

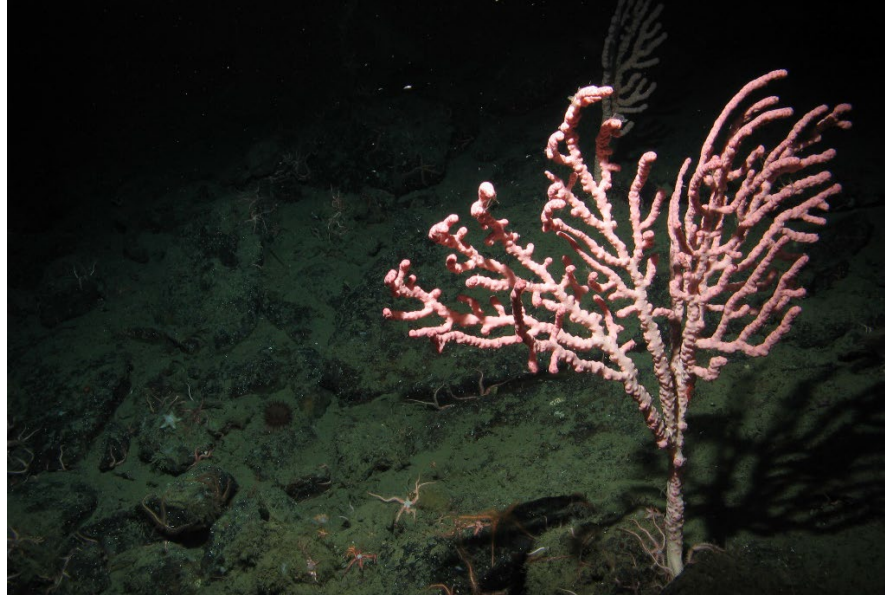


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List of Deep-Sea Coral Taxa in the U.S. West Coast Region: Depth and Geographic Distribution (v. 2021)

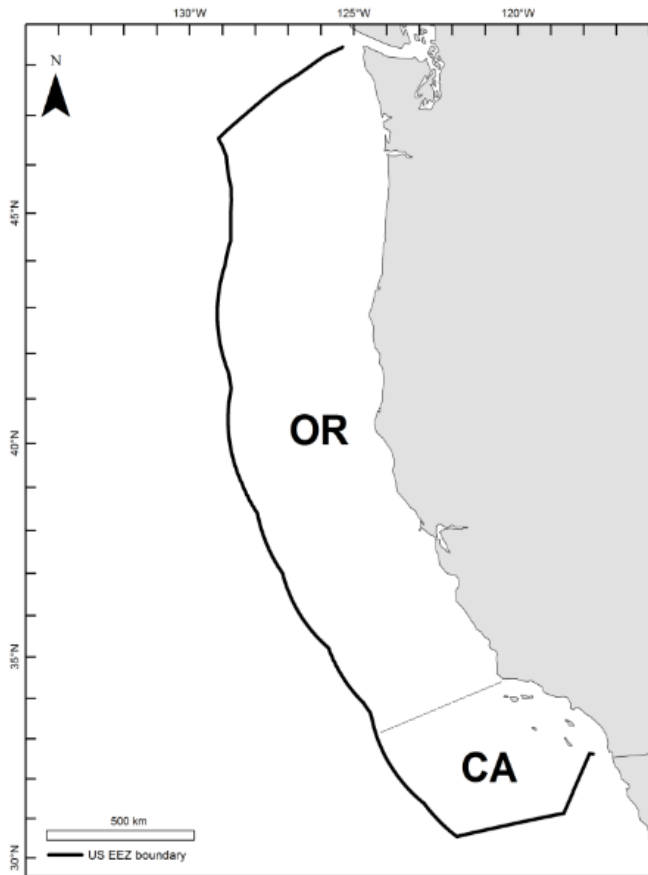
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List of Deep-Sea Coral Taxa in the U.S. West Coast Region: Depth and Geographic Distribution (v. 2021)

This annex to the U.S. West Coast chapter in “The State of Deep-Sea Coral and Sponge Ecosystems of the United States” provides a list of deep-sea coral taxa in the Phylum Cnidaria, Classes Anthozoa and Hydrozoa, known to occur in U.S. waters off Washington, Oregon, and California (Figure 1). Deep-sea corals are defined as azooxanthellate, heterotrophic coral species generally 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 by Whitmire et al. (2017) and includes taxa recognized through 2021. 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) listed are those principally used to establish geographic and depth distribution.



