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Marine Biodiversity of Costa Rica, Central America

Ingo S. Wehrtmann
Jorge Cortés
Editors



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Edited by

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CIMAR and Escuela de Biología, Universidad de Costa Rica, Costa Rica

 Springer

Editors

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Cover page: Seagrass habitat at Parque Nacional Cahuita, Caribbean coast of Costa Rica (Photo: Ingo S. Wehrtmann)

Back cover, photo 1: A green algae, *Acetabularia calyculus*, from the Caribbean coast of Costa Rica (Photo: Ingo S. Wehrtmann)

Back cover, photo 2: *Carpilius corallinus*, a brachyuran crab occurring in the Parque Nacional Cahuita, Caribbean coast of Costa Rica (Photo: Ingo S. Wehrtmann)

Back cover, photo 3: A black turtle, *Chelonia agassizi*, observed in waters around the offshore island, Isla del Coco, Pacific Costa Rica (Photo: Jaime Nivia)

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Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
Phylum CHRYSOPHYTA			
Class BACILLARIOPHYCEAE			
Order COSCINODISCALES			
<i>Actinocyclus curvatulus</i> Janisch	[98]	CTP,IO	[36, 90]
Syn. <i>Coscinodiscus curvatulus</i> Grunow			
<i>Coscinodiscus centralis</i> Gran & Angst.	[98]	Car,IO,GM,Med,NEA	[19, 20, 21, 41, 77, 90]
<i>Cyclotella meneghiniana</i> Kützting	[98]	Car,EC,GM,IO,Med	[20, 21, 33, 72, 96]
<i>Goslerella tropica</i> Schütt	[98]	Ca,Car,IO,SEP	[3, 21, 32, 72, 96]
<i>Melosira moniliformis</i> (O. Müller) Agardh	[98]	EC,GM,NEP,SEP	[3, 33, 72]
<i>Skeletonema costatum</i> (Greville) cleve	[98]	Ca,Car,ETP,GM,IO,NEA,NWA,SEP	[3, 8, 10, 18, 19, 72, 77, 90, 96]
Order RHIZOSOLENALES			
<i>Guinardia striata</i> (Stolterfoth) Hasle	[98]	Car,EC,ETP,GM,NEA,NWA,SA	[8, 9, 10, 18, 19, 21, 37, 72, 77, 88]
Syn. <i>Rhizosolenia stolterfothii</i> Peragallo			
<i>Proboscia alata</i> (Brightwell) Sundström	[98]	Car,CTP,ETP,GM,IO,Med,NEA,NWA,SEP	[3, 8, 10, 18, 19, 21, 41, 77, 90]
Syn. <i>Rhizosolenia alata</i> Brightwell			
<i>Pseudosolenia calcar-avis</i> (Schulze) Sundström	[98]	Ca,EC,ETP,GM,IO,NEA,NWA	[8, 18, 19, 72, 73, 90]
<i>Rhizosolenia imbricata</i> Brightwell	[98]	Ca,Car,ETP,GM,IO,NEA,SA,SEP	[3, 9, 10, 18, 19, 21, 72, 90, 96]
<i>Rhizosolenia setigera</i> Brightwell	[98]	Car,EC,ETP,GM,IO,NEA	[10, 18, 19, 72, 77, 90, 96]
Order BIDDULPHIALES			
<i>Bacteriastrum delicatulum</i> Cleve	[98]	Ca,Car,ETP,GM,IO,Med,NWP	[18, 19, 20, 21, 45, 72, 96]
<i>Bacteriastrum hyalinum</i> Lauder	[98]	Ca,Car,IO,Med	[20, 21, 72, 79, 96]
<i>Cerataulina dentata</i> Hasle	[98]	Ca,TP	[43, 72]
<i>Chaetoceros affinis</i> Lauder	[98]	Ca,Car,EC,ETP,GM,IO,NEA,NWA,SEP	[3, 10, 18, 19, 72, 79, 85, 96]
<i>Chaetoceros brevis</i> Schütt	[98]	Car,GM,Med,NWA,SEP	[3, 20, 79, 85, 88]
<i>Chaetoceros coarctatus</i> Lauder	[98]	Ca,Car,GM,IO,Med,NWA	[19, 20, 72, 79, 85, 90, 96]
<i>Chaetoceros curvisetus</i> Cleve	[98]	Car,ETP,GM,IO,NWA,SEP	[3, 18, 19, 21, 79, 85, 90, 96]
<i>Chaetoceros dianicus</i> Cleve	[98]	ETP,GM,NEA,NWA	[10, 18, 19, 85]
<i>Chaetoceros diversus</i> Cleve	[98]	Car,ETP,GM,IO	[18, 19, 79, 90, 96]

(continued)

