsch, 1912

Cingula katherinae Bartsch, 1912, *Proc. U.S. Nat. Mus.* 41:488;
pl. 41, fig. 3.

Cingula katherinae, Dall, 1921:157.

Cingula katherinae, Oldroyd, 1924, part 3:80; pl. 84, fig. 3.

Type locality: Windfall Harbor, Admiralty Island, Alaska.

Range: Windfall Harbor, Alaska to Queen Charlotte Island, British Columbia.
(Dall, 1921)

not seen.

Cingula (Cingula) martyni Dall, 1866

Cingula robusta martyni Dall, 1886, *Proc. U.S. Nat. Mus.* 9:306;
pl. 3, fig. 9.

Cingula martyni, Bartsch, 1912:485; pl. 41, fig. 5.

Cingula martyni, Dall, 1921:157.

Cingula martyni, Oldroyd, 1927, part 3:79; pl. 84, fig. 5.

Type locality: Kiska Harbor, Aleutians.

Range: Plover Bay, East Siberia. Nunivak, Pribilof and Aleutian Islands
(Bartsch, 1912) to Chignik Bay, Alaska. (Dall, 1921)

not seen.

Cingula (Nodulus)

Cingula (Nodulus) asser (Bartsch, 1910)

Onoba asser Bartsch, 1910, *Nautilus* 23(11):138; pl. 11, fig. 9.

Nodulus asser, Bartsch, 1911c:290, fig. 2.

Cingula (Nodulus) asser, Dall, 1921:157.

Cingula (Nodulus) asser, Oldroyd, 1927, part 3:82.

Type locality: Port Graham, Alaska.

Range: Atka Island, Aleutians to Cook Inlet, Alaska. (Dall, 1921)

Localities:

Eastern Gulf: Seldovia Point, Cook Inlet, intertidal (1).

Cingula (Nodulus) cerinella (Dall, 1886)

Onoba cerinella Dall, 1886, *Proc. U.S. Nat. Mus.* 9:307; pl. 3, fig. 5.

Nodulus cerinellus, Bartsch, 1912:289, fig. 1.

Cingula (Nodulus) cerinellus, Dall, 1921:157.

Cingula (Nodulus) cerinella, Oldroyd, 1927, part 3:82.

Type locality: Atka Island, Aleutians.

Range: Atka, Kiska, and Amchitka Islands, Aleutians (Bartsch, 1912c) to Afognak and Sitkalidak Islands, Alaska. (Eyerdam, 1960)

Localities:

Eastern Gulf: Port Dick, Kenai Peninsula (1).

Cingula (Nodulus) kyskensis (Bartsch, 1911)

Nodulus kyskensis Bartsch, 1911, *Proc. U.S. Nat. Mus.* 41:291, fig. 4.

Cingula (Nodulus) kyskensis, Dall, 1921:158.

Cingula (Nodulus) kyskensis, Oldroyd, 1927, part 3:83.

Type locality: Kiska Harbor, Aleutians.

Range: Kiska Island, Aleutians to Sitkalidak Island, Alaska. (Eyerdam, 1960)

Depth: intertidal, on nullipores. (Eyerdam, 1960)

Localities:

Southern Bering: Otter Island, Pribilofs, intertidal (1).

Cingula (Nodulus) palmeri (Dall, 1919)

Nodulus palmeri Dall, 1919, *Biol. Soc. Wash., Proc.* 32:251 (Boss, Rosewater, Ruhoff, 1968)

Cingula (Nodulus) palmeri, Dall, 1921:158.

Cingula (Nodulus) palmeri, Oldroyd, 1927, part 3:83.

Type locality: St. Paul Island, Bering Sea.

Range: Pribilof Islands, Bering Sea. (Dall, 1921)

not seen.

TABLE 17

Cingula

	<u><i>Cingula</i></u> <u><i>asser</i></u>	<u><i>Cingula</i></u> <u><i>cerinella</i></u>	<u><i>Cingula</i></u> <u><i>kyskensis</i></u>	<u><i>Cingula</i></u> <u><i>aleutica</i></u>
Size - height	2.2	2.9	2.0	3.7
diameter	1.0	1.3	1.0	1.2
Number of whorls	4	5	4	5
Overall shape	elongate, sub-cylindrical	elongate, sub-cylindrical	elongate - ovate	elongate ovate
Whorl shape	high, slightly rounded, adpressed at summit	high, moderately rounded	slightly concave above shoulder slightly rounded below	well rounded
Sutures	adpressed	constricted	slightly adpressed	constricted

TABLE 17

Continued

	<u><i>Cingula</i></u> <u><i>asser</i></u>	<u><i>Cingula</i></u> <u><i>cerinella</i></u>	<u><i>Cingula</i></u> <u><i>kyskensis</i></u>	<u><i>Cingula</i></u> <u><i>aleutica</i></u>
Color	translu- cent yel- lowish	yellowish	translu- cent yel- lowish	straw yellow
Radial sculpture	microscop- ic, wavy striae	none	fine threads around shoulder and aperture	lacking

Family Rissoinidae

Rissoina

Rissoina newcombei Dall, 1897

Rissoina newcombei Dall, 1897, *Nat. Hist. Soc. Brit. Colum., Bull.* 2:14; pl. 1, fig. 12.

Rissoina newcombei, Dall, 1921:160.

Rissoina newcombei, Oldroyd, 1927, part 3:108; pl. 83, fig. 7.

Rissoina newcombei, Abbott, 1974:76, fig. 669.

Type locality: Cumshewa Inlet, British Columbia, 20 fms.

Range: Forrester Island, Alaska to Vancouver Island, British Columbia (Dall, 1921; Bernard, 1970) to Monterey, California. (Abbott, 1974)

Depth: 80-200 m (British Columbia). (Bernard, 1970)

not seen.

Family Caecidae

*Fartulum**Fartulum occidentale* (Bartsch, 1920)

Fartulum occidentale Bartsch, 1920, *J. Wash. Acad. Sci.* 10(20):566.

Fartulum occidentale, Dall, 1921:150.

Fartulum occidentale, Oldroyd, 1927, part 3:47.

Caecum (Fartulum) occidentale, Abbott, 1974:93; fig. 891.

Type locality: San Pedro, California.

Range: Drier Bay, Knight Island, Prince William Sound, Alaska (Eyerdam, 1938) to Ceros Island, Baja California. (Mc Lean, 1969)

Depth: subtidal to 60 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Port Dick, Kenai Peninsula, intertidal (1).

*Micranellum**Micranellum crebricinctum* (Carpenter, 1864)

Caecum crebricinctum Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 612, 655. (Palmer, 1958)

Micranellum oregonense Bartsch, 1920, *J. Wash. Acad. Sci.* 10(20): 569.

Micranellum barkleyensis Bartsch, 1920, *J. Wash. Acad. Sci.* 10(20): 569.

Micranellum crebricinctum, Dall, 1921:149.

Micranellum barkleyensis, Dall, 1921:150.

Micranellum oregonensis, Dall, 1921:150.

Micranellum crebricinctum, Oldroyd, 1927, part 3:45,

Micranellum barkleyense, Oldroyd, 1927, part 3:45, 46.

Micranellum oregonense, Oldroyd, 1927, part 3:45, 46.

Micranellum crebricinctum, Palmer, 1958:174; pl. 20, figs. 10, 11, 11a.

Caecum (Caecum) crebricinctum, Abbott, 1974:91, fig. 873.

Type locality: of *Caecum crebricinctum*. San Diego, California.

of *Micranellum barkleyensis*, Barkley Sound, Vancouver Island, British Columbia.

of *Micranellum oregonense*, Forrester Island, Alaska.

Range: Drier Bay, Knight Island, Prince William Sound, Alaska (Eyerdam, 1938) to Asuncion Island, Baja California. (Mc Lean, 1969)

Depth: subtidal to 100 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: Port Dick, Kenai Peninsula, 15-18 fms (1).

Family Skeneopsidae

Skeneopsis

Skeneopsis alaskana Dall, 1919

Skeneopsis alaskana Dall, 1919, *Biol. Soc. Wash., Proc.* 32:251.
(Boss, Rosewater, Ruhoff, 1968)

Skeneopsis alaskana, Dall, 1921:158.

Skeneopsis alaskana, Oldroyd, 1927, part 3:84.

Type locality: St. Paul Island, Bering Sea.

Range: Pribilof and Unalaska Islands, Bering Sea. (Dall, 1921)

not seen.

Family Vitrinellidae

Leptogyra

Leptogyra alaskana Bartsch, 1910

Leptogyra alaskana Bartsch, 1910, *Nautilus* 23(11):136; pl. 11, figs. 4-6.

Leptogyra alaskana, Dall, 1921:182.

Leptogyra alaskana, Oldroyd, 1927, part 3:226; pl. 104, figs. 4-6.

Leptogyra alaskana, Abbott, 1974:57, fig. 473.

Type locality: Port Graham, Cook Inlet, Alaska.

Range: Port Graham, Cook Inlet, Alaska. (Dall, 1921)

not seen.

Vitrinella

Vitrinella alaskensis Bartsch, 1907

Vitrinella alaskensis Bartsch, 1907, *Proc. U.S. Nat. Mus.* 32:168, fig. 3. (Ruhoff, 1973)

Vitrinella alaskensis, Dall, 1921:181.

Vitrinella alaskensis, Oldroyd, 1927, part 3:217; pl. 106, figs. 8, 10, 12.

Type locality: Unalaska Island, Alaska.

Range: Unalaska Island, Aleutian Islands. (Dall, 1921)

not seen.

Family Turritellidae

*Tachyrhynchus**Tachyrhynchus erosus* (Couthouy, 1838)

Turritella erosa Couthouy, 1838, *Boston J. Nat. Hist.* p. 103;
pl. 3, fig. 1. (Johnson, 1946)

Tachyrhynchus erosus major Dall, 1919, *Proc. U.S. Nat. Mus.* 56:346.

Tachyrhynchus erosus, Dall, 1921:152.

Tachyrhynchus erosus, Oldroyd, 1927, part 3:56.

Tachyrhynchus erosus, Macpherson, 1971:38; pl. 1, fig. 20.

Tachyrhynchus erosus, Abbott, 1974:94, fig. 986.

Type locality: Massachusetts Bay, coast of Maine, from a fish stomach.

Range: Arctic Canada. New England to Labrador. east and west Greenland.
Spitzbergen. Soviet Arctic to Bering Sea. Aleutian Islands.
(Macpherson, 1971) Japan, to 39°N. (Kuroda and Habe, 1952)

Depth: 12.8 (Arctic Canada). (Macpherson, 1971) to 355 (west Greenland).
(Thorson, 1944)

sandy silt and sand. (Petrov, 1966)

Localities:

Arctic: Beaufort Sea and Chukchi Sea, 69° to 72°N and 149 to 178°W,
35-50 m (10).

Northern Bering: Bering Strait to St. Lawrence Island and Norton
Sound (4).

Southern Bering: 59 to 60°N and 160 to 169°W, 23-65 m (9).

Tachyrhynchus lacteolus (Carpenter, 1864)

Mesalia lacteola Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 603, 607, 655, 680, 683. (Palmer, 1958)

Tachyrhynchus lacteolus, Dall, 1921:152; pl. 6, fig. 2.

Tachyrhynchus lacteolus, Oldroyd, 1927, part 3:58, part 2, pl. 31,
fig. 11.

Tachyrhynchus lacteolum, Palmer, 1958:170; pl. 20, fig. 5.

Tachyrhynchus lacteolus, Abbott, 1974:94; fig. 898.

Type locality: Puget Sound, Washington.

Range: Chignik Bay, Alaska Peninsula to Point Abreojos, Baja California.
(Dall, 1921)

Depth: intertidal to 100 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: 59°35'N, 143°54'W, 159 m (empty) (1).

Tachyrhynchus pratomus Dall, 1919

Tachyrhynchus pratomus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:347.

Tachyrhynchus pratomus, Dall, 1921:152.

Tachyrhynchus pratomus, Oldroyd, 1927, part 3:57.

Tachyrhynchus pratomus, Kosuge, 1973; pl. 5, fig. 7.

Type locality: Semidi Islands, Alaska.

Range: Semidi Islands, Alaska. (Dall, 1921)

not seen.

Tachyrhynchus reticulatus (Mighels, 1842)

Turritella reticulata Mighels, 1841, *Boston Soc. Nat. Hist., Proc.* 1:50. (MacGinitie, 1958)

Tachyrhynchus reticulatus, Dall, 1921:156.

Tachyrhynchus reticulatus, Oldroyd, 1927, part 3:56.

Tachyrhynchus reticulatum, MacGinitie, 1959:86; pl. 5, fig. 9.

Tachyrhynchus reticulatus, Macpherson, 1971:40; pl. 1, fig. 21.

Type locality: Bay Chaleur, Gulf of St. Lawrence.

Range: East Pacific: Arctic Ocean and Eastern Bering Sea to the Aleutians and British Columbia. (Dall, 1921)

Atlantic: Greenland, Labrador, and Nova Scotia to Casco Bay, Maine. (MacGinitie, 1959)

Depth: 3 to 312 m. (Thorson, 1944)

mud and rocks. (Macpherson, 1971)

Localities:

Arctic: 70 to 72°N and 141° to 146°W, 40-46 m (5).

Northern Bering: Bering Strait, North of St. Lawrence Island, and Norton Sound (3).

TABLE 18

Tachyrhynchus

	<u><i>Tachyrhynchus</i></u> <u><i>erosus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>reticulatus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>lacteolus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>pratensis</i></u>
Size - height diameter	36.4 12.8	23.3 7.3	10 4	10 4
Number of whorls	11 - 12 (first whorls are fre- quently broken off)	9 to 11	7	7
Overall shape	turreted	turreted	acute	acute
Whorl profile	flattened to slightly convex	flattened to slightly convex	early - mod- erately rounded later - slight- ly overhanging	early - mod- erately convex
Overall sculpture	spiral cords frequently ero- ded, especially the earlier whorls	weakly reticu- late	reticulate	nearly smooth

TABLE 18

Continued

	<u><i>Tachyrhynchus</i></u> <u><i>erosus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>reticulatus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>lacteolus</i></u>	<u><i>Tachyrhynchus</i></u> <u><i>pratensis</i></u>
Axials	none	weak folds, frequently eroded	strong folds with approximately equal interspaces	low rounded, irregular ribs, obsolete on later whorls
Radials	flat - topped spiral cords incised interspaces	low, slightly rounded cords, incised interspaces	low rounded ribs and threads increasing in strength toward the anterior in each whorl	low, irregular threads

from Dall,
1919

*Turritellopsis**Turritellopsis acicula* (Stimpson, 1851)

Turritella acicula Stimpson, 1851, *Shells of New England* p. 35; pl. 1, fig. 5.

Turritellopsis acicula stimpsoni Dall, 1919, *Proc. U. S. Nat. Mus.* 56:345.

Turritellopsis acicula stimpsoni, Dall, 1921:152.

Turritellopsis acicula stimpsoni, Oldroyd, 1927, part 3:59.

Turritellopsis acicula stimpsoni, Habe and Ito, 1974:27; pl. 7, fig. 17.

Turritellopsis acicula, Abbott, 1974:94.

Type locality: Cape Ann, Massachusetts, from fishes.

Range: East Pacific: Nunivak Island, Alaska to San Diego, California. (Dall, 1921)

Atlantic: Labrador to Massachusetts Bay and George's Bank. (La Rocque, 1953)

Localities:

Western Gulf: Cook Inlet, 53°33'N, 152°10'W (1). 59°12'N, 153°01'W (1).

Family Vermetidae

*Dendropoma**Dendropoma lituellus* (Mörch, 1861)

Siphonium (Dendropoma) lituella Mörch, 1861, *Zool. Soc. London, Proc.*
p. 154. (Grant and Gale, 1931)

Spiroglyphus lituellus, Dall, 1921:151.

Spiroglyphus lituellus, Oldroyd, 1927, part 3:50.

Spiroglyphus lituellus, Abbott, 1974:100, fig. 961.

Dendropoma lituellus, Keen, 1971:406, fig. 505.

Type locality: from a California abalone. (Keen, 1971)

Range: Izhut Bay, Afognak Island, Alaska. (Eyerdam, 1938) to LaPaz,
Baja California. (Keen, 1971)

Depth: intertidal (British Columbia). (Bernard, 1970) attached to rock
and shells. (Keen, 1971)

not seen.

Family Cerithiidae

*Bittium**Bittium attenuatum* Carpenter, 1864

Bittium attenuatum Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 655. (Palmer, 1958)

Bittium (Semibittium) attenuatum, Bartsch, 1911b:393; pl. 54,
figs. 1, 2, 5.

Bittium (Semibittium) attenuatum, Dall, 1921:146.

Bittium (Semibittium) attenuatum, Oldroyd, 1927, part 3:21;
pl. 78, figs. 1, 2, 5.

Bittium (Semibittium) attenuatum, Palmer, 1958:176.

Bittium (Lirobittium) attenuatum, Abbott, 1974:106; fig. 1013.

Type locality: Neah Bay, Washington and Monterey, California.

Range: Forrester Island, Alaska to San Diego, California (Dall, 1921)
to 57°N. (Bernard, 1970)

Depth: intertidal to 10 m (British Columbia). (Bernard, 1970)

not seen.

Bittium eschrichtii, (Middendorff, 1849)

Turritella eschrichtii Middendorff, 1849, *Beitr. Mal. Ross.* 2:68; pl. 11, fig. 1. (Bartsch 1911b)

Bittium (Stylidium) eschrichtii, Bartsch, 1911b:387; pl. 58, fig. 4.

Bittium (Stylidium) eschrichtii, Dall, 1921:145.

Bittium (Stylidium) eschrichtii, Oldroyd, 1927, part 3:18; pl. 79, fig. 4.

Bittium (Stylidium) eschrichtii, Abbott, 1974:106, fig. 1010.

Type locality: Sitka, Alaska.

Range: 60°N (Bernard, 1970) to Puget Sound, Washington. (Dall, 1921)
Crecent City, California. (Abbott, 1974)

Depth: intertidal to 100 m (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Ugaiushak Island (empty) (1).

Southeast: Ketchikan, intertidal (1).

Bittium munitum (Carpenter, 1864)

Cerithiopsis munita Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 628, 660. (Palmer, 1958)

Bittium (Liobittium) munitum, Bartsch, 1911b:404; pl. 53, figs. 1,
2.

Bittium (Liobittium) munitum, Dall, 1921:147.

Bittium (Liobittium) munitum, Oldroyd, 1927, part 3:33.

Bittium (Liobittium) munitum, Palmer, 1958:180.

Type locality: Neah Bay, Washington.

Range: Sitka Sound, Alaska. (Dall, 1921) Forrester Island, Alaska to
Cambria Pines, California. (Palmer, 1958)

Depth: 50 to 200 m (British Columbia). (Bernard, 1970)

not seen.

Cerithiopsis

Cerithiopsis columna Carpenter, 1864

Cerithiopsis columna Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 613, 628, 680. (Palmer, 1958)

Cerithiopsis columna, Bartsch, 1911a:354; pl. 36, fig. 6.

Cerithiopsis (Cerithiopsisina) willetti Bartsch, 1921, *Biol. Soc.*
Wash., Proc. 34:36.

Cerithiopsis columna, Dall, 1921:144.

Cerithiopsis columna, Oldroyd, 1927, part 2:273; pl. 68, fig. 6.

Cerithiopsis willetti, Oldroyd, 1927, part 2:271.

Cerithiopsis columna, Palmer, 1958:182.

Type locality: of *Cerithiopsis columna*, Neah Bay, Washington.

of *Cerithiopsis willetti*, Forrester Island, Alaska.

Range: Forrester Island, Alaska to Puget Sound, Washington. (Dall, 1921;
Bernard, 1970)

Depth: 5 to 200 m (British Columbia). (Bernard, 1970)

not seen.

Cerithiopsis stejnegeri Dall, 1884

Cerithiopsis stejnegeri Dall, 1884, *Proc. U.S. Nat. Mus.* 7:345; pl. 2, fig. 4.

Cerithiopsis (Stejnegeri, var.?) truncatum Dall, 1887, *Proc. U.S. Nat. Mus.* 9:304; pl. 4, fig. 5.

Cerithiopsis stejnegeri, Bartsch, 1911a:342; pl. 40, fig. 3.

Cerithiopsis stejnegeri dina Bartsch, 1911a:343; pl. 40, fig. 7.

Cerithiopsis truncata, Bartsch, 1911a:361; pl. 40, fig. 2.

Cerithiopsis stejnegeri and ssp. *dina*, Dall, 1921:143.

Cerithiopsis truncata, Dall, 1921:144.

Cerithiopsis stejnegeri and ssp. *dina*, Oldroyd, 1927, part 2:256, 257; pl. 70, figs. 3, 7.

Cerithiopsis truncata, Oldroyd, 1927, part 2:270; pl. 70, fig. 2.

Cerithiopsis stejnegeri, Kosuge, 1973; pl. 5, fig. 12.

Cerithiopsis (stejnegeri var.?) truncatum, Kosuge, 1973; pl. 5, fig. 11.

Type locality: of *Cerithiopsis stejnegeri*, Unalaska, Atka, Amchitka, and Bering Islands.

of *Cerithiopsis truncatum*, Unalaska and Chika Islands.

Range: Bering, Aleutian and Shumagin Islands; Sitka, Alaska to Puget Sound, Washington. (Dall, 1921)

Localities:

Southern Bering: Akun Island (1).

Western Gulf: Spectacle Island (1). Seldovia Point (1).

Eastern Gulf: MacLeod Harbor, Montague Island, Prince William Sound (1). Resurrection Bay, intertidal on sponges (2).

Cerithiopsis stephensae Bartsch, 1909

Cerithiopsis stephensi Bartsch, 1909, *Proc. U.S. Nat. Mus.* 37:399, fig. 7. (Bartsch, 1911a)

Cerithiopsis stephensae, Bartsch, 1911a:362; pl. 39, fig. 7.

Cerithiopsis stephensae, Dall, 1921:144.

Cerithiopsis stephensae, Oldroyd, 1927, part 2:275; pl. 69, fig. 7.

Type locality: Bear Bay, Peril Strait, Baranof Island, Alaska.

Range: Port Frederick, Alaska to Puget Sound, Washington. (Dall, 1921)

not seen.

*Triphora**Triphora perversa* (Linnaeus, 1758)*Trochus perversus* Linnaeus, 1758, *Systema Naturae*, ed. 10, p. 760.
(MacGinitie, 1959)*Triphora perversa*, MacGinitie, 1959: 87; pl. 3, fig. 6.

Type locality: not known.

Range: Point Barrow, Alaska. Coast of Norway from Lofoten south to western Sweden. Denmark. the Shetland and Orkney Islands. British Isles to Madiera and the Canary Islands. the Mediterranean. (MacGinitie, 1959)

Depth: 341 ft (Pt. Barrow). (MacGinitie, 1959)

not seen.

Family Epitoniidae

*Epitonium**Epitonium caamanoi* Dall and Bartsch, 1910*Epitonium (Scala) caamanoi* Dall and Bartsch, 1910, *Mem. Can. Dept. Mines.* 14-N; p. 13; pl. 1, fig. 1. (Boss, Rosewater, Ruhoff, 1968)*Epitonium (Nitidoscala) caamanoi*, Dall, 1921:116.*Epitonium (Nitidoscala) caamanoi*, Oldroyd, 1927, part 2:62; pl. 31, fig. 3.

Type locality: Barkley Sound, Vancouver Island, British Columbia.

Range: Montague Island, Prince William Sound, Alaska (as cf.). (Talmadge, 1966) to San Pedro, California. (Dall, 1921)

Depth: 20 to 60 m (British Columbia). (Bernard, 1970)

not seen.

Epitonium greenlandicum (Perry, 1811)

Scalaria greenlandica Perry, 1811, *Zoology*,, appendix
pl. 28, fig. 8. (MacGinitie, 1959)

Epitonium (Boreoscala) greenlandica, Dall, 1921:114.

Boreoscala greenlandica, Dall, 1925:6; pl. 22, fig. 2.

Epitonium (Boreoscala) greenlandicum, Oldroyd, 1927, part 2:55.

Epitonium greenlandicum, MacGinitie, 1959:83; pl. 5, figs. 2, 3.

Epitonium greenlandicum, Abbott, 1974:121; fig. 1247.

Type locality: Greenland.

Range: Spitzbergen to southern Norway. Godhavn, Greenland to Montauk Point, Long Island. Coasts of Siberia and Alaska to Wrangell, Alaska and to northern Japan (MacGinitie, 1959) to Graham Island, British Columbia. (Cowan, 1964a)

Depth: 100 to 300 m (British Columbia). (Bernard, 1970)

50 to 150 m (Galkin and Scarlato *in* Pavlovskii, 1966)

sand and silt (Galkin and Scarlato *in* Pavlovskii, 1966)

Localities:

Arctic: Point Barrow (empty) (1).

Bering Sea: Norton Sound (3). near St. Lawrence Island (2).
between Nunivak and Pribilof Islands (2).

Western Gulf: Lower Cook Inlet (1).

Epitonium indianorum (Carpenter, 1864)

Scalaria indianorum Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 628, 660, 683. (Palmer, 1958)

Epitonium (Nitidoscala) indianorum, Dall, 1921:115.

Epitonium (Nitidoscala) indianorum, Oldroyd, 1927, part 2:57.

Epitonium (Nitidiscula) indianorum, Palmer, 1958:186; pl. 20, figs. 23, 24.

Epitonium (Epitonium) indianorum, Abbott, 1974:119, fig. 1233..

Type locality: Neah Bay, Washington.

Range: Prince William Sound, Alaska (Talmadge, 1966) to Todos Santos Bay, Baja California. (Dall, 1921)

Depth: intertidal to 50 m (British Columbia). (Bernard, 1970)

not seen.

*Opalia**Opalia montereyensis* (Dall, 1907)

Scula (*Cirsotrema*) *montereyensis* Dall, 1907, *Nautilus* 20(11):128.
(Boss, Rosewater, Ruhoff, 1968)

Epitonium (?*Cirsotrema*) *montereyensis*, Dall, 1921:115.

Epitonium (*Cirsotrema*) *montereyensis*, Oldroyd, 1927, part 2:57.

Opalia montereyensis, Mc Lean, 1969:34, fig. 17-3.

Type locality: off Del Monte, Monterey Bay, California.

Range: Forrester Island, Alaska to Magdalena Bay, Baja California.
(Mc Lean, 1969)

Depth: subtidal to 100 m (British Columbia). (Bernard, 1970)

not seen.

Opalia wroblewskii (Mörch, 1876)

Scala wroblewskyi Mörch, 1876, *J. Acad. Nat. Sci. Phila.* ser. 2, 8:190. (Grant and Gale, 1931)

Epitonium (Opalia) wroblewskii, Dall, 1921:113.

Epitonium (Opalia) wroblewskii, Oldroyd, 1927, part 2:51; pl. 31, fig. 5.

Opalia wroblewskii, Abbott, 1974:115, fig. 1195.

Type locality: Vancouver Island, British Columbia.

Range: Port Dick, Kenai Peninsula and Montague Channel, Prince William Sound, Alaska. (Talmadge, 1966) to San Diego, California. (Dall, 1921)

Depth: subtidal to 100 m (British Columbia). (Bernard, 1970)

not seen.

Family Eulimidae

Balcis

Balcis columbiana (Bartsch, 1917)

Melanella (Balcis) columbiana Bartsch, 1917, *Proc. U.S. Nat. Mus.* 53:324; pl. 41, fig. 5.

Melanella columbiana, Dall, 1921:117.

Melanella columbiana, Oldroyd, 1927, part 2:71; pl. 47, fig. 5.

Melanella (Balcis) columbiana, Abbott, 1974:126, fig. 1368.

Type locality: Departure Bay, British Columbia.

Range: Baranoff Island, Alaska to Departure Bay, British Columbia. (Dall, 1921)

Depth: 20-50 m (British Columbia). (Bernard, 1970)

Localities:

Southern Bering: Point Sennett, Unimak Island (1).

Western Gulf: 59°33'N, 152°40'W, 41.6 m (1). Tutka Bay, intertidal on *Eupentacta* (1)..

Eastern Gulf: Port Valdez (1).

Southeast: Rush Point, Glacier Bay on *Cucumaria* (1).

Balcis micrans (Carpenter, 1864)

Eulima micrans Carpenter, 1864, *Rept. Brit. Assoc. Adv Sci.* p. 89, 99, 145, 169. (Palmer, 1958)

Melanella (Melanella) micrans, Bartsch, 1917:303; pl. 34, figs. 1-6.

Melanella (Melanella) micrans borealis Bartsch, 1917:305; pl. 35, fig. 7.

Melanella micrans and ssp. *borealis*, Dall, 1921:118.

Melanella micrans and ssp. *borealis*, Oldroyd, 1927, part 2: 74-75; pl. 46, fig. 7.

Balcis micrans, Palmer, 1958:195.

Melanella (Balcis) micrans, Abbott, 1974:125, figs. 1338, 1339.

Type locality: San Pedro, California.

Range: Kodiak Island, Alaska to Magdalena Bay, Baja California. (Dall, 1921)

Depth: intertidal to 20 m (British Columbia). (Bernard, 1970)

not seen.

Balcis randolphi (Vanatta, 1899)

Eulima randolphi Vanatta, 1899, *Acad. Nat. Sci. Phila., Proc.*
51:256; pl. 11, figs. 13, 14. (Bartsch, 1917)

Melanella (Melanella) randolphi, Bartsch, 1917:312, pl. 37, fig. 4.

Melanella randolphi, Dall, 1921:118.

Melanella randolphi, Oldroyd, 1927, part 2:76; pl. 40, fig. 4.

Melanella (Melanella) randolphi, Abbott, 1974:126; fig. 1375.

Type locality: Unalaska, Aleutian Islands, under stones.

Range: Aleutian Islands to Puget Sound, Washington. (Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Southern Bering: Eider Point, Unalaska Island, intertidal (1).

Balcis rutila (Carpenter, 1864)

Eulima rutila Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 613, 659. (Palmer, 1958)

Melanella (Melanella) rutila, Bartsch, 1917:306; pl. 35, figs.
2, 3, 6.

