

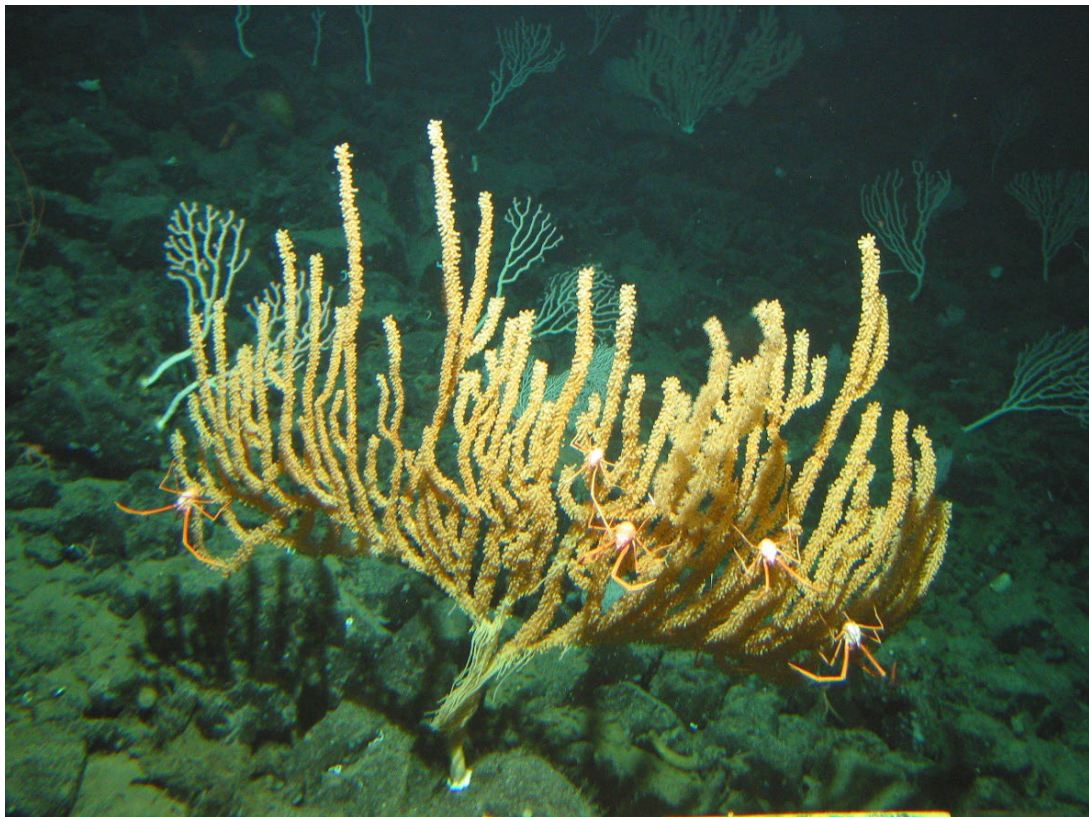


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# List of Deep-Sea Coral Taxa in the Alaska Region: Depth and Geographic Distribution (v. 2021)

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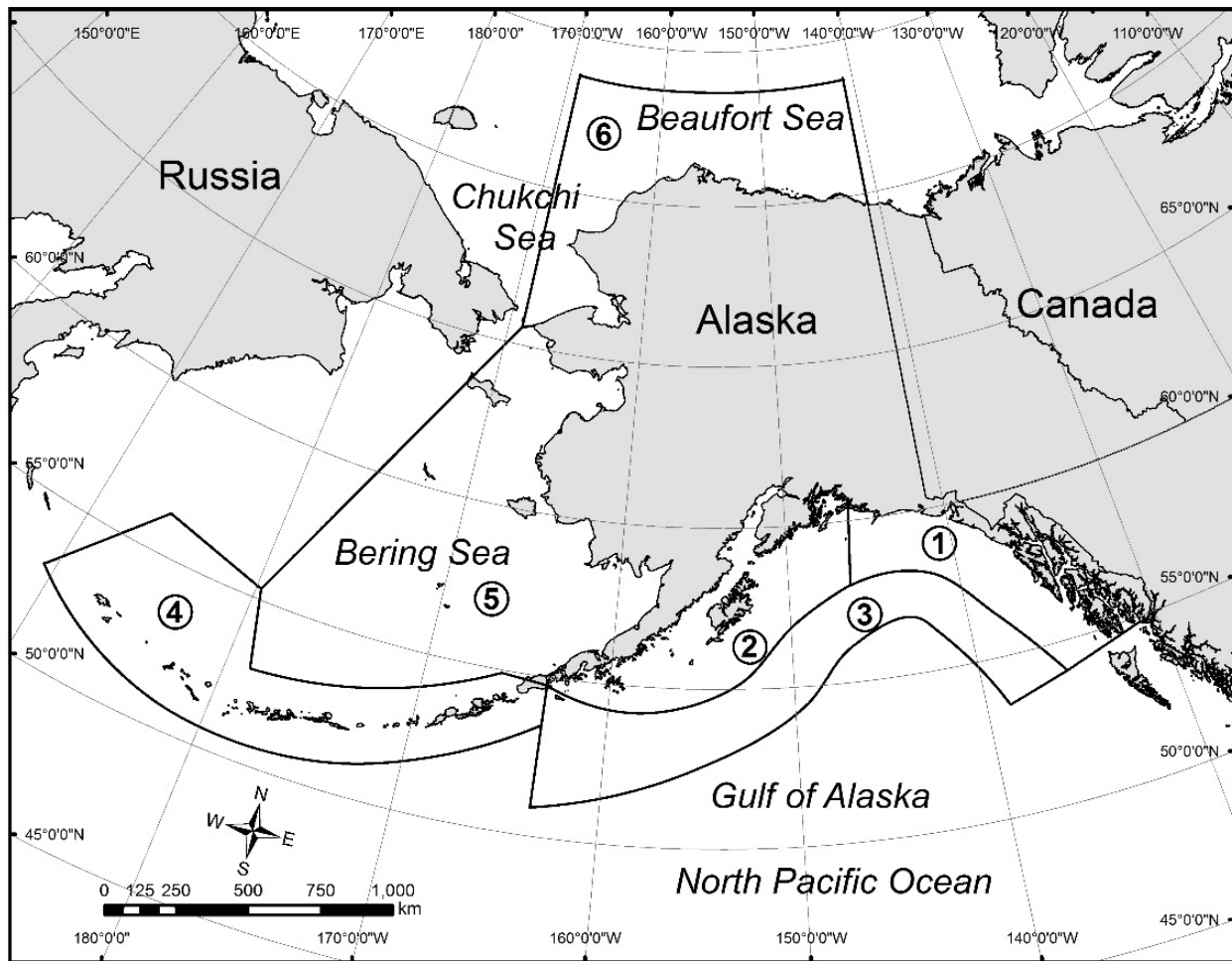
# List of Deep-Sea Coral Taxa in the Alaska Region: Depth and Geographic Distribution (v. 2021)