Species List 1.1 (continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
<i>Chaetoceros gracilis</i> Schütt	[98]	Ca,GM,SEP	[3, 19, 72]
<i>Chaetoceros peruvianus</i> Brightwell	[98]	Car,CTP,ETP,GM,IO,NWA	[18, 19, 41, 79, 85, 90, 96]
<i>Chaetoceros socialis</i> Lauder	[98]	EC,ETP,GM,IO,NEA,NWA,SEP	[3, 10, 18, 72, 85, 88, 96]
<i>Dietylum brightwellii</i> (West) Grunow	[98]	Car,EC,ETP,IO,SA,NEA	[9, 10, 18, 21, 72, 96]
<i>Hemitauius hauckii</i> Grunow	[98]	Car,EC,ETP,GM,IO,Med	[7, 18, 19, 20, 65, 72, 78]
<i>Lithodesmium undulatum</i> Ehrenberg	[98]	GM,IO,NEA	[19, 65, 88, 96]
Order FRAGILARIALES			
<i>Asterionellopsis glactalis</i> (Carrascano) Round	[98]	Car,EC,ETP,GM,IO,NEA,SA,SEP	[3, 8, 9, 18, 19, 72, 80, 90, 96]
<i>Asterionella japonica</i> Gran.			
<i>Thalassionema frauenfeldii</i> (Grunow) Haelegraef	[98]	Car,EC,GM,IO,SEP	[3, 19, 21, 29, 72, 80, 90, 96]
Syn. <i>Thalassiothrix frauenfeldii</i> Grunow			
Order BACILLARIALES			
<i>Achnanthes longipes</i> Agardh	[98]	Car,EP,NEA	[65, 72, 81]
<i>Amphora granulata</i> Greg.	[98]	IO	[90]
<i>Bacillaria paxillifera</i> (Müller) Hendey	[98]	Car,GM,IO,NEA,NWP	[19, 21, 65, 72, 88, 90, 96]
Syn. <i>Nitzschia paradoxa</i> (Gmel.) Grun.			
Syn. <i>Bacillaria paradoxa</i> (Gmel.) Grun.			
<i>Cylindrotheca closterium</i> (Ehrenberg) Reinman & Lewin.	[98]	Car,EC,CNP,ETP,GM,IO,Med,NEA,NWA,SA,SEP	[3, 8, 9, 10, 18, 19, 20, 21, 72, 90, 96, 101]
Syn. <i>Nitzschia closterium</i> (Ehrenberg) W. Smith			
<i>Mastogloia biapiculata</i> Schmith	[98]	Car	[21, 82]
<i>Mastogloia biformis</i> Grun.	[98]	Car	[21, 82]
<i>Navicula disparata</i> Hustedt	[98]	n.a.	n.a.
<i>Navicula distans</i> Cleve	[98]	GM	[88]
<i>Navicula hustedii</i> Krasske	[98]	n.a.	n.a.
<i>Navicula irrorata</i> Grev.	[98]	Car,GM	[21, 82, 88]
<i>Nitzschia bilobata</i> Wm. Smith	[98]	Car	[21]
<i>Nitzschia longissima</i> (Brebisson) Ralfs	[98]	Car,ETP,GM,IO,SEP	[3, 18, 19, 21, 96]
<i>Pleurosigma elongatum</i> Wm. Smith	[98]	IO	[96]
<i>Pseudo-nitzschia delicatissima</i> (Cleve) Heiden. Syn. <i>Nitzschia delicatissima</i> Cleve	[98]	Ant,NEA,SA,SEP	[9, 10, 45, 86]

<i>Pseudo-nitzschia pungens</i> (Grunow ex Cleve) Hasle. Syn. <i>Nitzschia pungens</i> Grunow ex Cleve	[98]	Au,Car,CTPEC,GM,SA,SEP	[9, 19, 21, 30, 40, 41, 72, 86, 88]
<i>Surirella lemmermanni</i> Hustedt	[98]	n.a.	n.a.
<i>Surirella angusticostata</i> Hustedt	[98]	n.a.	n.a.
DINOPHYTA			
Class DINOPHYCEAE			
Order PROROCENTRALES			
<i>Prorocentrum gracile</i> Schütt	[98]	Ca,Car,Med,NEA,NWA, SWA,TP	[5, 21, 22, 23, 52, 53, 66]
Order DINOPHYSIALES			
<i>Dinophysis caudata</i> Saville-Kent. Syn. <i>Dinophysis homunculus</i> Stein	[98]	Ca,Car,GM,GM,Med,NEA,NEA,SWA,TA	[5, 6, 19, 20, 21, 51, 52, 52, 64, 66]
Order GONYAULACALES			
<i>Ceratium furca</i> Claparede & Lachmann	[98]	Au,Ca,Car,GM,IO,Med,NWA,SA,SEA,SWA	[5, 9, 19, 20, 21, 46, 52, 66]
CYANOBACTERIA			
<i>Spirulina subsalsa</i> Ørsted ex Gomont	[35]	EC,Med	[34, 62, 73]
<i>Johannesbaptista pellucida</i> (Dickie) Taylor & Drouet	[NR]	NWA	[73]
<i>Trichodesmium</i> sp.	[NR]	GM	[19, 53]
DINOPHYTA			
Class DICTYOCOPHYCEAE (Silicoflagellates)			
<i>Dictyocha fibula</i> Ehrenberg	[98]	Au,CNP,EC,Med	[7, 26, 71, 101]

^aCR = Costa Rica, NR = New record

^bAnt = Antarctic, Au = Australia, BI = British Isles, Ca = Gulf of California and Pacific coast of México, Car = Caribbean, EC = East coast of USA, CNP = Central North Pacific, CTP = Central Tropical Pacific, ETP = Eastern Tropical Pacific, GP = Gulf of Panamá, IO = Indian Ocean, GM = Gulf of México, Med = Mediterranean and adjacent seas, NEA = North Eastern Atlantic, NEP = North Western Atlantic, NWP = North Western Atlantic, NWP = North Western Pacific, SA = South Africa, SEP = South Eastern Pacific, SWA = South Western Pacific, SWP = South Western Pacific, TA = Tropical Atlantic, TP = Tropical Pacific

^cReferences are indicated by numbers according to the references list.