Melanella rutila, Dall, 1921:118.

Melanella rutila, Oldroyd, 1927, part 2:75; pl. 46, figs. 2, 3, 6.

Balcis rutila, Palmer, 1958:195.

Melanella (Balcis) rutila, Abbott, 1974:125, fig. 1340.

Type locality: Santa Barbara and San Diego, California.

Range: Forrester Island, Alaska to Magdalena Bay, Baja California.
(Dall, 1921)

not seen.

TABLE 19

Balcis

	<i>Balcis columbiana</i>	<i>Balcis rutila</i>	<i>Balcis micrans</i>	<i>Balcis randolphi</i>
Size - height diameter	9.0 2.7	6.8 1.9	11.3 3.3	6 2.3
Flexure	double,	straight	straight	straight
Whorls	flat, adpressed	flat, adpressed	flat, adpressed	slightly convex
Periphery	weakly angled	rounded	rounded	rounded
Aperture	very oblique ovate	large, oval	oval	oval
Parietal callus	thick	moderately thick	moderately thick	very thin
Number of whorls	13	13 from Bartsch, 1917	12 from Bartsch, 1917	8 - 9

*Eulima**Eulima alaskensis* (Bartsch, 1917)

Strombiformis alaskensis Bartsch, 1917, *Proc. U.S. Nat. Mus.*
53:339; pl. 45, fig. 1.

Strombiformis alaskensis, Dall, 1921:119.

Strombiformis alaskensis, Oldroyd, 1927, part 2:82; pl. 48, fig. 1.

Strombiformis alaskensis, Abbott, 1974:128; fig. 1397.

Type locality: Dutch Harbor, Unalaska, Aleutians.

Range: Dutch Harbor, Unalaska. (Dall, 1921)

Localities:

Southern Bering: Eider Point, Unalaska (1). (tentative identification)

Family Asterophilidae

Asterophila

Asterophila japonica Randall and Heath, 1912

Asterophila japonica Randall and Heath, 1912, *Biol. Bull.* 22:98.

Type locality: Sea of Japan, off coast of Korea.

Range: Sea of Japan. (Randall and Heath, 1912)

Depth: 150 to 163 fms (Sea of Japan). (Randall and Heath, 1912)

parasitic on *Pedecellaster*.

Localities:

Chukchi: 67°4.0'N, 167°23'W, 42-43m.

parasitic on *Leptastarias*.

Family Calyptraeidae

*Calyptraea**Calyptraea fastigata* Gould, 1846

Calyptraea fastigata Gould, 1846, *Boston. Soc. Nat. Hist., Proc.* 2:161. (Johnson, 1964)

Calyptraea fastigata, Dall, 1921:163.

Calyptraea fastigata, Oldroyd, 1927, part 3:115; pl. 93, fig. 5.

Calyptraea fastigata, Abbott, 1974:139, fig. 1535.

Type locality: Puget Sound, Washington.

Range: Port Etches, Alaska to Puget Sound, Washington. (Dall, 1921)

Depth: intertidal to 100 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: 59°45.6'N, 143°54.2'W, 159 m (1).

Southeast: Icy Strait near Pleasant Island, 13 m (1). Torch Bay (1).
Hole in the wall, Prince of Wales Island (1). Cannon Island (1).

*Crepidula**Crepidula dorsata* (Broderip, 1834)

Calyptraea dorsata Broderip, 1834, *Zool. Soc. London, Proc.* 2:38.
(Hoagland, 1977)

Crepidula lingulata Gould, 1846, *Boston Soc. Nat. Hist., Proc.*
2:160. (Johnson, 1964)

Crepidula lingulata, Dall, 1921:162.

Crepidula (Crepipatella) lingulata, Oldroyd, 1927, part 3:120;
pl. 93, fig. 8.

Crepipatella lingulata, Keen, 1971:461, fig. 820.

Crepipatella lingulata, Abbott, 1974:141, fig. 1554.

Crepidula dorsata, Hoagland, 1977:373.

Type locality: of *Calyptraea dorsata*, not known.

of *Crepidula lingulata*, Puget Sound.

Range: Southern Bering Sea. East coast of Japan. Vancouver, British
Columbia to Valiparaiso, Chile. (Hoagland, 1977)

Depth: intertidal - 40 m (British Columbia). (Bernard, 1970)

Localities:

Southeast: Cannon Island (1).

Crepidula grandis Middendorff, 1849

Crepidula grandis Middendorff, 1849, *Malacozool. Ross.* p. 101; pl. 11, figs. 8-10. (MacGinitie, 1959)

Crepidula grandis, Dall, 1921:162.

Crepidula (Crepidula) grandis, Oldroyd, 1927, part 3:116.

Crepidula grandis, MacGinitie, 1959:87; pl. 1, fig. 11; pl. 5, fig. 7.

Crepidula grandis, Hoagland, 1977:378, fig. 23.

Type locality: St. Paul Island, Bering Sea.

Range: Cape Franklin, Arctic Ocean to Sitka, Alaska. Okhotsk and Japanese Seas. (Dall, 1921)

Depth: 26-65m (Okhotsk Sea). (Petrov, 1966)

sand, pebbles or cobbles. (Petrov, 1966)

gravel (Northern Bering Sea). (Rowland, 1973)

Localities:

Chukchi: to 69°N (3).

Northern Bering: north of St. Lawrence Island, 20-50 m (6).

Southern Bering: 51-60°N and 162-173°W, 36-80 m (18).

Crepidula nummaria Gould, 1846

Crepidula nummaria Gould, 1846, *Boston Soc. Nat. Hist., Proc.*
2:160. (Johnson, 1964)

Crepidula (Ianacus) nummarius, Dall, 1921:163.

Crepidula (Ianacus) nummaria, Oldroyd, 1927, part 3:120; pl. 91,
figs. 14, 14a, 14b.

Crepidula nummaria, Hoagland, 1977:390, fig. 21.

Type locality: Classet, Strait of Juan de Fuca.

Range: Plover Bay, Bering Straits to Panama. (Dall, 1921)

Localities:

Western Gulf: Lower Cook Inlet, 61 m (1). off Kodiak Island (1).

Southeast: Hole in the Wall, Prince of Wales Island (1).

Family Trichotropididae

Torellia

Torellia armonia Dall, 1919

Torellia armonia Dall, 1919, *Proc. U.S. Nat. Mus.* 56:355.

Torellia armonia, Dall, 1921:167.

Torellia armonia, Oldroyd, 1927, part 3:142.

Type locality: southwest of Sanak Island, Alaska.

Range: southwest of Sanak Island, Island. (Dall, 1921)

not seen.

Torellia vallonina Dall, 1919

Torellia vallonina Dall, 1919, *Proc. U.S. Nat. Mus.* 56:355.

Torellia vallonina, Dall, 1921:167.

Torellia vallonina, Oldroyd, 1927, part 3:141.

Torellia vallonina, Kosuge, 1973; pl. 5, fig. 1.

Type locality: Nazan Bay, Atka Island, Aleutian Islands.

Range: Nazan Bay, Atka Island, Aleutian Islands. (Dall, 1921)

not seen.

*Trichotropis**Trichotropis bicarinata* (Sowerby, 1825)

Turbo bicarinatus Sowerby, 1825, *Tankerville Catalogue*, appendix, p. 12; pl. 9. (Macpherson, 1971)

Trichotropis bicarinata, Dall, 1921:148.

Trichotropis bicarinata, Oldroyd, 1927, part 3:39.

Trichotropis bicarinata, Macpherson, 1971:41; pl. 3, fig. 3.

Trichotropis bicarinata, Abbott, 1974:138, fig. 1516.

Type locality: Newfoundland.

Range: Point Barrow to Okhotsk Sea and Skantarsk Island to Nunivak Island. (Dall, 1921) Greenland. Ireland. (Thorson, 1944) Arctic Canada. (Macpherson, 1971)

Queen Charlotte Island, British Columbia. (Cowan, 1964a) Asian Coast to 38°N. (Kuroda and Habe, 1952)

Depth: 5 to 150 m. (Galkin and Scarlato *in* Pavlovskii, 1966)

sand, silt, pebbles. (Galkin and Scarlato *in* Pavlovskii, 1966)

Localities:

Chukchi: north of Seward Peninsula, 20 m (4).

Northern Bering: Norton Sound, 22 m (2).

Trichotropis borealis Broderip and Sowerby, 1829

Trichotropis borealis Broderip and Sowerby, 1829, *Zool. J. London* 4(14):375. (MacGinitie, 1959)

Trichotropis costellatus Couthouy, 1838, *Boston J. Nat. Hist.* 2:108; pl. 3, fig. 2. (Johnson, 1946)

Trichotropis costellata, Dall, 1921:148.

Trichotropis costellata, Oldroyd, 1927, part 3:40.

Trichotropis borealis, MacGinitie, 1959:88.

Trichotropis borealis, Macpherson, 1971:43; pl. 3, fig. 2.

Trichotropis (Ariadnaria) borealis, Abbott, 1974:138, fig. 1518.

Type locality: of *Trichotropis borealis*, Melville Island.

of *Trichotropis costellatus*, from fish entrails between Cape Ann and Cape Cod, Massachusetts.

Range: Arctic Seas. Spitzbergen. Norway. the Faroes. British Islands. Iceland. Greenland. Parry Islands. Melville Island. Franklin Bay. Labrador to Massachusetts. Point Barrow south and east to the Aleutian Islands and Queen Charlotte Islands. (MacGinitie, 1959) Japan and Asian coast 42 to 72°N. (Kuroda and Habe, 1952)

Localities:

Chukchi: 70-72°N, 162-176°W. 40-56 m (6).

Northern Bering: Norton Sound, 20-45 m (3).

Southern Bering: northwest of Pribilof Islands (3).

Eastern Gulf: Port Valdez, 20 m (1).

Southeast: Auke Bay, 27 m (2).

Trichotropis cancellata Hinds, 1843

Teichotropis cancellata Hinds, 1843, *Zool. Soc. London, Proc.*
p. 17. (Keen, 1966b)

Trichotropis cancellata, Dall, 1921:148..

Trichotropis cancellata, Oldroyd, 1927, part 3:40.

Trichotropis (Turritopsis) cancellata, Abbott, 1974:138, fig. 1519.

Type locality: Sitka, Alaska.

Range: southern part of Bering Sea to Oregon. (Dall, 1921) Japan and
Asian coast, 31 to 56°N. (Kuroda and Habe, 1952)

Depth: subtidal - 50 m (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Kasitsna Bay (1). Tutka Bay (1).

Southeast: Redoubt Bay Cove and Sitka, Baranof Island (2). Hole-
in-the-Wall, Prince of Wales Island (1). near Ketchikan (1).

subtidal.

Trichotropis coronata Gould, 1860

Trichotropis (Iphinoe) coronata Gould, 1860, *Boston Soc. Nat. Hist., Proc.* 7:324. (Johnson, 1964)

Trichotropis (Iphinoe) coronata, Dall, 1921:149; pl. 11, fig. 2.

Trichotropis (Iphinoe) coronata, Oldroyd, 1927, part 3:41; part 2, pl. 31, fig. 7.

Trichotropis (Iphinoe) coronata, Abbott, 1974:138; fig. 1520.

Type locality: Straits of Semiavine, Arctic Ocean, 20 fms.

Range: Okhotsk, Bering and Chukchi Seas. (Pevrov, 1965) Northern Japan to 39°N. (Kuroda and Habe, 1952)

Depth: 30 to 200 m. (Galkin and Scarlato *in* Pavlovskii, 1966)

sand and silt. (Galkin and Scarlato *in* Pavlovskii, 1966)

Localities:

Chukchi: 67-69°N and 167-176°W, 37-60 m (5).

Trichotropis insignis Middendorff, 1879

Trichotropis insignis Middendorff, 1849, *Malacozool. Ross.* p. 107; pl. 10, figs. 7-9. (Dall, 1921)

Trichotropis insignis, Dall, 1921:148.

Trichotropis insignis, Oldroyd, 1927, part 3:41, part 2, pl. 31, figs. 9, 9a.

Trichotropis insignis, Abbott, 1974:138, fig. 1417.

Type locality: Bering Strait.

Range: Bering Strait to the Aleutian Islands and Cook Inlet. (Dall, 1921; La Rocque, 1953) Asian Coast, 44 to 64°N. (Kuroda and Habe, 1952)

Localities:

Southern Bering: off Izembek Lagoon (1).

Western Gulf: Spectacle Island (1). Seldovia Point and Tutka Bay, intertidal (2).

Trichotropis kroyeri Philippi, 1849

Trichotropis kroyeri Philippi, 1849, *Zeitschr. Malakzool.* p. 175.
(MacGinitie, 1959)

Trichotropis kroyeri, Dall, 1921:149; pl. 11, fig. 1.

Trichotropis kroyeri, Oldroyd, 1927, part 3:42; part 2, pl. 31,
fig. 14.

Trichotropis (Iphinoe) kroyeri, Abbott, 1974:138, fig. 1521.

Type locality: Spitzbergen.

Range: Spitzbergen. Pt. Barrow through Bering Strait to the Shumagin
Islands. (MacGinitie, 1959) Barents, Kara, and Okhotsk Seas.
(Petrov, 1965)

Localities:

Chukchi: 70-71°N and 161-163°W, 44 and 50 m (2).

Northern Bering: Norton Sound, southeast of Nome, 22 m (2).

Southern Bering: 58°08'N, 168°16'W (1).

Trichotropis permabilis (Dall, 1871)

Iphinoe permabilis Dall, 1871, *Amer. J. Conchol.* 7(2):119.

Iphinoe permabilis, Kcsuge, 1973; pl. 6, fig. 2.

Type locality: North Harbor, Unga Island, Shumagin Islands.

Range: Shumagin Islands. (Dall, 1871)

Localities:

Chukchi: Kotzebue Sound (1).

Northern Bering: near St. Lawrence Island, 31-55 m (3).

TABLE 20a
Trichotropis

	<u><i>Trichotropis bicarinata</i></u>	<u><i>Trichotropis insignis</i></u>	<u><i>Trichotropis borealis</i></u>	<u><i>Trochotropis cancellata</i></u>
Size - height	39	15	21	25
diameter	31	14	14	14
Relative proportions	aperture approximately equal to spire	aperture approximately equal to spire	variable	aperture much shorter than spire
Suture	shallow	shallow	shallow	deep
Radial sculpture	2 prominent keels	2 prominent slightly wavy keels, with low ribs between	3-4 prominent ribs	9 evenly spaced squarish ribs
Axial sculpture	fine growth lines	rather heavy growth lines	rather heavy growth lines	evenly spaced narrow ribs
Aperture	quadrate wide, flaring	rounded - quadrate wide, flaring	oval	evenly rounded

TABLE 20a

Continued

	<u><i>Trichotropis bica rinata</i></u>	<u><i>Trichotropis insignis</i></u>	<u><i>Trichotropis borealis</i></u>	<u><i>Trochotropis cancellata</i></u>
Inner lip	wide, shelf- like	wide, shelf- like	narrow, shelf- like	narrow, flat
Umbilicus	slit-like	slit-like	slit-like to more open	very narrow slit
Periostracum	thick, fibrous, prolonged into fringe at keels	not observed	thick, fibrous, prolonged into fringe at heaviest ribs	not observed

TABLE 20b

Trichotropis

	<u><i>Trichotropis kroyeri</i></u>	<u><i>Trichotropis permabilis</i></u>	<u><i>Trichotropis coronata</i></u>
Size - height diameter	26 21	34 20	34 36
Relative proportions	spire much shorter than body whorl	spire much shorter than body whorl	spire much shorter than body whorl
Suture	channeled	slightly channeled	slightly channeled to shallow
Radial sculpture	12 rounded ribs with narrow interspaces	6 squarish to angular ribs with wide inter- spaces	one keel marking the periphery
Axial sculpture	fine growth lines	fine growth lines	fine growth lines
Aperture	oval, narrow	oval, narrow	ovate, wider to posterior
Inner lip	flat	flat	flat
Umbilicus	wide open	wide open	wide open
Periostracum	smooth, fibrous	thick, fibrous, prolonged into fringe on ribs	thick, fibrous, prolonged into fringe on keel

Family Carinariidae

Cardiapoda

Cardiapoda placenta (Lesson, 1830)

Cardiapoda placenta, Dall, 1921:138.

Cardiapoda placenta, Oldroyd, 1927, part 2:227.

Cardiapoda placenta, Abbott, 1974:134.

Type locality: North Pacific.

Range: North Pacific. tropical eastern and Indo Pacific. Gulf of Mexico.
Carribean. West Africa. (Abbott, 1974)

Depth: pelagic.

not seen.

Carinara

Carinara lamareki Péron and Lesueur, 1810

Carinaria punctata d'Orbigny, 1836, *Voyage en Amérique meridionale*, 5:160. (Bernard, 1967)

Carinaria punctata, Dall, 1921:138.

Carinaria punctata, Oldroyd, 1927, part 2:229.

Carinaria lamareki, Abbott, 1974:134, fig. 134.

Type locality: not known.

Range: Western Atlantic and Gulf of Mexico. (Abbott, 1974) North and South Pacific. (Dall, 1921)

Depth: pelagic.

not seen.

Carinaria latidens Dall, 1916

Carinaria latidens Dall, 1916, *Proc. U. S. Nat. Mus.* 56:342.

Carinaria latidens, Dall, 1921:138.

Carinaria latidens, Oldroyd, 1927, part 2:228.

Type locality: North Pacific Ocean, 43°10'N, 147°W, pelagic.

Range: known only from type locality.

not seen.

Family Naticidae

*Amauropsis**Amauropsis islandica* (Gmelin, 1791)

Nerita islandica Gmelin, 1791, *Systema Naturae* ed. 13, p. 3675.
(Marincovich, 1977)

Amauropsis purpurea Dall, 1871, *Amer. J. Conchol.* 7(2):125; pl. 15,
fig. 16.

Amauropsis purpurea, Dall, 1921:166.

Amauropsis purpurea, Oldroyd, 1927, part 3:134.

Amauropsis islandica, Macpherson, 1971:54; pl. 3, fig. 11.

Amauropsis purpurea, Macpherson, 1971:55; pl. 3, fig. 10.

Amauropsis islandica, Abbott, 1974:157, fig. 1701.

Amauropsis islandica, Marincovich, 1977:217; pl. 17, figs. 1-4; pl. 22,
fig. 1.

Type locality: of *Nerita islandica*, not known.

of *Amauropsis purpurea*, St. Michael's, Norton Sound, Alaska.

Range: Arctic to Cape Menshikof, Bristol Bay. to Sea of Okhotsk. to
Chesapeake Bay. to England and Ireland. (Marincovich, 1977)

Depth: 9 to 1269 m, but primarily 30-60 m. (Marincovich, 1977)

Localities:

Arctic: Prudhoe Bay (1).

Northern Bering: Cape Denbigh and Cape Wales (2).

Southern Bering: north of Unalaska (1).

(all empty).

*Bulbus**Bulbus fragilis* (Leach, 1819)

Natica fragilis Leach, 1819, in Ross, *Voyage of Discovery*, appendix 2 p. 62. (Marincovich, 1977)

Bulbus fragilis apertus Loven, 1849, Dall, 1921:166.

Bulbus fragilis apertus, Oldroyd, 1927, part 3:133.

Bulbus fragilis, Marincovich, 1977:335; pl. 31, figs. 4-7.

Type locality: Baffin Bay.

Range: Circumboreal to Aleutian and Shumagin Islands. to Japan. to Massachusetts Bay. to the Lofoten Island, Norway. (Marincovich, 1977)

Depth: 37-317 m (Eastern Pacific). (Marincovich, 1977)

Localities:

Chukchi: west of Pt. Barrow, 70° 42'N, 159° 51'W (1).

Northern Bering: Wales and Cape Denbigh (2).

(all empty).

Natica

Natica clausa Broderip and Sowerby, 1829

Natica clausa Broderip and Sowerby, 1829, *Zool. J.* 4:372.
(Marincovich, 1977)

Natica russa Gould, 1859, *Boston Soc. Nat. Hist., Proc.* 7:43.
(Johnson, 1964)

Cryptonatica aleutica Dall, 1919, *Proc. U.S. Nat. Mus.* 56:352.

Natica (*Cryptonatica*) *aleutica*, Dall, 1921:164; pl. 14, fig. 10.

Natica (*Cryptonatica*) *clausa*, Dall, 1921:163; pl. 14, fig. 11.

Natica (*Cryptonatica*) *russa*, Dall, 1921:163.

Natica (*Cryptonatica*) *clausa*, Oldroyd, 1927, part 3:122; pl. 97,
fig. 2.

Natica (*Cryptonatica*) *russa*, Oldroyd, 1927, part 3:123.

Natica (*Cryptonatica*) *aleutica*, Oldroyd, 1927, part 3:124.

Natica clausa, MacGinitie, 1959:90; pl. 1, fig. 10; pl. 12, fig. 8.

Natica clausa, Macpherson, 1971:56; pl. 3, fig. 9.

Natica (*Tetonatica*) *clausa*, Abbott, 1974:159, fig. 1718.

Natica (*Cryptonatica*) *clausa*, Marincovich, 1977:410; pl. 41, figs.
7-10; pl. 42, figs. 1-6, text fig. 8.

Type locality: of *Natica clausa*, not known.

of *Natica russa*, Arctic Ocean.

of *Cryptonatica aleutica*, St. George Island, Bering Sea.

Range: Arctic to San Diego, California. to Japan and Korea. to Cape
Hatteras. South Carolina. to Spain. (Marincovich, 1977)

Depth: 9-970 m. (Marincovich, 1977)

Localities:

Arctic: 71-72°N and 151-164°W, 43-102 m (12). Point Barrow (1).

Natica clausa (Continued)

Localities: (Continued)

Northern Bering: Bering Strait, Norton Sound, and north of St. Lawrence Island. 37-77 m (11).

Southern Bering: Bristol Bay to 171°W, 22-142 m (8).

Western Gulf: Tuxedni Bay (1). MacDonald Spit (1).

Eastern Gulf: Port Gavina (1). Port Fidalgo (1). Resurrection Bay (1).

Southeast: Bartlett Cove (1). Ketchikan (1).

*Neverita**Neverita nana* (Möller, 1842)

Natica nana Möller, 1842. *Index Molluscorum Groenlandiae* p. 80.

Polinices (Polinices) nanus, Dall, 1921:165.

Polinices nanus, Oldroyd, 1927, part 3:130.

Polinices nanus, Abbott, 1974:155, fig. 1682.

Neverita (Neverita) nana, Marinovich, 1977:301; pl. 27, figs. 11, 12.

Type locality: Greenland.

Range: Pt. Belcher, Arctic Ocean to Cabo San Quentin, Baja California. Labrador to Newport, Rhode Island and George's Bank. Spitzbergen. Scotland. Norway. the White Sea. Iceland. Japan. (Marinovich, 1977)

Localities:

Northern Bering: north of St. Lawrence Island (1).

Southern Bering: 57 to 60°N and 160 to 169°W, 20 to 58 m (5).
Izembek Lagoon (2).

Neverita politiana (Dall, 1919)

Euspira politiana Dall, 1919, *Proc. U.S. Nat. Mus.* 56:353.

Polinices (Euspira) politiana, Dall, 1921:164.

Polinices (Euspira) politianus, Oldroyd, 1927, part 3:125.

Euspira politiana, Kosuge, 1973; pl. 6, fig. 4.

Neverita (Neverita) politiana, Marincovich, 1977:311; pl. 31, fig. 5.

Type locality: U.S.F.C. Sta 4779, off Petrel Bank, Bering Sea.

Range: known only from type locality, 52°08'N, 179°48'E, 1098 m.
(Marincovich, 1977)

not seen.

Polinices

Polinices pallidus (Broderip and Sowerby, 1829)

Natica pallida Broderip and Sowerby, 1829, *Zool. J.* 4(15):372.
(Marincovich, 1977)

Natica groenlandica Möller ex Beck MS, 1842, *Index Molluscorum
Groenlandiae*, p. 7. (Macpherson, 1971)

Natica caurina Gould, 1847, *Boston Soc. Nat. Hist., Proc.* 2:239.
(Johnson, 1964)

Euspira monterona Dall, 1919, *Proc. U.S. Nat. Mus.* 56:352.

Euspira canonica Dall, 1921, *Proc. U.S. Nat. Mus.* 56:353.

Polinices (Euspira) pallida, Dall, 1921:164; pl. 14, fig. 5.

Polinices (Euspira) groenlandica, Dall, 1921:164.

Polinices (Euspira) monterona, Dall, 1921:164.

Polinices (Euspira) caurina, Dall, 1921:164.

Polinices (Euspira) canonica, Dall, 1921:165.

Polinices (Euspira) canonicus, Oldroyd, 1927, part 3:125.

Polinices (Euspira) monteronis, Oldroyd, 1927, part 3:125.

Polinices (Euspira) groenlandicus, Oldroyd, 1927, part 3:126.

Polinices (Euspira) caurinus, Oldroyd, 1927, part 3:127.

Polinices pallidus, MacGinitie, 1959:91; pl. 12, fig. 10.

Polinices monteronis, MacGinitie, 1959:91; pl. 12, fig. 9.

Natica caurina, Johnson, 1964:53; pl. 16, fig. 13.

Lunatia pallida, Macpherson, 1971:58; pl. 3, fig. 8.

Lunatia pallida, Abbott, 1974:156, fig. 1693.

Euspira monterona, Kosuge, 1973; pl. 6, fig. 5.

Polinices (Euspira) pallidus, Marincovich, 1977:278; pl. 25, figs.
1-6, 8.

Polinices pallidus (Continued)

Type locality: of *Natica pallida*, Icy Cape.

of *Natica groenlandica*, Greenland.

of *Euspira monterona*, Captain's Bay, Unalaska, U.S.F.C. Sta. 1199, 75 fms.

of *Euspira canonica*, off San Diego, California, U.S.F.C. Sta. 2923.

of *Natica caurina*, Straits of Juan de Fuca, Washington.

Range: Circumpolar. Eastern Pacific south to 32°32'N. Western Pacific to Japan. Western Atlantic to Cape Hatteras, North Carolina. Eastern Atlantic to the North Sea and Iceland. (Marincovich, 1977)

Depth: 15 to 4704 m. (Marincovich, 1977)

soft bottoms. (Marincovich, 1977)

Localities:

Arctic: 71 to 72°N and 142 to 162°W, 43 to 150 m (8).

Chukchi: 67 to 71°N and 163 to 178°W, 30 to 50 m (4).

Northern Bering: Bering Strait and Norton Sound to St. Lawrence Island, 37 to 55 m (7). 59 to 61°N and 163 to 173°W, 15 to 108 m (3).

Gulf of Alaska: Sheep Bay, Prince William Sound, 120 m (2). 59 to 60°N and 140 to 146°W, 30 to 158 m (4).

TABLE 21a

Naticidae

	<i>Natica clausa</i>	<i>Polinices pallidus</i>	<i>Bulbus fragilis</i>	<i>Amauropsis islandica</i>
Size - height	39	31	23	28
diameter	35	24	18	22
Number of whorls	3 - 4	5 - 6	5	
Overall shape	globose	globose to slightly elongate	globose to elongate	elongate, oval
Spire	low to moderately elevated	low to moderately elevated	low	low
Shoulder	flattened below suture	rounded	sloping, flattened	narrowly tabulate
Sutures	slightly impressed	slightly impressed	slightly impressed	deeply channeled
Radial sculpture	none	closely spaced, wavy incised lines	closely spaced, wavy incised lines	closely spaced, wavy incised lines
Umbilicus	closed by thick callus	narrowly open, may be closed in juvenile	open, slit-like	very narrow, slitlike

TABLE 21a

Continued

	<u><i>Natica</i></u> <u><i>clausa</i></u>	<u><i>Polinices</i></u> <u><i>pallidus</i></u>	<u><i>Bulbus</i></u> <u><i>fragilis</i></u>	<u><i>Amauropsis</i></u> <u><i>islandica</i></u>
Operculum	shelly	chitinous	chitinous	chitinous
Periostracum	adherent	adherent	adherent	dehiscent
Color	pale orange to dark brown, paler base	pale yellowish to olive brown	yellow to dark brown, streaked	yellow - brown olive - russet

Neverita nana

Size - height	8.7
diameter	6.9
Number of whorls	4 - 4 1/2
Spire	globose - elongate
Shoulder	sloping, flattened
Sutures	slightly impressed
Radial sculpture	none
Axial sculpture	none
Umbilicus	closed by thick callus
Oerculum	chitinous
Periostracum	none
Color	translucent, white

TABLE 21b

Naticidae

Neverita politiana

16

13

globose, low spire

sloping

slightly impressed,
narrowly channeled

none

growth, and sharply
incised striae from
suture part way to
periphery

closed by thick
callus

chitinous

thin, dediscent

yellow, brown

from Dall, 1919;
Marincovich, 1977

Family Lamellariidae

Lamellaria

Lamellaria stearnsii Dall, 1871

Lamellaria stearnsii Dall, 1871, *Amer. J. Conchol.* 7(2):122, pl. 15, fig. 6.

Lamellaria stearnsii orbiculata Dall, 1871, *Amer. J. Conchol.* 7(2):122; pl. 15, fig. 2, 3.

Lamellaria stearnsii and ssp. *orbiculata*, Dall, 1921:166.

Lamellaria stearnsii and ssp. *orbiculata*, Oldroyd, 1927, part 3:135, 136; pl. 92, figs. 4-6.

Type locality: Monterey, California.

Range: Sanak Island, Alaska to Gulf of California. (Dall, 1921)

Depth: intertidal to 20 m (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Lower Cook Inlet. 59°33.1'N, 151°46.8'W, 69 m
(empty) (1).

*Marsenina**Marsenina glabra* (Couthouy, 1838)

Oxinoe ? glabra Couthouy, 1838, *Boston J. Nat. Hist.* 2(1):90; pl. 3, fig. 16. (Johnson, 1946)

Marsenina glabra, Odhner, 1913:51; pl. 1, figs. 7-11; pl. 5, figs. 30, 31..

Marsenina glabra, Macpherson, 1971:47; pl. 2, fig. 12.