Regional geographic distribution within U.S. waters is divided into two biogeographic provinces: the Oregon Province (OR), which extends from around the Northern tip of Vancouver Island, Canada, to around Point Arguello/Point Conception, USA; and the California Province (CA), which extends south from there to around Magdalena Bay, Mexico.

In summary, we have confirmed the reported presence of 141 unique coral taxa in U.S. waters off Washington, Oregon, and California. Octocorals were the most speciose (101 taxa total: 73 alcyonaceans and 29 pennatulaceans), followed by scleractinians (20 taxa), antipatharians (13 taxa), and stylasterid corals (6 species). At least 19 of these taxa have not been identified to species. Seven new species have been described from the region since the 2017 West Coast deep-sea coral taxa list. Two species (*Muricea californica* and *Muricea fruticosa*) that were included in the 2017 list have been removed, as it appears that they are restricted to depths shallower than 50 meters (Horvath 2019).

Figure 1. U.S. West Coast region, delimiting biogeographic boundaries considered in this work, divided into the Oregon Province (OR) and the California Province (CA).

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Cover Photo: A large colony of the bubblegum coral, *Paragorgia yutlinux*, at a depth of 586 m off Northern California near the border with Oregon. Image credit: NOAA/Marine Applied Research and Exploration (MARE)

Table 1. List of known deep-sea coral species in the Phylum Cnidaria, Class Anthozoa and Class Hydrozoa, and their reported distributions in U.S. waters off Washington, Oregon, and California. Blue shaded fields indicate newly described species since 2017. Bold text indicates these new descriptions as well as other changes to the list found in Whitmire et al. (2017), including additions or range extensions, with new species 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, along with notes (in superscript letters) pertaining to individual taxa. Distribution: OR = records from the Oregon Province; CA = records from the California Province.

Higher Taxon	Species	Distribution	Depth Range (m)	References
Class Anthozoa				
Subclass Hexacorallia				
Order Antipatharia				
Family Antipathidae	<i>Antipathes dendrochristos</i> Opresko, 2005	OR,CA	91-427	1,2,3,4,5
Family Cladopathidae	<i>Chrysopathes speciosa</i> Opresko, 2003	OR,CA	225-1400	1,6
	<i>Heteropathes</i> sp. ^a (= <i>Heliopathes</i> sp.)	OR	1700-3200	1,7
	<i>Trissopathes pseudotrística</i> Opresko, 2003	OR,CA	227-2972	6
Family Schizopathidae ^b	<i>Alternatipathes alternata</i> (Brook, 1889) (= <i>Bathypathes alternata</i> Brook, 1889)	OR	412-4881	1,7,8
	<i>Alternatipathes bipinnata</i> (Opresko, 2005) (= <i>Umbellapathes bipinnata</i> Opresko, 2005)	OR,CA	1205-1718	1,9
	<i>Alternatipathes venusta</i> Opresko & Wagner, 2020	OR	2821	1,10
	<i>Bathypathes alaskensis</i> Opresko & Molodtsova, 2021	OR	272-1200	1,11
	<i>Bathypathes patula</i> Brook, 1889	OR	225-4868	1
	<i>Bathypathes tiburonae</i> Opresko & Molodtsova, 2021	OR	3121-3150	1,11
	* <i>Lillipathes quadribachiata</i> (van Pesch, 1914)	OR	1363-1545	1
	<i>Lillipathes wingi</i> Opresko, 2005	OR	877-904	1
	<i>Parantipathes</i> sp.	OR,CA	490-2820	1
Higher Taxon	Species	Distribution	Depth Range (m)	References
Order Scleractinia				
Family Caryophylliidae	<i>Caryophyllia (Caryophyllia) arnoldi</i> Vaughan, 1900	OR,CA	40-656	12
	<i>Caryophyllia (C.) diomedea</i> Marenzeller, 1904	CA	225-2200	13,14
	<i>Caryophyllia (C.) quadragenaria</i> Alcock, 1902	CA	54-1669	12,13
	<i>Coenocyathus bowersi</i> Vaughan, 1906	OR,CA	13-708	12,15
	<i>Crispatotrochus foxi</i> (Durham & Barnard, 1952)	CA	82-272	12,16
	<i>Desmophyllum dianthus</i> (Esper, 1794)	OR,CA	37-1330	7,12,15
	<i>Labyrinthocyathus quaylei</i> (Durham, 1947)	OR,CA	37-293	12
	<i>Lophelia pertusa</i> (Linnaeus, 1758) ^c †[= <i>Desmophyllum pertusum</i> (Linnaeus, 1758)]	OR,CA	39-2775	12,15
	<i>Nomlandia californica</i> Durham & Barnard, 1952	CA	82	12,16
	<i>Paracyathus montereyensis</i> Durham, 1947	OR	75-146	12
	<i>Paracyathus stearnsii</i> Verrill, 1869	OR,CA	6-835	12,15
Family Dendrophylliidae	<i>Balanophyllia (Balanophyllia) elegans</i> Verrill, 1864	OR,CA	1-1553	12,15
	<i>Dendrophyllia oldroydae</i> Oldroyd, 1924	CA	40-576	12
Family Flabellidae	<i>Javania californica</i> Cairns, 1994	OR	62-1553	12

Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Flabellidae cont.	<i>Polymyces montereyensis</i> (Durham, 1947)	OR,CA	69-212	1,17
Family Fungiacyathidae	<i>Fungiacyathus (Bathyactis) marenzelleri</i> (Vaughan, 1906)	OR,CA	1820-6328	12
Family Micrabaciidae	<i>Leptopenus discus</i> Moseley, 1881	OR,CA	3599-5000	12
	* <i>Leptopenus hypocoelus</i> Moseley, 1881	CA	4100	1
Family Oculinidae	<i>Madrepora oculata</i> Linnaeus, 1758	CA	84-490	1,12
	<i>Oculina profunda</i> Cairns, 1991	OR	119-578	1,12

Higher Taxon	Species	Distribution	Depth Range (m)	References
Class Anthozoa				
Subclass Octocorallia				
Order Alcyonacea				
Family Acanthogorgiidae	<i>Acanthogorgia gracillima</i> Kükenthal, 1908	CA	160-220	18,19
	<i>Acanthogorgia</i> spp. ^d	OR,CA	49-2301	19,20,21
	* <i>Calcigorgia japonica</i> Dautova, 2007 ^e	OR	228	1,22
	<i>Calcigorgia spiculifera</i> Broch, 1935	OR	144-1159	21,22
	<i>Muricella complanata</i> Wright & Studer, 1889	OR	521-653	1,19,23
Family Alcyoniidae	<i>Bathyalcyon robustum</i> Versluys, 1906 (= <i>Anthomastus robustum</i>)	OR	2449-3961	7,20
	<i>Eleutherobia rubra</i> (Brundin, 1896)	OR,CA	80-905	1
	<i>Heteropolypus ritteri</i> (Nutting, 1909) (= <i>Anthomastus ritteri</i> Nutting, 1909)	OR,CA	35-3330	7,17,21,24,25
Family Anthothelidae	<i>Anthothela pacifica</i> (Kükenthal 1913)	OR,CA	201-350	18,19,26,27
Family Chrysogorgiidae	<i>Chrysogorgia monticola</i> Cairns, 2007	OR	1711-3015	28
	<i>Chrysogorgia pinnata</i> Cairns, 2007	OR,CA	1968-3275	28,29
	<i>Iridogorgia</i> sp.	OR,CA	2027-2215	7,28,29
	* <i>Radicipes stonei</i> Cordeiro, Cairns & Pérez, 2017	OR	NR	9,26
Family Clavulariidae	<i>Clavularia grandiflora</i> (Nutting, 1908)	OR	593-1529	7,29
	<i>Clavularia</i> sp. A	OR	0-200	26
	<i>Clavularia</i> sp. H	CA	NR	15,30
	<i>Telesto californica</i> Kükenthal, 1913	CA	55-91	1,15
	<i>Telesto nuttingi</i> Kükenthal, 1913	CA	75-108	1,15
	<i>Telestula ambigua</i> Nutting, 1909	OR	958	25,26
Family Coralliidae	† <i>Coralliidae</i> spp. ^f	OR,CA	628-2447	20,29
	* <i>Hemicorallium regale</i> (Bayer, 1956) (= <i>Corallium regale</i>)	OR	1482	1,19

Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Gorgoniidae ^g	<i>Adelogorgia phyllosclera</i> Bayer, 1958 ^h	CA	9-595	15,18,21, 31,32
	<i>Eugorgia daniana</i> Verrill, 1868 (= <i>Leptogorgia daniana</i> (Verrill, 1868))	CA	6-70	32,33
	<i>Eugorgia ljubenkovia</i> Horvath, 2019	CA	30-98	32
	<i>Eugorgia rubens</i> Verrill, 1868 (= <i>Leptogorgia rubens</i> (Verrill, 1868))	OR,CA	30-200+	15,21,32,33
	<i>Leptogorgia chilensis</i> Verrill, 1868	OR,CA	5-231	1,15,18,21, 32,34
	<i>Leptogorgia filicrispa</i> Horvath, 2011	CA	20-87	32,35
	<i>Leptogorgia</i> sp. A (<i>sensu</i> Horvath 2019) (likely <i>L. tricolorata</i> Breedy and Cortés, 2011)	CA	36-91	32
Family Keratoisididae ⁱ (Formerly Isididae)	<i>Acanella</i> sp.	OR,CA	975-2844	7,20
	<i>Bathygorgia profunda</i> (Wright, 1885)	OR	1405	29
	<i>Isidella tentaculum</i> Etnoyer, 2008	OR,CA	720-2400	7,36
	*Keratoisididae (Clade 5, B1 <i>sensu</i> Watling et al 2022)	OR	1425	1
	*Keratoisididae (Clade 5, F1 <i>sensu</i> Watling et al 2022)	OR	1504	9
	<i>Keratois flabellum</i> (Nutting, 1908)	OR	1829 -2012	17
	<i>Keratois philippinensis</i> (Wright and Studer, 1889)	OR	1262-1463	17
	<i>Keratois</i> spp. ^j	OR,CA	436-3260	1,7,37,38
† <i>cf. Lepidisis</i> sp. ^k	OR,CA	180-3317	1,7	
Family Nephtheidae	<i>Gersemia juliepackardae</i> Williams and Lundsten, 2009	OR,CA	519-2034	39
	<i>Gersemia rubiformis</i> (Ehrenberg, 1834) (= <i>Capnella rubiformis</i> , <i>Eunephthya rubiformis</i> , <i>Alcyonium</i> sp. indet. <i>sensu</i> Williams 2013) ^l	OR	9-137	26,40
	<i>Neospongodes</i> sp.	OR	1600	17
Family Paragorgiidae	† <i>Paragorgia pacifica</i> Verrill, 1922^m (= <i>Paragorgia arborea</i> var. <i>pacifica</i> (Verrill, 1922); <i>Paragorgia arborea</i> (Linnaeus, 1758) – in part – NE Pacific populations)	OR,(CA?)	18-2936	1,18,19,41 42,43
	<i>Paragorgia regalis</i> Nutting, 1912	CA	1031-1840	1,19,41
	<i>Paragorgia stephencairnsi</i> Sanchez, 2005	OR,CA	40-490	1,42,44
	<i>Paragorgia yutlinux</i> Sanchez, 2005	OR,CA	487-861	1,44
	<i>Sibogagorgia californica</i> Horvath 2019	OR,CA	300-486	19
	<i>Sibogagorgia cauliflora</i> Herrera, Baco & Sánchez, 2010	OR,CA	2493-3042	45
Family Plexauridae ⁿ	<i>Chromoplexaura cordellbankensis</i> Williams & Breedy, 2019	OR	86-107	46
	<i>Chromoplexaura marki</i> (Kükenthal, 1913) (= <i>Euplexaura marki</i> Kükenthal, 1913)	OR,CA	9-200	5,17,18,32,40
	<i>Heterogorgia tortuosa</i> Verrill, 1868	CA	0-130	15,17

Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Plexauridae cont.	*Placogorgia sp. A sensu Horvath 2019	CA	82-145	18,32
	<i>Psammogorgia arbuscula</i> (Verrill, 1866)	CA	64-95	17
	<i>Swiftia farallonesica</i> Williams and Breedy, 2016	OR	181-190	47,48
	<i>Swiftia kofoidi</i> (Nutting, 1909) ^o	OR,CA	91-2393	1,17,18,21,37
	<i>Swiftia pacifica</i> (Nutting, 1912) ^o	OR,(CA)	89-1245	1,18,21,37,49
	<i>Swiftia pusilla</i> (Nutting, 1909) ^p	CA	166-177	37,50
	<i>Swiftia simplex</i> (Nutting, 1909) (= <i>Psammogorgia simplex</i> Nutting, 1909)	OR,CA	147-2123	1,18,21,29, 37,49,51
	<i>Swiftia spauldingi</i> (Nutting, 1909)	OR	49-342	1,18,21,37,49
	<i>Swiftia torreyi</i> (Nutting, 1909) (= <i>Psammogorgia torreyi</i> Nutting, 1909)	OR,CA	30-1752	1,26,37
	†* <i>Thesea variabilis</i> (Studer 1894) (= <i>Thesea</i> sp. A sensu Cadien et al. 2018 ^a)	CA	27-200	15,37,52
<i>Thesea</i> sp. B sensu Cadien et al. 2018 ^a	CA	27-200	15,37	
Family Primnoidae ^r	† <i>Callogorgia kinoshitai</i> (Kükenthal, 1913) (= <i>Callogorgia kinoshitae</i> Kükenthal, 1913)	OR,CA	99-2189	17,37,53
	† <i>Calyptrophora antilla</i> Bayer, 2001 ^s (previously reported as <i>Calyptrophora</i> cf. <i>antilla</i>)	OR	1110-1763	1,28
	<i>Calyptrophora bayeri</i> Cairns, 2007	OR	1683	28,53
	<i>Calyptrophora laevispinosa</i> Cairns, 2007	OR	3107	28,53
	<i>Narella alaskensis</i> Cairns and Baco, 2007	CA	2192-3075	1,54
	<i>Narella bowersi</i> (Nutting, 1908)	OR	1218-2600	28
	<i>Parastenella gymnogaster</i> Cairns, 2007	OR	1962-2773	1,28
	<i>Parastenella pacifica</i> Cairns, 2007	OR	1498-2086	18,28,37
	<i>Parastenella ramosa</i> (Studer, 1894)	OR,CA	619-3427	21,23,28
	† <i>Plumarella</i> sp. cf. <i>P. longispina</i> Kinoshita, 1908 ^t	OR,CA	55-735	1,17,18,21,37
	<i>Primnoa pacifica</i> Kinoshita, 1907	OR,(CA?) ^u	272-279	1,21,37,53
Family Victorgorgiidae	† <i>Victorgorgia argentea</i> (Studer, 1894) (= <i>Anthothela argentea</i> Studer, 1894)	OR,CA	490-1050	1,27
Family Xeniididae	<i>Anthelia</i> sp.	OR	1034-1107	17
Order Pennatulacea				
Family Anthoptilidae	<i>Anthoptilum grandiflorum</i> (Verrill, 1879) (= <i>Anthoptilum thomsoni</i> Kölliker, 1880; <i>Anthoptilum simplex</i> Kölliker; <i>Benthoptilum sertum</i> Verrill, 1885)	OR,CA	72-3651	1,17,21,25,55 , 56
	<i>Anthoptilum lithophilum</i> Williams and Alderslade, 2011	OR,CA	669-2240	7,57
Family Balticinidae ^v	† <i>Balticina californica</i> (Moroff, 1902) (= <i>Halipterus californica</i> , <i>H. contorta</i> Nutting, 1909; <i>Stachyptilum quadridentatum</i> Nutting, 1909)	OR,CA	46-2780	1,15,17,21,25 , 29