Species List 1.2 Phytoplankton species from the Pacific coast of Costa Rica. For diatoms, grouping of genera into Orders follows Hasle & Syvertsen (1996), dinoflagellates are grouped according to Steidinger & Tangen (1996), Ebrididae as in Hargraves (2002)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
Phylum CHRYSOPHYTA			
Class BACILLARIOPHYCEAE			
Order COSCINODISCALES			
<i>Actinocyclus curvatulus</i> Jamisch Syn. <i>Coscinodiscus curvatulus</i> Grunow	[103]	CTP,IO	[36, 90]
<i>Actinocyclus octonarius</i> Ehrenberg. Syn. <i>Actinocyclus erherbergii</i> Ralfs	[100,103]	Ca, Car,CTP,GM	[17, 21, 33, 36, 77, 102]
<i>Actinocyclus senarius</i> (Ehrenberg) Ehrenb. Syn. <i>Actinocyclus undulatus</i> (Bailey) Ralfs	[100,103]	Car,GM,IO,SEP	[3, 17, 21, 33, 77, 90, 96]
<i>Actinopichus splendens</i> (Shadbolt) Ralfs	[100]	IO,GM,SA	[9, 17, 19, 90]
<i>Asterolampra marylandica</i> Ehrenberg	[NR]	Ca,IO	[72, 90]
<i>Asteromphalus cleveanus</i> Grunow	[100]	Ca	[50,]
<i>Asteromphalus heptactis</i> (Breb.) Ralfs	[103]	CTP,IO,NEA	[41, 65, 90]
<i>Corethron hysrix</i> Cleve	[100,103]	Car,GM,IO	[21, 33, 96]
<i>Coscinodiscus centralis</i> Gran & Angst.	[100,103]	Car,GM,IO,Med,NEA	[19, 20, 21, 41, 77, 90]
<i>Coscinodiscus granii</i> Gough	[100,103]	Ca,EC,GM,IO,Med,NEA,SA	[9, 19, 21, 36, 41, 72, 90, 96]
<i>Coscinodiscus perforatus</i> Ehrenberg	[100]	Ca,Car,GM,IO,NEP	[3, 21, 33, 36, 90]
<i>Coscinodiscus wailiesii</i> Gran & Angst.	[103]	Ca,Car,NEA,NEP	[8, 21, 36, 41, 89]
<i>Cyclotella meneghiniana</i> Kutzung	[100,103]	Car,EC,GM,IO,Med	[20, 21, 33, 72, 96]
<i>Cyclotella striata</i> (Kutzung) Grun.	[100,103]	Car,EC,GM,IO,Med	[20, 21, 33, 72, 90, 96]
<i>Detonula pumila</i> (Catrascane) Schütt.	[NR]	Car,EC,GM,IO,SEP	[3, 19, 21, 72, 88, 90, 96]
Syn. <i>Schroederella delicatula</i> (Peragallo) Pavillard			
<i>Goslerella tropica</i> Schütt	[NR]	Ca,Car,IO,SEP	[3, 21, 32, 72, 96]
<i>Lauderia annulata</i> Cleve.	[100,103]	Car,EC,ETP,GM,IO,NEA,NWA,SEP	[3, 8, 20, 21, 72, 88, 90, 96]
Syn. <i>Lauderia borealis</i> Gran			
<i>Leptocylindrus danicus</i> Cleve	[100,103]	Car,ETP,GM,IO,NEA,Med,SA,SEP	[9, 10, 19, 20, 21, 75, 77, 96]
<i>Leptocylindrus mediterraneus</i> (Peragallo) Hasle.	[103]	Ca,CTPEC,ETP,NEA,SEP	[3, 10, 20, 41, 72, 73]

Syn. <i>Dactyliosolen mediterraneus</i> (Peragallo) Peragallo	[103]				[20, 72, 88, 96]
<i>Leptocylindrus minimus</i> Gran	[NR]		Ca,EC,ETP,GM,IO		[3, 33, 72]
<i>Melosira moniliformis</i> (O. Müller) Agardh	[NR]		EC,GM,NEP,SEP		[8, 21, 65, 72, 77, 88, 96]
<i>Paralia sulcata</i> (Ehrenberg) Cleve.	[100,103]		Ca,Car,GM,IO,NEA,NWA		[18, 68]
Syn. <i>Melosira sulcata</i> (Ehrenberg) Kützing			GM,NEA,		
<i>Planktoniella muriformis</i> (Loeblich, Wight & Darley) Round.	[103]		Car,ETP,GM,IO,CTP,Med,NEA,NWA,SEP		[3, 8, 18, 20, 21, 33, 41, 90, 96]
Syn. <i>Coenobiodiscus muriformis</i> Loeblich, Wight & Darley	[100,103]		Ca,Car,ETP,GM,IO,NEA,NWA,SEP		[3, 8, 10, 19, 20, 72, 77, 90, 96]
<i>Planktoniella sol</i> (Wallich) Schütt	[NR]		Ca,GM		[15, 33]
<i>Skeletonema costatum</i> (Greville) cleve	[100,103]		EC,ETP,IO,Med,SA,SEP		[3, 9, 20, 20, 72, 96]
<i>Skeletonemaropicum</i> Cleve	[NR]		Ca,GM,NWP		[25, 33, 72]
<i>Stephanopyxis turris</i> (Greville & Armott) Ralfs	[NR]		Ca,NEA,NWA		[65, 72]
<i>Thalassiosira binata</i> Fryxell	[NR]		NWP		[25]
<i>Thalassiosira bioculata</i> (Grun.) Ostenfeld	[103]		Ca,Car,CTP,GM,IO,NEA,Med,SA,SEP		[3, 9, 10, 19, 20, 21, 41, 72, 88, 96]
<i>Thalassiosira conferta</i> Hasle	[103]		Car,EC,GM,IO,Med,NWP,SA		[1, 9, 20, 21, 25, 72, 88, 90]
<i>Thalassiosira decipiens</i> (Grun.) Jorg.	[103]		Ca,GM		[1, 33, 72]
<i>Thalassiosira eccentrica</i> (Ehrenberg) Cleve	[NR]		Ca,Car,CTP		[1, 21, 41, 72]
<i>Thalassiosira exigua</i> Fryx. & Hasle	[103]		Ca,NWP		[1, 25, 72]
<i>Thalassiosira leptopus</i> (Grun.) Hasle & Fryxell	[NR]		NEA,NWP		[25, 38]
<i>Thalassiosira mala</i> Tak.	[PNR]		NEA		[39]
<i>Thalassiosira minima</i> Gaarder	[NR]		Ca,CTP,IO,NWP		[1, 25, 41, 72, 90]
<i>Thalassiosira oceanica</i> Hasle	[NR]		Ca,EC,GM,Med		[7, 33, 72, 75]
<i>Thalassiosira oestrupii</i> (Ostenfeld) Proshkina-Lavrenko	[NR]		Ca,ETP,GM,IO,Med,SEP		[3, 20, 21, 41, 75, 90, 96]
<i>Thalassiosira rotula</i> Meunier	[NR]				
<i>Thalassiosira subtilis</i> (ostenfeld) Gran	[35,103]		Ca,EC,ETP,GM,Med,NEA,NWA		[8, 10, 20, 37, 72, 88]
Order RHIZOSOLENALES					
<i>Dactyliosolen fragilissimus</i> (Bergon) Hasle					