Type locality: Massachusetts Bay.

Range: Norway. Iceland. Greenland. Denmark Strait. the White Sea.
Siberian Arctic. Massachusetts. eastern Canada. (Thorson, 1944)

Depth: 40-70 m (Arctic Canada). (Macpherson, 1971)

Localities:

Arctic: 71°27'N, 158°02'W, 64 m (1).

*Onchidiopsis**Onchidiopsis glacialis* (M. Sars, 1851)

Lamellaria glacialis M. Sars, 1851, *Nyt. Mag. f. Naturv.* 6(2):185.
(Macpherson, 1971)

Onchidiopsis groenlandica Bergh, 1853, *Naturv. Afd.* 3:326; pl. 2.
(MacGinitie, 1959)

Onchidiopsis glacialis and var. *groenlandica* and *pacifica*, Balch,
1910:477.

Onchidiopsis glacialis, Odhner, 1913:12,73; pl. 2, figs. 17, 18, 23, 24;
pl. 5, figs. 3, 5, 32, 33.

Onchidiopsis groenlandica, Odhner, 1913:12,74; pl. 2, figs. 19, 25;
pl. 5, figs. 1, 6.

Onchidiopsis glacialis, Macpherson, 1971:51; pl. 2, figs. 14a-b.

Type locality: of *Lamellaria glacialis*, Hemmerfest to Havosend, Norway.

of *Onchidiopsis groenlandica*, Greenland.

Range: Pt. Barrow, Alaska. Kiska Harbor, Aleutian Islands. (MacGinitie,
1959) east and west Greenland. Spitzbergen. Beeren Island-Hope
Island. Iceland. Finmarken. the Murman coast. the Kara Sea. Novaya
Zemlya. (Macpherson, 1971)

Depth: 57-75 to 113 m. (Thorson, 1944)

less than 4 m (Canadian Arctic). (Macpherson, 1971)

Localities:

Arctic: 70°35.5'N, 145°13'W, 50 m (1). 71°12'N, 158°35'W, 102 (1).

Northern Bering: north of St. Lawrence Island, 38 and 57 m (2).
south of St. Matthew Island, 68 and 75 m (2).

Southern Bering: 57°39.3'N, 164°57'W, 60 m (1).

Onchidiopsis hannai Dall, 1916

Onchidiopsis (Atlantolimax) hannai Dall, 1916, *Acad. Nat. Sci. Phila., Proc.* 68:376.

Onchidiopsis hannai, Dall, 1921:167.

Onchidiopsis hannai, Oldroyd, 1927, part 3:137.

Type locality: St. Paul Island, Bering Sea.

Range: St. Paul Island (Dall, 1921) and Raspberry Strait, Afognak Island, Alaska. (Eyerdam, 1960)

not seen.

Family Velutinidae

*Capulacmaea**Capulacmaea radiata* (M. Sars, 1851)

Capulus radiatus M. Sars, 1851, *Nyt. Mag. f. Naturv.* 6(2):184.
(Macpherson, 1971)

Pilidium commodum Middendorff, 1851, *Mollusken. Sibirische Reise*
2(1):52; pl. 17, figs. 4-11. (Macpherson, 1971)

Pilsicus commodus, Dall, 1921:161.

Piliscus commodus, Oldroyd, 1927, part 3:111.

Capulacmaea radiatum, Thorson, 1944:58.

Piliscus commodus, MacGinitie, 1959:93; pl. 5, figs. 4-6.

Capulacmaea radiata, Macpherson, 1971:53; pl. 3, figs. 4, 7.

Type locality: of *Capulus radiatus*, Komangfjord, Norway.

of *Pilidium commodum*, Okhotsk Sea.

Range: Arctic Canada. North of Siberia. the Kara Sea. Greenland.
Spitzbergen. West Finmarken. south of Iceland. Bering Sea.
Okhotsk Sea. Aleutian Islands. (Thorson, 1944)

Depth: 22 to 430 m. (Thorson, 1944)

sand and rock (Point Barrow). (MacGinitie, 1959) very hard clay
with stones. (Thorson, 1944)

Localities:

Northern Bering: Norton Sound, 40 m (2).

Southern Bering: Bristol Bay, north of Shaiak Island (empty) (1).

Western Gulf: Tuxedni Bay, intertidal (1).

Velutina

Velutina conica Dall, 1887

Velutina conica Dall, 1887, *Proc. U.S. Nat. Mus.* 9:305; pl. 3, fig. 10.

Velutina conica, Dall, 1921:167.

Velutina conica, Oldroyd, 1927, part 3:139.

Type locality: Unalaska and Kodiak Island, Alaska.

Range: Aleutian Islands to Kodiak Island, to Forrester Island, Alaska.
(Dall, 1921)

not seen.

Velutina lanigera Möller, 1842

Velutina lanigera Möller, 1842, *Index Molluscorum Groenlandiae*
p. 10. (MacGinitie, 1959)

Velutina lanigera, Odhner, 1913:65; pl. 1, figs. 27-29.

Velutina lanigera, MacGinitie, 1959:97; pl. 6, fig. 7.

Type locality: Greenland.

Range: Norway. Spitzbergen. Iceland. Greenland. Point Barrow, Alaska to
Peterel Bank, Bering Sea. (MacGinitie, 1959)

Depth: 4 to 223 fms. (Odhner, 1913)

clay, sand, stones, rock. (Odhner, 1913)

Localities:

Arctic: Point Hope (empty) (1).

Northern Bering: north of St. Lawrence Island (1).

Southern Bering: 57-58°N and 159-169°W (3).

Velutina plicatilis (Müller, 1776)

Bulla plicatilis Müller, 1776, *Zoologicae Danicae Prodrromus* p. 242.
(Macpherson, 1971)

Velutina cryptospira Middendorff, 1849, *Bull. Physico-Math. Acad. Imp. Sci. St. Petersburg* 8:18. (MacGinitie, 1959)

Helix coriacea Pallas, 1788, *Nova Acta Acad. Sci. Imp. Petropolit-
ianae* 2:243; pl. 7, figs. 31, 33. (MacGinitie, 1959)

Velutina sitkensis A. Adams, 1851, *Proc. Zool. Soc.* p. 283. (Mac-
Ginitie, 1959)

Velutina plicatilis, Odhner, 1913:67; pl. 1, figs. 12-16; pl. 5,
figs. 25-26.

Velutina coriacea, Dall, 1921:167.

Velutina cryptospira, Dall, 1921:167.

Velutina cryptospira, Oldroyd, 1927, part 3:138.

Velutina coriacea, Oldroyd, 1927, part 3:140.

Velutina sitkensis, Oldroyd, 1927, part 3:141.

Velutina plicatilis and var. *cryptospira*, MacGinitie, 1959:96;
pl. 6, figs. 6, 8-10.

Velutina plicatilis, Macpherson, 1971:49; pl. 2, fig. 13.

Type locality: of *Bulla plicatilis*, "Daniae et Norvegiae."

of *Velutina cryptospira*, Gulf of Alaska.

of *Velutina sitkensis*, Sitka, Alaska.

of *Helix coriacea*, Arctic.

Range: Norway. Spitzbergen. the White Sea. British Isles. the Faroes.
Iceland. Greenland. Nova Scotia. Newfoundland. (Thorson, 1944)
Arctic Canada. (Macpherson, 1971) Point Barrow. Bering and Okhotsk
Seas to Aleutian Islands. (MacGinitie, 1959) Gulf of Alaska to
Sitka, Alaska. (Dall, 1921)

Velutina plicatilis (Continued)

Depth: 10 to 741 ft (Point Barrow). (MacGinitie, 1959)

40 to 106 m (Arctic Canada). (Macpherson, 1971)

15 to 377 m (Norway). (Thorson, 1944)

mud and rocks. (Macpherson, 1971)

Localities:

Southern Bering: 54 to 59°N and 161 to 170°W, 20 to 55 m (10).

Western Gulf: Squirrel Bay, Evans Island, Prince William Sound (1).

Southeast: Ketchikan (1).

Velutina prolongata Carpenter, 1864

Velutina prolongata Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 628, 661. (Palmer, 1958)

Velutina prolongata, Dall, 1921:167.

Velutina prolongata, Oldroyd, 1927, part 3:140.

Velutina prolongata, Palmer, 1958:202; pl. 21, figs. 7, 8.

Type locality: Puget Sound, Washington.

Range: Bering Strait to Monterey, California. (Dall, 1921)
Prince William Sound. (Talmadge, 1966)

Depth: 20 to 50 m (British Columbia). (Bernard, 1970)

Velutina rubra Willett, 1919

Velutina rubra Willett, 1919, *Nautilus* 33:25.

Velutina rubra, Talmadge, 1966:85.

Type locality: Forrester Island, Alaska.

Range: Woodcock Point, Montague Island and Cedar Bay, Prince William Sound.
Forrester Island, Alaska. (Talmadge, 1966)

on scarlet ascidians. (Talmadge, 1966)

Velutina undata Brown, 1839

Velutina undata Brown in Smith, 1839, *Wernian Nat. Hist. Soc., Mem.* part 1, 8:102. (Odhner, 1913)

Velutina zonata Gould, 1841, *Invert. Mass.*, p. 242, fig. 160. (Johnson, 1964)

Velutina undata and var. *zonata*, Odhner, 1913:55; pl. 2, figs. 1-10; pl. 5, figs. 27, 28.

Velutina zonata, Dall, 1921:167.

Velutina zonata, Oldroyd, 1927, part 3:139.

Velutina undata and var. *zonata*, MacGinitie, 1959:94; pl. 6, figs. 1-3.

Velutina zonata, Johnson, 1964:170; pl. 17, fig. 2.

Velutina undata, Macpherson, 1971:49; pl. 3, fig. 5.

Type locality: of *Velutina undata*, Dalmuir, Scotland, Pleistocene.

of *Velutina zonata*, Chelsea Beach and off Cape Ann, Massachusetts.

Range: Circumpolar. Siberian, Russian, Norwegian and North American Arctic. East Atlantic to the Faroes and Iceland. West Atlantic to Maine. Point Barrow to Kudobin Island, Alaska. (MacGinitie, 1959)

Depth: 8 to 1187 m. (Thorson, 1944)

29 to 173 m (Arctic Canada). (Macpherson, 1971)

clay, sand, stones, algae. (Odhner, 1913)

Localities:

Arctic: 71 to 72°N and 158 to 164°W, 43 to 150 m (6).

Northern Bering: Norton Sound (2).

Velutina velutina (Müller, 1776)

Bulla velutina Müller, 1776, *Zoologicae Danicae Prodrromus* p. 242.
(Macpherson, 1971)

Velutina velutina, Odhner, 1913:60; pl. 1, figs. 17-26; pl. 5, figs. 22-24.

Velutina laevigata "(Linnaeus) Müller, 1776," Dall, 1921:167.

Velutina laevigata, Oldroyd, 1927, part 3:140; pl. 92, fig. 8.

Velutina laevigata and var. *schneideri*, MacGinitie, 1959:95; pl. 6, figs 4, 5.

Velutina velutina, Macpherson, 1971:51; pl. 3, fig. 6.

Velutina velutina, Abbott, 1974:146, fig. 1602.

Type locality: "Daniae et Norvegiae."

Range: Siberian, Russian and Norwegian Arctic.

East Atlantic: coast of Norway to Portugal.

West Atlantic: eastern Canada and Newfoundland to Cape Hatteras.

East Pacific: Point Barrow to Puget Sound.

West Pacific: Bering Strait to Kamchatka. (MacGinitie, 1959) to Monterey, California. (Dall, 1921)

Depth: 420 to 471 ft (Point Barrow). (MacGinitie, 1959)

12 to 120 m (Canadian Arctic). (Macpherson, 1971)

intertidal to 20 m (British Columbia). (Bernard, 1970)

clay, stones. (Odhner, 1913)

mud, sand, rock. (Macpherson, 1971)

Localities:

Western Gulf: Seldovia Point (1).

Eastern Gulf: Sundstrum Island (1).

Southeast: Ketchikan (1).

TABLE 22a

Velutina

	<u><i>Velutina</i> <i>undata</i></u>	<u><i>Velutina</i> <i>velutina</i></u>	<u><i>Velutina</i> <i>plicatilis</i></u>
Number of whorls	2 1/2	3 1/2	2 1/2
*Size - height	16.9	15.0	22.8
breadth	13.7	13.5	21.0
width	7.2	7.2	10.3
Aperture	oval	broadly oval	elongate ovate
Columella	broad, flat	narrow, rounded	rounded
Calcification	well calcified	nuclear whorls, columella, and a thin inner layer	nuclear whorls and a thin inner layer
Nuclear whorls	large	minute	large
Periostracum thickness	very thin, smooth	moderately thick	very thick
texture	not seen	tufted spiral ridges	tufted spiral ridges, smooth, or with heavy axial lines

*Length, breadth, and height as defined by Odhner, 1912

TABLE 22b

Velutina

	<u><i>Velutina lanigera</i></u>	<u><i>Velutina rubra</i></u>
Number of whorls	2	
Size - height	26.8	13.5
breadth	26.0	9
width	13.5	
Aperture	broadly oval	
Columella	rounded	
Calcification	nuclear whorls and a thin inner layer	
Nuclear whorls	large	
Periostracum thickness	very thick	
texture	tufted spiral ridges	

from
Willetts, 1919

Velutina
conica

Velutina
prolongata

4

3 1/2

10.0

7.5

7.6

oblique

long, oval

moderate inner layer

extremely thin

thin

finely striate
in both directions

growth lines and
slightly impressed
striae

from
Dall, 1886

from
Carpenter, 1864
in Oldroyd, 1927;
Palmer, 1958

Family Cymatiidae

*Fusitriton**Fusitriton oregonensis* (Redfield, 1846)

Triton oregonense Redfield, 1846, *New York Lyceum Nat. Hist. Ann.* 4:165; pl. 11, fig. 2. (Smith, 1970)

Argobuccinum (Fusitriton) oregonensis, Dall, 1921:141.

Argobuccinum (Fusitriton) oregonensis, Oldroyd, 1927, part 2:242; pl. 37, figs. 1-3.

Fusitriton oregonensis, Smith, 1970:485; pl. 45, figs. 1-11; pl. 46, figs. 1, 2, 5, 6, 8, 9, 13, 14; pl. 47, figs. 2, 3.

Fusitriton oregonensis, Abbott, 1974:163, fig. 1750.

Type locality: Straits of Juan de Fuca.

Range: West Pacific: Northern Japan to Niigata and from Cape Insubo north. Sea of Okhotsk and Kamchatka.

East Pacific: Commander, Pribilof and Aleutian Islands. Southern Bering Sea. Gulf of Alaska south to off San Diego, California. (Smith, 1970)

Depth: 5 to 230 fms (Gulf of Alaska). (Smith, 1970)

subtidal to 100 m (British Columbia). (Bernard, 1970)

1100 to 1300 fms (off San Nicholas Island, southern California). (Smith, 1970)

Localities:

Southern Bering: 54 to 59°N and 163 to 177°W, 73 to 353 m (29).

Western Gulf: 59 to 50°N and 141 to 147°W (42). Port Etches (1). Port Valdez (1).

Southeast: Knudsen Cove (1). Clover Passage, Bartlett Cove (1).

Family Muricidae

*Boreotrophon**Boreotrophon alaskanus* Dall, 1902

Boreotrophon alaskanus Dall, 1902, *Proc. U.S. Nat. Mus.* 24:545.

Trophon (Neptunea) ithitoma Dall, 1919, *Proc. U.S. Nat. Mus.* 56:337.

Trophon (Neptunea) alaskana, Dall, 1921:110.

Trophon (Neptunea) ithitoma, Dall, 1921:110.

Trophon (Neptunea) alaskanus, Oldroyd, 1927, part 2:34.

Trophon (Neptunea) ithitoma, Oldroyd, 1927, part 2:33.

Boreotrophon alaskanus, Kosuge, 1973; pl. 7, fig. 8.

Neptunea ithitoma, Kosuge, 1973, pl. 7, fig. 5.

Type locality: of *Boreotrophon alaskanus*, Bering Sea, north of Unalaska.

of *Trophon ithitoma*, Tiaya Inlet, Alaska.

Range: known from type localities.

Localities:

Southeast: Berner's Bay, 135 m (empty) (1). Taku Inlet (1).

Boreotrophon beringi (Dall, 1902)

Trophon beringi Dall, 1902, *Proc. U.S. Nat. Mus.* 24:544.

Trophon (Neptunea) beringi, Dall, 1921:109; pl. 10, fig. 6.

Trophon (Neptunea) beringi, Oldroyd, 1927, part 2:33; pl. 30, fig. 6, part 1, pl. 18, fig. 8.

Boreotrophon beringi, MacGinitie, 1959:99; pl. 7, figs. 11, 12.

Boreotrophon beringi, Kosuge, 1973; pl. 8, fig. 2.

Type locality: Nunivak Island, Bering Sea and others.

Range: off Point Barrow. Pribilof, Aleutian and Shumagin Islands.
Kamchatka. (MacGinitie, 1959)

Localities:

Arctic: 70 to 72°N and 142 to 160°W, 50 to 130 m (20).

Chukchi: 66 to 68°N and 166 to 169°W, 37 to 40 m (4).

Northern Bering: north of St. Lawrence Island (6).

Southern Bering: Bristol Bay (1).

Boreotrophon clathratus (Linnaeus, 1767)

Murex clathratus Linnaeus, 1767, *Systema naturae*, ed., 12 vol. 1, p. 1223. (MacGinitie, 1959)

Boreotrophon clathratus, MacGinitie, 1959:98; pl. 7, figs. 1-7.

Boreotrophon clathratus, Macpherson, 1971:60; pl. 3, fig. 15.

Type locality: "In Islandiae Mari."

Range: Siberian and Canadian arctic. Bering Strait. Japan. Puget Sound. Greenland. New England. White Sea. Baffinland. Northern England. (MacGinitie, 1959; Macpherson, 1971)

Depth: 45 to 1033 m. (Macpherson, 1971)

Localities:

Arctic: 69 to 72°N and 146 to 166°W, 20 to 102 m (7).

Northern Bering: north of St. Lawrence Island, 20 to 123 m (3).

Southern Bering: 54 to 57°N and 166 to 169°W (3).

Boreotrophon elegantulus Dall, 1907

Boreotrophon elegantulus Dall, 1907, *Smithsonian Misc. Coll.* 50, part 2:165.

Trophon (Neptunea) elegantula, Dall, 1921:109; pl. 6; fig. 6.

Trophon (Neptunea) elegantulus, Oldroyd, 1927, part 2:32; pl. 31, fig. 10.

Boreotrophon elegantulus, Kosuge, 1973; pl. 8, fig. 8.

Boreotrophon elegantulus, Abbott, 1974:190, fig. 1983.

Type locality: off Attu Island, Aleutians, 135 fms.

Range: off Attu Island, Aleutians. (Dall, 1921)

not seen.

Boreotrophon multicosatus (Eschscholtz, 1829)

Murex multicosatus Eschscholtz, 1829, *Zool. Atlas* ..., part 2, p. 11; pl. 4, fig. 4. (Grant and Gale, 1931)

Trophon (Neptunea) multicosata, Dall, 1921:110; pl. 13, fig. 1.

Trophon (Neptunea) multicosata, Oldroyd, 1927, part 2:33; pl. 33, fig. 11.

Boreotrophon multicosatus, Talmadge, 1966:327; pl. 22, fig. 2.

Boreotrophon multicosatus, Abbott, 1974:189, fig. 1971. (as *B. clathratus*, but illustration is the same as Dall's of *T. (N.) multicosata*)

Type locality: Sitka, Alaska.

Range: Nunivak Island, Alaska to San Pedro, California. (Dall, 1921)

Depth: intertidal to 30 m. (Bernard, 1970)

Localities:

Western Gulf: lower Cook Inlet (2).

Boreotrophon muriciformis (Dall, 1877)

Trophon muriciformis Dall, 1877, *Calif. Acad. Sci., Proc.* Mar. 19, p. 4. (Preprint) vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Trophon muriciformis, Dall, 1877:302; pl. 4, fig. 6.

Trophon dalli, Kobelt, 1878, *Conch. Cab.*, ed. 2, p. 275 (Dall, 1887) (unnecessary new name for *Trophon muriciformis* Dall, not *Buccinum muriciforme* King and Broderip)

Boreotrophon dalli altus, Dall, 1902, *Proc. U.S. Nat. Mus.* 24:548.

Trophon (Neptunea) dalli and ssp. *altus*, Dall, 1921:109.

Trophon (Neptunea) dalli and ssp. *altus*, Oldroyd, 1927, part 2:30-31.

Trophon muriciformis, Kosuge, 1973; pl. 7, fig. 3.

Boreotrophon dalli altus, Kosuge, 1973; pl. 7, fig. 4.

Boreotrophon dalli, Abbott, 1974:189; fig. 1975.

Type locality: not specified. Icy Cape, Bering Sea and Victoria, Vancouver Island.

Range: Arctic Ocean to Straits of Juan de Fuca. (Dall, 1921)

Depth: 80 to 100 m (British Columbia). (Bernard, 1970)

Localities:

Arctic: 70 to 72°N and 142 to 160°W, 50 to 130 m (4).

Chukchi: 68°38'N, 176°00'W, 50 m (1).

Southern Bering: 55 to 58°N and 164 to 172°W, 79 to 126 m (8).

Boreotrophon pacificus Dall, 1902

Boreotrophon pacificus Dall, 1902, *Proc. U.S. Nat. Mus.* 24:544.

Trophon (Neptunea) pacifica, Dall, 1921:110; pl. 11, fig. 5.

Trophon (Neptunea) pacifica, Oldroyd, 1927, part 2:35; pl. 30, fig. 4.

Boreotrophon pacificus, Talmadge, 1966:237; pl. 22, fig. 1.

Type locality: Bering Sea? not specified.

Range: Pt. Barrow, Alaska (MacGinitie, 1959) to Kamchatka and to Acapulco, Mexico, in deep water. (Dall, 1921)

Localities:

Southern Bering: 57 to 58°N and 168 to 170°W, 65 to 69 m (2).
off Cape Lieskof (1). Izembek Lagoon (1).

Western Gulf: Tutka Bay (1). Seldovia Point (1), intertidal.

Boreotrophon rotundatus Dall, 1902

Boreotrophon rotundatus Dall, 1902, *Proc. U.S. Nat. Mus.* 24:547.

Trophon (Neptunea) rotundata, Dall, 1921:109; pl. 15, fig. 3.

Trophon (Neptunea) rotundatus, Oldroyd, 1927, part 2:29; pl. 30, fig. 8.

Boreotrophon rotundatus, Kosuge, 1973; pl. 7, fig. 7.

Boreotrophon rotundatus, Abbott, 1974:190, fig. 1981.

Type locality: southeast of the Pribilof Islands, Bering Sea, 74 fms.

Range: off Pribilof Islands, Bering Sea. (Dall, 1921)

not seen.

Boreotrophon scitulus (Dall, 1891)

Trophon (*Boreotrophon*) *scitulus* Dall, 1891, *Proc. U.S. Nat. Mus.* 14:188.

Trophon (*Neptunea*) *scitula*, Dall, 1921:109; pl. 13, fig. 6.

Trophon (*Neptunea*) *scitulus*, Oldroyd, 1927, part 2:31, part 1, pl. 15, fig. 4.

Boreotrophon scitulus, Abbott, 1974:189; fig. 1972.

Trophon (*Boreotrophon*) *scitulus*, Kosuge, 1973; pl. 8, fig. 5.

Type locality: off Unalaska Island, Aleutian Islands, 225 fms.

Range: Pribilof Islands to Unalaska Island, Bering Sea (Dall, 1921) to San Diego, California. (Abbott, 1974)

not seen.

Boreotrophon smithi Dall, 1902

Boreotrophon (stuarti var?) *smithi* Dall, 1902, *Proc. U.S. Nat. Mus.* 24:542.

Trophon (Neptunea) smithi, Dall, 1921:111; pl. 13, fig. 8.

Trophon (Neptunea) smithi, Oldroyd, 1927, part 2:38; pl. 33, fig. 14.

Boreotrophon smithi, Abbott, 1974:189, fig. 1973. (*B. smithi* is included in synonymy with *B. stuarti*, however the illustration is of *B. smithi*)

Type locality: none specified, Fuca Strait, Washington. Santa Barbara, California.

Range: Pribilof Islands, Alaska to Santa Barbara, California. (Dall 1921)

Depth: intertidal to 150 m (British Columbia). (Bernard, 1970)

Localities:

Southeast: Cross Sound (empty) (1).

Boreotrophon staphylinus (Dall, 1919)

Neptunea staphylinus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:338.

Trophon (Neptunea) staphylina, Dall, 1921:110.

Trophon (Neptunea) staphylinus, Oldroyd, 1927, part 2:36.

Type locality: off Santa Barbara, California.

Range: Sitka, Alaska to the Coronado Islands. (Dall, 1921)

not seen.

Boreotrophon stuarti (E. A. Smith, 1880)

Trophon stuarti E. A. Smith, 1880, *Zool. Soc. London, Proc.* p. 481;
pl. 48, fig. 6. (Grant and Gale, 1931)

Trophon (Neptunea) stuarti, Dall, 1921:111.

Trophon (Neptunea) stuarti, Oldroyd, 1927, part 2:38; pl. 33, fig. 13.

Type locality: Vancouver Island, British Columbia.

Range: Shumagin Islands, Alaska, to San Diego, California. (Dall, 1921)

Localities:

Western Gulf: 59°19.6 to 59°46'N and 151°52' to 152°18'W (4).

Eastern Gulf: 59°53'N, 146°51'W (1). Port Etches, Prince William Sound (1).

Boreotrophon truncatus (Strom, 1768)

Buccinum truncatum Strom, 1768, *Kongl. Norske Vidensk. Selsk. Skrift.* 4:369; pl. 16, fig. 26. (MacGinitie, 1959)

Boreotrophon truncatus, MacGinitie, 1959:101; pl. 7, figs. 8-10; pl. 8, figs. 3, 4, 7, 9.

Boreotrophon truncatus, Macpherson, 1971:62; pl. 3, fig. 13.

Type locality: not specified.

Range: Pt. Barrow. (MacGinitie, 1959) northern Bering Sea. (Rowland, 1973) Arctic Canada. New England. Greenland. Iceland. Great Britain. Denmark. Barents Sea. Siberian Ice Sea. Arctic Ocean to off Franz Joseph and New Siberian Islands. (Macpherson, 1971)

Depth: 125 to 741 ft (Pt. Barrow). (MacGinitie, 1959)

15 to 160 m (Arctic Canada). (Macpherson, 1971)

TABLE 23a

Boreotrophon

	<u><i>Boreotrophon stuarti</i></u>	<u><i>Boreotrophon smithi</i></u>	<u><i>Boreotrophon multicostatus</i></u>	<u><i>Boreotrophon pacificus</i></u>
Size - height diameter	54.7 22	41.7 19.6	23.5 12.8	25.2 12.0
Relative propor- tions	spire slightly shorter than body whorl and canal	spire slightly shorter than body whorl and canal	spire slightly shorter than body whorl and canal	spire approxi- mately equal to body whorl and canal
Number of whorls	9	7-8	7	6
Whorl profile	shouldered, slightly con- cave above most posterior radial	shouldered	shouldered near suture, flat to concave behind	rounded
Varices	thin, very wide, pro- longed and flared at shoulder	thin, very wide, pro- longed and flared at shoulder	thin, wide, prolonged and incurved at shoulder	thin narrow varices rounded at shoulder
Number of varices	7 to 12	7	9	12-14

TABLE 23a

Continued

	<u><i>Boreotrophon stuarti</i></u>	<u><i>Boreotrophon smithi</i></u>	<u><i>Boreotrophon multicostatus</i></u>	<u><i>Boreotrophon pacificus</i></u>
Radial sculpture	six low rounded cords, extending onto varices	one low cord at shoulder - extending onto varices	none	none
Relative length of canal	short	moderate	short	short
Shape of canal	straight	slightly curved	straight	straight

TABLE 23b

Boreotrophon

	<u><i>Boreotrophon</i></u> <u><i>alaskanus</i></u>	<u><i>Boreotrophon</i></u> <u><i>muriceiformis</i></u>	<u><i>Boreotrophon</i></u> <u><i>clathratus</i></u>	<u><i>Boreotrophon</i></u> <u><i>beringi</i></u>
Size - height	36.4	45.7	35.6	29.5
diameter	15.0	24.5	15.0	16.0
Relative proportions	spire much shorter than body whorl and canal	spire much shorter than body whorl and canal	spire slightly to much shorter than body whorl and canal	spire slightly shorter than body whorl and canal
Number of whorls	6	5-6	6-7	6-7
Whorl profile	rounded, shouldered	globose	rounded to slightly shouldered	rounded
Varices	low on body whorl concave spines at shoulder	obsolete on body whorl triangular spines at shoulder	narrow, angular at shoulder	narrow, evenly rounded
Number of varices	12-13	14-18	10-18	18-26
Radial sculpture	none	none	none	none

TABLE 23b

Continued

	<u><i>Boreotrophon alaskanus</i></u>	<u><i>Boreotrophon muriciformis</i></u>	<u><i>Boreotrophon clathratus</i></u>	<u><i>Boreotrophon beringi</i></u>
Relative length of canal	very long	very long	long	short to moderate
Shape of canal	straight	straight	curved	slightly to much curved

TABLE 23c

Boreotrophon

	<u><i>Boreotrophon scitulus</i></u>	<u><i>Boreotrophon elegantulus</i></u>	<u><i>Boreotrophon rotundatus</i></u>	<u><i>Boreotrophon truncatus</i></u>
Size - height	17.5	31.5	16	5
diameter	8.5	12.5	7	7
Relative proportions				spire approximately equal to body whorl and canal
Number of whorls	6	7	5	6-7
Whorl shape		elongate - rounded	rounded	rounded
Varices	low imbricate lamellae rising to spines at regular intervals	thin, sharp, reflected, slightly flared toward anterior	angular, but not spinose, thick, rounded, not sharp	narrow, rounded at shoulder
Number of varices	13	10-12	14	22-25
Radial sculpture	low rounded ribs	3-4 spiral threads on upper whorls	none	very narrow threads

TABLE 23c

Continued

	<u><i>Boreotrophon scitulus</i></u>	<u><i>Boreotrophon elegantulus</i></u>	<u><i>Boreotrophon rotundatus</i></u>	<u><i>Boreotrophon truncatus</i></u>
Relative length of canal	long	long		long
Shape of canal	curved	curved	moderate	curved
	from Dall, 1891	from Dall, 1907	from Dall, 1902	specimen from Iceland

*Ceratostoma**Ceratostoma foliatum* (Gmelin, 1791)*Murex (Purpura) foliata* "Martyn, 1784," Dall, 1921:106.*Purpura foliata* "Martyn, 1784," Oldroyd, 1927, part 2:14.*Ceratostoma (Pterorytis) foliatum*, Abbott, 1974:185; color pl. 9, fig. 1937.