Higher Taxon	Species	Distribution	Depth Range (m)	References
Family Balticinidae cont.	† <i>Balticina willemoesi</i> (Kölliker, 1870) [= <i>Halipterus willemoesi</i> Kölliker, 1870; <i>H. septentrionalis</i> (Gray 1872)]	OR	75-1164	1,17,21
Family Funiculinidae	<i>Funiculina armata</i> (Verrill, 1879)	CA	611-1097	1,55
	<i>Funiculina parkeri</i> (Kükenthal, 1909)	OR,CA	200-1409	1,17,25
	<i>Funiculina quadrangularis</i> (Pallas, 1766)	OR,CA	763-2740	17,21
Family Kophobelemnidae	<i>Kophobelemnon affine</i> (Studer, 1894)	OR	2430-2710	25
	<i>Kophobelemnon hispidum</i> Nutting, 1912	OR	NR	26,55
	<i>Kophobelemnon macrospinosum</i> Thomson, 1927 ^w	OR	2434-2499	26,29
Family Pennatulidae	* <i>Pennatula murrayi</i> Kölliker, 1880	OR,CA	2453-3953	7,58
	<i>Pennatula phosphorea</i> Linnaeus, 1758 (= <i>Pennatula phosphorea</i> var. <i>californica</i> (Kükenthal, 1913); <i>Pennatula californica</i> Kükenthal 1913)	OR,CA	519-2825	1,15,17,21,25
	<i>Ptilosarcus gurneyi</i> (Gray, 1860) (= <i>Ptilosarcus quadrangularis</i> (Moroff, 1902))	OR,CA	0-475	1,15,17,21,25 , 55
Family Protoptilidae	<i>Distichoptilum gracile</i> Verrill, 1882 (= <i>Distichoptilum verrilli</i> (Studer, 1901))	OR,CA	1881-3361	1,17,21,25
	<i>Distichoptilum rigidum</i> (Nutting, 1912) ^x (= <i>Helicoptilum rigidum</i> (Nutting, 1912))	OR	1862-1937	26,55
	<i>Protoptilum nybakkeni</i> Williams & Lipski, 2019 ^y	OR	2300-3975	59
Family Scleroptilidae	<i>Scleroptilum</i> sp.	OR	109	55
Family Stachyptilidae	<i>Stachyptilum superbum</i> (Studer, 1894)	OR,CA	388-1244	15,21,25
Family Umbellulidae	<i>Umbellula huxleyi</i> Kölliker, 1880	CA	914-927	1,60
	<i>Umbellula lindahli</i> Kölliker, 1875 ^z	OR,CA	41-3873	17,26,29
	<i>Umbellula magniflora</i> Kölliker, 1880	OR,CA	854-1084	1,25,29
Family Virgulariidae	<i>Acanthoptilum album</i> Nutting, 1909	OR	10-150	25,61
	<i>Acanthoptilum annulatum</i> Nutting, 1909	OR	146	1,17,60
	<i>Acanthoptilum gracile</i> (Gabb, 1863)	OR,CA	5-1981	21,25,61
	<i>Acanthoptilum scalpellifolium</i> Moroff, 1902	CA	11-79	1,17
	<i>Stylatula elongata</i> (Gabb, 1862)	OR,CA	2-55(820) ^{aa}	25,55,62
	<i>Stylatula gracilis</i> (Gabb, 1862) ^{bb}	OR,CA	50-261	25,62
	<i>Virgularia agassizi</i> Studer, 1894 (= <i>Virgularia cystiferum</i> (Nutting, 1909))	CA	30-1000	15,25
	† <i>Virgularia reinwardtii</i> Herklots, 1858 ^{cc} (= <i>Virgularia californica</i> Pfeffer, 1886)	CA	5-90	63

Higher Taxon	Species	Distribution	Depth Range (m)	References
Class Hydrozoa				
Subclass Hydroidolina				
Order Anthoathecata				
Family Stylasteridae	<i>Errinopora pourtalesii</i> (Dall, 1884)	OR	40-658	64
	<i>Stylanthea papillosa</i> (Dall, 1884) (= <i>Stylanthea petrograpta</i> (Fisher, 1938); <i>Stylanthea porphyra</i> Fisher 1931)	OR	0-140	64
	<i>Stylaster californicus</i> (Verrill, 1866)	OR,CA	4-126	17,29,65
	<i>Stylaster parageus columbiensis</i> Cairns and Linder, 2011	OR	246-285	64
	<i>Stylaster venustus</i> (Verrill, 1870)	OR	10-108	64
	<i>Stylaster verrillii</i> (Dall, 1884)	OR	21-393	64