(continued)

Species List 1.2 (continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
<i>Syn. Rhizosolenia stolterfothii</i> Peragallo			
<i>Guinardia delicatula</i> (Cleve) Hasle	[35,100,103]	Car,EC,ETP,NEA,NWA,SA,SEP	[8, 9, 20, 21, 72, 75]
<i>Syn. Rhizosolenia delicatula</i> Cleve			
<i>Guinardia flaccida</i> (Catr.) H. Per.	[100,103]	Car,EC,ETP,GM,IO,Med,NEA, NWA	[8, 19, 20, 21, 37, 77, 90, 96]
<i>Syn. Rhizosolenia flaccida</i> Catrascane			
<i>Guinardia striata</i> (Stolterfoth) Hasle	[35,100,103]	Car,EC,ETP,GM,NEA,NWA,SA	[8, 9, 10, 18, 19, 21, 37, 72, 77, 88]
<i>Syn. Rhizosolenia stolterfothii</i> Peragallo			
<i>Proboscia alata</i> (Brightwell) Sundström.	[35,100,103]	Car,CTP,ETP,GM,IO,Med,NEA, SEP	[3, 10, 18, 20, 21, 41, 77, 90]
<i>Syn. Rhizosolenia alata</i> Brightwell			
<i>Pseudo-solenia calcar-avis</i> (Schulze) Sundström	[35,100,103]	Ca,EC,ETP,GM,IO,NEA,NWA	[8, 19, 20, 72, 75, 90]
<i>Rhizosolenia acuminata</i> (Perag.) Pav.	[NR]	Ca,ETP,GM,NEA, NWA	[8, 19, 20, 75]
<i>Rhizosolenia bergonii</i> Perag.	[35,100,103]	Ca,CTP,Car,ETP,GM,IO,NEA, NWA	[8, 19, 20, 41, 75, 88, 90]
<i>Rhizosolenia hebetata</i> var. <i>hebetata</i> Bailey	[35,100,103]	Ca,Car,GM,IO,NEA,SA, SEP	[3, 9, 10, 19, 21, 75, 90, 96]
<i>Rhizosolenia imbricata</i> Brightwell	[100]	Ca,Car,ETP,GM,IO,NEA,SA,SEP	[3, 9, 10, 19, 20, 21, 75, 90, 96]
<i>Rhizosolenia robusta</i> Norman	[35,100,103]	Ca,Car,EC,GM,IO, Med	[19, 20, 72, 75, 77, 90, 96]
<i>Rhizosolenia setigera</i> Brightwell	[100,103]	Car,EC,ETP,GM,IO, NEA	[10, 19, 20, 72, 77, 90, 96]
<i>Rhizosolenia styliformis</i> Brightwell	[NR]	Ca,Car,CTP,ETP,GM,IO,NEA, NWA,SEP	[3, 8, 19, 20, 21, 41, 75, 77, 90, 96]
Order BIDDULPHIALES			
<i>Aulacodiscus kittonii</i> Arnott ex Ralfs in Pritchard	[NR]	BI	[91]
<i>Bacteriastrium comosum</i> Pavillard	[100,103]	Ca,Car,ETP,IO	[20, 21, 75, 79, 96]
<i>Bacteriastrium delicatulum</i> Cleve	[100,103]	Ca,Car,ETP,GM,IO,Med,NWP	[19, 20, 21, 45, 72, 75, 96]
<i>Bacteriastrium elegans</i> Pavillard	[103]	Med	[26]
<i>Bacteriastrium hyalinum</i> Lauder	[NR]	Ca,Car,IO,Med	[20, 21, 75, 79, 96]
<i>Biddulphia biddulphiana</i> (J.e. Smith) Boyer Syn.	[NR]	BI,Ca,Car,EC,IO	[21, 72, 75, 78, 90, 91]
<i>Biddulphia pulchella</i> Gray			
<i>Cerataulina pelagica</i> (Cleve) Hendeey 1937. Syn.	[100,103]	Car,ETP,GM,IO,Med,NEA,NWP, SEP	[3, 8, 10, 19, 20, 21, 72, 78, 90, 96]
<i>Cerataulina bergonii</i> (H. Peragallo) Schütt			