Type locality: Sitka, Alaska.

Range: Prince William Sound (Talmadge, 1966) to San Diego, California.
(Dall, 1921)

Depth: intertidal to 50 m (British Columbia). (Bernard, 1970)

Localities:

Southeast: Yamani Cove, Baranof Island (1). Hole-in-the-wall,
Prince of Wales Island. Homestead Beach, Ketchikan (1).

*Ocenebra**Ocenebra interfossa* (Carpenter, 1864)

Ocenebra interfossa Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.*
p. 603, 606, 628, 663. (Palmer, 1958)

Tritonalia interfossa, Dall, 1921:108; pl. 11, fig. 8.

Tritonalia interfossa, Oldroyd, 1927, part 2:21; pl. 20, fig. 2.

Ocenebra interfossa, Palmer, 1958:202; pl. 23, fig. 1.

Ocenebra interfossa, Abbott, 1974:183; fig. 1914.

Type locality: Monterey, California.

Range: Semidi Islands, Alaska. to San Diego, California (Dall, 1921)
to Punta Santo Tomas, Baja California. (Palmer, 1958) Prince
William Sound. (Talmadge, 1966; Eyerdam, 1924) Afognak and Sitka-
lidak Islands. (Eyerdam, 1961)

Localities:

Western Gulf: 58°19.6'N, 151°52.2'W, 110 to 115 ft (1). Tutka Bay,
intertidal (1).

Southeast: Ketchikan (1).

*Trophonopsis**Trophonopsis subserratus* (Sowerby, 1880)*Trophon subserratus* Dall, 1902:541 (in synonymy with *Boreotrophon tenuisculptus* (Carpenter, 1864)).*Neptunea tenuisculpta*, Dall, 1921:111 (in part); pl. 11, figs. 11, 12.*Trophon lasius*, (Dall, 1919) Abbott, 1974:191 (in part); fig. 2000.

Type locality: Vancouver, British Columbia. (Dall, 1902)

Range: Prince William Sound. (Talmadge, 1966)

Localities:

Western Gulf: Cold Bay, 18 m (1). Lower Cook Inlet (3). Tutka Bay (1).

Eastern Gulf: 59°10'N, 140°39'W, 170 m (1). Port Valdez (1).

Southeast: Taku Harbor (1). Hobart Bay Cove (1).

*Urosalpinx**Urosalpinx lurida* (Middendorff, 1848)*Tritonium (Fusus) luridum* Middendorff, 1848, *Bull. Phys.- Math. Acad. Imp. Sci. St. Petersburg* 7:244. (Grant and Gale, 1931)*Tritonalia lurida*, Dall, 1921:107.*Tritonalia lurida*, Oldroyd, 1927, part 2:16.*Urosalpinx lurida*, Abbott, 1974:179, figs. 1886, 1886a.

Type locality: Sitka, Alaska.

Range: Izhut Bay, Afognak Island, Alaska. (Eyerdam, 1938) Prince William Sound and Middleton Island, Alaska (Talmadge, 1966) to San Diego, California. (Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

not seen.

Family Thaididae

Nucella

Nucella canaliculata (Duclos, 1832)

Purpura canaliculata Duclos, 1832, *Ann. Sci. Nat.* 26; pl. 1, fig. 1. (Grant and Gale, 1931)

Thais (Nucella) canaliculata, Dall, 1921:112.

Thais (Nucella) canaliculata, Oldroyd, 1927, part 2:46; pl. 35, figs. 3-4.

Nucella canaliculata, Abbott, 1974:182, figs. 1904, 1904a, 1904b.

Type locality: Monterey, California.

Range: Aleutian Islands to Sitka, Alaska and south to Monterey, California. (Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Southern Bering: Eider Point, Unalaska (1).

Western Gulf: Cold Bay (2). Tutka Bay (1).

Southeast: Rush Point, Glacier Bay (1).

intertidal.

Nucella emarginata (Deshayes, 1839)

Purpura emarginata Deshayes, 1839, *Rev. Zool. Soc. Cuvierienne*
p. 360. (Grant and Gale, 1931)

Thais emarginata projecta Dall, 1915, *Proc. U.S. Nat. Mus.* 49:571;
pl. 75, fig. 3.

Thais (Nucella) emarginata and ssp. *projecta*, Dall, 1921:112.

Thais (Nucella) emarginata and ssp. *projecta*, Oldroyd, 1927, part
2:44-45, pl. 35, figs. 2,3; pl. 37, figs. 4, 5.

Thais emarginata projecta, Kosuge, 1973; pl. 9, fig. 3.

Nucella emarginata, Abbott, 1974:182; figs. 1909, 1910.

Type locality: California.

Range: Bering Island and the Okhotsk Sea. Hagmeister Island, Bering Sea,
and south to California. Mazatlan and Topobambo, Mexico. (Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Southeast: LaChausse Spit, Lituya Bay (1). Snipe Bay, Baranof Island
(1). Homestead Beach, Ketchikan (1).

intertidal.

Nucella lamellosa (Gmelin, 1790)

Buccinum lamellosum Gmelin, 1790, *Systema Naturae* ed. 13, vol. 7, p. 3498. (Grant and Gale, 1931)

Thais (Nucella) lamellosa and subspecies, Dall, 1915, *Proc. U.S. Nat. Mus.* 49:563; pl. 74, figs. 5-8.

Thais (Nucella) lamellosa and subspecies, Dall, 1921:111, 112.

Thais (Nucella) lamellosa and subspecies, Oldroyd, 1927, part 2:42-44; pl. 35, figs. 5-8; pl. 38, figs. 1-5.

Thais lamellosa sitkana, Kosuge, 1973; pl. 8, fig. 4.

Thais lamellosa hormica, Kosuge, 1973; pl. 8, fig. 7.

Thais lamellosa neptunea, Kosuge, 1973; pl. 9, fig. 6.

Nucella lamellosa, Abbott, 1974:182; figs. 1905-1908.

Type locality: Cook Inlet, Alaska.

Range: Port Clarence, Bering Strait and southward, on the west to Sado Island, Japan Sea, on the east to the Aleutian Islands and Santa Barbara, California. (Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Western Gulf: Ugaiushak Island (1). Kasitsna Bay (empty) (1).

Eastern Gulf: Port Gravina (1). Montague Island (1).

Southeast: Lagoon Island, Glacier Bay (1).

Nucella lima (Gmelin, 1791)

Thais lima "Martyn, 1784," Dall, 1915; pl. 75, figs. 4-6.

Thais (Nucella) lima "Martyn, 1784," Dall, 1921:112.

Thais lima "Martyn, 1784," Oldroyd, 1927, part 2:44; pl. 36, figs. 4-6.

Nucella lima, Abbott, 1974:182, figs. 1911-1913.

Type locality: "King George's Sound."

Range: Kotzebue Sound, south on the west to the Kuril Islands and northern Japan. On the east to the Aleutian Islands, Alaska, Monterey, and San Diego, California and Cerros Island, Baja California.
(Dall, 1921)

Depth: intertidal (British Columbia). (Bernard, 1970)

Localities:

Northern Bering: St. Lawrence Island (empty) (1).

Southern Bering: Cape Pierce (1). Cape Newenham (1). Izembek Lagoon (3). Buldir Island (1).

Western Gulf: Cold Bay (1). Ugaiushak Island (1). Tuxedni Bay (1).

Eastern Gulf: Resurrection Bay (1).

Southeast: Lemisurier Island (1). Porpoise Island (1). Marble Island (1). Lituya Bay (1). Eagle River (1). Lootznahoo Bay (1).

intertidal.

	<i>Nucella lamellosa</i>	<i>Nucella lima</i>
Size - height	62	37.0
diameter	32	21.5
Number of whorls	5-7	4
Whorl profile	rounded to shouldered	low, rounded
Sutures	constricted to shallow	shallow to slightly constricted
Radial sculpture	rounded cords with slightly wider inter- spaces	high squarish cords alter- nating in width
Number of cords	9 on body whorl. 1-3 but usually 2 on spire	approximately 20 on body whorl
Variation in strength of radial sculpture	very promi- nent to obsolete	may be obso- lete on body whorl

TABLE 24

Nucella

<i>Nucella canaliculata</i>	<i>Nucella emarginata</i>
38.0	26.8
21.0	17.0
3-4	3 1/2
low, rounded slightly flattened to posterior	low, rounded to shouldered
deep channeled	slightly constricted
high, squarish cords, alter- nating in width	low, occasionally nodose cords
approximately 14 on body whorl	approximately 9 on body whorl
always promi- nent	may be obsolete, expressed only as bands of color

TABLE 24

Continued

	<u>Nucella lamellosa</u>	<u>Nucella lima</u>	<u>Nucella canaliculata</u>
Axial sculpture	frilly lamel- lae, very prominent to obsolete	very low lamellae pas- sing over radial cords	very low lamellae be- tween cords
Columella	straight, flat	curved, wide flat	curved, wide flat
Siphonal fasciole	well devel- oped	well devel- oped	well devel- oped

Nucella
emarginata

low lines of growth

much curved, wide,
flat

well developed,
but almost covered
by shelf-like
columella

Family Buccinidae

*Buccinum**Buccinum aleuticum*, Dall, 1895*Buccinum aleuticum*, Dall, 1895, *Proc. U.S. Nat. Mus.* 17:706;
pl. 27, fig. 7.*Buccinum aleuticum*, Dall, 1921:101.*Buccinum aleuticum*, Oldroyd, 1927, part 3:260; pl. 15, fig. 2.*Buccinum aleuticum*, Kosuge, 1973; pl. 20, fig. 8.Type locality: U.S.F.C. Sta. 3219, south of Unimak Island, Aleutian
Islands, 59 fms.

Range: near Unimak Island. (Dall, 1921)

not seen.

Buccinum angulosum Gray, 1839

Buccinum angulosum Gray, 1839, *Zool. Beechey's Voyage*, p. 127; pl. 26, fig. 6. (MacGinitie, 1959)

Buccinum angulosum normalis Dall, 1885, *House of Reps. Exec. Doc.* 44, part 4, art. 6:179, fig. 1. (MacGinitie, 1959)

Buccinum angulosum subcostata Dall, 1885, *House of Reps. Exec. Doc.* 44, part 4, art. 6:179, fig. 2. (MacGinitie, 1959)

Buccinum angulosum enismatopleura Dall, 1919, *Proc. U.S. Nat. Mus.* 56:328.

Buccinum angulosum transliratum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:328.

Buccinum normale, Dall, 1921:100.

Buccinum angulosum and subspecies, Dall, 1921:101.

Buccinum angulosum and subspecies, Oldroyd, 1927, part 1:255, 256; pl. 5, figs. 1-3, 6; pl. 12, fig. 4; not pl. 17, fig. 9, 10.
(*B. glaciale*)

Buccinum angulosum and subspecies, MacGinitie, 1959:109; pl. 10, fig. 10; pl. 11, figs. 1-13.

Buccinum angulosum, Macpherson, 1971:85; pl. 4, fig. 1.

Buccinum angulosum normalis, Kosuge, 1973; pl. 23, fig. 7.

Buccinum angulosum enismatopleura, Kosuge, 1973; pl. 19, fig. 6.

Buccinum angulosum subcostatum, Kosuge, 1973; pl. 19, fig. 4.

Buccinum angulosum transliratum, Kosuge, 1973; pl. 19, fig. 1.

Type locality: Icy Cape, Alaska.

Range: Canadian Arctic, Spitzbergen. Murman Coast. Barents Sea. Kara Sea. Siberian Ice Sea. Sea of Okhotsk. Pt. Barrow to Bristol Bay. (Macpherson, 1971)

Depth: 4.5 m to 160-162 m. (Macpherson, 1971)

Buccinum angulosum (Continued)

Localities:

Arctic: 70 to 72°N and 142 to 154°W, 40 to 55 m (3). Point Barrow (empty) (1). Point Hope (1).

Northern Bering: north of St. Lawrence Island (1).

Southern Bering: 54 to 60°N and 160 to 172°W, 42 to 133 m (31).

Buccinum castaneum Dall, 1877

Buccinum castaneum Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 3. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Buccinum castaneum tricarinatum Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 3. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Buccinum castaneum fluctuatum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:327.

Buccinum castaneum incisulum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:327.

Buccinum castaneum triplostephanum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:327.

Buccinum castaneum and subspecies, Dall, 1921:99, 100.

Buccinum castaneum and subspecies, Oldroyd, 1927, part 1:249, 250; pl. 5, figs. 7, 9; pl. 9, fig. 7; pl. 24, fig. 3.

Buccinum castaneum and subspecies, Kosuge, 1973; pl. 19, figs. 3, 7, 8; pl. 20, fig. 9.

Type locality: Shumagin Islands.

Range: Bering Sea. Pribilof, Aleutian, and Shumagin Islands. (Dall, 1921)

Buccinum bulimuloideum Dall, 1907

Buccinum bulimuloideum Dall, 1907, *Smithsonian Misc. Coll.* 50(2):150.

Buccinum rondium Dall, 1919, *Proc. U.S. Nat. Mus.* 56:326.

Buccinum bulimuloideum, Dall, 1921:99; pl. 15, fig. 2.

Buccinum rondium, Dall, 1921:99; pl. 12, fig. 3.

Buccinum bulimuloideum, Oldroyd, 1927, part 1:248; pl. 17, fig. 7.

Buccinum rondium, Oldroyd, 1927, part 1:249; pl. 17, fig. 8.

Buccinum bulimuloideum, Kosuge, 1973; pl. 20, fig. 6.

Buccinum rondium, Kosuge, 1973; pl. 23, fig. 1.

Type locality: of both species, U.S.F.C. Sta. 2853, southeast of the Alaska Peninsula.

Range: known only from type localities.

not seen.

Buccinum baeri Middendorff, 1848

Buccinum baeri Middendorff, 1848, *Malacozool. Rossica* 2:148; pl. 6, figs. 7, 8. (Dall, 1921)

Buccinum fischerianum Dall, 1871, *Amer. J. Conchol.* 7:106; pl. 16, fig. 13.

Buccinum baeri and ssp. *morchianum*, Dall, 1921:101.

Buccinum fischerianum, Dall, 1921:101.

Buccinum baeri and ssp. *morchianum*, Oldroyd, 1927, part 1:257, 258 not pl. 27, figs. 3, 4. (*B. glaciale morchianum*).

Buccinum fischerianum, Oldroyd, 1927, part 1:258.

Buccinum fischerianum, Kosuge, 1973; pl. 20, fig. 7.

Buccinum baeri, Abbott, 1974:204, fig. 2193.

Type locality: of *Buccinum baeri*, Bering Sea.

of *Buccinum fischerianum*, St. George's Island, Bering Sea.

Range: Asian Coast, 43-45°N. (Kuroda and Habe, 1952) Commander, Aleutian and Kodiak Islands (Dall, 1921) to Forrester Island, Alaska. (Oldroyd, 1927)

Localities:

Southern Bering: Agattu Island (1). Unalaska Island (1).

Western Gulf: Cold Bay (1). Tuxidni Bay (1). Seldovia Point (1). Tutka Bay (1).

Southeast: Murphy Cove (1). Marble Island (2). Annett Island (1).

intertidal.

Buccinum ciliatum (Fabricius, 1780)

Tritonium ciliatum Fabricius, 1780, *Fauna Groenlandica Hafniae et Lipsiae* p. 401. (Macpherson, 1971)

Buccinum ciliatum, Dall, 1921:101.

Buccinum ciliatum, Oldroyd, 1927, part 1:259. [original description only, Gould's description is of another species. (MacGinitie, 1959)]

Buccinum ciliatum, MacGinitie, 1959:113; pl. 10, figs. 8, 9.

Buccinum ciliatum, Macpherson, 1971:88; pl. 6, fig. 4.

Type locality: "Arctic."

Range: Siberian, North American and European Arctic. Bering and Chukchi Seas to the Pribilof Islands. Greenland to Murray Bay, Quebec. (MacGinitie, 1959; Thorson, 1944)

Depth: 3-27 m to 245 m. (Macpherson, 1971)

Localities:

Arctic: 70 to 72°N and 158 to 161°W, 45-102 m (6).

Northern Bering: north of St. Lawrence Island (1).

Buccinum cnismatum Dall, 1907

Buccinum cnismatum Dall, 1907, *Smithsonian Misc. Coll.* 50(2):143.

Buccinum cnismatum, Dall, 1921:99; pl. 10, fig. 2.

Buccinum cnismatum, Oldroyd, 1927, part 1:247; pl. 17, fig. 1.

Buccinum cnismatum, Kosuge, 1973; pl. 18, fig. 5.

Type locality: U.S.F.C. Sta. 3331, north of Unalaska Island, Bering Sea,
300 fms.

Range: north of Unalaska Island. (Dall, 1921)

not seen.

Buccinum diplodetum Dall, 1907

Buccinum diplodetum Dall, 1907, *Smithsonian Misc. Coll.* 50(2):143.

Buccinum diplodetum, Dall, 1921:99; pl. 10, fig. 2.

Buccinum diplodetum, Oldroyd, 1927; part 1:247; pl. 17, fig. 6.

Buccinum diplodetum, Abbott, 1974:205, fig. 2221.

Type locality: U.S.F.C. Sta. 3074, off Sea Lion Rock, coast of Washington.

Range: off Sitka, Alaska, 1569 fms and off Sea Lion Rock, Washington,
877 fms. (Dall, 1921)

Depth: 100-300 m (British Columbia). (Bernard, 1970)

not seen.

Buccinum eugrammatum Dall, 1907

Buccinum eugrammatum Dall, 1907, *Smithsonian Misc. Coll.* 50(2):153.

Buccinum eugrammatum, Dall, 1921:98; pl. 12, fig. 2.

Buccinum eugrammatum, Oldroyd, 1927, part 1:240; pl. 14, fig. 1.

Buccinum eugrammatum, Kosuge, 1973; pl. 21, fig. 6.

Type locality: Albatross Sta. 4777, Peterel Bank, Bering Sea and others.

Range: Peterel Bank, Bering Sea.

Depth: 42 and 45 fms. (Dall, 1921)

not seen.

Buccinum fringillium Dall, 1877

Buccinum fringillium Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 4. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Buccinum fringillium, Dall, 1921:101.

Buccinum fringillium, Oldroyd, 1927, part 1:256.

Buccinum fringillium, MacGinitie, 1959:112; pl. 10, figs. 6, 7.

Buccinum fringillium, Kosuge, 1973; pl. 19, fig. 2.

Type locality: north end of Nunivak Island. (MacGinitie, 1959)

Range: off Pt. Barrow and north end of Nunivak Island. (MacGinitie, 1959)

Depth: 453 ft (Pt. Barrow). 54 ft (Nunivak Island). (MacGinitie, 1959)

not seen.

Buccinum glaciale Linnaeus, 1761

Buccinum glaciale Linnaeus, 1761, *Fauna Suecica*, ed. 2, p. 523.
(MacGinitie, 1959)

Buccinum glaciale var. *parallelum* Dall, 1918, *Proc. U.S. Nat. Mus.*
54:231.

Buccinum glaciale and var. *parallelum*, Dall, 1921:98; pl. 8, fig.
10.

Buccinum glaciale and var. *parallelum*, Oldroyd, 1927, part 1:238;
pl. 27, figs. 1, 2; pl. 17, figs. 9, 10 (as *Buccinum angulosum*).

Buccinum glaciale, MacGinitie, 1959:102; pl. 9, figs. 1-7, 10, 13.

Buccinum glaciale, Macpherson, 1971:93; pl. 6, fig. 2.

Buccinum glaciale parallelum, Kosuge, 1973; pl. 18, fig. 8.

Buccinum glaciale, Abbott, 1974:204, fig. 2192.

Type locality: northern seas.

Range: Soviet and Canadian Arctic. (Macpherson, 1971)

Atlantic: Greenland to the Gulf of St. Lawrence. (Macpherson,
1971)

East Pacific: Arctic Ocean to Straits of Juan de Fuca. (Dall,
1921)

West Pacific: Kamchatka to Japan (45°N). (Kuroda and Habe, 1952)

Depth: 5 to 119 m (Arctic Canada). (Macpherson, 1971)

0 (West Greenland) to 318 m (Murman Coast). (Thorson, 1944)

600 to 800 m (British Columbia). (Bernard, 1970)

Localities:

Arctic: Pt. Barrow (empty) (1). Pt. Hope (empty) (1). 71°12'N,
158°35'W, 102 M (1).

Northern Bering: Bering Strait (1).

Southern Bering: 58 to 61°N, and 160 to 168°W, 29 to 66 m (13).

Western Gulf: Lower Cook Inlet, 167 m (1). Tutka Bay, intertidal
(1).

Southeast: Bartlett Cove, 36 m (1).

Buccinum kadiakense Dall, 1907

Buccinum kadiakense Dall, 1907, *Smithsonian Misc. Coll.* 50(2):147.

Buccinum kadiakense, Dall, 1921:99; pl. 15, fig. 5.

Buccinum kadiakense, Oldroyd, 1927, part 1:248; pl. 19, fig. 3.

Buccinum kadiakense, Kosuge, 1973; pl. 19, fig. 5.

Type locality: Kodiak Island, Alaska.

Range: Kodiak Island, Alaska. (Dall, 1921)

not seen.

Buccinum ovulum Dall, 1895

Buccinum ovulum Dall, 1895, *Proc. U.S. Nat. Mus.* 17:707; pl. 30, fig. 6.

Buccinum ovulum, Dall, 1921:101.

Buccinum ovulum, Oldroyd, 1927, part 1:260.

Buccinum ovulum, Kosuge, 1973; pl. 20, fig. 5.

Type locality: U.S.F.C. Sta. 3491, near Amukta Pass, Aleutian Islands, 248 fms.

Range: Amutka Pass, Aleutian Islands.

not seen.

Buccinum percrassum Dall, 1883

Buccinum polare percrassa Dall in Kobelt, 1883, *Martini und Chemnitz Conchylien-Cabinet*, Bd. 3, abthg. 1c, p. 86; pl. 91, fig. 5. (Boss, Rosewater, Ruhoff, 1968)

Buccinum plectrum percrassa, Dall, 1855, *House of Rep. Exec. Doc.* 44, part 4, art. 6, pl. following p. 184, fig. 9. (Boss, Rosewater, Ruhoff, 1968)

Buccinum percrassum, Dall, 1902:518; pl. 37, fig. 4.

Buccinum percrassum, Dall, 1921:101.

Buccinum percrassum, Oldroyd, 1927, part 1:261; pl. 5, fig. 4.

Buccinum percrassa, Kosuge, 1973; pl. 18, fig. 2.

Type locality: of *B. polare percrassa*, Bering Island, Bering Sea.

of *B. plectrum percrassa*, Pt. Barrow, Alaska.

Range: Arctic Ocean, north of Bering Strait, and Bering Sea. (Dall, 1921)

not seen.

Buccinum picturatum Dall, 1877

Buccinum picturatum Dall, 1877. *Calif. Acad. Sci., Proc.* Mar. 19, p. 3, (preprint) vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Buccinum picturatum, Dall, 1902, 520; pl. 37, fig. 8.

Buccinum simulatum, Dall, 1907, *Smithsonian Misc. Coll.* 50(2):150.

Buccinum picturatum, Dall, 1921:100.

Buccinum simulatum, Dall, 1921:100; pl. 10, fig. 4.

Buccinum picturatum, Oldroyd, 1927, part 1:250; pl. 5, fig. 8.

Buccinum simulatum, Oldroyd, 1927, part 1:251; pl. 17, fig. 11.

Buccinum picturatum, Kosuge, 1973; pl. 23, fig. 8.

Buccinum simulatum, Kosuge, 1973; pl. 20, fig. 1.

Type locality: of *B. picturatum*, Aleutian Islands.

of *B. simulatum*, U.S.F.C. Sta. 4779, Peterel Bank, Bering Sea.

Range: Aleutian Islands, east to Bristol Bay and Kodiak Island;
northern Japan. (Dall, 1921)

Depth: 5 to 60 fms. (Dall, 1921)

not seen.

Buccinum planeticum Dall, 1919

Buccinum planeticum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:326.

Buccinum planeticum, Dall, 1921:99.

Buccinum planeticum, Dall, 1925:8; pl. 5, fig. 1.

Buccinum planeticum, Oldroyd, 1927, part 1:246; pl. 24, fig. 1.

Buccinum planeticum, Kosuge, 1973; pl. 22, fig. 8.

Type locality: U.S.F.C. Sta. 3305, southwest of Hagmeister Island, Bering Sea.

Range: Pribilof Islands, Bering Sea to Queen Charlotte Islands, British Columbia. (Dall, 1921)

not seen.

Buccinum plectrum Stimpson, 1865

Buccinum plectrum Stimpson, 1865, *Can. Natur. Geol.* ser. 2, 2:274.
(Grant and Gale, 1931)

Buccinum plectrum, Dall, 1921:98.

Buccinum plectrum, MacGinitie, 1959:105; pl. 9, figs. 11, 12.

Buccinum plectrum, Abbott, 1974:204, fig. 2189.

Type locality: Arctic Ocean, north of Bering Strait.

Range: Point Barrow east to Bernard Harbor, Dolphin and Union Strait,
Arctic Canada, and south to Puget Sound. (MacGinitie, 1959)

Localities:

Arctic: 71°12'N, 158°35'W (1).

Northern Bering: Bering Strait, 37 m (1).

Southern Bering: near Pribilof Islands, 70-113 m (3).

Western Gulf: Lower Cook Inlet, 35 and 151 m (2).

Eastern Gulf: 59-60°N, 140 to 148°W (23). Resurrection Bay, 259
and 268 m (3). Port Valdez (1), Port Wells (1), Sheep Bay (1),
Fish Bay (1).

Southeast: Berners Bay (1), Fritz Cove (1), Rudyerd Bay (1).

Buccinum polare Gray, 1839

Buccinum polare Gray, 1839, *Zool. Beechey's Voyage* p. 128.
(MacGinitie, 1959)

Buccinum polare, Dall, 1921:99.

Buccinum polare, Oldroyd, 1927, part 1:243.

Buccinum polare, MacGinitie, 1959:108; pl. 10, figs. 1-4.

Buccinum polare, Macpherson, 1971:100; pl. 6, fig. 3.

Type locality: Icy Cape, Arctic Alaska.

Range: Arctic Canada. west to Dease Strait. Greenland and Iceland to Siberian Ice Sea.

East Pacific: Point Barrow to the Aleutian Islands.

West Pacific: East Siberia. Kamchatka. (Macpherson, 1971)
Asian Coast, south to 43°N. (Kuroda and Habe, 1952)

Depth: 2 to 100 m (Arctic Canada). 2 to 400-600 m (East Greenland).
(Thorson, 1944)

mud, sand, gravel, rock. (Macpherson, 1971)

Localities:

Arctic: 70-72°N and 142-164°W, 40-110 m (7).

Chukchi: 67-72°N and 160 to 169°W (8).

Northern Bering: North of St. Lawrence Island, 38-58 m (4).

Southern Bering: 56-60°N, and 161 to 172°W, 40-90 m (18).

Buccinum rossellinum Dall, 1919

Buccinum rossellinum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:327.

Buccinum rossellinum, Dall, 1921:100.

Buccinum rossellinum, Oldroyd, 1927, part 1:252.

Type locality: U.S.F.C. Sta. 3340, southeast of Chirikoff Island, Alaska,
695 fms.

Range: off Chirikoff Island.

not seen.

Buccinum scalariforme "Beck" Möller, 1842

Buccinum scalariforme "Beck" Möller, 1842, *Index Molluscorum Groenlandiae* p. 11. (Macpherson, 1971)

Buccinum tenue rhodium Dall, 1919, *Proc. U.S. Nat. Mus.* 56:324.

Buccinum tenue lyperum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:324.

Buccinum tenue rhodium, Dall, 1921:98.

Buccinum tenue lyperum, Dall, 1921:98.

Buccinum tenue rhodium, Dall, 1925:9; pl. 6, fig. 1.

Buccinum tenue lyperum, Dall, 1925:9; pl. 3, fig. 8.

Buccinum tenue, MacGinitie, 1959:107; pl. 9, figs. 8, 9.

Buccinum tenue, Macpherson, 1971:102; pl. 6, fig. 8.

Buccinum tenue rhodium, Kosuge, 1973; pl. 23, fig. 2.

Buccinum tenue lyperum, Kosuge, 1973; pl. 23, fig. 3.

Buccinum scalariforme, Abbott, 1974:203, fig. 2189.

Type locality: of *Buccinum tenue rhodium*, Plover Bay, East Siberia.

of *Buccinum tenue lyperum*, east coast of Kamchatka.

of *Buccinum scalariforme*, Greenland.

Range: Arctic Ocean to Puget Sound. Bering Sea. Aleutian Islands and Kamchatka. Arctic Canada. Newfoundland. Labrador. Gulf of Maine. Barents, Kara and Siberian Ice Seas. (Macpherson, 1971)

Depth: 4.5 to 100 m (Arctic Canada) to 540 m (Davis Strait). (Macpherson, 1971)

mud and rock.

Localities:

Arctic: 70 to 72°N and 146 to 176°W, 40 to 130 m (14).

Northern Bering: north of St. Lawrence Island (3).

Southern Bering: 56 to 60°N and 166 to 171°W, 55 to 90 m (19).