This annex to the Alaska regional chapter (Stone & Rooper 2017) in “The State of Deep-Sea Coral Ecosystems of the United States” lists deep-sea coral species in the Phylum Cnidaria, Classes Anthozoa and Hydrozoa, known to occur in the U.S. Alaska region (Figure 1). Deep-sea corals are defined as azooxanthellate, heterotrophic coral species predominantly occurring in waters 50 meters deep or more. Details are provided on the vertical and geographic extent of each species (Table 1). This list is an update of the peer-reviewed 2017 list (Stone and Cairns 2017) and includes taxa recognized through 2021. Records are drawn from the published literature (including species descriptions) and from specimen collections that have been definitively identified by experts through examination of microscopic characters. Video records collected by the senior author have also been used if considered highly reliable; that is, *in situ* identifications were made based on an expertly identified voucher specimen collected nearby. Taxonomic names are generally those currently accepted in the World Register of Marine Species ([WoRMS](#)), and are arranged by order, and alphabetically within order by family, genus, and species. Data sources (References) are those principally used to establish geographic and depth distribution, and are numbered accordingly.

In summary, we have confirmed the presence of 145 unique coral taxa in Alaskan waters, including three new species of alcyonaceans and five species of antipatharians described since the 2017 list. Octocorals were the most speciose (96 taxa total), followed by stylasterids (23 taxa), antipatharians (14 taxa), scleractinians (11 taxa), and one zoantharian coral. The Aleutian Islands region has the most taxa (n = 100), followed by the Gulf of Alaska Seamount Province (n = 47), the eastern Gulf of Alaska (n = 39), the western Gulf of Alaska (n = 24), and the Bering Sea (n = 20 taxa). Only four soft corals and one unidentified sea pen are known from the Alaskan Arctic Region. Black corals (Order Antipatharia) were found over a depth range of 401-4685 m in the Alaska Region, scleractinians (Order Scleractinia) were found over a depth range of 17-6328 m, octocorals (Orders Alcyonacea and Pennatulacea) were found over a depth range of 3-4784 m, and stylasterids (Order Anthoathecata) had the narrowest depth range of 10-2124 m in the region.

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*Cover Photo:* A large colony of the bamboo coral *Isidella tentaculum* with galatheid crabs on Dickins Seamount at about 800 meters depth. Image credit: NOAA Ocean Exploration



**Figure 1.** The U.S. Alaska region showing the five broad geographical areas that have previously been delineated for similar zoogeographical compilations (e.g., Stone and Shotwell, 2007) with the addition of a sixth area encompassing the Chukchi and Beaufort Seas. Region 1 = eastern Gulf of Alaska; Region 2 = western Gulf of Alaska; Region 3 = Gulf of Alaska Seamounts Province; Region 4 = Aleutian Islands; Region 5 = Bering Sea; and Region 6 = Arctic. Figure courtesy of Michele Masuda (NOAA Fisheries).

**Table 1.** List of known deep-sea coral species in Phylum Cnidaria, Class Anthozoa and Class Hydrozoa, and their reported distribution in the U.S. Alaska Region. Blue fields indicate newly described species since 2017. Bold text indicates these new descriptions as well as other changes to the list found in Stone and Cairns (2017), including additions or range extensions, denoted with an asterisk (\*), and changes in taxonomy since 2017 denoted with a cross (†) (e.g., species that were listed in 2017, but have since been given a new name or alternative spelling). “NR” indicates a lack of reported distribution or depth information. References are numbered to correspond with citations following the table.

Distribution: 1 = eastern Gulf of Alaska; 2 = western Gulf of Alaska; 3 = Gulf of Alaska Seamounts Province; 4 = Aleutian Islands; 5 = Bering Sea; and 6 = Arctic region.