<i>Cerataulina bicornis</i> (Ehrenberg) Hasle.	[100,103]	Ca,TP	[42, 43, 75]
Syn. <i>Cerataulina daemon</i> (Greville)Hasle	[100,103]	Ca,TP	[43, 75]
<i>Cerataulina dentata</i> Hasle	[35,100,103]	Ca,Car,EC,ETP,GM,IO,NEA, NWA,SEP	[3, 10, 19, 20, 75, 79, 85, 96]
<i>Chaetoceros affinis</i> Lauder	[103]	Ca	[75]
<i>Chaetoceros affinis</i> var. <i>circinalis</i> (Meunier) Hustedt	[35,103]	Ca,Car,GM,Med	[20, 21, 33, 75, 79]
<i>Chaetoceros anastomosans</i> Grunow	[35,100,103]	Car,GM,Med,NWA,SEP	[3, 20, 79, 85, 88]
<i>Chaetoceros brevis</i> Schütt	[35,100,103]	Ca,Car,GM,IO,Med,NWA	[19, 20, 75, 79, 85, 90, 96]
<i>Chaetoceros coarctatus</i> Lauder	[35,100,103]	Car,ETP,GM,IO,Med,NEA,NWA, SEP	[3, 19, 20, 21, 75, 79, 85, 90, 96]
<i>Chaetoceros compressus</i> Lauder	[103]	Ca	[75]
<i>Chaetoceros concavicornis</i> Mang.	[35,103]	Car,ETP,GM,NEA,NWA,SA,SEP	[3, 9, 10, 19, 20, 79, 85]
<i>Chaetoceros constrictus</i> Gran	[35,103]	Car,ETP,GM,IO,NWA,SEP	[3, 19, 20, 21, 79, 85, 90, 96]
<i>Chaetoceros curvisetus</i> Cleve	[35,100,103]	Car,ETP,GM,IO,NEA,NWA,SEP	[3, 10, 19, 20, 21, 85, 90]
<i>Chaetoceros decipiens</i> Cleve	[100]	ETP,GM,NEA,NWA	[10, 19, 20, 85]
<i>Chaetoceros danicus</i> Cleve	[35,100,103]	ETP,Car,GM,IO,NWA,SA,SEP	[3, 9, 19, 20, 21, 85, 90, 96]
<i>Chaetoceros didymus</i> Ehrenberg	[35,100,103]	ETP,Car,GM,IO,NEA	[19, 20, 65, 79, 90, 96]
<i>Chaetoceros diversus</i> Cleve	[103]	Ca,EP,ETP	[18, 20, 21, 75]
<i>Chaetoceros diversus</i> f. <i>laevis</i> (Leuduger-Fortmorel) Moreno-Ruiz et al.	[35,100,103]	Ca,Car,IO,NWA	[75, 79, 85, 96]
<i>Chaetoceros eibonii</i> (Grunow) Meunier	[NR]	Ca,GM,SEP	[3, 19, 75]
<i>Chaetoceros gracilis</i> Schütt	[35,100,103]	Ca,Car,IO,NEA,NWA,SEP	[3, 10, 21, 75, 79, 85, 96]
<i>Chaetoceros laciniosus</i> Schütt	[35,103]	Ca,Car,GM,IO,NWA	[75, 79, 85, 88, 96]
<i>Chaetoceros lauderi</i> Ralfs	[35,100,103]	Ca,Car,CTP,ETP,GM,IO,SA,NWA, 96]	[9, 19, 20, 21, 41, 75, 79, 85, 90, 96]
<i>Chaetoceros lorenzianus</i> Grunow	[NR]	GM,IO	[19, 90, 96]
<i>Chaetoceros messanensis</i> Catrascano	[NR]	Car,IO,GM	[19, 79, 88, 96]
<i>Chaetoceros pelagicus</i> Cleve	[103]	Car,EC,ETP	[20, 21, 72]
<i>Chaetoceros pendulus</i> Karsten	[35,103]	Ca,NWA	[75, 85]
<i>Chaetoceros perpusillus</i> Cleve	[35,100,103]	Car,CTP,ETP,GM,IO,NWA	[19, 20, 41, 79, 85, 90, 96]
<i>Chaetoceros peruvianus</i> Brightwell	[35,100,103]	Ca,ETP,IO,NEA,NWA,SEP	[3, 10, 20, 75, 85, 90]
<i>Chaetoceros radicans</i> Schütt			

(continued)

Species List 1.2 (continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
<i>Chaetoceros rostratus</i> Lauder	[100,103]	Ca,Car,IO,NWA	[75, 79, 85, 90]
<i>Chaetoceros simplex</i> Ostensfeld	[35,103]	NEA,NWA	[10, 85]
<i>Chaetoceros socialis</i> Lauder	[35,100,103]	EC,ETP,GM,IO,NEA,NWA,SEP	[3, 10, 20, 72, 85, 88, 96]
<i>Chaetoceros subtilis</i> Cleve	[100,103]	EC,NEA,NWA	[10, 65, 72, 85]
<i>Chaetoceros wighamii</i> Brightwell	[NR]	IO,NWA,SEP	[3, 85, 96]
<i>Climacodinium frauenfeldianum</i> Grunow	[100]	ETP,GM,IO	[20, 88, 90, 96]
<i>Ditylum brightwellii</i> (West) Grunow	[100]	Car,EC,ETP,IO,NEA,SA	[9, 10, 20, 21, 72, 96]
<i>Eucampia cornuta</i> (Cleve) Grunow	[100]	Car,ETP,GM,IO,SEP	[20, 21, 78, 90, 96]
<i>Eucampia zodiaca</i> Ehrenberg	[NR]	Car,ETP,GM,IO,SA,SEP	[3, 9, 19, 20, 21, 90, 96]
<i>Eupodiscus radiatus</i> Bailey	[103]	Car	[77]
<i>Helicotheca tamensis</i> (Shrubsole) Ricard Syn. <i>Streptotheca tamensis</i> Shrubsole	[NR]	Car,GM	[19, 21, 37, 77, 88]
<i>Hemitaulus hauckii</i> Grunow	[100,103]	Car,EC,ETP,GM,IO,Med	[7, 19, 20, 65, 72, 78]
<i>Hemitaulus membranaceus</i> Cleve	[100,103]	Car,EC,ETP,GM,IO	[19, 72, 78, 88]
<i>Hemitaulus sinensis</i> Greville	[100,103]	Car,GM,IO,Med	[19, 20, 20, 21, 78, 90, 96]
<i>Hemidiscus cuneiformis</i> Wallich	[NR]	CTP,GM,IO,Med,SA	[9, 19, 21, 41, 90]
<i>Ishmitia nervosa</i> Kützing	[NR]	EC,IO	[18, 96]
<i>Lithodesmium undulatum</i> Ehrenberg	[NR]	GM,IO,NEA	[19, 65, 88, 96]
<i>Odoniella aurita</i> Agardh	[NR]	Car,GM,IO,NEA,SEP	[3, 10, 19, 21, 78, 88, 90]
Syn. <i>Biddulphia aurita</i> (Lyngbye) Brevisson & Godey	[103]	EC,IO,SEP	[3, 72, 96]
<i>Odoniella longicurvis</i> (Greville) Hoan	[100,103]	Ca,Car,EC,GM,IO,Med,NEA	[8, 19, 20, 36, 72, 78, 90, 96]
<i>Odoniella mobilensis</i> Grunow	[NR]	GM,IO,NEA	[19, 65, 90, 96]
Syn. <i>Biddulphia mobilensis</i> Bailey	[NR]		
<i>Odoniella rhombus</i> (Ehrenberg) Kützing	[NR]	Car,IO	[21, 90]
Syn. <i>Biddulphia rhombus</i> (Ehrenberg) Smith	[NR]	Car,EC,GM,IO,NEA	[8, 19, 21, 72, 96]
<i>Roperia tessellata</i> (Roper) Grunow	[NR]	GM	[19]
<i>Trigonium alternans</i> (Bailey) Mann	[NR]		
Syn. <i>Biddulphia alternans</i> (Bail.) V.H.	[NR]		
<i>Terpsinoe musica</i> Ehrenberg	[100,103]	Car,EC,ETP,GM,IO,NEA,SA, SEP	[3, 8, 9, 19, 20, 72, 80, 90, 96]

Order FRAGILARIALES

Asterionellopsis glacialis (Cattrasane) Round Syn.
Asterionella japonica Gran.