Buccinum solenum Dall, 1919

Buccinum solenum Dall, 1919, *Proc. U.S. Nat. Mus.* 56:325.

Buccinum solenum, Dall, 1921:98.

Buccinum solenum, Dall, 1925:8; pl. 4, fig. 1.

Buccinum solenum, Oldroyd, 1927, part 1:241; pl. 12, fig. 1.

Buccinum solenum, Kosuge, 1973; pl. 21, fig. 7.

Type locality: off Nunivak Island, Bering Sea.

Range: Bering Sea, Nunivak Island to north of Unimak Island, 36 fms.
(Dall, 1921)

Localities:

Arctic: 70 to 72°N and 142 to 163°W, 44 to 80 m (3).

Southern Bering: 56 to 58°N and 166 to 171°W, 55 to 90 m (9).

Buccinum striatissimum Sowerby, 1899

Buccinum striatissimum Sowerby, 1899, *Ann. Mag. Nat. Hist.* ser. 7, 4:370, fig. 1. (Dall, 1918)

Buccinum striatissimum, Dall, 1918:231.

Buccinum striatissimum, Abbott, 1974:206.

Buccinum striatissimum, Habe and Ito, 1974:75; pl. 28, fig. 1.

Type locality: not known.

Range: Pribilof Islands, Bering Sea. Lynn Canal, Alaska. Asian Coast, 36 to 54°N. (Kuroda and Habe, 1952; Abbott, 1974)

Depth: 50 to 937 m. (Abbott, 1974)

Localities:

Southern Bering: 54°51'N, 164°53'W, 75 m (1). (tentative identification)

Buccinum tenellum Dall, 1883

Buccinum tenellum "Dall ms" Kobelt, 1883, *Martini und Chemnitz Conchylien - Cabinet*, Bd. 3, abthg. 1, p. 88; pl. 91, fig. 8.
(Boss, Rosewater, Ruhoff, 1968)

Buccinum tenellum, Dall, 1902, 519; pl. 39, fig. 9.

Buccinum tenellum, Dall, 1921:101.

Buccinum tenellum, Oldroyd, 1927, part 1:257; part 3, pl. 100, fig. 9.

Type locality: Cape Etolin, north end of Nunivak Island.

Range: Sea Horse Islands to Aleutian Islands. (Dall, 1921)

Localities:

Arctic: Point Barrow (empty) (1).

Chukchi: 68°58'N, 166°20'W, 20 m (1).

TABLE 25a

Buccinum

	<u><i>Buccinum angulosum</i></u>	<u><i>Buccinum glaciale</i></u>	<u><i>Buccinum polare</i></u>
Size - height	59	65	24.5
diameter	34	35	15.5
Aperture	27	29	16
Number of whorls	6-7	7-8	6-7
Relative proportions	aperture about equal to spire	aperture slightly to much shorter than spire	aperture shorter than spire
Whorl shape	slightly rounded to straight	rounded to shouldered	slightly shouldered
Sutures	shallow, adpressed	shallow, constricted	slightly impressed
Axial folds	low, wide, curved, ending in a turbercle at the periphery	low, wide, ending at periphery	very low, fading on shoulder or periphery
Radial sculpture			
ribs, carinae	angular rib marking periphery	1 to 3, sometimes 4 carinae, or ribs at shoulder, periphery, base	1 keel at shoulder, 2 to 9 below
fine sculpture	narrow threads, occasionally grouped in fascicles	low narrow flat ribs, incised interspaces	low, narrow, closely spaced threads

TABLE 25a

Continued

	<u><i>Buccinum angulosum</i></u>	<u><i>Buccinum glaciale</i></u>	<u><i>Buccinum polare</i></u>
Outer lip	thick, reflexed	thick, reflexed	thick, reflexed
Columella	straight	straight	straight
Columellar fold	weak	prominent	weak
Periostracum	thick, adherent, pro- longed into axial lines of sparse, low hairs	thin, smooth	thick to thin, prolonged into hairs along lines of growth
Color	warm buff	straw to ruddy	straw
Operculum nucleus	very near outer margin	1/4 total width from outer margin	sub central

TABLE 25b

Buccinum

	<u><i>Buccinum plectrum</i></u>	<u><i>Buccinum solenum</i></u>	<u><i>Buccinum scalari forme</i></u>
Size - height	47	51	62
diameter	23	34	33
Aperture	27	26	26
Number of whorls	7-9	6-8	6-8
Relative proportions	spire much greater than aperture	aperture greater than spire	variable
Whorl shape	rounded	rounded - tabulate	rounded - tabulate
Sutures	constricted	constricted	constricted
Axial folds	high, curved, fading below periphery	short, curved, on periphery	long, narrow, discontinuous, extending to base
Radial sculpture			
ribs, carinae	none	none	none
fine sculpture	low riblets incised interspaces	low to obsolete threads	dense scratches
Outer lip	thick	thin, reflexed	thin

Buccinum plectrum

Columella	straight
Columellar fold	prominent
Periostracum	thin, smooth
Color	grayish
Operculum nucleus	very close to outer margin

TABLE 25b

Continued

Buccinum solenum

curved

weak

thin; widely spaced
axial lines of short
hairs

straw

1/4 total width from
outer margin

Buccinum scalariforme

straight

weak

thin, smooth

grayish to straw

very close to outer
margin

Buccinum baeri

Size - height	32
diameter	19
Aperture	20
Number of whorls	5
Relative proportions	aperture greater than spire
Whorl shape	short, rounded
Sutures	very shallow, slightly adpressed
Axial folds	with or without low folds ending at periphery
Radial sculpture	
ribs, carinae	with or without 3 or more slightly nobby cords
fine sculpture	wavy striae

TABLE 25c

Buccinum

<u><i>Buccinum tenellum</i></u>	<u><i>Buccinum ciliatum</i></u>
40	35
21	20
21	20
7	5-6
aperture slightly greater than spire	aperture about equal to spire
rounded	rounded to slightly tabulate
deep	deep
very short, fading above periphery	narrow, slightly curved high, fading below periphery
none	none
low riblets, narrow incised interspaces	threads, wide inter- spaces, alternating wide and narrow

Buccinum baeri

Outer lip	thin
Columella	curved
Columellar fold	weak
Periostracum	thin, adherent, smooth
Color	olivaceous blue-green-yellow
Operculum nucleus	central

TABLE 25c

Continued

<u><i>Buccinum tenellum</i></u>	<u><i>Buccinum ciliatum</i></u>
slightly thickened, reflexed	thin
straight	straight
prominent	prominent
thin, adherent, smooth	thin, adherent close axial lines of fine hairs
brownish-yellow	grey to buff
1/4 total width from outer margin	subcentral

Buccinum viridum

Size - height	46
diameter	29
Aperture	
Number of whorls	6
Relative proportions	aperture greater than spire
Whorl shape	low rounded, tabulate
Sutures	impressed
Axial folds	none
Radial sculpture	
ribs, carinae	keel, marking shoulder
fine sculpture	flat wavy threads
Outer lip	thin
Columella	straight

TABLE 25d

Buccinum

<u><i>Buccinum fringillium</i></u>	<u><i>Buccinum strigillatum</i></u>
36	41
32	22
	21
6	7
aperture greater than spire	aperture about equal to spire
slightly tabulate	rounded
impressed	constricted
low, irregular	none
none	none
low, rounded, widely spaced riblets	widely spaced riblets incised interspaces
	thin
straight	curved

Buccinum viridum

Columellar fold	not seen
Periostracum	thin, shiny, smooth
Color	gray-green
Operculum nucleus	central
	specimen from off Eureka, California

TABLE 25d

Continued

Buccinum fringillium

prominent

thick, with almost
varix-like axial rows
of long, coarse hairs

straw

not seen

from Dall, 1877
in Oldroyd, 1927;
Kosuge, 1973

Buccinum strigillatum

not seen

thin, smooth

greenish

1/4 width from outer
margin

specimen from off
Northern California

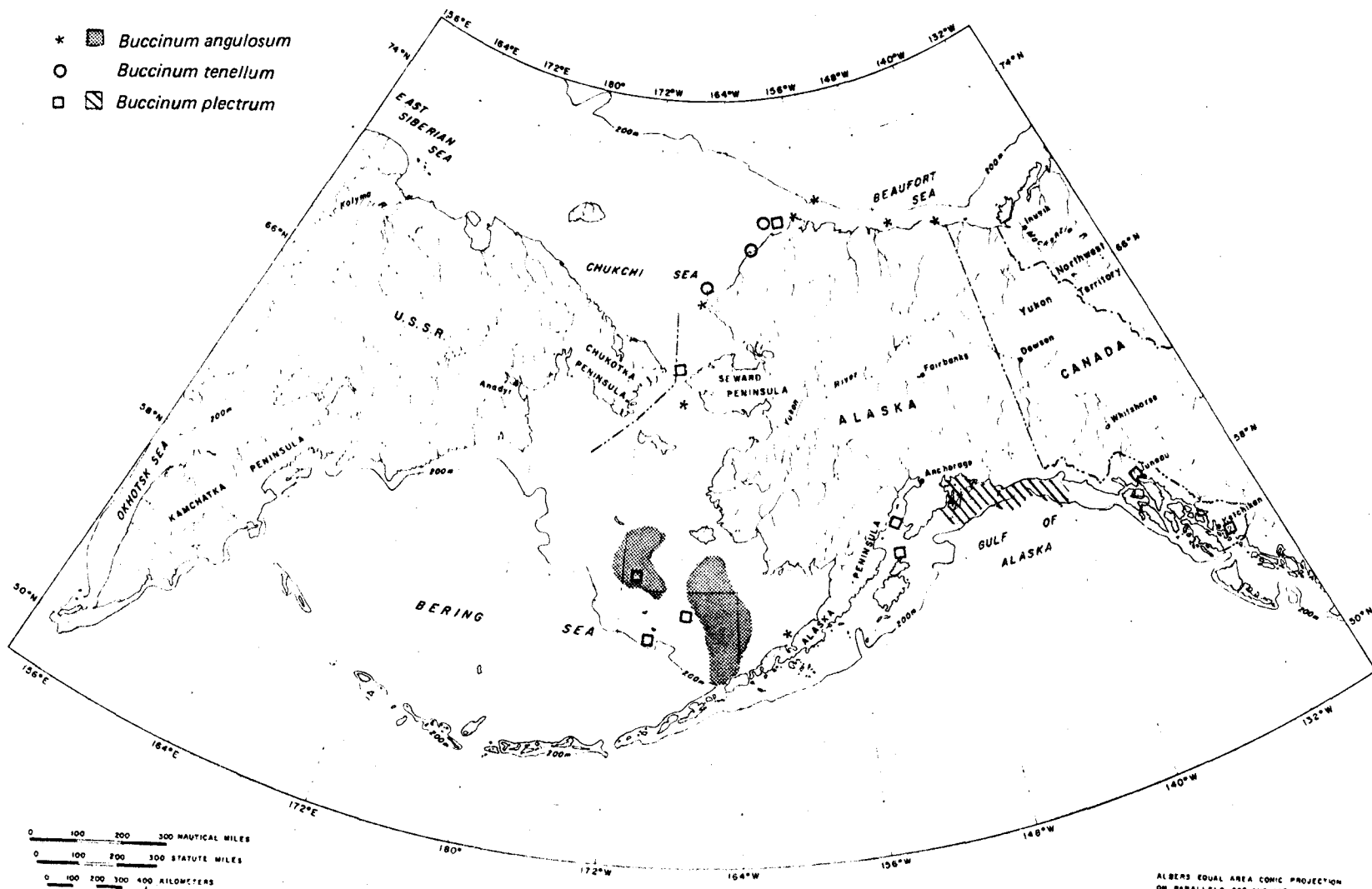


Figure 3. Localities for specimens of *Buccinum*.

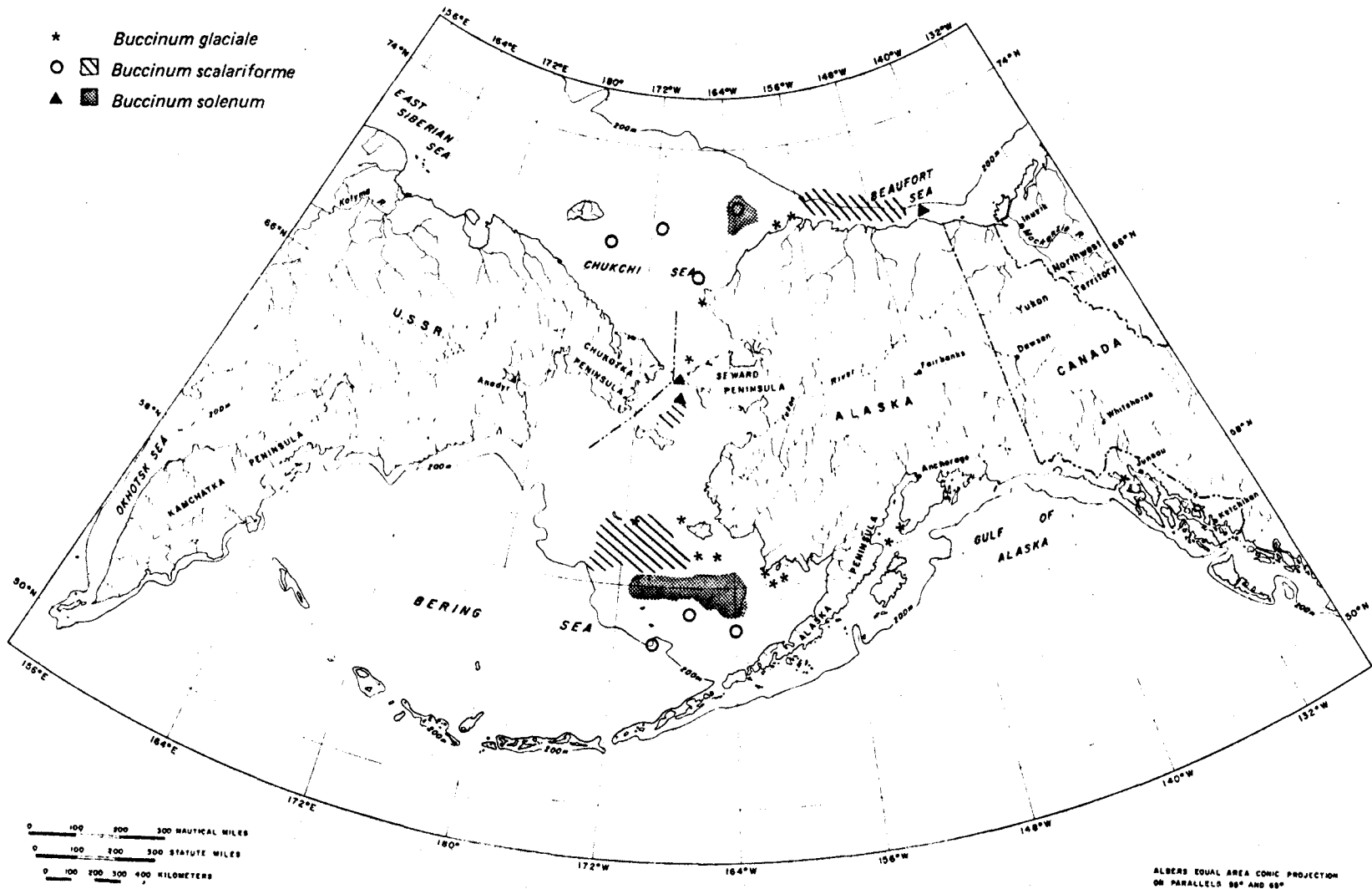
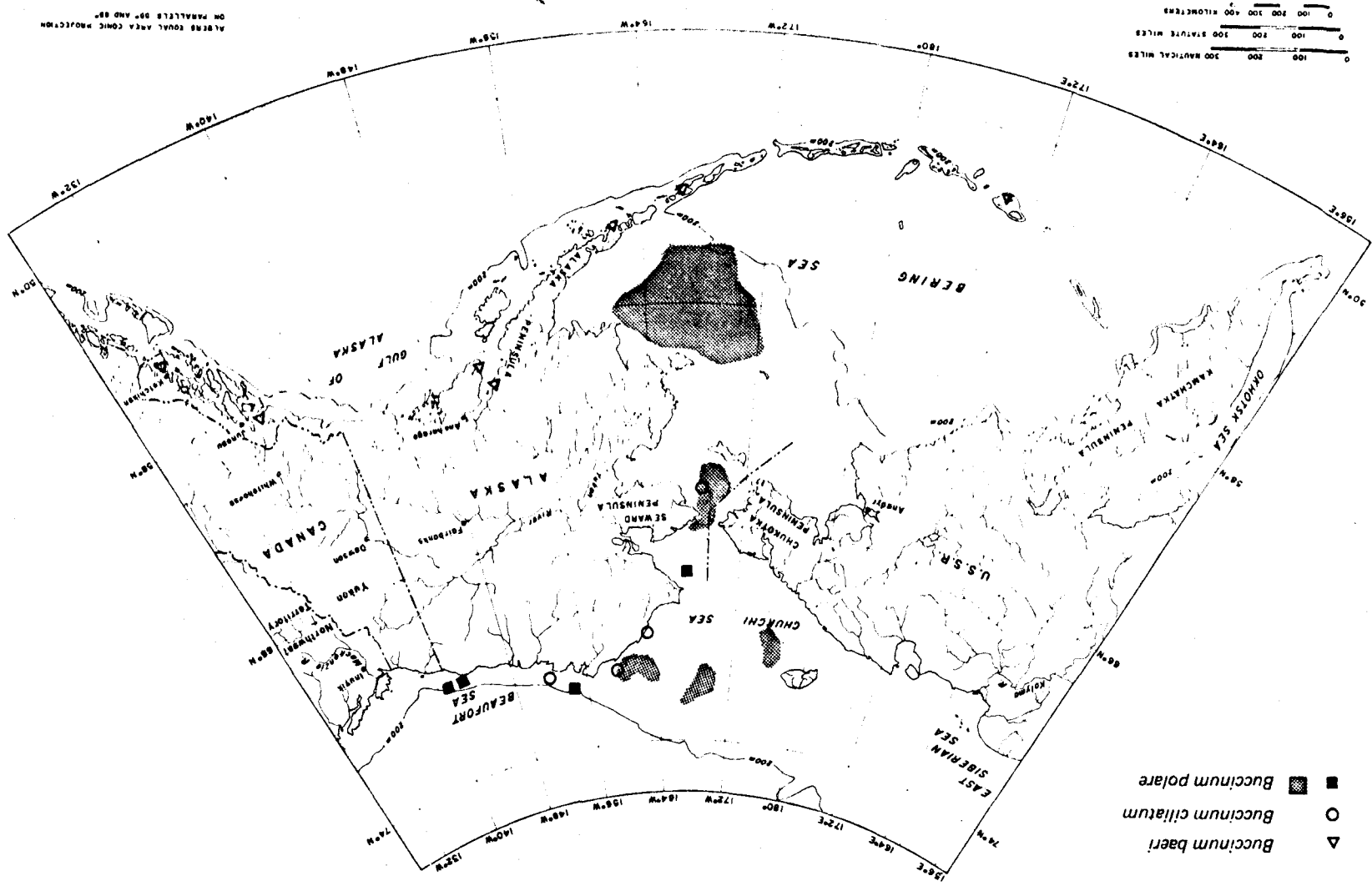


Figure 4. Localities for specimens of *Buccinum*.



*Searlesia**Searlesia dira* (Reeve, 1846)*Buccinum dirum* Reeve, 1846, *Conchol. Icon.* Vol 3; pl. 12, fig. 92.
(Grant and Gale, 1931)*Searlesia dira*, Dall, 1921:98; pl. 8, fig. 1.*Searlesia dira*, Oldroyd, 1927, part 1:237.*Searlesia dira*, Abbott, 1974:216, fig. 2390.

Type locality: none given.

Range: Chirikof Island, Alaska to Monterey, California. (Dall, 1921)

Depth: intertidal. (Bernard, 1970)

Localities:

Western Gulf: Woman's Bay, Kodiak Island (1). Kasitsna Bay (1).
Tutka Bay (1). Seldovia Point (1).

Eastern Gulf: La Touche Point (1).

Southeast: Sitka (1). Ketchikan (1).

intertidal.

Volutharpa

Volutharpa ampullacea Middendorff, 1848

Volutharpa ampullacea Middendorff, 1848, *Sibirische Reise* p. 237; pl. 17, figs. 1-3. (Dall, 1871)

Bullia perryi Jay, 1855, *Rep. Japan Exp.*, p. 295; pl. 5, figs. 13-15. (Dall, 1871)

Volutharpa ampullacea var. *acuminata* Dall, 1871, *Amer. J. Conchol.* 7(2):104; pl. 16, fig. 8.

Volutharpa ampullacea, Dall, 1921:102.

Volutharpa perryi, Dall, 1921:102.

Volutharpa ampullacea, Oldroyd, 1927, part 1:262.

Volutharpa perryi, Oldroyd, 1927, part 1:262.

Volutharpa ampullacea, Abbott, 1974:206, fig. 2252.

Type locality: of *Volutharpa ampullacea*, Tugur-Busen and Great Schantar Island to the south-east of the Okhotsk Sea.

of *Bullia perryi*, Bay of Yedo, Japan.

Range: Bering Strait to Strait of Juan de Fuca. Japan. (Dall, 1921)

Localities:

Northern Bering: St. Lawrence Island (empty) (1).

Western Gulf: Kasitsna Bay (1). Tutka Bay (1).

Southeast: Rush Point, Glacier Bay (1). Porpoise Island (1). Tee Harbor (1).

Family Neptuneidae

*Ancistrolepis**Ancistrolepis beringianus* Dall, 1919*Ancistrolepis beringianus* Dall, 1919, *Proc. U.S. Nat. Mus.* 56:313.*Ancistrolepis beringianus*, Dall, 1921: 92.*Ancistrolepis beringianus*, Dall, 1926:3; pl. 7, fig. 1.*Ancistrolepis beringianus*, Oldroyd, 1927, part 1:204; pl. 21, fig. 1.*Ancistrolepis beringianus*, Kosuge, 1973; pl. 15, fig. 1.

Type locality: off Starichkoff Island, Bering Sea, 58 fms.

Range: off Starichkoff Island, Bering Sea. (Dall, 1921)

not seen.

Ancistrolepis eucosmius (Dall, 1891)

Chrysodomus (*Sipho*) *eucosmius* Dall, 1891, *Proc. U.S. Nat. Mus.* 14:188.

Chrysodomus (*Ancistrolepis*) *eucosmius*, Dall, 1895:709; pl. 29, fig. 7.

Ancistrolepis eucosmius bicinctus, Dall, 1919, *Proc. U.S. Nat. Mus.* 56:312.

Ancistrolepis eucosmius and ssp. *bicinctus*, Dall, 1921:92.

Ancistrolepis eucosmius and ssp. *bicinctus*, Oldroyd, 1927, part 1:202, 203; pl. 27, fig. 7.

Ancistrolepis eucosmius, Kosuge, 1973; pl. 17, fig. 5.

Ancistrolepis eucosmius bicinctus, Kosuge, 1973; pl. 17, fig. 4.

Neptunea (*Ancistrolepis*) *eucosmia*, Abbott, 1974:215, fig. 2370.

Type locality: Albatross Stas. 3207, 2919, southeast of Unalaska Island.

Range: Pribilof Islands to Tillamook Bay, Oregon, 34 to 786 fms. (Dall, 1921)

Localities:

Southern Bering: Unimak Pass vicinity (1). near Pribilof Islands (1).

Eastern Gulf: Port Valdez (empty) (1).

TABLE 26

Ancistrolepis, Clinopegma

	<u><i>Clinopegma magna</i></u>	<u><i>Ancistrolepis eucosmius</i></u>	<u><i>Ancistrolepis beringianus</i></u>
Size - height diameter	80.3 45.3	35.3 17.6	98 (incomplete shell) 52
Aperture	43.6	16.5	52
Number of whorls	6	6	6 or more
Relative proportions	aperture approximately equal to spire	spire taller than aperture	long acute spire
Whorl shape	shouldered	body whorl - rounded spire whorls narrowly shouldered	well rounded
Sutures	narrowly channeled	shallow to slightly channeled	narrow, deep
Radial sculpture	one prominent keel at shoulder, wavy threads above keel, regularly spaced stronger threads on base	prominent ribs, 6-8 on body whorl 2-3 on spire	4 to 5 flat ridges between base and shoulder base set off by a strong cord, 8-10 flat ridges anterior to cord

Clinopegma
magna

Axial sculpture	fine threads, irregular in strength and spacing
Periostracum texture	thick, velvety raised radial lines
Periostracum color	greenish-brown

TABLE 26

Continued

Ancistrolepis
eucosmius

fine, even threads

thin, adherent, with
sparse hairs along
axial lines

pale olive

Ancistrolepis
beringianus

minute scratchy
striations, wide
incremental lines

very thin

pale olive

from Dall, 1919;
Oldroyd, 1927

Beringius

Beringius aleuticus Dall, 1895

Beringius aleuticus Dall, 1895, *Proc. U.S. Nat. Mus.* 17:711;
pl. 29, fig. 2.

Beringius aleuticus, Dall, 1921:91.

Beringius aleuticus, Oldroyd, 1927, part 1:196; pl. 25, fig. 2.

Beringius aleuticus, Kosuge, 1973; pl. 16, fig. 3.

Type locality: U.S.F.C. Sta. 3481, near Amukta Pass, Aleutian Islands,
248 fms.

Range: Amukta Pass, Aleutian Islands. (Dall, 1921)

not seen.

Beringius beringi (Middendorff, 1849)

Tritonium (Fusus) behringii Middendorff, 1849, *Bull. Phys.-Math. l'Acad. Imper. Sci. St. Petersbourg*, 8:243. (Macpherson, 1971)

Volutopsius (beringii var.?) kobelti, Dall, 1902, *Proc. U.S. Nat. Mus.* 24:528; pl. 35, fig. 2.

Beringius indentatus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:312.

Beringius marshalli Dall, 1919, *Proc. U.S. Nat. Mus.* 56:311.

Volutopsius beringi, Dall, 1921:89.

Volutopsius beringi kobelti, Dall, 1921:89.

Beringius indentatus, , Dall, 1921:91.

Beringius marshalli, Dall, 1921:91; pl. 9, fig. 3.

Volutopsius beringi, Oldroyd, 1927, part 1:186.

Beringius indentatus, Oldroyd, 1927, part 1:197; pl. 21, fig. 3;

Beringius marshalli, Oldroyd, 1927, part 1:196; pl. 16, fig. 8.

Beringius beringi, MacGinitie, 1959:117; pl. 12, figs. 1-5.

Beringius beringi, Macpherson, 1971:65; pl. 4, fig. 1.

Volutopsius beringi kobelti, Kosuge, 1973; pl. 25, fig. 1.

Beringius indentatus, Kosuge, 1973; pl. 16, fig. 2.

Beringius marshalli, Kosuge, 1973; pl. 16, fig. 8.

Type locality: of *Tritonium behringii*, Bering Sea.

of *Volutopsius beringi kobelti*, Pribilof Islands and Nunivak Island, Bering Sea.

of *Beringius marshalli*, Bering Sea.

of *Beringius indentatus*, off the Kudobin Islands, Bering Sea.

Range: Amundsen Gulf, off Cape Parry, Arctic Canada. (Macpherson, 1971)
Pt. Barrow, Alaska to the Shumagin Islands. (MacGinitie, 1959)

Beringius beringi (Continued)

Depth: 12 to 173.7 m. (Macpherson, 1971)

Localities:

Arctic: 70 to 72°N and 145 to 151°W, 50 to 54 m (2). Point Hope (empty) (1).

Northern Bering: Cape Woolley (empty) (1). Norton Sound (1).

Southern Bering: 54 to 60°N and 163 to 173°W, 93 to 144 m (12).

Beringius crebricostatus (Dall, 1877)

Chrysodomus crebricostatus Dall, 1877, *Calif. Acad. Sci., Proc.*
March 19, p. 1. (preprint) Vol. 7 never published. (Ross, Rosewater,
Ruhoff, 1968)

Beringius crebricostatus, Dall, 1902:530; pl. 35, fig. 1.

Beringius crebricostatus, Dall, 1921:90.

Beringius crebricostatus, Oldroyd, 1927, part 1:193; pl. 23, fig. 1.

Beringius crebricostatus, Smith, 1959:2; pl. 1, fig. 1.

Beringius crebricostatus, Kosuge, 1973; pl. 16, fig. 4; pl. 17, fig. 9.

Beringius crebricostatus, Abbott, 1974:207, fig. 2272.

Type locality: Unalaska Island, Alaska.

Range: Plover Bay. the Aleutian Islands to the Shumagin Islands (Dall,
1921) to the British Columbia coast. (Smith, 1959; Bernard, 1970)

Depth: 300 to 600 m (British Columbia). (Bernard, 1970)

Beringius eyerdami Smith, 1959

Beringius eyerdami Smith, 1959, *Nautilus* 73(1):5; pl. 2, figs. 3, 4; pl. 3, figs. 1-4.

Beringius eyerdami, Abbott, 1974:208, fig. 2281.

Type locality: La Perouse Bank, 40 m off Cape Flattery, 100 fms.

Range: Chignik, Alaska to coast of Washington. (Smith, 1959)

Depth: 20 to 100 m (British Columbia). (Bernard, 1970)

Beringius frielei Dall, 1895

Beringius frielei Dall, 1895, *Proc. U.S. Nat. Mus.* 17:711; pl. 27, fig. 8.

Beringius frielei, Dall, 1921:91.

Beringius frielei, Oldroyd, 1927, part 1:195; pl. 15, fig. 5
(as *Mohmia frielei*).

Beringius frielei, Kosuge, 1973; pl. 16, fig. 1.

Type locality: Bering Sea, near Pribilof Islands, 66 fms.

Range: near Pribilof Islands, Bering Sea. (Dall, 1921) Okhotsk Sea.
Kuroda and Habe, 1952)

Localities:

Southern Bering: north of Unimak Island, 149 and 353 m (2).