Higher Taxon	Species	Distribution	Depth Range (m)	References
<b>Class Anthozoa</b>				
<b>Subclass Hexacorallia</b>				
<b>Order Antipatharia</b>				
Family Cladopathidae	<i>Chrysopathes formosa</i> Opresko, 2003	1	417–800	1,2
	<i>Chrysopathes speciosa</i> Opresko, 2003	1	626–914	2,3
	<i>Heteropathes pacifica</i> (Opresko, 2005) (= <i>Heliopathes pacifica</i> )	3	3563–4511	4
	<i>Trissopathes pseudotristicha</i> (Opresko, 2003)	3,4	2828–4477	1,2
Family Schizopathidae	<b><i>Alternatipathes mirabilis</i> Opresko &amp; Molodtsova, 2021</b>	3	4685	2,5
	<b><i>Bathypathes alaskensis</i> Opresko &amp; Molodtsova, 2021</b> (= <i>Bathypathes</i> sp. A <i>sensu</i> Stone & Cairns 2017)	1,3	272–1200	2,5
	<i>Bathypathes patula</i> Brook, 1889	1,3	401–4492	1,2
	<b><i>Bathypathes ptiloides</i> Opresko &amp; Molodtsova, 2021</b>	3	4477–4664	2,5
	<b><i>Bathypathes tiburonae</i> Opresko &amp; Molodtsova, 2021</b>	2	3356	2,5
	<i>Dendrobathypathes boutillieri</i> Opresko, 2005	1,3,4	601–2161	1,2,6
	<i>Lillipathes wingi</i> Opresko, 2005	1,2,5	518–909	1,2,3
	†* <i>Parantipathes euantha</i> (Pasternak, 1958) (= <i>Parantipathes</i> sp. A <i>sensu</i> Stone & Cairns 2017)	1,3,4	690–1562	2,6
	<b><i>Parantipathes pluma</i> Opresko &amp; Molodtsova, 2021</b>	4,5	329–977	2,5
	<i>Parantipathes</i> sp. B ( <i>sensu</i> Stone & Cairns 2017)	3	1907–2819	2
<b>Order Scleractinia</b>				
Family Caryophylliidae	<i>Caryophyllia</i> ( <i>Caryophyllia</i> ) <i>alaskensis</i> Vaughan, 1941	1,2,4,5	27–909	1,2
	<i>Caryophyllia</i> ( <i>Caryophyllia</i> ) <i>arnoldi</i> Vaughan, 1900	1,2,3,4	17–1702	1,2
	<i>Crispatotrochus foxi</i> (Durham & Barnard, 1952)	4	82–702	1,2,7
	<i>Desmophyllum dianthus</i> (Esper, 1794)	1	398	1

Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Dendrophylliidae	<i>Balanophyllia (Balanophyllia) elegans</i> Verrill, 1864	1,2,4	22–293	1,7
Family Flabellidae	<i>Flabellum (Flabellum) sp. A sensu Cairns, 1994<sup>a</sup></i>	4	55–507	7,8
	<i>Javania borealis</i> Cairns, 1994	4	17–348	1,2,7
	<i>Javania cailleti</i> (Duchassaing & Michelotti, 1864)	4	115–150	1,2
Family Fungiacyathidae	<i>Fungiacyathus (Bathyactis) marenzelleri</i> (Vaughan, 1906) (includes <i>F. symmetricus aleuticus</i> Keller, 1976)	3,4	300–6328	,2,7
	<i>Fungiacyathus sp.</i>	3	3274–4702	2
Family Micrabaciidae	<i>Leptopenus discus</i> Moseley, 1881	4	3599–5000	7
<b>Order Zoantharia</b>				
Family Parazoanthidae	<i>*Kulamanamana sp.</i> (= <i>Gerardia sp.</i> )	3	855–1119	2

Higher taxon	Species	Distribution	Depth Range (m)	References
<b>Class Anthozoa</b>				
<b>Subclass Octocorallia</b>				
<b>Order Alcyonacea</b>				
Family Acanthogorgiidae	<i>Acanthogorgia spissa</i> Kükenthal, 1909	4	1659–2087	2,6,9
	<i>Acanthogorgia sp.</i>	4	1092–1579	6
	<i>Calcigorgia beringi</i> (Nutting, 1912)	4 <sup>b</sup>	92–1913	6,10,11
	<i>Calcigorgia gigantea</i> Matsumoto, Ofwegen & Bayer, 2019	4	128–391	11
	<i>Calcigorgia japonica</i> Dautova, 2007	4	395–2180	2,11
	<i>Calcigorgia matua</i> Dautova, 2018	4	300–900	11
	<i>Calcigorgia spiculifera</i> Broch, 1935	1,2,4	18–512	2,6,12,11
Family Alcyoniidae	<i>Alcyonium sp.</i> <sup>c</sup>	4,5,6	18–160	1,2,13
	<i>*Heteropolypus japonicus</i> (Nutting, 1912) (= <i>Anthomastus japonicus</i> )	4	424–603	2,14,15
	<i>*Heteropolypus ritteri</i> (Nutting, 1909) (= <i>Anthomastus ritteri</i> )	4	241–427	2,13
	Anthomastinae spp.	1,3,4,5,6 <sup>d</sup>	85–2040	6,13
	<i>*Pseudoanthomastus sp.</i>	3	1122–1535	2,14
Family Anthothelidae	<i>Anthothela sp. cf. A. grandiflora</i> (M. Sars, 1856)	4	25–352	6,16
Family Chrysogorgiidae	<i>Chrysogorgia sp. B (sensu Stone &amp; Cairns 2017)</i>	4	1359–2163	1,17
	<i>Chrysogorgia sp. C (sensu Stone &amp; Cairns 2017)</i>	3	3385–4328	2
	<i>*Pseudochrysogorgia sp.</i> <sup>e</sup>	3	1854–4167	2
	<i>Radicipes stonei</i> Cordeiro, Cairns & Pérez, 2017	3,4	1207–3580	2,6,18