<i>Asterionellopsis kariana</i> (Grunow) Round	[NR]	Ca, Car, NEA	[21, 65]
<i>Bleakeleya notata</i> (Grunow) Round	[NR]	Ca, Med, NEA	[20, 75, 91]
Syn. <i>Asterionella bleakeleyi</i> W. Smith, <i>Asterionella formosa</i> var. <i>bleakeleyi</i> Van Heurck			
<i>Climacosphenia moniligera</i> Ehrenberg	[NR]	Car, GM, IO	[21, 80, 88, 96]
<i>Grammatophorta marina</i> (Lyngbye) Kützing	[NR]	Car, GM, IO, SEP	[3, 80, 90]
<i>Lioloma pacificum</i> (Cupp) Hasle	[100, 103]	Car, EC, GM, IO, Med	[19, 20, 72, 80, 88, 90]
Syn. <i>Thalassiothrix mediterranea</i> Pavillard			
<i>Rhabdonema adriaticum</i> Kützing	[NR]	Car, GM, IO, Med, NEA, NEP	[65, 80, 88, 90]
<i>Siratella unipunctata</i> (Lyngbye) Agardh	[NR]	Car, GM, SA	[9, 19, 80]
<i>Thalassonema frauenfeldii</i> (Grunow) Haelegraaff	[100, 103]	Car, EC, GM, IO, NEA, SEP	[3, 19, 21, 29, 65, 72, 80, 90, 96]
Syn. <i>Thalassiothrix frauenfeldii</i> Grunow			
<i>Thalassonema nitzschoides</i> (Grunow)	[100, 103]	Car, CNP, CTP, ETP, GM, IO, Med, NEA, SA, SEP	[3, 9, 10, 19, 20, 21, 41, 80, 90, 96, 101]
Mereschkowsky.			
Syn. <i>Thalassiothrix nitzschoides</i> Grunow			
<i>Thalassonema nitzschoides</i> var. <i>parva</i> Heiden & Kolbe	[100, 103]	n.a.	n.a.
<i>Thalassonema pseudonitzschoides</i> (Schuette & Schrader) Hasle	[NR]	TP	[44]
Class BACILLARIOPHYCEAE			
Order BACILLARIALES			
<i>Achnanthes longipes</i> Agardh	[103]	Car, EP, GM, NEA	[8, 65, 72, 88]
<i>Amphora</i> spp.	[NR]	n.a.	[90]
<i>Bacillaria paxillifer</i> (Müller) Hendey	[100, 103]	Car, GM, IO, NEA, NWP	[19, 21, 65, 72, 87, 90, 96]
Syn. <i>Nitzschia paradoxa</i> (Gmel.) Grun.			
Syn. <i>Bacillaria paradoxa</i> Gmelin			
<i>Coocconeis placentula</i> Ehreberg	[NR]	Car, EC, IO	[21, 72, 90]
<i>Cylindrotheca closterium</i> (Ehrenberg) Reinman & Lewin.	[100, 103]	Car, EC, CNP, ETP, GM, IO, Med, NEA, SA, SEP	[3, 9, 10, 19, 20, 21, 72, 90, 96, 101]
Syn. <i>Nitzschia closterium</i> (Ehrenberg) W. Smith			
<i>Entomoneis alata</i> (Ehrenberg) Ehrenberg	[NR]	Car	[8]
<i>Haslea gretharum</i> Simonsen	[103]	IO	[90]

(continued)

Species List 1.2 (continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
<i>Haeslea wawrikae</i> (Hustedt) Simonsen. Syn. <i>Navicula wawrikae</i> Hustedt	[100,103]	Car,GM,IO	[82, 87, 90]
<i>Navicula membranacea</i> Cleve	[100,103]	ETP,GM,NEA	[20, 65, 87]
<i>Nitzschia bicapitata</i> Cleve	[100,103]	CNP,CTP,IO	[41, 90, 101]
<i>Nitzschia bilobata</i> Wm. Smith	[100]	Car	[21]
<i>Nitzschia longissima</i> (Brebisson) Ralfs	[100,103]	Car,ETP,GM,IO,SEP	[3, 19, 20, 21, 96]
<i>Nitzschia pacifica</i> Cupp	[100]	CTP	[41]
<i>Nitzschia panduriformis</i> Greg.	[NR]	GM,IO	[87, 96]
<i>Nitzschia plana</i> Wm. Smith	[NR]	n.a.	n.a.
<i>Pachyneis gertlachi</i> Simonsen	[103]	IO	[90]
<i>Plagiotropis subalata</i> (Cleve) Paddock	[NR]	IO	[90]
Syn. <i>Tropidoneis maxima</i> var. <i>subsalsae</i> Cleve			
<i>Pleurosigma angulatum</i> Wm. Smith	[103]	Car,EC,GM	[8, 21, 72, 88]
<i>Pleurosigma elongatum</i> Wm. Smith	[100,103]	IO	[96]
<i>Pleurosigma nicobaricum</i> Grunow	[103]	EC	[18]
<i>Psammodyctyon panduriforme</i> (Gregory) Mann Syn. <i>Nitzschia panduriformis</i> Gregory	[103]	Car	[21]
<i>Pseudo-nitzschia delicatissima</i> (Cleve) Heiden. Syn. <i>Nitzschia delicatissima</i> Cleve	[100]	Ant,NEA,SA,SEP	[9, 10, 45, 64, 86]
<i>Pseudo-nitzschia fraudulenta</i> Cleve.	[100,103]	SE	[86]
Syn. <i>Nitzschia fraudulenta</i> Cleve			
<i>Pseudo-nitzschia lineola</i> (Cleve) Hasle.	[NR]	Ant,SEP	[39, 86]
Syn. <i>Nitzschia lineola</i> Cleve			
<i>Pseudo-nitzschia pungens</i> (Grunow ex Cleve) Hasle.	[NR]	Au,Car,CTP,EC,GM,SA,SEP	[9, 19, 21, 30, 40, 41, 72, 86, 88]
Syn. <i>Nitzschia pungens</i> Grunow ex Cleve			
<i>Pseudo-nitzschia subfraudulenta</i> (Hasle) Hasle. Syn. <i>Nitzschia subfraudulenta</i> Hasle	[103]	GM,IO	[90, 39]
<i>Surirella fastuosa</i> (Ehrenberg) Kützing	[100,103]	Car,GM,IO	[19, 21, 88, 90]