Beringius kennicotti (Dall, 1871)

Buccinum kennicotti Dall, 1871, *Amer. J. Conchol.* 7(2):108; pl. 15, fig. 7.

Beringius ? kennicotti, Dall, 1902:530; pl. 35, fig. 3.

Volutopsius ? kennicotti incisus Dall, 1907, *Smithsonian Misc. Coll.* 50(2):163.

Beringius kennicottii and var. *incisus*, Dall, 1921:90.

Beringius kennicottii and var. *incisus*, Oldroyd, 1927, part 1:194; pl. 23, fig. 3.

Beringius kennicotti, Smith, 1959:4; pl. 1, figs. 2, 3.

Buccinum kennicotti, Kosuge, 1973; pl. 16, fig. 6.

Volutopsius kennicotti incisus, Kosuge, 1973; pl. 16, fig. 7.

Beringius kennicotti, Abbott, 1974:207.

Type locality: Captain's Harbor, Unalaska Island.

Range: Peterel Bank, Bering (Dall, 1921) to Petersburg, Alaska. (Willett in Burch, 1945)

Localities:

Eastern Gulf: 59 to 60°N and 141 to 147°W (9).

Beringius stimpsoni (Gould, 1860)

Buccinum stimpsoni Gould, 1860, *Boston Soc. Nat. Hist., Proc.* 7:325.
(Johnson, 1964)

Strombella malleata Dall, 1885, *Proc. U.S. Nat. Mus.* 7:525.

Beringius stimpsoni, Dall, 1921:91.

Beringius malleatus, Dall, 1921:91.

Beringius malleatus, Dall, 1925:5; pl. 6, fig. 5.

Buccinum stimpsoni, Dall, 1925:6; pl. 7, fig. 2.

Beringius stimpsoni, Oldroyd, 1927, part 1:195; pl. 21, fig. 2.

Beringius malleatus, Oldroyd, 1927, part 1:195; pl. 22, fig. 5.

Beringius stimpsoni, MacGinitie, 1959:115; pl. 13, figs. 1, 2.

Buccinum stimpsoni, Johnson, 1964:152; pl. 11, fig. 1.

Strombella malleata, Kosuge, 1973; pl. 15, fig. 8.

Type locality: of *Buccinum stimpsoni*, Arakamchechen Island, Bering Straits.

of *Strombella malleata*, Port Clarence, Alaska and others.

Range: Pt. Barrow, Alaska to the Pribilof Islands. (MacGinitie, 1959)

Localities:

Southern Bering: east of Pribilof Islands, 56 to 58°N and 165 to 167°W, 69 to 76 m (3).

Beringius undatus Dall, 1877

Beringius crebricostatus undatus Dall, 1919, *Proc. U.S. Nat. Mus.*
56:311.

Beringius crebricostatus undatus, Dall, 1921:90.

Beringius crebricostatus undatus, Oldroyd, 1927, part 1:193.

Beringius undatus, Smith, 1959:4; pl. 1, figs. 4, 5; pl. 2, figs. 1, 2.

Beringius crebricostatus undatus, Kosuge, 1973; pl. 16, fig. 5.

Type locality: Cygnet Inlet, Boca de Quadra, Alaska.

Range: north of Unimak Island to Lopez Island, Puget Sound, Washington.
(Smith, 1959)

Depth: 15 to 300 m (British Columbia). (Bernard, 1970)

Localities:

Southern Bering: Unimak Pass vicinity, 111 and 169 m (2).

TABLE 27a

Beringius

	<u><i>Beringius beringi</i></u>	<u><i>Beringius kennicotti</i></u>	<u><i>Beringius stimpsoni</i></u>	<u><i>Beringius frielei</i></u>
Size - height	61	98	99	127
diameter	31	44	46	59
aperture	30	41	56	60
Number of whorls	6-7	6-8	6	7-8
Overall shape	large body whorl and aperture spire elongate to very short	fusiform, narrow elong- ate spire	fusiform, rude- ly conic spire	very tall, slender spire
Whorl profile	rounded to inflated to tabulate	rounded, tabulate	flattish, straight sided	rounded
Suture	deep, slightly constricted	deep, slightly constricted	adpressed	constricted
Axial sculpture	low folds, fad- ing below peri- fery, may be absent or very weak and few	prominent, slightly curv- ed folds fad- ing below shoulder	rude, irregular folds, wide flat to concave interspaces, making whorls angular in cross-section	incremental lines only

TABLE 27a

Continued

	<u>Beringius beringi</u>	<u>Beringius kennicotti</u>	<u>Beringius stimpsoni</u>	<u>Beringius frielei</u>
Radial sculpture	obsolete, irregular diverging cords at shoulder, just below periphery and at base	raised fascicles of many fine wavy threads	one keel, marking ends of axial folds, fine raised threads	low, flat ribs with equal interspaces
Periostracum	smooth, dehiscent, straw colored	adherent, but commonly worn away straw to medium brown	thin, adherent, but usually worn, straw	thin, adherent dark yellowish-brown
Shell color	purplish pink, pale to dark where worn	chalk-white to purplish	white, purple to brown where worn	white

TABLE 27b

Beringius

	<u><i>Beringius undatus</i></u>	<u><i>Beringius eyerdami</i></u>	<u><i>Beringius crebricostatus</i></u>	<u><i>Beringius aleuticus</i></u>
Size - height	113	113.9	3.5	65
diameter	59	74.8	1.65	35
aperture	57	75.0	1.65	
Number of whorls	6-7	7	7 or more	5 (nucleus lost)
Overall shape	fusiform, spire occasionally longer than body whorl	globose, with tumid body whorl	elongate, attenuated	
Whorl profile	rounded	tabulate	squarely shouldered	rounded
Suture	deep, constricted	deeply channeled		deep
Axial sculpture	low irregular folds on spire whorls	low irregular folds on spire whorls	none	faint incremental lines

TABLE 27b

Continued

	<u><i>Beringius undatus</i></u>	<u><i>Beringius eyerdami</i></u>	<u><i>Beringius crebricostatus</i></u>	<u><i>Beringius aleuticus</i></u>
Radial sculpture	16-18 prominent rounded ribs, deep interspaces	15 square cut ribs, square cut channels	14 very prominent flat-topped ridges channeled interspaces	obscure spiral streaks
Periostracum	adherent, brown		bright yellow-brown	
Shell color	white to pale yellow to purplish-brown where worn	creamy white	white	yellow-brown above sutural line, paler below
		from Smith, 1959	from Dall, 1927 in Oldroyd, 1927	from Dall, 1895

*Clinopegma**Clinopegma magna* (Dall, 1895)

Chrysodomus (Ancistrolepis) magnus Dall, 1895, *Proc. U.S. Nat. Mus.* 17:709; pl. 29, fig. 5.

Ancistrolepis magnus, Dall, 1921:92.

Ancistrolepis magnus, Oldroyd, 1927, part 1:203; pl. 25, fig. 5.

Chrysodomus magnus, Kosuge, 1973; pl. 17, fig. 2.

Type locality: Bering Sea, north of Unimak Island, and others.

Range: Okhotsk and Bering Seas. (Dall, 1921) Japan. (La Rocque, 1953)

Depth: 25 to 70 fms. (Dall, 1921)

Localities:

Southern Bering: 55 to 60°N and 160 to 173°W, 62 to 97 m (12).

*Colus (Anomalosipho)**Colus (Anomalosipho) capponius* Dall, 1919*Colus (Aulacofusus) capponius* Dall, 1919, *Proc. U.S. Nat. Mus.* 56:317.*Colus (Aulacofusus) capponius*, Dall, 1921:94.*Colus (Aulacofusus) capponius*, Dall, 1925:12; pl. 3, fig. 2.*Colus (Aulacofusus) capponius*, Oldroyd, 1927, part 1:217; pl. 9, fig. 2.*Colus capponius*, MacGinitie, 1959:120.*Colus (Aulacofusus) capponius*, Kosuge, 1973; pl. 10, fig. 2.

Type locality: Bering Strait, near Port Clarence.

Range: Point Barrow and Bering Strait. (MacGinitie, 1959)

not seen.

Colus (Anomalosipho) martensi (Krause, 1885)

Sipho martensi Krause, 1885, *Arch. f. Naturg.* 51(3):287; pl. 18, fig. 10. (Macpherson, 1971)

Colus (Anomalosipho) dautzenbergi Dall, 1916, *Biol. Soc. Wash., Proc.* 29:8. (new name for *Sipho verkruzeni* Dautzenberg and Fischer, 1912, not *S. verkruzeni* Kobelt, 1876.)

Colus conulus Aurivillius, 1887, *Vega-Exped. vetensk. Iakttagelser* 4:377; pl. 13, fig. 6. (Macpherson, 1971)

Sipho martensi, Petrov, 1966:174; pl. 8, figs. 5-7a.

Anomalosipho martensi, Macpherson, 1971:78; pl. 5, fig. 5.

Anomalosipho cf. *A. verkruzeni*, Macpherson, 1971:79; pl. 5, fig. 6.

Type locality: "Metschigmenbai", Bering Sea.

Range: Point Barrow, Alaska. Plover Bay, Siberia. MacKenzie Bay and Franklin Bay, Arctic Canada. Bering Sea. (MacGinitie, 1959; Petrov, 1966; Macpherson, 1971)

Localities:

Chukchi: 67 to 68°N and 167 to 171°W, 37 to 60 m (5).

Northern Bering: 64°49'N, 170°04'W, 47 m (1). 62°05'N, 171°20'W, 48 m (1).

Colus (Anomalosipho) pulcius (Dall, 1919)

Aulacofusus (Limatofusus) pulcius Dall, 1919, *Proc. U.S. Nat. Mus.*
56:318.

Colus (Aulacofusus) pulcius, Dall, 1921:95.

Colus (Aulacofusus) pulcius, Dall, 1925:13; pl. 3, fig. 1.

Colus (Aulacofusus) pulcius, Oldroyd, 1927, part 1:221; pl. 9, fig. 1.

Aulacofusus pulcius, Kosuge, 1973; pl. 10, fig. 8.

Type locality: Arctic Ocean north of Bering Strait.

Range: Arctic Ocean north of Bering Strait. (Dall, 1921)

not seen.

Colus (Aulacofusus)

Colus (Aulacofusus) acosmius (Dall, 1891)

Chrysodomus (Sipho) acosmius Dall, 1891, *Proc. U.S. Nat. Mus.* 14:188.

Chrysodomus (Sipho) acosmius, Dall, 1895:708; pl. 27, fig. 3.

Colus (Aulacofusus) acosmius, Dall, 1921:94.

Colus (Aulacofusus) acosmius, Oldroyd, 1927, part 1:217; pl. 15, fig. 3.

Chrysodomus (Sipho) acosmius, Kosuge, 1973; pl. 24, fig. 6.

Type locality: Albatross Sta. 3329, off Unalaska Island, Bering Sea.

Range: off Pribilof Islands, Bering Sea to Unalaska Island. (Dall, 1921)

Depth: 399 to 688 fms. (Dall, 1921)

not seen.

Colus (Aulacofusus) calathrus Dall, 1919

Colus (Aulacofusus) calathrus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:317.

Colus (Aulacofusus) calathrus, Dall, 1921:94; pl. 8, fig. 2.

Colus (Aulacofusus) calathrus, Oldroyd, 1927, part 1:216.

Colus (Aulacofusus) calathrus, Kosuge, 1973; pl. 10, fig. 6.

Type locality: U.S.F.C. Sta. 2853, near Shumagin Islands, Alaska, 159 fms.

Range: near Shumagin Islands. (Dall, 1921)

not seen.

Colus (Aulacofusus) esychus (Dall, 1907)

Tritonofusus esychus Dall, 1907, *Smithsonian Misc. Coll.* 50(2):159.

Colus (Aulacofusus) esychus, Dall, 1921:94; pl. 10, fig. 8.

Colus (Aulacofusus) esychus, Oldroyd, 1927, part 1:215; pl. 7, fig. 5.

Tritonofusus esychus, Kosuge, 1973; pl. 26, fig. 8.

Type locality: off Bering Island, Bering Sea.

Range: Pt. Barrow, Alaska to Bering Island, Bering Sea. (Dall, 1921)

not seen.

Colus (Aulacofusus) herendeeni (Dall, 1902)

Tritonofusus (Plicifusus) herendeeni Dall, 1902, *Proc. U.S. Nat. Mus.* 24:527; pl. 36, fig. 10.

Colus (Aulacofusus) herendeeni, Dall, 1921:94; pl. 8, fig. 4.

Colus (Aulacofusus) herendeeni, Oldroyd, 1927, part 1:212; pl. 4, fig. 10.

Sipho herendeeni, Kosuge, 1973; pl. 15, fig. 4.

Type locality: Bering Sea and Aleutian Islands.

Range: Southern Bering Sea. Nunivak Island to the Aleutian and Shumagin Islands. (Dall, 1921)

Depth: 41 to 284 fms. (Dall, 1921)

Localities:

Southern Bering: 55 to 57°N and 163 to 169°W, 108 to 145 m (4).

Colus (Aulacofusus) nobilis Dall, 1919

Colus (Aulacofusus) nobilis Dall, 1919, *Proc. U.S. Nat. Mus.* 56:315.

Colus (Aulacofusus) nobilis, Dall, 1921:94.

Colus (Aulacofusus) nobilis, Dall, 1925:13; pl. 5, fig. 4.

Colus (Aulacofusus) nobilis, Oldroyd, 1927, part 1:213; pl. 24, fig. 4.

Colus (Aulacofusus) nobilis, Kosuge, 1973; pl. 11, fig. 6.

Type locality: U.S.F.C. Sta. 3484, near Pribilof Islands, Bering Sea.

Range: near Pribilof Islands, Bering Sea. (Dall, 1921)

Localities:

Southern Bering: 54 to 56°N and 166 to 168°W, 146 to 358 m (4).

Colus (Aulacofusus) ombronius Dall, 1919

Colus (Aulacofusus) ombronius Dall, 1919, *Proc. U.S. Nat. Mus.* 56:315.

Colus (Aulacofusus) ombronius, Dall, 1921:94.

Colus (Aulacofusus) ombronius, Dall, 1925:13; pl. 3, fig. 5.

Colus (Aulacofusus) ombronius, Oldroyd, 1927, part 1:214; pl. 9, fig. 5.

Colus (Aulacofusus) ombronius, Kosuge, 1973; pl. 11, fig. 2.

Type locality: U.S.F.C. Sta. 3252, Bering Sea, between Bristol Bay and Pribilof Islands.

Range: eastern Bering Sea. Nunivak Island to Bristol Bay. (Dall, 1921)

Localities:

Chukchi: 71°19'N, 160°01'W, 45 m (1). 71°03'N, 164°57'W, 55 m (1).

Southern Bering: near Pribilof Islands, 40 and 55 m (2). tentative identification.

Colus (Aulacofusus) periscelidus (Dall, 1891)

Chrysodomus periscelidus Dall, 1891, *Proc. U.S. Nat. Mus.* 14:187.

Chrysodomus periscelidus, Dall, 1895:708; pl. 27, fig. 6.

Colus (Aulacofusus) periscelidus, Dall, 1921:93.

Colus (Aulacofusus) periscelidus, Oldroyd, 1927, part 1:212; pl. 15, fig. 6.

Chrysodomus periscelidus, Kosuge, 1973; pl. 15, fig. 5.

Type locality: Albatross Sta. 2842, off coast of Akutan Island, Alaska, 72 fms.

Range: Commander and Aleutian Islands to Sannak Islands, Alaska. (Dall, 1921)

Colus (Aulacofusus) roseus Dall, 1877

Chrysodomus roseus Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 2. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Tritonofusus (Plicifusus) roseus, Dall, 1902:526; pl. 36, fig. 4.

Colus (Aulacofusus) bristolensis Dall, 1919, *Proc. U.S. Nat. Mus.* 56:316.

Colus (Aulacofusus) barbarinus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:316.

Colus (Aulacofusus) barbarinus, Dall, 1921:94.

Colus (Aulacofusus) bristolensis, Dall, 1921:94.

Colus (Aulacofusus) roseus, Dall, 1921:94.

Colus (Aulacofusus) roseus, Dall, 1925:13; pl. 26, fig. 2.

Colus (Aulacofusus) barbarinus, Dall, 1925:12; pl. 2, fig. 5.

Colus (Aulacofusus) bristolensis, Dall, 1925:12; pl. 2, fig. 8.

Colus (Aulacofusus) roseus, Oldroyd, 1927, part 1:215; pl. 4, fig. 4.

Colus (Aulacofusus) barbarinus, Oldroyd, 1927, part 1:215; pl. 8, fig. 5.

Colus (Aulacofusus) bristolensis, Oldroyd, 1927, part 1:214; pl. 8, fig. 8.

Colus roseus, Macpherson, 1971:74; pl. 2, fig. 16.

Chrysodomus roseus, Kosuge, 1973; pl. 11, fig. 8.

Colus (Aulacofusus) barbarinus, Kosuge, 1973; pl. 11, fig. 1.

Colus (Aulacofusus) bristolensis, Kosuge, 1973; pl. 11, fig. 3.

Type locality: of *Chrysodomus roseus*, off Cape Lisburne, Arctic Ocean.

of *Colus (Aulacofusus) barbarinus*, off Kudobine Island, Bering Sea, U.S.F.C. Sta. 3282.

of *Colus (Aulacofusus) bristolensis*, U.S.F.C. Sta. 3252, between Bristol Bay and Pribilof Islands, Bering Sea.

Colus (Aulacofusus) roseus (Continued)

Range: Mackenzie Bay, Arctic Canada. off New Siberian Islands. Bering Sea to Bristol Bay. (Dall, 1921; Macpherson, 1971)

Localities:

Arctic: 70 to 72°N and 141 to 176°W, 40 to 110 m (9).

Southern Bering: 57°20'N, 175°50'W (1). 57°05'N, 168°10'W (1).

Colus (Aulacofusus) sapius Dall, 1919

Colus (Aulacofusus) sapius Dall, 1919, *Proc. U.S. Nat. Mus.* 56:315.

Colus (Aulacofusus) sapius, Dall, 1921:94.

Colus (Aulacofusus) sapius, Dall, 1925:14; pl. 2, fig. 10; pl. 26, fig. 9.

Colus (Aulacofusus) sapius, Oldroyd, 1927, part 1:216; pl. 8, fig. 10.

Colus (Aulacofusus) sapius, Kosuge, 1973; pl. 15, fig. 6.

Type locality: U.S.F.C. Sta. 2859, southwest of Sitka, Alaska, 1569 fms.

Range: off Sitka, Alaska. (Dall, 1921)

not seen.

Colus (Aulacofusus) spitzbergensis Reeve, 1855

Fusus spitzbergensis Reeve in Belcher, 1855, *Last of the Arctic Voyages 2*, appendix, p. 395; pl. 32, fig. 6. (Macpherson, 1971)

Colus (Aulacofusus) spitzbergensis, Dall, 1921:93.

Colus (Aulacofusus) spitzbergensis, Oldroyd, 1927, part 1:212; pl. 4, fig. 7.

Colus spitzbergensis, MacGinitie, 1959:119.

Colus spitzbergensis, Macpherson, 1971:75; pl. 5, fig. 9.

Colus spitzbergensis, Abbott, 1974:209, fig. 2288.

Type locality: Spitzbergen.

Range: West Atlantic: Labrador to Maine. (Macpherson, 1971)

East Pacific: Point Barrow, Alaska to Straits of Juan de Fuca. (Macpherson, 1971)

West Pacific: Asian coast, 44 to 72°N. (Kuroda and Habe, 1952)

Depth: 37 to 156 m. (MacGinitie, 1959)

Localities:

Arctic: 71°59'N, 155°42'W, 37 m (1).

Chukchi: 68°38'N, 176°00'W, 50 m (1).

Northern Bering: north of St. Lawrence Island (2).

Southern Bering: 54 to 58°N and 163 to 169°W, 73 to 108 m (8).

Colus (Aulacofusus) timetus (Dall, 1919)

Aulacofusus (Limatofusus) timetus Dall, 1919, *Proc. U.S. Nat. Mus.* 59:318.

Colus (Aulacofusus) timetus, Dall, 1921:95.

Colus (Aulacofusus) timetus, Dall, 1925:14; pl. 1, fig. 2.

Colus (Aulacofusus) timetus, Oldroyd, 1927, part 1:219; pl. 13, fig. 2.

Aulacofusus (Limatofusus) timetus, Kosuge, 1973; pl. 23, fig. 4.

Type locality: U.S.F.C. Sta. 3333, off Iliuliuk Harbor, Captain's Bay,
Unalaska, Aleutian Islands.

Range: Bering Sea, off Unalaska, 19 fms. (Dall, 1921)

not seen.

Colus (Aulacofusus) togatus (Mörch, 1869)

Fusus ebur var. *togata* Mörch, 1869 in Petit de la Saussaye, *Catalogue des mollusques testacées des mers d'Europe*, p. 275. (Macpherson, 1971)

Colus togatus, Macpherson, 1971:76; pl. 5, fig. 2.

Type locality: Greenland.

Range: Arctic Canada, west to Mackenzie Bay. (Macpherson, 1971) east and west Greenland. Barents Sea to Novaya Zemlya and south to 50°N. (Thorson, 1944) Arctic Ocean off Franz Joseph and New Siberian Islands. (Macpherson, 1971)

Depth: 4.5 to 1230 m. (Macpherson, 1971)

Localities:

Arctic: 70 to 71°N and 143 to 156°W, 54 to 150 m (7).

Colus (Aulacofusus) trombinus (Dall, 1919)

Aulacofusus (Limatofusus) trombinus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:321.

Colus (Aulacofusus) trombinus, Dall, 1921:95.

Colus (Aulacofusus) trombinus, Dall, 1925:14; pl. 2, fig. 6.

Colus (Aulacofusus) trombinus, Oldroyd, 1927, part 1:221; pl. 8, fig. 6.

Aulacofusus trombinus, Kosuge, 1973; pl. 11, fig. 7.

Type locality: U.S.F.C. Sta. 3253, off Pribilof Islands, Bering Sea.

Range: off Pribilof Islands, Bering Sea, 36 fms. (Dall, 1921)

not seen.

Colus (Latisipho)

Colus (Latisipho) aphelus Dall, 1890

Chrysodomus aphelus Dall, 1890, *Proc. U.S. Nat. Mus.* 12:323; pl. 6, fig. 7.

Colus (Latisipho) aphelus, Dall, 1921:96.

Colus (Latisipho) aphelus, Dall, 1925:11; pl. 1, fig. 3.

Colus (Latisipho) aphelus, Oldroyd, 1927, part 1:225; pl. 13, fig. 3.

Type locality: U.S.F.C. Sta. 2839, off coast of Santa Barbara County, California.

Range: Chirikoff Island, Alaska to San Diego, California, 339 to 704 fms. (Dall, 1921)

Depth: 400 to 1000 m (British Columbia). (Bernard, 1970)

not seen.

Colus (Latisipho) halli Dall, 1873

Sipho hallii Dall, 1873. *Calif. Acad. Sci., Proc.* 5:59; pl. 2, fig. 3.

Tritonofusus hallii Dall, 1902:525; pl. 36, fig. 9.

Tritonofusus jordani Dall, 1913, *Proc. U.S. Nat. Mus.* 45:588. (Boss, Rosewater, Ruhoff, 1968)

Colus (Latisipho) erroneus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:321.

Colus (Latisipho) nalli, Dall, 1921:96.

Colus (Latisipho) erroneus, Dall, 1921:96.

Colus (Latisipho) jordani, Dall, 1921:96; pl. 12, fig. 7.

Colus (Latisipho) erroneus, Oldroyd, 1927, part 1:224; pl. 9, fig. 6.

Colus (Latisipho) halli, Oldroyd, 1927, part 1:224; pl. 4, fig. 9.

Colus (Latisipho) jordani, Oldroyd, 1927, part 1:225; pl. 16, fig. 5.

Colus (Latisipho) erroneus, Kosuge, 1973; pl. 24, fig. 2.

Sipho hallii, Kosuge, 1973; pl. 24, fig. 4.

Type locality: of *Sipho hallii*, Sanborn Harbor, Nagai, Shumagin Islands, Alaska.

of *Tritonofusus jordani*, Puget Sound, and others.

of *Colus (Latisipho) erroneus*, Bering Sea.

Range: Pribilof Islands, Bering Sea to Monterey Bay, California. (Dall, 1921)
Coast of Asia, 52 to 60°N. (Kuroda and Habe, 1952)

Depth: 600 to 2000 m (British Columbia). (Bernard, 1970)

Localities:

Eastern Gulf: 59 to 60°N and 140 to 152°W, 120 to 268 m (15). Galena Bay (2), Sheep Bay (1), Fish Bay (1), Port Gravina (1), Prince William Sound. Valdez Arm, 95 to 200 m (2).

Southeast: Berner's Bay, 120 to 200 m (3). Taku Inlet (1). Katlian Bay (1). Bailey Bay (1).

Colus (Latisipho) halli (Continued)

Note: other possible synonyms include:

Colus (Latisipho) morditus (Dall, 1919)

Colus (Latisipho) halimerus (Dall, 1919)

Colus (Latisipho) dalmasius (Dall, 1919)

Colus (Latisipho) georgianus (Dall, 1919)

Chrysodomus (Sipho) halibrectus (Dall, 1891)

Colus (Latisipho) hypolispus Dall, 1891

Chrysodomus (Sipho) hypolispus Dall, 1891, *Proc. U.S. Nat. Mus.* 14:188.

Colus (Latisipho) hypolispus, Dall, 1921:96.

Colus (Latisipho) hypolispus, Oldroyd, 1927, part 1:224; pl. 15, fig. 1.

Chrysodomus (Sipho) hypolispus, Kosuge, 1973; pl. 24, fig. 3.

Type locality: Albatross Sta. 3254, Bering Sea.

Range: Arctic Ocean to the Aleutian Islands and eastward to Shelikoff Strait, Alaska. (Dall, 1921)

Localities:

Chukchi: 67°44'N, 167°42'W, 37 m (1). 71°55'N, 168°55'W, 51 m (1).

Northern Bering: 61 to 64°N and 168 to 172°W (4).

Southern Bering: 55 to 60°N and 163 to 171°W, 40 to 146 m (18).