Higher taxon	Species	Distribution	Depth Range (m)	References
Family Clavulariidae	<i>Clavularia armata</i> Thomson, 1927	3	1153–2730	2,14
	<i>Clavularia eburnea</i> Kükenthal, 1906	4	600–1200	2,14
	<b>*Clavularia moresbii Hickson, 1915</b>	1	183	15
	<i>Clavularia rigida</i> Broch, 1935	3	3277	2
	<i>Clavularia</i> sp.	4,5	11–591	6,16
	<i>Sarcodictyon incrustans</i> (Broch, 1935)	1,4,5	15–397	1,2,14
	<i>Sarcodictyon</i> sp.	3	2811	2
Family Coralliidae	<i>Hemicorallium</i> sp.	3	1672–1806	2,14
†Family Keratoisididae † (formerly Isididae)	<i>Bathygorgia profunda</i> Wright, 1885 (= <i>Keratoisid</i> <i>profunda</i> )	1,2,4	3230–4206	2,15
	<i>Isidella tentaculum</i> Etnoyer, 2008	1,3,4,5	340–1468	2,6,19
	<i>Isidella</i> sp. B ( <i>sensu</i> Stone & Cairns 2017)	3	2652–4575	2
	<i>Isidella</i> sp. C ( <i>sensu</i> Stone & Cairns 2017)	3	287–992	2
	<i>Keratoisid</i> sp. A ( <i>sensu</i> Stone & Cairns 2017) (= <i>Keratoisid</i> sp.1 <i>sensu</i> Watling et al. 2022)§	1,4,5	520–2031	1,2,20
	<i>Keratoisid</i> sp. B ( <i>sensu</i> Stone & Cairns 2017)	4	1715–1717	1
	<i>Keratoisid</i> sp. C ( <i>sensu</i> Stone & Cairns 2017)	4	1715	1
	<i>Keratoisid</i> sp. D ( <i>sensu</i> Stone & Cairns 2017)	3	1096–1759	2
	<i>Keratoisid</i> sp. E ( <i>sensu</i> Stone & Cairns 2017)	3	3574–4097	2
	cf. <i>Lepidisis</i> sp. (sp. A <i>sensu</i> Stone & Cairns) <sup>h</sup>	3	1130–1924	2
	cf. <i>Lepidisis</i> sp. (sp. B <i>sensu</i> Stone & Cairns) <sup>h</sup>	3	3501–4784	2
	<b>*Orstomisid? sp.1 (<i>sensu</i> Watling et al. 2022)</b> (= <i>Isidella</i> sp. A <i>sensu</i> Stone & Cairns 2017)	4	2826	2,20
Family Nidaliidae	<i>Siphonogorgia</i> sp.	3	1094	2
Family Nephtheidae	<i>Gersemia fruticosa</i> Sars, 1860	2,4	1143	2
	<i>Gersemia rubiformis</i> (Ehrenberg, 1834) <sup>i</sup> (= <i>Eunephtea rubiformis</i> ; <i>Alcyonium</i> sp. indet. <i>sensu</i> Williams, 2013)	1,2,4,5,6	3–90	2,21
	<i>Gersemia</i> sp. A (= <i>Eunephtea</i> sp. A of Stone & Shotwell [2007])	4	804–2845	1
	<b>*Gersemia</b> sp.	6	3–100	22
Family Paragorgiidae	† <i>Paragorgia pacifica</i> Verrill, 1922 <sup>j</sup> (= <i>Paragorgia arborea</i> forma <i>pacifica</i> (Linnaeus, 1758); <i>Paragorgia arborea</i> (Linnaeus, 1758) – in part – NE Pacific populations)	1,2,3,4,5	21–2022	2,6,23
	<b>*Paragorgia stephencairnsi Sanchez, 2005</b>	1,3	40–751	23
	<i>Sibogorgia cauliflora</i> Herrera, Baco & Sánchez, 2010	3	2766	2,24