Notes

- a. Two specimens in the National Museum of Natural History – identified as: *Heteropathes cf. pacifica* USNM 1234550, and *Heteropathes* sp. USNM 1234539. Also an image of *Heteropathes* sp. not *H. pacifica*: *Heteropathes* (Opresko DM, 2011). The Deep-Sea Guide (DSG). Monterey Bay Aquarium Research Institute (MBARI). Consulted on: 2019-07-03.
- b. Black corals identified as belonging to the genera *Bathypathes*, *Lillipathes*, *Parantipathes*, and *Umbellapathes* have also been observed off S. California (CA province), but have not been identified to species. L. Lundsten (pers. com.).
- c. Transfer of *Lophelia pertusa* to the genus *Desmophyllum* has been proposed recently based on genetic similarity of mitochondrial genomes and microsatellites (Addamo et al. 2016), and this change has been accepted by WoRMS. However, we have retained given *Lophelia pertusa* given the broad recognition of, and extensive literature on, this species under the traditional name.
- d. At least two additional *Acanthogorgia* spp. have been identified. One deeper water species appears to be *Acanthogorgia spissa* Kükenthal, 1908, which has also been identified from Alaska and British Columbia.
- e. A specimen collected in Olympic Coast National Marine Sanctuary was initially identified as *Calcigorgia beringi* (included in Whitmire et al. 2017), this was subsequently identified as *C. japonica* by Matsumoto et al. 2019, with *C. beringi* restricted to the Aleutian Islands.
- f. Colonies of unidentified coralliids have been observed in both the Californian and Oregonian provinces. In the previous list these were designated as *Corallium* sp., however, with the resurrection of two additional genera in this family, the family name appears to be more appropriate at this time. Horvath (2019, Part 1) identified one specimen from the Santa Barbara Museum of Natural History (SBMNH) collected in the Channel Islands as likely to be *Hemicorallium ducale* (Bayer, 1955). *Hemicorallium imperiale* (Bayer, 1955) and *H. ducale* have both been collected from Fiberling Guyot, west of the Channel Islands, but outside the U.S. EEZ, and so are likely to also occur within U.S. waters.

- g. Gorgoniidae: In addition to the species listed here, two additional gorgoniid species, *Leptogorgia diffusa* (Verrill, 1868) and *Leptogorgia flexilis* (Verrill, 1868), are found in the Southern California Bight, but appear to be limited to depths shallower than 50 m (Horvath 2019, Part II).
- h. Breedy and Guzman have suggested that the genus *Adelogorgia* be placed in the Family Plexauridae, rather than Gorgoniidae. This revision has not been incorporated in WoRMS.
- i. Saucier et al. (2021) have revised the phylogeny of the bamboo corals (formerly Isididae), resulting in five families. The bamboo corals described from the U.S. West Coast Region all belong in the new family Keratoisididae. Watling et al. (2022) subsequently evaluated specimens in the large Family Keratoisididae, identifying distinct clades and subclades based on morphological and DNA sequence data. Very few of the specimens investigated, however, were from the U.S. West Coast.
- j. A number of specimens and observations of West Coast bamboo corals have been identified only as *Keratoisis* sp. These include specimens observed and collected from Southern California (CA province; NMNH Invertebrate Zoology Collections; SBMNH Invertebrate Zoology Online Collections), but not identified to species. Two specimens reported by Watling et al. (2022) from Davidson Seamount (depths 1571-1732m) correspond to their *Keratoisis* sp. 1 (Clade 5, B1) and *Keratoisis* sp. 5 (Clade 5, D1) and differ from *Keratoisis flabellum* (Clade 5, D1).
- k. Unbranched bamboo corals off the West Coast have generally been identified as *Lepidisis* sp. Watling and France (2021) recently redescribed the genus *Lepidisis*. They note that many species previously described as *Lepidisis* probably belong in different genera, therefore we have revised this category to “cf. *Lepidisis* sp.” pending further investigation. Some of the West Coast specimens previously
- l. *Gersemia rubiformis* (Ehrenberg, 1834) was identified by Williams (2013) as belonging in the family Alcyoniidae, genus *Alcyonium*. This change has not yet been reflected in WoRMS, and here we have retained *G. rubiformis*. Ref: Williams GC (2013) New taxa and revisionary systematics of alcyonacean octocorals from the Pacific coast of North America (Cnidaria, Anthozoa). ZooKeys: 15-42. Recent genetic studies (Everett, in prep.) including both molecular barcoding and genotyping by sequencing suggest that individuals identified as *G. rubiformis* in the Northeast Pacific may represent as many as three separate species from both *Gersemia* and *Alcyonium*.
- m. 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 West Coast specimens previously identified as *P. arborea*, which span a considerable geographic and depth range, are properly attributed to *Paragorgia pacifica*.
- n. Plexauridae: There remains significant uncertainty over the species listed currently listed under the genera *Swiftia* and *Thesea* (reviewed by Horvath 2019, Part III). In addition to the species listed here, two common plexaurid species from the Southern California Bight, *Muricea californica* Aurivillius, 1931, *Muricea fruticosa* Verrill, 1868, were included in the 2017 list but removed from the current list as they appear to be limited to depths shallower than 50 m. An additional taxon in the 2017 list was represented as Plexaurid gen. et. sp. indet., based on a single specimen at California Academy of Sciences. We have removed this taxon from the current list for now, pending further study.
- o. *Swiftia kofoidi* (Nutting, 1909) and *Swiftia pacifica* (Nutting, 1912) are related species that exhibit geographic transitional morphology around Pt. Conception, CA, with most specimens identified as *S. kofoidi* collected from the southern end of the region (especially the CA province), while *S. pacifica* appears most often to the north with a distribution that extends to Alaska (Horvath 2019, Part III).
- p. Type material for *Swiftia pusilla* is limited and in poor condition. Its status as a separate species and placement in the genus *Swiftia* may be problematic. See discussion in Horvath (2019, Part III).
- q. Additional work is needed to determine if *Thesea* sp. A and *Thesea* sp. B represent different species (Horvath 2019, Part III).