TABLE 28a

Colus

	<i>Colus hypolispus</i>	<i>Colus halli</i>	<i>Colus togatus</i>	<i>Colus periscelidus</i>
Size - height	50.4	50.4	60.0	46
diameter	24.2	21.0	28.2	19
aperture	23.7	24.5	31.8	19
Number of whorls	6	6-7	7-8	8
Overall shape	fusiform, short	fusiform, elongate to short	fusiform	fusiform, narrow acute spire
Whorl outline	round	slightly rounded nearly straight	round, inflated	round
Sutures	deep	slightly adpressed	very deep	
Radial sculpture	faint threads; irregularly spaced divergent threads above the shoulder	faint threads evenly, closely spaced	low rounded ribs, widely spaced fading below the periphery	quadrate ribs deep, undercut interspaces
Number on penultimate			variable	5

TABLE 28a

Continued

	<i>Colus hypolispus</i>	<i>Colus halli</i>	<i>Colus togatus</i>	<i>Colus periscelidus</i>
Number on body whorl				10
Canal	short, wide curved	short, wide slightly curved	curved, rather narrow	short
Color	straw-olive ruddy brown, off white inside	straw-olive ruddy brown, white inside	pale straw, chalky white	yellowish

from Dall, 1891

TABLE 28b

Colus

	<i>Colus esychus</i>	<i>Colus sapius</i>	<i>Colus calathus</i>	<i>Colus acosmius</i>
Size - height	52	22	26	60
diameter	21	11	13	23
aperture	8	6	12	25
Number of whorls	8		6 or more	6-7
Overall shape	slender, acute, moderately convex			elongate
Whorl outline	flattened to posterior	rounded		flattened
Sutures	not deep	distinct	distinct	distinct
Radial sculpture	fine, narrow, flat paired ridges	smooth just anterior to suture; cords with channeled interspaces	low round cords, narrow interspaces, closer set below periphery	shallow, widely spaced narrow grooves
Number on penultimate		8	13	18-20

TABLE 28b

Continued

	<u><i>Colus</i></u> <u><i>esychnus</i></u>	<u><i>Colus</i></u> <u><i>sapius</i></u>	<u><i>Colus</i></u> <u><i>calathus</i></u>
Numbers on body whorl			
Canal	twisted, retracted, recurved	rather long, narrow, curv- ed	short, wide slightly recurved
Color	pinkish-brown	straw	straw
	Dall, 1907	Dall, 1919	Dall, 1919 in Oldroyd, 1927

Colus
acosmius

very short,
recurved

dull greenish

Dall, 1891
in Oldroyd, 1927

TABLE 28c

Colus

	<i>Colus spitzbergensis</i>	<i>Colus herendeeni</i>	<i>Colus nobilis</i>	<i>Colus roseus</i>
Size - height	77.5	67.0	61.4	21.9
diameter	35.4	26.9	25.6	9.6
aperture	38.3	27.5	31.7	10.4
Number of whorls	7-8	8-9	7	6
Overall shape	fusiform	fusiform	slender- fusiform	fusiform
Whorl outline	rounded	rounded to slightly flattened	rounded	rounded
Sutures	deep, constricted	slightly constricted	slightly constricted	deep, constricted
Radial sculpture	flat to slightly round-topped ribs deep interspaces	low flat- topped ribs, each is divided by a shallow groove	flat-topped ribs, below the periphery each is divided by a shallow groove	incised lines, flat spaces between
Number on penultimate	9-11	15	13	8-12

TABLE 28c

Continued

	<i>Colus spitzbergensis</i>	<i>Colus herendeeni</i>	<i>Colus nobilis</i>	<i>Colus roseus</i>
Number on body whorl	20-25	35-40	25-26	25-28
Canal	long, straight, narrow	long, narrow, curved	long, narrow, slightly curved	straight, short medium-wide
Color	yellow brown, white inside	yellow brown, white inside	olive, white inside	olive yellowish, orange-brown inside

TABLE 28d

Colus

	<i>Colus ombronius</i>	<i>Colus martensi</i>	<i>Colus capponius</i>	<i>Colus pulcius</i>
Size - height	41.0	50	40	60
diameter	27.8	19	18	23
aperture	22.5	24	18	25
Number of whorls	6	6	5 or more	6-7
Overall shape	slender fusiform	cylindrical conic		elongate
Whorl outline	rounded	flat, almost concave	moderately rounded	rounded
Sutures	deep	much appress- ed	distinct, deep	distinct, deep
Radial sculpture	low ribs, becoming more widely spaced and angular below periphery	low narrow rounded ribs	narrow, deep grooves, wide flat inter- spaces	uniform flattened spirals with narrow grooves

TABLE 28d

Continued

	<i>Colus ombronius</i>	<i>Colus martensi</i>	<i>Colus capponius</i>	<i>Colus pulcius</i>
Numbers on penultimate	12	17-20	17	27-30
Numbers on body whorl	24	30-38		
Canal	long, narrow moderately curved	short, wide, straight or slightly curved	short, wide	short, wide, deep
Color	gray to brownish white	olive to dark ruddy brown, ivory to orange brown	olivaceous	olivaceous pale brown

from Dall, 1919 from Dall, 1919

*Colus**Colus*
aphelus

Size - height diameter aperture	
Number of whorls	6
Overall shape	bucciniform
Whorl outline	well-rounded
Sutures	
Radial sculpture	few, obsolete traces
Number on penultimate	
Number of body whorl	
Canal	short, wide curved
Color	greenish gray
	from Dall, 1890

Colus
timetus

30

16

15

5 or more

distinct

fine, regular
sharp striae

33

wide, short, deep

pale olive

from Dall, 1919

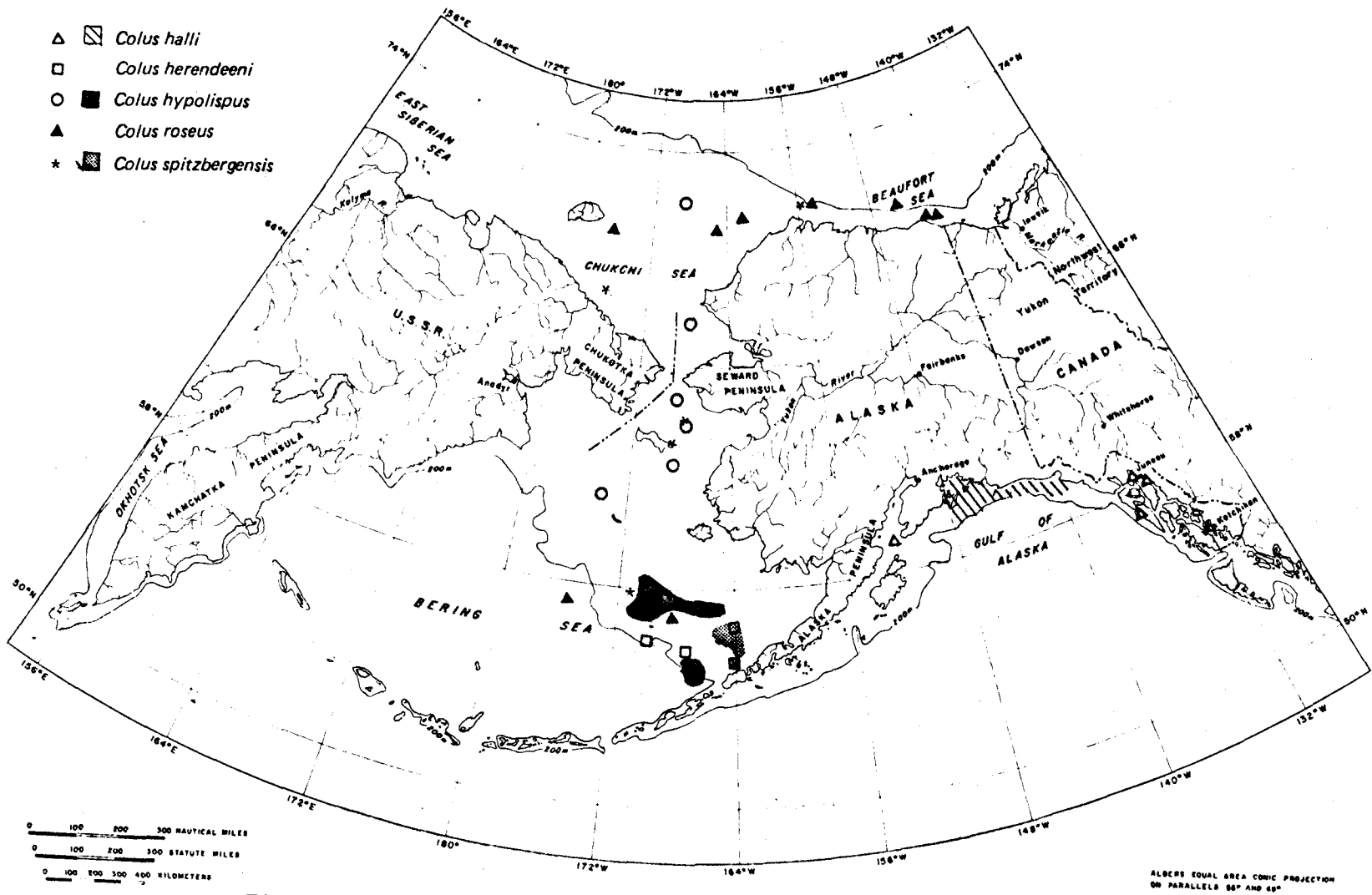


Figure 6. Localities for specimens of *Colus*.

*Exilioidea**Exilioidea rectirostris* (Carpenter, 1864)

Chrysodomus rectirostris Carpenter, 1864, *Rept. Brit. Assoc. Adv. Sci.* p. 603, 664. (Palmer, 1958)

Tritonofusus (Plicifusus) rectirostris, Dall, 1902:525; not pl. 34, fig. 2 (*Exilioidea kelseyi*).

Exilia rectirostris, Dall, 1921:92.

Exilia rectirostris, Oldroyd, 1927, part 1:206; not pl. 6, fig. 7; not pl. 28, fig. 2 (*E. kelseyi*).

Exilioidea rectirostris, Grant and Gale, 1931:665; pl. 28, fig. 5.

Exilioidea rectirostris, Palmer, 1958:215.

Type locality: Puget Sound.

Range: Behm Canal, Alaska to Cape San Quentin, Baja California.
(Dall, 1921)

Depth: 100 to 500 m (British Columbia). (Bernard, 1970)

Liomesus

Liomesus nassula Dall, 1901

Liomesus nassula Dall, 1901, *Nautilus* 15(8):89. (Boss, Rosewater, Ruhoff, 1968)

Liomesus nassula, Dall, 1921:91; pl. 8, fig. 6.

Liomesus nassula, Oldroyd, 1927, part 1:197.

Liomesus nassula, Kosuge, 1973; pl. 22, fig. 4.

Type locality: near Pribilof Islands, Bering Sea.

Range: Pribilof Islands, Bering Sea to the Alaska Peninsula. (Dall, 1921)

Depth: 34 to 121 fms.

not seen.

Liomesus nux Dall, 1877

Liomesus crassa nux Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 2. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Liomesus nux, Dall, 1902:530; pl. 38, fig. 7.

Liomesus nux, Dall, 1921:91.

Liomesus nux, Oldroyd, 1927, part 1:199; pl. 2, fig. 22.

Liomesus nux, Kosuge, 1973; pl. 24, fig. 8.

Type locality: east shore of Nagai Island, Shumagin Islands. Unalaska Island.

Range: Aleutian to Shumagin Islands. (Dall, 1921)

not seen.

Liomesus ooides (Middendorff, 1848)

Tritonium ooides Middendorff, 1848, *Bull. Acad. St. Petersburg* 7(16):6. (Dall, 1921)

Buccinopsis canaliculata, Dall, 1874, *Calif. Acad. Sci., Proc.* 5:252. (Boss, Rosewater, Ruhoff, 1968)

Liomesus canaliculatus, Dall, 1902:531; pl. 38, fig. 2.

Liomesus ooides, Dall, 1902:531.

Liomesus ooides and ssp. *canaliculatus*, Dall, 1921:91.

Liomesus ooides and ssp. *canaliculatus*, Oldroyd, 1927, part 1:198; pl. 2, fig. 23.

Buccinopsis canaliculatus, Kosuge, 1973; pl. 24, fig. 7.

Type locality: of *Tritonium ooides*, Tugur Basin, Okhotsk Sea.

of *Buccinopsis canaliculata*, Cape Espenberg, Alaska.

Range: Icy Cape to Bering Sea, Okhotsk Sea, Coast of Asia to 39°N.
(Dall, 1921; Kuroda and Habe, 1952)

Localities:

Chukchi: Icy Cape (1).

Northern Bering: Norton Sound (1).

Southern Bering: Bristol Bay (1).

Liomesus
ooides

Size - height	36
length	20
aperture	18.5
Number of whorls	6
Whorl profile	rounded, narrowly tabulate
Suture	channeled
Axial sculpture	fine incremental threads
Radial sculpture	rounded cords, alternating in width
Periostracum	thick, velvety

TABLE 29

Liomesus

<u><i>Liomesus</i></u> <u><i>nux</i></u>	<u><i>Liomesus</i></u> <u><i>nassula</i></u>
1.28 in.	42
.8 in.	22
.8 in.	17
5	7
distinct	distinct
fine, but distinct lines of growth	fine sharp incremental threads
fine, thread-like ridges, 7 between aperture and suture	fine threads, 4-5 per mm every 4th thread is stronger
velvety, reticulat- ed	slightly hispid

Liomesus
oides

Periostracum
color

pale to dark brown

Shell color

ivory

TABLE 29

Continued

Liomesus
nux

brown

ivory

from Dall, 1901
in Oldroyd, 1927

Liomesus
nassula

pale olive

white

from Dall, 1877
in Oldroyd, 1927

*Mohnia**Mohnia corbis* Dall, 1913*Mohnia corbis* Dall, 1913, *Acad. Nat. Sci. Philadelphia, Proc.* 65, part 2, p. 501. (Boss, Rosewater, Ruhoff, 1968)*Mohnia corbis*, Dall, 1921:91; pl. 12, fig. 10.*Mohnia corbis*, Oldroyd, 1927, part 1:200.*Mohnia corbis*, Kosuge, 1973; pl. 12, fig. 1.

Type locality: off Pribilof Islands, Bering Sea, 1771 fms.

Range: off Pribilof Islands, Bering Sea. (Dall, 1921)

not seen.

Mohnia exquisita Dall, 1913

Mohnia exquisita Dall, 1913, *Acad. Nat. Sci. Philadelphia, Proc.* 65, part 2, p. 502. (Boss, Rosewater, Ruhoff, 1968)

Mohnia exquisita, Dall, 1921:92; pl. 10, figs. 10, 11.

Mohnia exquisita, Oldroyd, 1927, part 1:202; pl. 17, figs. 4, 5.

Mohnia exquisita, Kosuge, 1973; pl. 17, fig. 6.

Type locality: off Koniuji Island, Bering Sea, 1766 fms.

Range: off Koniuji Island, Bering Sea. (Dall, 1921)

not seen.

Mohnia frielei Dall, 1891

Mohnia frielei Dall, 1891, *Proc. U.S. Nat. Mus.* 14:186.

Mohnia frielei, Dall, 1895:712; pl. 29, fig. 8.

Mohnia frielei, Dall, 1921:91.

Mohnia frielei, Oldroyd, 1927, part 1:200; pl. 25, fig. 8, not pl. 15, fig. 5 (*Beringius frielei*).

Mohnia frielei, Kosuge, 1973; pl. 13, fig. 3.

Type locality: Albatross Sta. 2860, off the coast of British Columbia, 876 fms.

Range: East Pacific: 49°N to 56°N. (Bernard, 1970)

Depth: 1200 to 2500 m (British Columbia). (Bernard, 1970)

Localities:

Bering Sea: 54°54'N, 166°10'W, 150 m. (tentative identification)

Mohnia robusta Dall, 1913

Mohnia robusta Dall, 1913, *Acad. Nat. Sci. Philadelphia, Proc.* 65, part 2, p. 501. (Boss, Rosewater, Ruhoff, 1968)

Mohnia robusta, Dall, 1921:91; pl. 10, fig. 12.

Mohnia robusta, Oldroyd, 1927, part 1:199; pl. 17, fig. 3.

Mohnia robusta, Kosuge, 1973; pl. 13, fig. 6.

Type locality: off Pribilof Islands, Bering Sea.

Range: off Pribilof Islands, Bering Sea, 987 to 1401 fms. (Dall, 1921)

not seen.

Mohnia siphonoides Dall, 1913

Mohnia siphonoides Dall, 1913, *Acad. Nat. Sci. Philadelphia, Proc.* 65, part 2, p. 502. (Boss, Rosewater, Ruhoff, 1968)

Mohnia siphonoidea, Dall, 1921:92; pl. 12, fig. 11.

Mohnia siphonoidea, Oldroyd, 1927, part 1:201; pl. 14, fig. 7.

Mohnia siphonoides, Kosuge, 1973; pl. 13, fig. 2.

Type locality: off Pribilof Islands, Bering Sea, 987 fms.

Range: off Pribilof Islands, Bering Sea.

not seen.

*Morrisonella**Morrisonella pacifica* (Dall, 1908)

Leucosyrinx ? pacifica Dall, 1908, *Mus. Comp. Zool., Bull.* 43(6): 270; pl. 12, fig. 3.

Irenosyrinx pacifica, Dall, 1921:69.

Irenosyrinx pacifica, Oldroyd, 1927, part 1:67.

Morrisonella pacifica, Bartsch, 1945:23; pl. 3, figs. 11-14.

Leucosyrinx pacifica, Kosuge, 1973; pl. 29, fig. 7.

Type locality: Albatross Sta. 2859, Pacific Ocean, southwest of Sitka, Alaska.

Range: southwest of Sitka, Alaska. (Dall, 1921)

Depth: 1569 fms. (Dall, 1921)

not seen.

*Neptunea**Neptunea amianta* (Dall, 1890)

Chrysodomus amiantus Dall, 1890, *Proc. U.S. Nat. Mus.* 12:321;
pl. 5, fig. 10.

Chrysodomus amiantus, Dall, 1921:96.

Chrysodomus amiantus, Oldroyd, 1927, part 1:228.

Neptunea amianta, Golikov, 1963:142; pl. 19, fig. 1.

Neptunea amianta, Abbott, 1974:213; fig. 2358.

Neptunea (Neptunea) amianta, Nelson, 1974:240; pl. 25, fig. 3.

Type locality: U.S.F.C. Sta. 2839, near Santa Barbara Island, California.

Range: off Pribilof Islands, Bering Sea. Unalaska. south to off San Diego, California. off north Farallon Island and near San Nicolas Island, California. (Nelson, 1974)

Depth: 157 m (off Pribilof Islands) to 2104 m (off San Nicolas Island)
most common below 450 to 550 m. (Nelson, 1974)

sand and silty sand. (Nelson, 1974)

not seen.

Neptunea beringiana (Middendorff, 1848)

Tritonium (Fusus) antiquum var. *behringiana* Middendorff, 1848, *Bull. Phys.-Math. Acad. Imp. Sci. St. Petersburg* 7(16):243[2]-244[3]. (Nelson, 1974)

Chrysodomus saturus beringianus, Dall, 1921:97.

Neptunea ventricosa, MacGinitie, 1959:121; pl. 14, figs. 1-6.

Neptunea beringiana, Golikov, 1963; pl. 25.

Neptunea (Neptunea) sp. Nelson, 1974:169; pl. 21, figs. 1-4; pl. 22-24, fig. 1.

Type locality: Tugur Bay, south of Shantar Island, Sea of Okhotsk.

Range: Bristol Bay, Bering Sea. Chukchi Sea to off Point Barrow, Alaska. (Nelson, 1974) East Siberian Sea north of Bennett Island. western Chukchi Sea. western Bering Sea (Golikov, 1963)

Depth: 30 to 50 m (northern part of range). 50 to 90 m (Kuril Islands). 10 to 20 m (Sea of Okhotsk). (Golikov, 1963)

silt-sand, sand, sand and rock. (Golikov, 1963)

Localities:

Northern Bering: Bering Strait (1). Cape Woolley (empty) (1).

Southern Bering: 58 to 60°N and 161 to 170°W, 22 to 69 m (22).

Neptunea borealis Philippi, 1850

Fusus borealis Philippi, 1850, *Abbild. beschreib. conch.* 3, 118 [24]; pl. 5, fig. 2. (Nelson, 1974)

Tritonium (Fusus) antiquum var. *communis insignior* Middendorff, 1849 (in part) *Mem. Soc. Nat. Acad. Imp. Sci.* (6)(6)(2), 462[133]-463[134]; pl. 5, figs. 3-6. (Nelson, 1974)

Neptunea communis communis var. *borealis*, Golikov, 1963:172; pl. 27, figs. b, c.

Neptunea (Neptunea) borealis, Nelson, 1974:248; pl. 34, figs. 2, 3; pl. 35, figs. 2, 5; pl. 36, figs. 1-4; pl. 37, figs. 1-6, 8; pl. 38; pl. 39.

Type locality: Arctic.

Range: Arctic Seas, except Greenland and Canadian Arctic. Chukchi Sea. Beaufort Sea to Liverpool Bay, Canada. Bering Sea to shelf edge and to Cape Newenham and Cape Navarin. Kamchatka coast, Sea of Okhotsk to off Hokkaido. (Nelson, 1974; Golikov, 1963)

Depth: 27 to 210 m. (Nelson, 1974)

8 to 225 m. (Golikov, 1963)

Localities:

Chukchi: 68 to 70°N and 153 to 178°W, 43 to 60 m (6).

Northern Bering: north of St. Lawrence Island (3). west of St. Matthew Island (1).

Southern Bering: west of Nunivak Island (1). 54 to 58°N and 165 to 172°W, 40 to 353 m (18).

Neptunea heros (Gray, 1850)

Chrysodomus heros Gray, 1850, *Parry's first voyage, Suppl. to Appendix* p. 15; pl. 7. (Macpherson, 1971)

Neptunea satura var. *heros*, Golikov, 1963; pl. 24, figs. a, b.

Neptunea heros, MacGinitie, 1959:122; pl. 15.

Neptunea middendorffiana, MacGinitie, 1959:124; pl. 14, figs. 7-10.

Neptunea heros, Macpherson, 1971:82; pl. 5, fig. 10.

Neptunea (Neptunea) heros heros, Nelson, 1974:182; pls. 25-30.

Type locality: between the mouth of the Mackenzie River and Cape Parry, Northwest Territories, Canada.

Range: northern Bering, Chukchi, Beaufort Seas east to Dolphin and Union Strait, Arctic Canada. Soviet Arctic to Spitzbergen. Bering Sea to Bristol Bay and north of Unimak Island. off south and east Kamchatka to the Koryak Coast. (Golikov, 1963; Macpherson, 1971; Nelson, 1974)

Depth: 13 m (Kara Sea) to 245 m (eastern Barents Sea). (Nelson, 1974)

silty-sand, sand, clay and rocks. (Nelson, 1974)

Localities:

Arctic: 70 to 72°N and 141 to 156°W, 40 to 102 m (4).

Chukchi: 68 to 72°N and 163 to 178°W, 43 to 60 m (4).

Northern Bering: Seward Peninsula to south of St. Lawrence Island (6). west of St. Matthew Island (1).

Southern Bering: 54 to 60°N and 160 to 172°W, 40 to 353 m (18).

Neptunea lyrata lyrata (Gmelin, 1791)

Murex liratum Gmelin, 1791, *Systema Naturae*, ed. 13, p. 3531.
(Golikov, 1963)

Chrysodomus liratus "Martyn, 1884," Dall, 1921:98.

Chrysodomus liratus "Martyn, 1884," Oldroyd, 1927, part 1:237;
pl. 11, figs. 1, 3; pl. 20, figs. 1, 3.

Neptunea lyrata lyrata, Golikov, 1963:144 (in part); pl. 19,
fig. 2a; pl. 20, fig. 1a.

Neptunea (Neptunea) lyrata lyrata, Nelson, 1974:124; pl. 10,
figs. 1, 3, 4; pl. 11, figs. 2, 4; pl. 12, figs. 1-3; pl. 13-15,
figs. 1, 2, 4.

Type locality: "K. George's Sound." (Oldroyd, 1927)

Range: eastern Bering Sea. Gulf of Alaska between Shumagin Islands
and Katchemak Bay. off Point Pinos, Monterey, California.
(Nelson, 1974)

Depth: 16 to 1724 m, 40 to 250 m (most common). (Nelson, 1974)

Localities:

Southern Bering: 54 to 60°N and 164 to 175°W, 33 to 153 m (35).

Neptunea lyrata ssp. Nelson

Chrysodomus form *liratus*, Oldroyd, 1927, part 1; pl. 20, fig. 2.

Neptunea lyrata lyrata var. *phoenicea*, Golikov, 1963; pl. 19, fig. 2b.

Neptunea (Neptunea) lyrata ssp. Nelson, 1974:137; pl. 15, figs. 3, 5, 6; pl. 16, figs. 3-6; pl. 17, figs. 3-5.

Type locality: off Petersburg, Mitkof Island, Alexander Archipelago.

Range: Shumagin Islands, Alaska to off Trinidad, California. (Nelson, 1974)

Depth: 27 to 438 m (Alexander Archipelago). 55 to 278 m (Puget Sound).
11 to 731 m (off Northern California). (Nelson, 1974)

Localities:

Southern Bering: Unimak Pass area, 64 to 153 m (4).

Western Gulf: Cohan Island, Kachemak Bay, intertidal (1).
Kasitsna Bay, intertidal (2). Tuxedni Channel (1). Homer (empty)
(1). Lower Cook Inlet (1). south of Geese Islands (1).

Eastern Gulf: 59 to 60°N and 141 to 147°W (21). Sheep Bay, 90 and
120 M (2). Simpson Bay (1). Port Valdez (1). Resurrection Bay (1).

Southeast: Lagoon Island, Glacier Bay (1). Sebree Cove (1).

Neptunea phoenicea (Dall, 1891)

Chrysodomus phoeniceus Dall, 1891, *Proc. U.S. Nat. Mus.* 14:187.

Chrysodomus phoeniceus, Dall, 1895:708; pl. 29, fig. 1.

Chrysodomus phoeniceus, Dall, 1921:97.

Chrysodomus phoeniceus, Oldroyd, 1927, part 1:231; pl. 25, fig. 1.

Neptunea phoenicea, Nelson, 1974:399; pl. 65, fig. 5.

Type locality: U.S.F.C. Sta. 2862, Queen Charlotte Sound, British Columbia, 238 fms.

Range: Gastineau Channel, Alaska to off Eureka, California. (Nelson, 1974)

Depth: 27 to 733 m. (Nelson, 1974)

Localities:

Southeast: Rudyerd Bay, 75 fms (1).

Neptunea pribiloffensis Dall, 1919

Chrysodomus pribiloffensis Dall, 1919, *Proc. U.S. Nat. Mus.* 56:323.

Fusus vinosus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:323.

Chrysodomus pribiloffensis, Dall, 1921:97.

Chrysodomus vinosus, Dall, 1921:97.

Chrysodomus pribiloffensis, Dall, 1925:10; pl. 7, fig. 4.

Chrysodomus pribiloffensis, Oldroyd, 1927, part 1:231; pl. 21, fig. 4.

Chrysodomus vinosus, Oldroyd, 1927, part 1:232; pl. 22, fig. 3.

Chrysodomus pribiloffensis, Kosuge, 1973; pl. 27, fig. 1.

Chrysodomus vinosus, Kosuge, 1973; pl. 28, fig. 6.

Neptunea (Neptunea) pribiloffensis pribiloffensis, Nelson, 1974: 220; pl. 32, figs. 1, 3, 7, 8; pl. 33; pl. 34, figs. 1, 4, 5; pl. 35, figs. 3, 6.

Type locality: of *Chrysodomus pribiloffensis*, U.S.F.C. Sta. 3610, south-east of Pribilof Islands, Bering Sea.

of *Chrysodomus vinosus*, U.S.F.C. Sta. 2642, Avacha Bay, Kamchatka.

Range: western Bering Sea to southeast Kamchatka. eastern Bering Sea. Bristol Bay. Pribilof Islands. Gulf of Alaska to Gray's Harbor Washington. (Golikov, 1963; Nelson, 1974)

Depth: 30 to 300 m. 60 to 150 m (most common). (Golikov, 1963)

Sand and silty-sand. (Golikov, 1963)

Localities:

Northern Bering: Bering Strait (1).

Southern Bering: 54 to 59°N and 161 to 173°W, 79 to 123 m (37).

Eastern Gulf: Prince William Sound (1). 59 to 60°N and 140 to 147°W (12).

Neptunea pribiloffensis (Continued)

Localities (Continued):

Southeast: off Katlian Bay (1). Taku Harbor (1).

Neptunea sp. Nelson

Chrysodomus saturus "Martyn, 1784," Oldroyd, 1927, part 1:232; pl. 27, figs. 3, 4, not pl. 27, fig. 1, 2 (*Buccinum glaciale*).

Neptunea satura, Petrov, 1965:166; pl. 6, fig. 1, 2.

Neptunea sp. Nelson, 1974:158-169; pl. 11, figs. 1,3; pl. 17, fig. 4; pls. 18-20; pl. 21, figs. 5, 6.

Type locality: southeast Bering Sea, north of Unimak Island.

Range: Bristol Bay to Nunivak, St. Matthew, and St. Lawrence Island.
Norton Sound. Shelikov Strait and Katchemak Bay. (Nelson, 1974)
Plover Bay. eastern Kamchatka. northern Kuril Islands. (Golikov, 1963)

Depth: 16-18 m to 135 m. (Nelson, 1974)

sand and shelly substrates. (Nelson, 1974)

Localities:

Southern Bering: 54 to 59°N and 162 to 168°W, 38 to 102 m (22).

TABLE 30a

Neptunea

	<i>Neptunea lyrata</i> ssp.	<i>Neptunea lyrata lyrata</i>	<i>Neptunea pribiloffensis</i>	<i>Neptunea amianta</i>
Relative size	medium to large	medium to very large	medium to very large	medium
Overall shape	fusiform to slim-elongate	fusiform to short fusiform	short fusiform	fusiform
Whorl shape	slightly rounded	angular, widely tabulate	rounded tabulate	rounded to slightly tabulate
Axial sculpture as nodes	lacking	low nodes strongest on radials	lacking	lacking
Axial sculpture as varices	lacking	occasionally present near aperture	occasionally present near aperture	lacking
Radial sculpture	prominent ribs	prominent ribs	low narrow ribs	low narrow ribs
Radial sculpture outline	high, rounded	high to very low rounded	rounded to angular	angular
Radial interspaces	broad, with or without up to 6 low cords	broad	broad, with many fine threads	broad, with 2-5 fine threads

TABLE 30a

Continued

	<i>Neptunea lyrata</i> ssp.	<i>Neptunea lyrata lyrata</i>	<i>Neptunea pribiloffensis</i>	<i>Neptunea amianta</i>
Relative strength on shoulder	very strong	very strong	very strong	slightly stronger
above	obsolete	absent or obsolete	obsolete to low	moderately developed
below	becoming grad- ually lower	lower to obsolete	prominent	not fading, but slightly weaker
Canal length	long, narrow	long, narrow	medium to long, narrow	short, narrow
curvature	slightly twisted	straight to moderately twisted	moderately to strongly	straight or slightly twisted
				specimen from Eureka, California

TABLE 30b

Neptunea

	<u><i>Neptunea borealis</i></u>	<u><i>Neptunea heros</i></u>	<u><i>Neptunea beringiana</i></u>	<u><i>Neptunea sp.</i></u>	<u><i>Neptunea phoenicea</i></u>
Relative size	small	large	medium to large	medium to large	medium
Overall shape	short fusiform	short to elongate fusiform	short fusiform	short fusiform	fusiform
Whorl shape	angular, sloping	angular, sloping	rounded, sloping	angular to tabulate	rounded, slightly tabulate
Axial sculpture as nodes	present on strongest radials	well developed on radials	on body whorl	low, on radials	none
Axial sculpture as varices	not present	irregular rude folds, and varices	on body whorl, low	low, on body and spire	none
Radial sculpture	narrow cord	one low, wide sometimes obsolete rib	absent or obsolete	low cords	very low, flat-topped ribs
Outline	angular	rounded		rounded	square
Radial interspaces	with or without up to 4 smaller threads	smooth		smooth	2-3 lower cords

TABLE 30b

Continued

	<u>Neptunea borealis</u>	<u>Neptunea heros</u>	<u>Neptunea beringiana</u>	<u>Neptunea sp.</u>	<u>Neptunea phoenicea</u>
Relative strength on shoulder	very strong	present only on spire periphery		strongest on spire periphery	no great variation
above	moderate to absent	not present		obsolete on body whorl	
below	fading slightly	not present			
Canal length	short, narrow	short, wide	short, narrow	short to long	long
curvature	strongly twisted	straight to slightly twisted	slightly to moderately twisted	slightly to moderately twisted	slightly curved

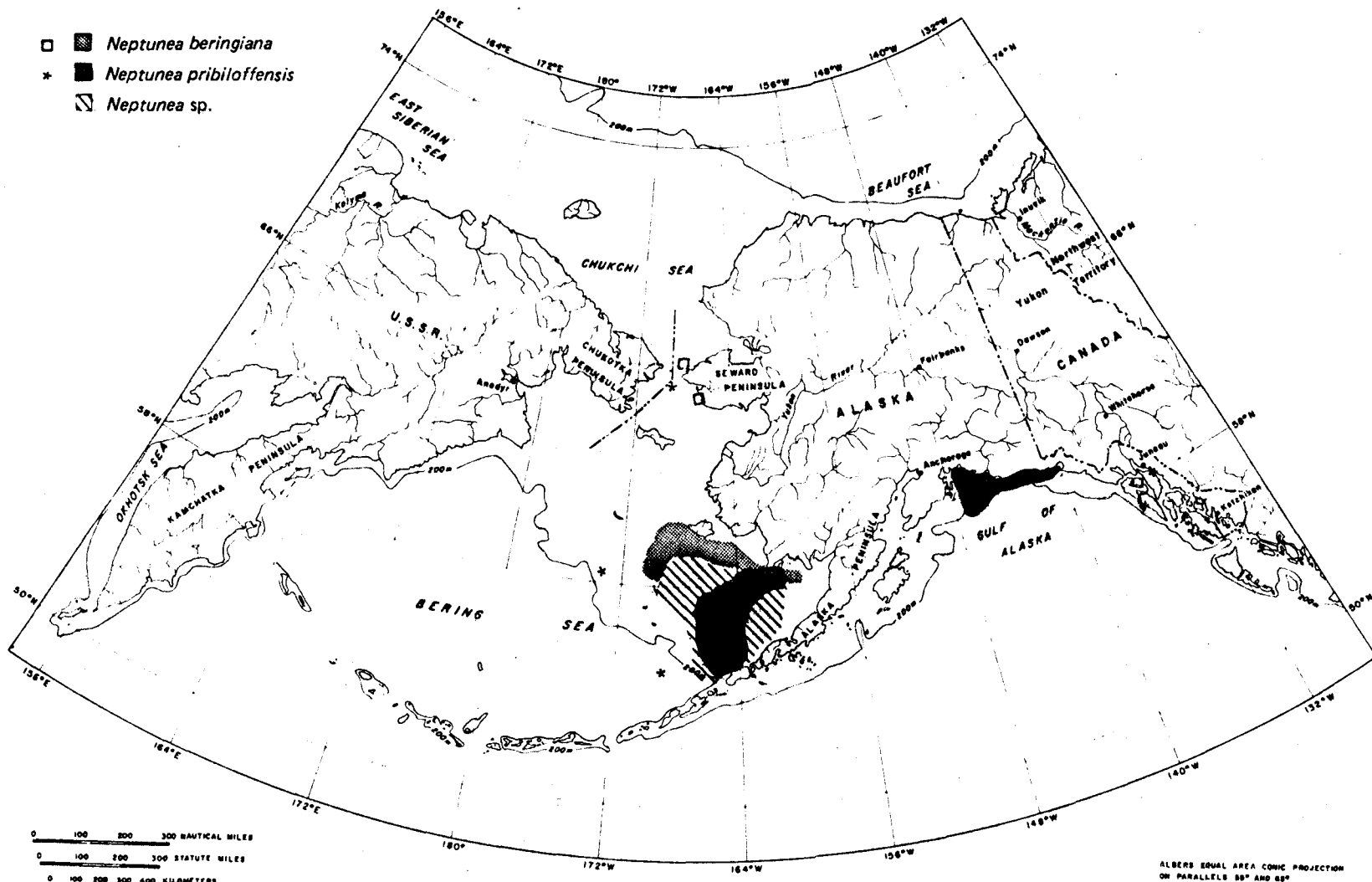


Figure 7. Localities for specimens of *Neptunea*.