Higher taxon	Species	Distribution	Depth Range (m)	References
Family Plexauridae	<i>Alaskagorgia aleutiana</i> Sánchez & Cairns, 2004	4	87–746	2,6,25
	<i>Alaskagorgia splendicetrina</i> Horvath & Stone, 2018	4	180	26
	<i>Cryogorgia koolsae</i> Williams, 2005	4	26–406	1,27
	<i>Muriceides cylindrica</i> Nutting, 1912	4	174–881	10
	<i>Muriceides nigra</i> Nutting, 1912	4	50–1195	1,2,15,6
	<i>Swiftia pacifica</i> (Nutting, 1912)	1,2,3,4,5	89–2904	1,2,14
	<i>Swiftia simplex</i> (Nutting, 1909) (= <i>Psammogorgia simplex</i> Nutting, 1909)	1,2,3,4	497–1285	1,2,14
	<i>Swiftia</i> sp. A ( <i>sensu</i> Stone & Cairns 2017)	4	274–342	6
Family Primnoidae	* <i>Acanthoprímnoa</i> sp.	5	300	2
	† <i>Arthrogorgia kinoshitai</i> Bayer, 1952 (= <i>Arthrogorgia kinoshitae</i> Bayer, 1952)	4	150–1309	1,2,,28
	<i>Arthrogorgia otsukai</i> Bayer, 1952	4	1332–1348	1,2,
	<i>Arthrogorgia utinomii</i> Bayer, 1996	4	163–882	29
	† <i>Callogorgia compressa</i> (Verrill, 1865) (= <i>Fanellia compressa</i> (Verrill, 1865))	2,4	82–1341	1,2,14,28
	† <i>Callogorgia fraseri</i> (Hickson, 1915) (= <i>Fanellia fraseri</i> (Hickson, 1915))	2,4	54–1341	1,28
	<i>Calyptrophora laevispinosa</i> Cairns, 2007	3	1806–2795	2,28
	<i>Narella abyssalis</i> Cairns & Baco, 2007	3	4594	30
	<i>Narella alaskensis</i> Cairns & Baco, 2007	3	2092–3075	2,14,30
	<i>Narella arbuscula</i> Cairns & Baco, 2007	3	2775–3465	30
	<i>Narella bayeri</i> Cairns & Baco, 2007	3	3277–4091	30
	<i>Narella cristata</i> Cairns & Baco, 2007	3	3385	30
	<i>Parastenella doederleini</i> (Wright & Studer, 1889)	4	400–3423	28
	<i>Parastenella gymnogaster</i> Cairns, 2007	3	1527–2869	2,14,31
	<i>Parastenella ramosa</i> (Studer, 1894)	1,3,4	750–1937	2,32
	<i>Plumarella aleutiana</i> Cairns, 2011	4,5	79–2828	1,2,28
	<i>Plumarella echinata</i> Cairns, 2011	4	150–1692	28
	<i>Plumarella hapala</i> Cairns, 2011	4	120–402	1,28
	<i>Plumarella nuttingi</i> Cairns, 2011	4	492–888	28
	<i>Plumarella profunda</i> Cairns, 2011	4	2514	28
	<i>Plumarella robusta</i> Cairns, 2011	4	115–1061	1,28
	<i>Plumarella spicata</i> Nutting, 1912	4	712–1912	28
	<i>Plumarella superba</i> (Nutting, 1912) (= <i>Thouarella superba</i> )	4	40–1258	28
	<i>Primnoa pacifica</i> Kinoshita, 1907	1,2,4,5	6–573	1,28
	<i>Primnoa pacifica</i> var. <i>willeyi</i> (Hickson, 1915)	1,2,3,4	27–863	28
	<i>Primnoa wingi</i> Cairns & Bayer, 2005	4,5	110–1280	1,28

Higher taxon	Species	Distribution	Depth Range (m)	References
Family Primnoidae (cont.)	<i>Thouarella cristata</i> Cairns, 2011	4	94–768	28
	<i>Thouarella trilineata</i> Cairns, 2011	4	97–1267	1,28

Order Pennatulacea <sup>k</sup>				
Family Anthoptilidae	<i>Anthoptilum grandiflorum</i> (Verrill, 1879)	4,5	2153–2511	6
	<i>Anthoptilum murrayi</i> Kölliker, 1880	4	1068–2226	2
†Family Balticinidae <sup>1</sup> (Formerly Halipteridae)	† <i>Balticina californica</i> (Moroff, 1902) (= <i>Halipteris californica</i> )	1,2,4	178–1143	2,13
	† <i>Balticina willemoesi</i> (Kölliker, 1870) (= <i>Halipteris willemoesi</i> )	1,2,4,5	21–488	33,34
	† <i>Balticina</i> sp. A (= <i>Halipteris</i> sp. A, <i>sensu</i> Stone 2014) <sup>m</sup>	4,5	284–1381	6
	† <i>Balticina</i> sp. B (= <i>Halipteris</i> sp. B, <i>sensu</i> Stone 2014)	4	1667–2707	6
Family Pennatulidae	* <i>Pennatula phosphorea</i> Linnaeus, 1758 <sup>n</sup>	1,2	800–3000	13,14
	<i>Ptilosarcus gurneyi</i> (Gray, 1860)	1,2,4	3–195	1,6
Family Protoptilidae	<i>Protoptilum</i> sp.	1,2,5	105–529	29,35
Family Stachyptilidae	* <i>Stachyptilum superbum</i> Studer, 1894	4	388	2
Family Umbellulidae	<i>Umbellula lindahli</i> Kölliker, 1875	1,2,3,4,5	840–4656	1,2,6
Family Veretillidae	<i>Cavernularia vansyoci</i> Williams, 2005	4	86–93	27
Family Virgulariidae	<i>Virgularia bromleyi</i> Kölliker, 1880	4	1889	2
	<i>Virgularia glacialis</i> Kölliker, 1870	4	122	2
	<i>Virgularia</i> sp.	1,2,4	20–187	1,2

Higher Taxon	Species	Distribution	Depth Range (m)	References
Class Hydrozoa				
Order Anthoathecata				
Family Stylasteridae <sup>o</sup>	<i>Crypthelia trophostega</i> Fisher, 1938	4,5	146–1913	36
	<i>Cyclohelix lamellata</i> Cairns, 1991	4,5 P	27–691	6,36
	<i>Distichopora borealis</i> Fisher, 1938	1,4	143–1361	6,36
	<i>Errinopora dichotoma</i> Cairns & Lindner, 2011	4	175–300	36
	<i>Errinopora disticha</i> Cairns & Lindner, 2011	4	175–536	36
	<i>Errinopora fisheri</i> Cairns & Lindner, 2011	4	455–458	36
	<i>Errinopora nanneca</i> Fisher, 1938	4	21–517	1,36
	<i>Errinopora undulata</i> Cairns & Lindner, 2011	4	350–640	36
	<i>Errinopora zarhyncha</i> Fisher, 1938	4	115–1520	1,6



Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Stylasteridae (Cont.)	<i>Stylaster papillosa</i> (Dall, 1884) (= <i>Stylaster porphyra</i> Fisher, 1931; <i>S. petrograpta</i> Fisher 1938)	1,2	11–18	36
	<i>Stylaster alaskanus</i> Fisher, 1938 (= <i>S. cancellatus</i> ) Fisher 1938)	4	146–2124	6,36
	<i>Stylaster brochi</i> (Fisher, 1938)	1,2,4	22–374	1,36
	<i>Stylaster campylecus</i> (Fisher, 1938) (Includes: <i>Stylaster campylecus campylecus</i> , <i>S. c. tyloa</i> , <i>S. polyorchis</i> , <i>S. moseleyanaus</i> )	1,2,4	82–1260	6,36
	<i>Stylaster crassisepalum</i> Cairns & Lindner, 2011	4	291–531	36
	<i>Stylaster elassotomus</i> Fisher, 1938	4	882	36
	<i>Stylaster leptostylus</i> (Fisher, 1938)	4	518	36
	<i>Stylaster parageus columbiensis</i> Cairns & Lindner, 2011	1	92–212	1,36
	<i>Stylaster parageus parageus</i> (Fisher, 1938) (= <i>Stylaster campylecus parageus</i> )	1,2	26–401	1,36
	<i>Stylaster repandus</i> Cairns & Lindner, 2011	4	375–475	36
	<i>Stylaster stejnegeri</i> (Fisher, 1938)	4	87	36
	<i>Stylaster trachystomus</i> (Fisher, 1938)	4	115–366	36
	<i>Stylaster venustus</i> (Verrill, 1870)	1	20	1
	<i>Stylaster verrillii</i> (Dall, 1884) (= <i>S. moseleyi</i> f. <i>pacifica</i> )	1,4	10–393	1,36

## Notes

- Cairns (1994) – *Flabellum (Flabellum)* sp. A. Several specimens in the National Museum of Natural History, including the specimen examined in Cairns (1994) were previously identified as *Flabellum impensum* Squires, 1962 or *Flabellum* cf. *impensum*. This is currently being described as a new species.
- Matsumoto et al. (2019) indicated that examined specimens of *Calcigorgia beringi* (Nutting, 1912) were limited to the Aleutian Islands. One unarchived specimen from the senior author from the eastern Gulf of Alaska may represent this species.
- Among the *Alcyonium* spp., *Alcyonium pacificum* Yamada, 1950 has been identified from the Aleutian Islands, though it appears to be restricted to shallow water (10–40m).
- A number of *Anthomastinae* corals, many tentatively identified as in the genus *Heteropolypus*, have been observed or collected from each Alaskan region. One individual identified as *Anthomastus* sp. was collected from the Alaskan Arctic region at 27 m in the Beaufort Sea (CAS 128958).
- Pseudochrysogorgia* sp. includes one specimen (USNM 1075801) previously identified as “*Chrysogorgia* sp. A” of Stone & Cairns (2017). Untiedt et al. (2021) classified this specimen as “*Chrysogorgia* sp. 35” based on genetics.
- Saucier et al. (2021) have revised the phylogeny of the bamboo corals (formerly *Isididae*), resulting in five families. The Alaskan bamboo corals require further study, but the taxa observed to date appear to all belong to in the new family *Keratoisididae*. Specimens of *Keratoisid* sp. identified as *Keratoisid paucispinosa* (Wright & Studer, 1889) have been collected from Bowers Bank (CAS 18343) and off Baranof Island in the Gulf of Alaska (USNM 75055); one specimen identified as *Keratoisid profunda* (Wright, 1885) was collected from the Aleutian Islands (USNM 30076).
- Watling et al. (2022) identified six specimens from Alaska as *Keratoisid* sp.1 (e.g., USNM 1484161) belonging to *Keratoisididae* Clade 5, B1 (haplotype kerB1c), five from the Aleutians and one specimen from the Gulf of Alaska. At least some of these specimens seem to be the same as those characterized as *Keratoisid* sp. A by Stone & Cairns (2017).

- h. Watling & France (2021) redescribed *Lepidisis caryophyllia* Verrill, 1883, the type species for the genus *Lepidisis*, using both genetic and morphological features. A number of unbranched bamboo corals from other regions previously assigned to *Lepidisis*, may not belong to this genus.
- i. Williams (2013) identified *Gersemia rubiformis* (Ehrenberg, 1834) as belonging in the family Alcyoniidae, genus *Alcyonium*. This change has not yet been reflected in WoRMS, and here we have retained *G. rubiformis*.
- j. Herrera & Shank (2016; ref. 18) resurrected the species *Paragorgia pacifica* Verrill, 1922 for the north Pacific populations of formerly *P. arborea*. Further work is required to determine whether all the Alaska specimens previously identified as *P. arborea*, which span a considerable geographic and depth range, are properly attributed to *Paragorgia pacifica*.
- k. One unidentified pennatulacean has been reported from the Alaskan Arctic region at 41 m in the Beaufort Sea (CAS 163188).
- l. Stone (2014) indicated that the undescribed *Halipterus* sp. A may be *Halipterus californica*.
- m. Stone (2014) identified three putative species in the genus *Halipterus* from the central Aleutian Islands: *Halipterus willemoesi*, which occurred in relatively shallow water (21-488 m), *Halipterus* sp. B, which occurred in deep water (1667–2707 m), and an unidentified species (*Halipterus* sp. A), possibly *H. californica*, that had a very broad depth range (284–1381 m). The Family Halipteridae Williams, 1995 and Genus *Halipterus* Kölliker, 1870 have recently been synonymized with Balticinidae Balss, 1910 and *Balticina* Gray 1870, respectively by Perez et al. (2021).
- n. Stone (2014) also identified unidentified Pennatulidae from the Aleutian Islands at depths of 2239-2930m.
- o. Stylasterids identified as *Stylaster* sp. were reported from deep water (1260–1327 m) in the central Aleutian Islands by the senior author and included in the [2017 species list](#) (see also Stone (2014), ref. 5). This listing has been removed from the current list pending further investigation of samples.
- p. Both Bering Sea records of *Cyclohelix lamellata* are based on single samples that were likely translocated by vessels fishing in the Aleutian Islands.