- r. Two primnoids previously included in the 2017 list have been removed. *Parastenella doederleini* (Wright and Studer, 1889) does not appear to occur in this region. *Thouarella* sp. was based on a single specimen collected off Oregon (CAS 160149), and should await further examination of the specimen.
- s. The taxon previously reported as *Calyptrophora* cf. *antilla* in Cairns (2007) and the 2017 list is here presented as *Calyptrophora antilla* Bayer, 2001. Although *C. antilla* was initially described from the Western Atlantic, specimens from the U.S. West Coast are morphologically extremely similar.
- t. The West Coast species, long considered to be *Plumarella longispina* Kinoshita, 1908, has morphological differences from the Japanese holotype. This may represent a new species; it is therefore represented as *Plumarella* sp. cf. *P. longispina* Kinoshita, 1908.
- u. One specimen of *Primnoa pacifica* (USNM 57557) listed as collected off La Jolla, CA in 1904.
- v. The Family Halipteridae Williams, 1995 and Genus *Halipteris* Kölliker, 1870 have recently been synonymized with Balticinidae Balss, 1910 and *Balticina* Gray 1870, respectively by Perez et al. (2021).
- w. The MBARI deep-sea guide identifies *Kophobelemnon biflorum* Pasternak, 1960 as a synonym for *Kophobelemnon macrospinosum* Thomson, 1927, however, both taxa currently appear as “accepted” in WoRMS.
- x. WoRMS identifies *Distichoptilum rigidum* (Nutting, 1912) as a *nomen dubium*.
- y. The 2017 list included records of an unidentified *Protoptilum* sp. in several collections. This may or may not be the same as the newly described species.
- z. The 2017 list synonymized *Umbellula lindahli* Kölliker, 1875 and the Southern Ocean *Umbellula carpenteri* Kölliker, 1880 based on Broch (1958). Subsequent examination and genetic analysis by Dolan 2008 suggests that these are separate species. A single record of *U. carpenter* was reported from Monterey Canyon, but its identity has not been subsequently confirmed.
- aa. Williams and Matsumoto (2015) reviewed the genus *Stylatula*. They indicated that *Stylatula elongata* and *S. gracilis* may represent the same species, or, if valid, *S. gracilis* may only occur from the southern tip of Baja California to Panama.
- bb. *Stylatula elongata* is primarily a shallow-water species, with almost all records < 50 m. The depth record of 820 m appears to be based on a single specimen (CAS-IZ 131632) and may be in error.
- cc. *Virgularia californica* Pfeffer, 1886 has now been synonymized with *Virgularia reinwardtii* Herklots, 1858

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