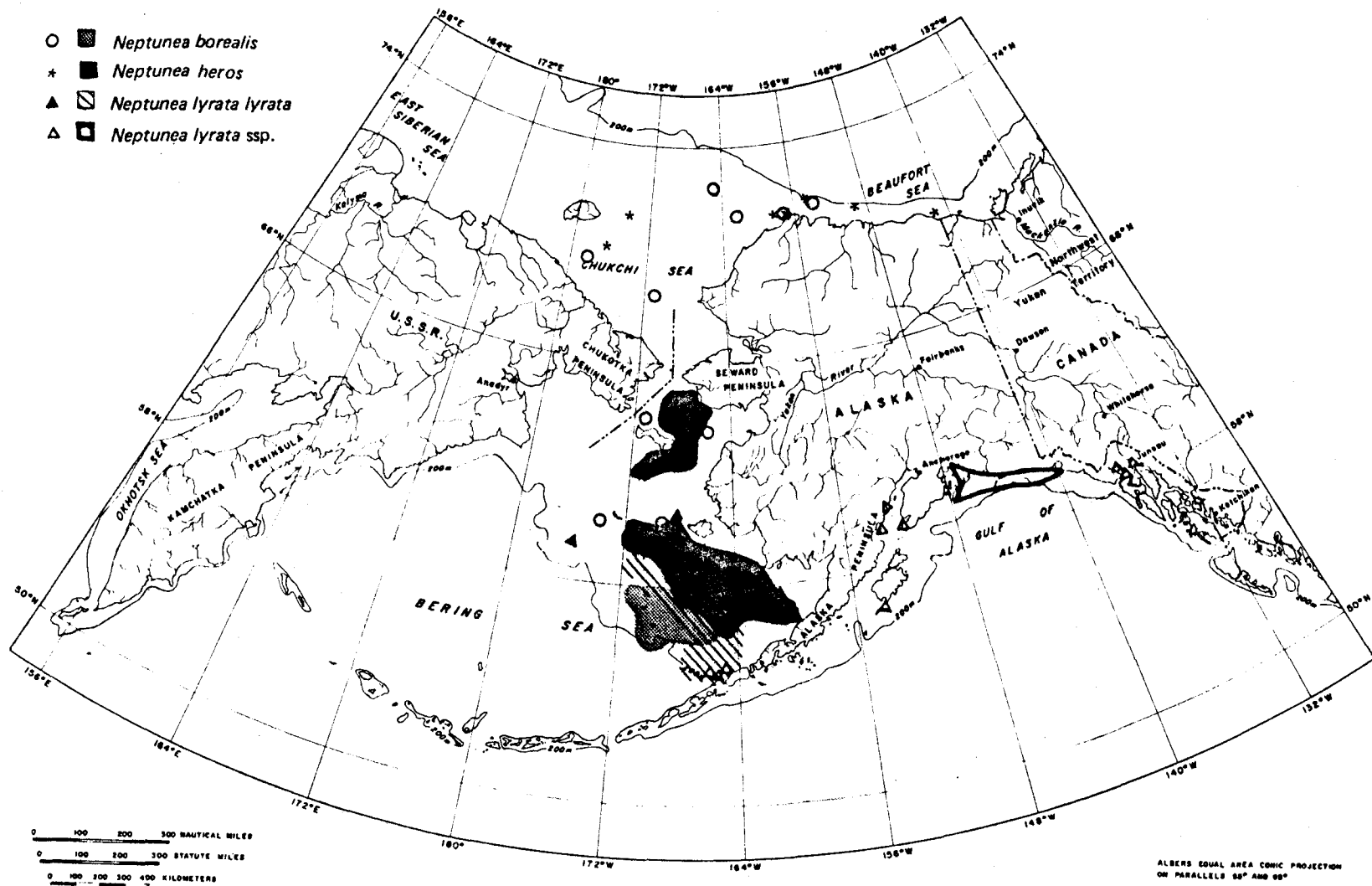


Figure 8. Localities for specimens of *Neptunea*.

*Plicifusus**Plicifusus brunneus* (Dall, 1877)

Chrysodomus brunneus Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 1. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Chrysodomus brunneus, Dall, 1902:525; pl. 34, fig. 1.

Plicifusus (Retifusus) brunneus, Dall, 1921:93.

Plicifusus (Retifusus) brunneus, Oldroyd, 1927, part 1:210; pl. 28, fig. 1.

Chrysodomus brunneus, Kosuge, 1973; pl. 14, fig. 8.

Type locality: Nunivak Island.

Range: Port Clarence, Bering Strait to Nunivak Island and the Pribilof Islands (Dall, 1921)

Localities:

Northern Bering: 66°00'N, 168°03'W, 37 m (1). (tentative identification)

Plicifusus callorhinus (Dall, 1877)

Volutopsius callorhinus Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 2. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Strombella callorhina stejnegeri Dall, 1884, *Proc. U.S. Nat. Mus.* 7:346; pl. 2, fig. 5.

Volutopsius callorhinus and ssp. *stejnegeri*, Dall, 1921:90; pl. 8, fig. 9.

Volutopsius callorhinus and ssp. *stejnegeri*, Oldroyd, 1927, part 1:190-191.

Volutopsius callorhina stejnegeri, Oldroyd, 1927, part 1:191.

Volutopsius callorhinus, Kosuge, 1973; pl. 26, fig. 2.

Strombella callorhina stejnegeri, Kosuge, 1973; pl. 28, fig. 6.

Type locality: of *Volutopsius callorhinus*, St. Paul Island, Bering Sea.

of *Strombella callorhina stejnegeri*, Bering Island, Bering Sea.

Range: known only from type localities. (Dall, 1921)

not seen.

Plicifusus griseus (Dall, 1890)

Chrysodomus griseus Dall, 1890, *Proc. U.S. Nat. Mus.* 12:322;
pl. 5, fig. 6.

Plicifusus (Retifusus) griseus, Dall, 1921:93.

Plicifusus (Retifusus) griseus, Oldroyd, 1927, part 1:210.

Plicifusus (Latifusus) griseus, Abbott, 1974:216; fig. 3285.

Type locality: U.S.F.C. Sta. 2839, off Channel Island, Santa Barbara,
California.

Range: Bering Sea (27 fms) to San Diego, California (646 fms). (Dall,
1921)

Plicifusus incisus Dall, 1919

Plicifusus (Retifusus) incisus Dall, 1919, *Proc. U.S. Nat. Mus.* 56:314.

Plicifusus (Retifusus) incisus, Dall, 1921:93.

Plicifusus (Retifusus) incisus, Dall, 1925:25; pl. 1, fig. 5.

Plicifusus (Retifusus) incisus, Kosuge, 1973; pl. 10, fig. 7.

Type locality: U.S.F.C. Sta. 3643, Western Bering Sea.

Range: Arctic Ocean, Bering Sea, Aleutian and Shumagin Islands. (Dall, 1921)

Localities:

Southern Bering: 56°44'N, 164°09'W, 52 m (1). 59°19'N, 175°50'W, 139 m (1). 58°39'N, 173°31.5'W, 123 m (1).

Plicifusus johanseni Dall, 1919

Plicifusus johanseni Dall, 1919, *Rept. Can. Arctic Exped.* vol. 8, part A, pl. 21A; pl. 3.

Plicifusus johanseni, Dall, 1921:93.

Plicifusus johanseni, Oldroyd, 1927, part 1:207; pl. 14, fig. 4.

Plicifusus johanseni, Kosuge, 1973; pl. 12, fig. 7.

Type locality: Point Barrow sandspit and Icy Cape, Alaska.

Range: Pt. Barrow to Icy Cape, Arctic Ocean. (Dall, 1921)

Localities:

Arctic: 70 to 71°N and 145 to 161°W, 40 to 45 m (3).

Plicifusus kroyeri (Möller, 1842)

Fusus kroyeri Möller, 1842, *Index Molluscorum Groenlandiae*, p. 18.
(MacGinitie, 1959)

Fusus arcticus Philippi, 1850, *Abbild. und Beschreib. neue. . .*
Conchylien 3:119; pl. 5, fig. 5. (Oldroyd, 1927)

Plicifusus kroyeri, Dall, 1921:92.

Plicifusus arcticus, Dall, 1921:93.

Plicifusus arcticus, Oldroyd, 1927, part 1:207.

Plicifusus kroyeri, Oldroyd, 1927, part 1:206.

Plicifusus kroyeri, MacGinitie, 1959:126; pl. 10, fig. 11-13.

Plicifusus kroeyeri, Macpherson, 1971:80; pl. 5, fig. 7.

Type locality: of *Fusus kroyeri*, Greenland.

of *Fusus arcticus*, Arctic Ocean.

Range: Arctic Canada. Labrador to Newfoundland to Cape Cod. Greenland.
Spitzbergen. Jan Mayen. Murman Coast. north Laptev Sea. Siberian
Ice. east coast of Siberia. Japan Sea. Point Barrow. Bering Sea.
British Columbia. (MacGinitie, 1958; Macpherson, 1971)

Depth: 0 (Spitzbergen) to 144-198 m (Evans Strait, Canada). (Macpherson,
1971)

Localities:

Arctic: 70 to 72°N, 145 to 159°W, 50 to 110 m (3).

Northern Bering: Bering Strait north of St. Lawrence Island (2).

Southern Bering: 55 to 62°N and 161 to 174°W, 30 to 147 m (13).

Western Gulf: 82 to 147 m (2).

Plicifusus laticordatus (Dall, 1907)

Tritonofusus (Plicifusus) aurantius laticordatus Dall, 1907.
Smithsonian Misc. Coll. 50(2):161.

Plicifusus (Retifusus) laticordatus, Dall, 1921:93.

Plicifusus laticordatus, Dall, 1925:25; pl. 1, fig. 4.

Plicifusus laticordatus, Oldroyd, 1927, part 1:211; pl. 13, fig. 4.

Tritonofusus aurantius, Kosuge, 1973; pl. 11, figs. 4, 5.

Type locality: Bristol Bay, Bering Sea, 41 fms.

Range: Bering Sea to Strait of Juan de Fuca. (Dall, 1921)

Localities:

Chukchi: 69°29'N, 166°24'W, 40 m (1). (tentative identification)

Southern Bering: 56 to 59°N, 165 to 171°W, 90 m (6).

Plicifusus oceandromae Dall, 1919

Plicifusus (Retifusus) oceandromae Dall, 1919, *Proc. U.S. Nat. Mus.* 56:314.

Plicifusus (Retifusus) oceandromae, Dall, 1921:93.

Plicifusus (Retifusus) oceandromae, Dall, 1925:25; pl. 3, fig. 3.

Plicifusus (Retifusus) oceandromae, Oldroyd, 1927, part 1:209; pl. 9, fig. 3.

Plicifusus (Retifusus) oceandromae, Kosuge, 1973; pl. 14, fig. 4.

Type locality: U.S.F.C. Sta. 4777, Peterel Bank, Bering Sea.

Range: Aleutian to Shumagin Islands. (Dall, 1921)

not seen.

Plicifusus virens (Dall, 1877)

Chrysodomus virens Dall, 1877, *Calif. Acad. Sci., Proc.* March 19, p. 1. (preprint) Vol. 7 never published. (Boss, Rosewater, Ruhoff, 1968)

Tritonofusus (Plicifusus) virens, Dall, 1902:525; pl. 36, fig. 8.

Plicifusus (Retifusus) virens, Dall, 1921:93.

Plicifusus (Retifusus) virens, Oldroyd, 1927, part 1:209; pl. 4, fig. 8.

Chrysodomus virens, Kosuge, 1973; pl. 14, fig. 2.

Type locality: Kiska Harbor, Kiska Island, Aleutian Islands.

Range: Bering Sea to Middleton Island, Alaska. Japan. (Dall, 1921)

not seen.

Plicifusus
griseus

Size - height	28.3
diameter	14.9
aperture	15.5
Overall shape	bucciniform
Whorl outline	rounded
Sutures	rather shallow
Axial sculpture	around 20 low narrow folds
Radial sculpture	over 40 low, closely spaced threads

TABLE 31a

Plicifusus

<u><i>Plicifusus</i></u> <u><i>incisus</i></u>	<u><i>Plicifusus</i></u> <u><i>virens</i></u>
31.0	22.0
16.5	10.5
18.2	11.8
bucciniform	low fusiform
rounded	rounded
rather shallow	rather shallow
around 20 low narrow folds	around 15 high slightly curved folds
around 10 wide flat cords with incised interspaces	around 10 coarse, flat cords

TABLE 31a

Continued

	<u><i>Plicifusus</i></u> <u><i>griseus</i></u>	<u><i>Plicifusus</i></u> <u><i>incisus</i></u>	<u><i>Plicifusus</i></u> <u><i>virens</i></u>
Canal	straight, wide, short	straight, short, narrow	long, straight, narrow
Periostracum	thin, pale olive	thin, pale olive	thin, dark, greenish to brownish
Shell color	white	white	white pillar ruddy brown in aperture

specimen from off
Eureka, California

TABLE 31b

Plicifusus

	<u><i>Plicifusus brunneus</i></u>	<u><i>Plicifusus laticordatus</i></u>	<u><i>Plicifusus oceandromae</i></u>
Size - height	22	33	34
diameter	11	13.7	17
aperture		14.0	16
Spire	fusiform	fusiform to low spired	bucciniform
Whorl outline	rounded	rounded	rounded
Sutures	slightly constricted	low, irregularly plac- ed folds, usually eroded	constricted
Axial sculpture	14 narrow waved costae		22 curved ribs
Radial sculpture	around 8 rounded ridges	low flat threads; usually eroded	over 20 close set flattish threads, grooved in groups of 2 or 3
Canal	long, narrow, straight	long, narrow twisted	wide, recurved

TABLE 31b

Continued

	<i>Plicifusus brunneus</i>	<i>Plicifusus laticordatus</i>	<i>Plicifusus oceandromae</i>
Periostracum	yellow-brown	thin adherent straw, usually eroded	
Shell color		distinct pale orange	white
	from Dall, 1877 in Oldroyd, 1927 Kosuge, 1973		from Dall, 1919 Kosuge, 1973

Plicifusus
kroyeri

Size - height	89
diameter	34
aperture	46
Overall shape	tall fusiform
Whorl outline	rounded
Sutures	deep, constricted
Axial sculpture	strong folds, sometimes obsolete on body whorl

TABLE 31c

*Plicifusus**Plicifusus
johanseni*

58

22.5

27

tall fusiform

rounded

shallow,
adpressedstrong folds,
obsolete on
body whorl*Plicifusus
callorhinus*

50

22

tall fusiform

rounded

distinct

none

Plicifusus
kroyeri

Radial sculpture	fine striae, coarser on body whorl, flat paired cords on base
Canal	slightly curved
Periostracum	thin light brownish
Shell color	white

TABLE 31c

Continued

Plicifusus
*johanseni*wide, flat
threads,
coarser on
baseslightly
curvedthin light
brownish

white

Plicifusus
calliorhinus

faint striae

very short,
widefrom Dall, 1877
in Oldroyd, 1927;
Kosuge, 1973

*Pyrulofusus**Pyrulofusus deformatis* (Reeve, 1847)

Fusus deformatis Reeve, 1847, *Conch. Icon.* vol. 4; pl. 12, fig. 45a, b. (MacGinitie, 1959)

Pyrulofusus deformatis, Dall, 1921:89.

Pyrulofusus deformatis, Oldroyd, 1927, part 1:184.

Pyrulofusus deformatis, MacGinitie, 1959:114; pl. 13, figs. 3-5.

Volutopsius deformatis, Macpherson, 1971:68; pl. 4, fig. 6.

Type locality: Spitzbergen.

Range: Arctic Canada. Spitzbergen. Kara Sea. Bering Sea. Arctic Ocean off new Siberian Islands. Pt. Barrow to the Aleutian Islands. (Dall, 1921; Macpherson, 1971)

Depth: 4.5 to 186 m. (Macpherson, 1971)

Localities:

Arctic: 71 to 72°N and 142 to 150°W, 40 to 50 m (2).

Northern Bering: Cape Woolley (empty) (1).

Southern Bering: 56 to 58°N and 160 to 167°W (7).

Pyrulofusus harpa (Mörch, 1858)

Fusus harpa Mörch, 1858, *Novitz. Conch. Moll. Marina* p. 5; pl. 1, figs. 3, 4. (Dall, 1921)

Volutopsius (Pyrulofusus) harpa var. *dexius* Dall, 1907, *Smithsonian Misc. Coll.* 50(2):164.

Pyrulofusus harpa, Dall, 1921:89; pl. 7.

Pyrulofusus harpa, Oldroyd, 1927, part 1:184; pl. 29.

Volutopsius (Pyrulofusus) harpa, Abbott, 1974:207; fig. 2269.

Type locality: Sitka, Alaska.

Range: Pribilof Islands and the Aleutian Islands to Kodiak Island, Alaska. (Dall, 1921) British Columbia coast to 58°N (as *P. deformis*). (Bernard, 1970)

Localities:

Eastern Gulf: Chirikof Island (empty) (1). 59 to 60°N and 140 to 146°W (15).

Pyrulofusus
harpa

Size - height
diameter
aperture

145
86
99

Axial
folds

high, well defined

Radial
sculpture

prominent squarish
ribs flat inter-
spaces

TABLE 32

Pyrulofusus

Pyrulofusus
deformis

104

56

71

low, poorly defined

slightly wavy
threads

*Sulcosinus**Sulcosinus taphrius* (Dall, 1891)*Buccinum taphrium* Dall, 1891, *Proc. U.S. Nat. Mus.* 14:186.*Buccinum (Sulcosinus) taphrium*, Dall, 1895:707; pl. 29, fig. 6.*Sulcosinus taphrius*, Dall, 1921:92.*Sulcosinus taphrius*, Oldroyd, 1927, part 1:205.*Buccinum taphrium*, Kosuge, 1973; pl. 20, fig. 3.

Type locality: Albatross Sta. 3330, off Akutan Island, Bering Sea,
351 fms.

Range: Bering Sea, off Unalaska. (Dall, 1921)

not seen.

Volutopsius

Volutopsius attenuatus Dall, 1874

Volutopsis attenuata Dall, 1874, *Calif. Acad. Sci., Proc.* 5:253.
(Boss, Rosewater, Ruhoff, 1968)

Volutopsius attenuatus, Dall, 1902:529; pl. 36, fig. 3.

Volutopsius attenuatus, Dall, 1921:90.

Volutopsius attenuatus, Oldroyd, 1927, part 1:190; pl. 4, fig. 3.

Strombella attenuata, Kosuge, 1973; pl. 28, fig. 5.

Type Locality: Cape Espenberg, Alaska.

Range: Arctic Ocean to Pribiloff Islands and Bristol Bay. (Dall, 1921)

Localities:

Northern Bering: Wales (empty) (1). Norton Sound (1).

Volutopsius castaneus (Mörch, 1858)

Neptunea castanea Mörch, 1858, *Novit. Conch. Moll. Mar.* 7; pl. 1, figs. 1, 2. (Oldroyd, 1927)

Volutopsius simplex Dall, 1907, *Smithsonian Misc. Coll.* 50(2):164.

Volutopsius stefanssoni Dall, 1919, *Rept. Can. Arctic Exped.* vol. 8, part A, p. 22A; pl. 1.

Volutopsius castaneus, Dall, 1921:90.

Volutopsius simplex, Dall, 1921:90; pl. 9, fig. 1.

Volutopsius stefanssoni, Dall, 1921:89; pl. 9, fig. 2.

Volutopsius castaneus, Oldroyd, 1927, part 1:191; pl. 4, fig. 2.

Volutopsius simplex, Oldroyd, 1927, part 1:189; pl. 16, fig. 10.

Volutopsius stefanssoni, Oldroyd, 1927, part 1:187; pl. 16, fig. 9; pl. 19, fig. 2.

Volutopsius stefanssoni, MacGinitie, 1959:128; pl. 12, fig. 7.

Volutopsius stefanssoni, Kosuge, 1973; pl. 25, fig. 2.

Volutopsius simplex, Kosuge, 1973; pl. 25, fig. 5.

Type locality: of *Neptunea castanea*, "from the Island of Sitka."

of *Volutopsius simplex*, U.S.F.C. Sta. 4792, off Bering Island, Bering Sea.

of *Volutopsius stefanssoni*, Pt. Barrow, Alaska and others.

Range: Pt. Barrow, Alaska. Pribiloff, Aleutian and Kodiak Islands, Alaska. (Dall, 1921)

Localities:

Southern Bering: 56 to 58°N and 160 to 165°W, 49 to 76 m (5).

Volutopsius filorus Dall, 1919

Volutopsius filorus Dall, 1919, *Proc. U. S. Nat. Mus.* 56:301.

Volutopsius filorus, Dall, 1921:90; pl. 10, fig. 1.

Volutopsius filorus, Oldroyd, 1927, part 1:190; pl. 17, fig. 2.

Volutopsius filorus, Kosuge, 1973; pl. 28, fig. 3.

Type locality: off Kudobin Island, Bering Sea.

Range: Pribiloff to Aleutian Islands, Bering Sea. (Dall, 1921)

Localities:

Eastern Gulf: 59 to 60°N and 142 to 152°W, 111 to 153 m (5).

Volutopsius fragilis (Dall, 1891)

Strombella fragilis Dall, 1891, *Proc. U.S. Nat. Mus.* 14:187.

Strombella fragilis, Dall, 1895:710; pl. 28, fig. 4.

Volutopsius fragilis, Dall, 1921:89.

Volutopsius fragilis, Oldroyd, 1927, part 1:186; pl. 10, fig. 4.

Strombella fragilis, Kosuge, 1973; pl. 25, fig. 6.

Type locality: Albatross Sta. 3252, off Unimak Island, Bering Sea, 36 fms.

Range: Bering Sea. (Dall, 1921)

Depth: 15 to 151 fms. (Dall, 1921)

Localities:

Southern Bering: 55 to 58°N and 164 to 174°W, 69 to 135 m (9).

Volutopsius melonis Dall, 1891

Strombella melonis Dall, 1891, *Proc. U.S. Nat. Mus.* 14:187.

Strombella melonis, Dall, 1894:710; pl. 28, figs. 2, 3.

Volutopsius melonis, Dall, 1921:89.

Volutopsius melonis, Oldroyd, 1927, part 1:186; pl. 10, figs. 2, 3.

Strombella melonis, Kosuge, 1973; pl. 25, fig. 8.

Type locality: Albatross Sta. 3227, off coast of Unalaska Island,
Bering Sea, 225 fms.

Range: Bering Sea, 225 fms. (Dall, 1921)

Localities:

Southern Bering: 54 to 56°N and 164 to 169°W, 90 to 355 m (7).

Volutopsius middendorffi (Dall, 1891)

Strombella middendorffi Dall, 1891, *Proc. U.S. Nat. Mus.* 14:186.

Strombella middendorffi, Dall, 1895:710; pl. 28, fig. 1.

Volutopsius middendorffi, Dall, 1921:90.

Volutopsius middendorffi, Oldroyd, 1927, part 1:188; pl. 10, fig. 1.

Strombella middendorffi, Kosuge, 1973; pl. 25, fig. 7.

Type locality: Albatross Stas. 3216, 3253, off Unimak Pass, Bering Sea.

Range: Bering Sea. (Dall, 1921)

Depth: 57 to 225 fms. (Dall, 1921)

not seen.

Volutopsius regularis Dall, 1873

Volutopsius beringi regularis Dall, 1873, *Calif. Acad. Sci., Proc.* 5:60; pl. 2, fig. 6. (Boss, Rosewater, Ruhoff, 1968)

Volutopsius regularis, Dall, 1902:529; pl. 36, fig. 6.

Volutopsius regularis, Dall, 1921:90.

Volutopsius regularis, Oldroyd, 1927; part 1:191; pl. 4, fig. 6.

Volutopsius beringi regularis, Kosuge, 1973; pl. 28, fig. 1.

Type locality: Unalaska to Shumagin Islands, Alaska.

Range: Pribiloff, Aleutian and Shumagin Islands, Alaska. (Dall, 1902; Dall, 1921)

not seen.

Volutopsius trophonius Dall, 1902

Volutopsius trophonius Dall, 1902, *Proc. U.S. Nat. Mus.* 56:527.

Volutopsius trophonius, Dall, 1921:90; pl. 8, fig. 11.

Volutopsius trophonius, Oldroyd, 1927, part 1:189.

Volutopsius trophonius, Kosuge, 1973; pl. 25, fig. 3.

Type locality: Albatross Sta. 3602, off Pribiloff Islands, Bering Sea.

Range: off Pribiloff Islands, 81 fms. (Dall, 1921)

Localities:

Southern Bering: 56°01'N, 169°59'W, 146 m (1).

TABLE 33a
Volutopsius

	<u><i>Volutopsius fragilis</i></u>	<u><i>Volutopsius castaneus</i></u>	<u><i>Volutopsius middendorffi</i></u>	<u><i>Volutopsius regularis</i></u>
Size - height	100	101	100	75
diameter	63	45		35
aperture	70	57	60	
Number of whorls	5	5-6	5	4
Overall shape	oval, large body whorl	oval, large body whorl	fusiform	obtusely fusiform
Whorl profile	shouldered	sloping to high, rounded	evenly rounded	smooth, moderately convex
Spire	very short	short to elevated	elevated	elevated
Sutures	slightly constricted	slightly constricted	constricted	distinct
Axial sculpture	irregular folds	irregular folds nodes and lamellae	none	

TABLE 33a

Continued

	<u><i>Volutopsius fragilis</i></u>	<u><i>Volutopsius castaneus</i></u>	<u><i>Volutopsius middendorffi</i></u>	<u><i>Volutopsius regularis</i></u>
Radial sculpture	fine wavy incised lines	none	sharp fine grooves	none
Canal	recurved, very wide	short, wide slightly recurved	short, wide straight	short, narrow almost straight
Color	pinkish	chestnut brown to pale		
			from Dall, 1891	from Dall, 1878; Kosuge, 1973

TABLE 33b
Volutopsius

	<u><i>Volutopsius attenuatus</i></u>	<u><i>Volutopsius filosus</i></u>	<u><i>Volutopsius melonis</i></u>	<u><i>Volutopsius trophonius</i></u>
Size - height	56	60.0	144	116
diameter	22.5	23.5	75	52.8
aperture	35.0	34.4	102	63
Number of whorls	5 1/2	6	5	5
Overall shape	relatively long, thin	relatively long, thin	oval, large body whorl	fusiform
Whorl profile	rounded, flattened toward apex	rounded	round to flattish	round
Spire	elevated	elevated	very short	slightly elevated
Sutures	adpressed	constricted	deep to much adpressed	deep, constricted
Axial sculpture	coarse lines of growth	coarse lines of growth	low narrow folds	thin, flat varices
Radial sculpture	low, narrow round cords	low, flat narrow cords	low wide cords	none

TABLE 33b

Continued

	<u><i>Volutopsius attenuatus</i></u>	<u><i>Volutopsius filosus</i></u>	<u><i>Volutopsius melonis</i></u>	<u><i>Volutopsius trophonius</i></u>
Canal	long narrow curved	long narrow curved	very wide, straight	very wide, straight
Color	gray exterior, brown, orange, and bluish where worn	gray exterior, white columella brown, bluish where worn	straw exterior, pinkish or yellowish where worn	pale yellow brown, white columella