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## Literature Cited

- Pérez CD, Cordeiro RTS, Williams GC, Gomes PB (2021) Revised nomenclature of the sea pen genus *Balticina* Gray, 1870 (= *Halipterus* Kölliker, 1870) (Anthozoa: Octocorallia). *Zootaxa* 4966:237–244
- Saucier EH, France SC, Watling Les (2021) Toward a revision of the bamboo corals: Part 3, deconstructing the Family Isididae. *Zootaxa* 5047:247-272
- Stone RP, Cairns SD (2017) Deep-Sea Coral Taxa in the Alaska Region: Depth and Geographical Distribution. Online resource; <https://deepseacoraldata.noaa.gov/library/2017-state-of-deep-sea-corals-report>. National Oceanic and Atmospheric Administration
- Stone RP, Rooper CN (2017) State of Deep-Sea Coral and Sponge Ecosystems of the Alaska Region. Pp.57-92 in: Hourigan TF, Etnoyer PJ, Cairns SD (eds) *The State of Deep-Sea Coral and Sponge Ecosystems of the United States*. National Oceanic and Atmospheric Administration, Silver Spring, MD
- Stone RP, Shotwell SK (2007) State of Deep Coral Ecosystems in the Alaska Region: Gulf of Alaska, Bering Sea and the Aleutian Islands. In: Lumsden SE, Hourigan TF, Bruckner AW, Dorr G (eds) [The State of Deep Coral Ecosystems of the United States](#). NOAA Technical Memorandum CRCP-3. Silver Spring, MD
- Untiedt CB, Quattrini AM, McFadden CS, Alderslade PA, Pante E, Burrige CP (2021) Phylogenetic Relationships within

Chrysogorgia (Alcyonacea: Octocorallia), a Morphologically Diverse Genus of Octocoral, Revealed Using a Target Enrichment Approach. *Frontiers in Marine Science* 7:599984. doi: 10.3389/fmars.2020.599984

Watling L, France SC (2021) Toward a revision of the bamboo corals: Part 2, Untangling the Genus *Lepidisis* (Octocorallia: Isididae). *Bulletin of the Peabody Museum of Natural History* 62(2):97-110

Watling L, Saucier EH, France SC (2022) Towards a revision of the bamboo corals (Octocorallia): Part 4, delineating the family Keratoisididae. *Zootaxa* 5093:337-375

Williams GC (2013) New taxa and revisionary systematics of alcyonacean octocorals from the Pacific coast of North America (Cnidaria, Anthozoa). *ZooKeys*: 15-42

## References

1. Stone RP Reference collection and video records
2. National Museum of Natural History (NMNH) (2022) Invertebrate Zoology Collections - Online Collection Database (Accessed 2022-01-25). U.S. National Museum of Natural History, Smithsonian Institution, Washington D.C.
3. Opresko DM (2003) Revision of the Antipatharia (Cnidaria: Anthozoa). Part III. Cladopathidae. *Zool Med Leiden* 77:495-536
4. Opresko DM (2005) New genera and species of antipatharian corals (Cnidaria: Anthozoa) from the North Pacific. *Zool Med Leiden* 79-2:129-165
5. Opresko DM, Molodtsova TN (2021) New species of deep-sea Antipatharians from the North Pacific (Cnidaria: Anthozoa: Antipatharia), Part 2. *Zootaxa* 4999:401-422
6. Stone RP (2014) The ecology of deep-sea coral and sponge habitats of the central Aleutian Islands of Alaska. US Department of Commerce, NOAA Professional Paper NMFS 16:1-52
7. Cairns SD (1994) Scleractinia of the temperate North Pacific. *Smithsonian Contributions to Zoology* 554:1-150
8. Cairns S Unpublished data.
9. Thoma JN (2013) Molecular and Morphological Diversity of Sea Fans with Emphasis on Deep-sea Octocorals of the Order Alcyonacea Lamouroux, 1812. Ph.D. Doctoral Dissertation, University of Louisiana at Lafayette,
10. Nutting CC (1912) Descriptions of the Alcyonaria collected by the U. S. Fisheries Steadier "Albatross," mainly in Japanese waters, during 1906. *Proceeding of the US National Museum* 43
11. Matsumoto AK, Van Ofwegen LP, Bayer FM (2019) A revision of the genus *Calcigorgia* (Cnidaria, Octocorallia, Acanthogorgiidae) with the description of three new species. *Zootaxa* 4571:1-27
12. Stone RP, Wing BL (2001) Growth and recruitment of an Alaskan shallow-water Gorgonian. In: Willison JHM, Hall J, Gass SE, Kenchington ELR, Butler M, Doherty P (eds) *Proceedings of the First International Symposium on Deep-Sea Corals*. Ecology Action Centre and Nova Scotia Museum, Halifax, Nova Scotia
13. California Academy of Sciences (CAS) (2020) CAS Online Invertebrate Zoology Collection (Accessed 2/17/2020). California Academy of Sciences
14. Wilborn RE, Goddard P, Wilborn MMI, Best M, Rooper CN (2021) Field Guide to Corals of British Columbia, Canada, Alaska, USA, and the eastern North Pacific Ocean (Anthozoa: Octocorallia and Hexacorallia) (Hydrozoa: Anthoathecata). A complete compilation of coral identifications for the eastern North Pacific Ocean. *Can Tech Rep Fish Aquat Sci* 3433: xi + 123 p
15. Drumm DT, Maslenikov KP, Van Syoc R, Orr JW, Lauth RR, Stevenson DE, W. PT (2016) An annotated checklist of the marine macroinvertebrates of Alaska. NOAA Professional Paper NMFS 19, 289 p doi:107755/PP19, Seattle, Washington
16. Stone RP (2006) Coral habitat in the Aleutian Islands of Alaska: Depth distribution, fine-scale species associations, and fisheries interactions. *Coral Reefs* 25:229-238
17. Pante E, France SC, Couloux A, Cruaud C, McFadden CS, Samadi S, Watling L (2012) Deep-sea origin and in-situ diversification of chrysogorgiid octocorals. *Plos One* 7:e38357
18. Cordeiro RTS, Cairns SD, Perez CD (2017) A revision of the genus *Radicipes* Stearns, 1883 (Anthozoa: Octocorallia: Chrysogorgiidae). *Zootaxa* 4319:1
19. Etnoyer PJ (2008) A new species of *Isidella* bamboo coral (Octocorallia: Alcyonacea: Isididae) from northeast Pacific

- Seamounts. *Proceedings of the Biological Society of Washington* 121:541-553
20. Watling L, Saucier EH, France SC (2022) Towards a revision of the bamboo corals (Octocorallia): Part 4, delineating the family Keratoisididae. *Zootaxa* 5093:337-375
  21. Williams GC (2013) New taxa and revisionary systematics of alcyonacean octocorals from the Pacific coast of North America (Cnidaria, Anthozoa). *ZooKeys*:15-42
  22. Everett MV (2020) Pers. comm.
  23. Herrera S, Shank TM (2016) RAD sequencing enables unprecedented phylogenetic resolution and objective species delimitation in recalcitrant divergent taxa. *Molecular phylogenetics and evolution* 100:70-79
  24. Herrera S, Baco A, Sanchez JA (2010) Molecular systematics of the bubblegum coral genera (Paragorgiidae, Octocorallia) and description of a new deep-sea species. *Molecular phylogenetics and evolution* 55:123-135
  25. Sánchez JA, SD C (2004) An unusual new gorgonian coral (Anthozoa: Octocorallia) from the Aleutian Islands, Alaska. *Zool Med Leiden* 78:265-274
  26. Horvath EA, Stone RP (2018) Another unusual new gorgonian (Anthozoa: Octocorallia: Plexauridae) from the Aleutian Islands of Alaska. *Zootaxa* 4524:112-120
  27. Williams GC (2005) New taxa of octocorals (Anthozoa: Octocorallia) from the northeastern Pacific Ocean. *Proceedings of the California Academy of Sciences* 56:53-65
  28. Cairns SD (2011) A Revision of the Primnoidae (Octocorallia: Alcyonacea) from the Aleutian Islands and Bering Sea. *Smithsonian Contributions to Zoology* 634:1-55
  29. Bayer FM (1996) The gorgonacean genus *Arthrogorgia* (Octocorallia: Primnoidae). *Proceedings of the Biological Society of Washington* 109:605–628
  30. Cairns SD, Baco A (2007) Review and five new Alaskan species of the deep-water octocoral *Narella* (Octocorallia: Primnoidae). *Systematics and Biodiversity* 5:391-407
  31. Ahlfeld TE, Boland GS, Kendall JJ (2007) Protection of deep-water corals with the development of oil and gas resources in the U.S. Gulf of Mexico: An adaptive approach. In: George RY, Cairns SD (eds) 3rd International Symposium on Deep-Sea Corals, Book Conservation and Adaptive Mangement of Seamount and Deep-Sea Coral Ecosystems. University of Miami, Miami, FL
  32. Cairns SD (2007) Calcaxonian octocorals (Cnidaria; Anthozoa) from Eastern Pacific seamounts. *Proceedings of the California Academy of Sciences* 58:511-541
  33. Malecha PW, Stone RP (2009) Response of the sea whip *Halipterus willemoesi* to simulated trawl disturbance and its vulnerability to subsequent predation. *Marine Ecology Progress Series* 388:197-206
  34. Miller RJ, Hocevar J, Stone RP, Fedorov DV (2012) Structure-forming corals and sponges and their use as fish habitat in Bering Sea submarine canyons. *Plos One* 7:e33885
  35. Stone RP, Masuda, M.M., Malecha, P.W. Effects of bottom trawling on soft-sediment epibenthic communities in the Gulf of Alaska. *Benthic Habitats and the Effects of Fishing*. Proc American Fisheries Society Symposium
  36. Cairns SD, Lindner A (2011) A revision of the Stylasteridae (Cnidaria, Hydrozoa, Filifera) from Alaska and adjacent waters. *ZooKeys*:1-88