DINOPHYTA

Class DINOPHYCEAE

Order PROROCENTRALES

- Prorocentrum aporum* (Schiller) Dodge [NR] Car,Med,NEA,TA,TP [23]
- Prorocentrum balticum* (Lohmann) Loeblich III Syn. [99,100,104] Ca,EPGM,NEA,NWA,SWA, NWP,NEP
- Exuviaella baltica* Lohmann [NR] Au,Ca,Med,NEA,NWA,NWP,SWA [5,23,47,48,52,66]
- Prorocentrum compressum* (Bailey) Abé ex Dodge [NR] BI,Ca,Med,TA,TP,NWA,NWP [22,23,52,53,66]
- Prorocentrum dentatum* Stein [NR] Ca,Ca,Med,NEA,NWA,SWA,TP [5,21,22,23,48,52,53,66]
- Prorocentrum gracile* Schütt [35,99,100] Au,Ca,Car,EC,GM,NEA [21,23,30,48,52,63,66,72]
- Prorocentrum lima* (Ehrenberg) Dodge [NR] Ca,Car,EP,IO,Med,GP,TP [21,22,23,36,41,52,53,66]
- Prorocentrum maximum* (Gourret) Schiller [99] Syn. *Prorocentrum mexicanum* Osorio-Tafall
- Prorocentrum micans* Ehrenberg [35,99,100] Ca,Car,Med,SA,SEP,SWA,TP [2,5,9,20,21,52,53,66,76]
- Prorocentrum minimum* (Pavillard) Schiller [NR] Au,Ca,Car,Med,NEP,NWP,NWA,SWA,TP [6,21,22,23,27,30,53,61,63]
- Prorocentrum rostratum* Stein [NR] Au,Ca,Car,IO,Med,TA,TP,SWA [5,21,22,23,48,52,53,66]
- Prorocentrum triestinum* Schiller [NR] BI,Med,NWA,NWP,SEA,TP [21,22,23,53,69]
- Order DINOPHYSIALES**
- Amphisolenia bidentata* Schröder [NR] Ca,Car,TP,TA,TP [21,48,52,66]
- Dinophysis acuta* Ehrenberg [NR] Au,Ca,Car,GM,Med,NEA,SWP [10,12,21,23,30,63,84]
- Dinophysis caudata* Saville-Kent. [35,99,100] Ca,Car,GM,Med,NEA,SWA,TA [5,6,19,20,21,51,52,64,66]
- Syn. *Dinophysis homunculus* Stein
- Dinophysis fortii* Pavillard [NR] Ca,Med,SA,SWA,SWP,TA,TP [5,9,12,48,52,66]
- Dinophysis hastata* Stein [NR] Ca,Car,BI,GM,TA,TP,NEA,SWA [5,21,52,66,84]
- Dinophysis ovum* Schütt [99] Ca,Car,NEA,NWA,SWA,SWP [12,21,23,52,66]
- Dinophysis tripos* Gourret [NR] Ca,Car,GM,NWA,SWA,SWP [5,6,12,19,21,51,52,66]
- Ornithocercus magnificus* Stein [NR] Ca,Car,Med,GM,TA,TP [21,48,52,66,83]
- Phalacroma mitra* Schütt [NR] Car,SWA [5,21]
- Phalacroma rotundatum* (Claparede & Lachmann) Kofoid & Michener [99] Au,Car,NEA,NWP,NWA,SA,SWA,SWP [5,9,10,12,13,21,30]
- Syn. *Dinophysis rotundata* Claparede & Lachmann
- Order GONYAULACALES**
- Alexandrium catenella* (Whedon & Kofoid) Balech [100,104] Au,Ca,NEP,NEA,NWA,NWP, NWA,SA,SEP,TP [6,9,23,30,52,106]

(continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
<i>Gonyaulax catenella</i> Whedon & Kofoid			
<i>Alexandrium monilatum</i> (Howell) Balech	[99,100,104]	Ca,Ca,Car,GM,NWA,SEP	[6, 21, 52, 54, 66, 105]
Syn. <i>Gessnerium monilatum</i> (Howell) Loeblich			
<i>Amylax triacanta</i> (Jörgensen) Sournia	[NR]	Ca,Car,NEA	[10, 21, 23, 52, 66]
Syn. <i>Gonyaulax triacanta</i> Jörgensen			
<i>Ceratium azoricum</i> Cleve	[NR]	Ca,Car,IO,Med,NEA,SEP,SWA, SWP,TP	[5, 8, 20, 21, 23, 46, 48, 52, 66]
<i>Ceratium candelebrum</i> (Ehrenberg) Stein	[100]	Ca,Car,EP,Med,NEA,TA,SWA	[5, 20, 21, 23, 41, 48, 52, 66]
<i>Ceratium dens</i> Ostenfeld & Schmidh	[NR]	Au,Ca,SA,SWA,TP	[5, 9, 16, 47, 48, 108]
<i>Ceratium furca</i> Claparede & Lachmann	[35,100]	Au,Ca,Car,GM,IO,Med,NWA,SA, SEA,SWA	[5, 9, 19, 20, 21, 46, 52, 66]
<i>Ceratium furca</i> var. <i>hircus</i> (Schöeder) Margaleff ex Sournia	[NR]	Ca,Car,GM,SWA	[5, 52]
<i>Ceratium fuscus</i> (Ehrenberg) Dujardin	[35,100]	Ca,Car,EP,GM,Med,NEA,TA,TP, SWA	[5, 10, 19, 20, 21, 41, 52, 66]
<i>Ceratium kofoidii</i> Jörgensen	[NR]	Ca,Car,TP,SWA	[5, 21, 52, 66]
<i>Ceratium lineatum</i> (Ehrenberg) Cleve	[100]	Au,Ca,Car,BI,NEA,NWA,SA, SEA,SEP,SWA	[5, 9, 21, 23, 46, 48, 52, 66]
<i>Ceratium macroeros</i> (Ehrenberg) Vanhöffen	[100]	Ca,Car,BI,GM,NEA,SWA,TA,TP	[5, 19, 21, 23, 48, 52, 66,]
<i>Ceratium massiliense</i> (Gourret) Jörgensen	[NR]	Ca,Car,GM,IO,Med,NEA,SEP, SEA,SWA,SWP	[5, 19, 20, 21, 23, 46, 48, 52, 66]
<i>Ceratium minutum</i> Jörgensen	[NR]	Au,Ca,Med,NEA,NWA	[7, 23, 52, 66]
<i>Ceratium pentagonum</i> Gourret	[NR]	Ca,Car,EP,GM,Med,SWA	[5, 19, 20, 21, 41, 48, 52, 66]
<i>Ceratium tripos</i> (Müller) Nitzsch	[100]	Ca,Car,GM,Med,NEA,SEP,SWA	[5, 19, 20, 21, 46, 48, 52, 66]
<i>Ceratocorys horrida</i> Stein	[NR]	Ca,Car,Med,SWA,TA	[5, 20, 21, 52, 66]
<i>Gonyaulax digitale</i> (Pouch.) Kofoid	[35,99]	Au,Ca,Car,Med,NEA	[10, 20, 21, 23, 52, 66, 108]
<i>Gonyaulax grindleyi</i> Reinecke	[99]	Ca,Med,NEA,SEA,SWA	[5, 7, 23, 52, 66]
Syn. <i>Protoceratium reticulatum</i> (Claparede & Lachmann) Butschli.			
<i>Gonyaulax polygramma</i> Stein	[99]	Au,Ca,Car,EP,GM,IO,Med,NEA, TA,TP,SWA	[5, 20, 21, 30, 41, 46, 52, 66, 94]

<i>Gonyaulax spinifera</i> (Claparede & Lachmann) Diesing	[99]	Ca,EC,NEA,Sa,SWA,TP,TA	[5, 9, 10, 23, 52, 66, 72]
<i>Gonyaulax turbynei</i> Murray & Whiting	[NR]	Au,NEA,SWA	[5, 23, 108]
<i>Lingulodinium polyedrum</i> (Stein) Dodge Syn. <i>Gonyaulax polyedra</i> Stein	[99]	Ca,Car,Med,NEA,Sa,SWA,TP	[2, 5, 7, 9, 10, 20, 23, 27, 47, 52, 66]
<i>Oxytoxum scolopax</i> Stein	[NR]	EPGM,NEA,SWA,SWP	[5, 19, 23, 41, 82]
<i>Pyrocystis lunula</i> (Schütt) Schütt	[NR]	Ca,Med,SWA	[5, 20, 23, 52, 66]
<i>Pyrocystis noctiluca</i> Murray ex Schütt Syn. <i>Pyrocystis pseudonocitluca</i> Wyville-Thompson	[NR]	Ca,Med,NEA,SWA,SEA	[5, 20, 23, 52, 65, 66]
<i>Pyrodinium bahamense</i> var. <i>compressum</i> (Böhm) Steidinger Tester & Taylor	[35,72,99,100]	Au,Ca,Car,IO,SWP,TP	[4, 30, 52, 66, 70]
<i>Pyrodinium bahamense</i> var. <i>bahamense</i> (Plate)	[NR]	Car	[4, 21]
<i>Pyrophacus horologium</i> Stein	[NR]	Au,BI,Ca,Car,GM,Med,NEA, SEA,SWA	[5, 20, 21, 23, 46, 52, 53, 66]
Order GYMNODINIALES			
<i>Akashiwo sanguinea</i> (Hirasaka) Hansen & Moestrup Syn. <i>Gymnodinium sanguineum</i> Hirasaka	[NR]	Au,BI,Ca,Car,GM,Med,NEA,	[7, 23, 27, 30, 48, 52]
<i>Gymnodinium splendens</i> Lebour			
<i>Cochlodinium catenatum</i> Okamura	[35,100]	NWP,NEP	[59]
<i>Gymnodinium catenatum</i> Graham	[100,104]	Au,Ca,Car,NEA,TP,NEP,NWP, SEP,SWA	[5, 21, 27, 30, 52, 62, 63, 66]
<i>Gymnodinium biconicum</i> Schiller	[NR]	Au	[31]
<i>Gymnodinium micrum</i> (Leadbeater & Dodge) Loeblich	[99]	NEA	[23]
<i>Gymnodinium paulseni</i> Pavillard	[NR]	Med	[7]
<i>Gymnodinium sanguineum</i> Hirasaka Syn. <i>Gymnodinium splendens</i> Lebour	[NR]	Au,BI,Ca,Car,GM,NEA	[7, 23, 31, 66]
<i>Gymnodinium simplex</i> (Lohman) Kofoid & Swezy	[NR]	Ca,Med,NEA	[7, 23, 52]
<i>Gymnodinium veneficum</i> Ballantine	[99]	NEA,NWA,SWA	[6, 23]
<i>Gyrodinium fusiforme</i> Kofoid & Swezy	[NR]	Car,NEA	[21, 23]
<i>Gyrodinium insiriatum</i> freudenthal & Lee	[99]	NEA,NWA,NWP	[25, 97]
<i>Gyrodinium spirale</i> (Bergh) Kofoid & Swezy Syn. <i>Gymnodinium spirale</i> Bergh	[NR]	Ca,Car,GM,Med,NEA,NEP	[21, 52, 59, 66]
<i>Gyrodinium estuariale</i> Hulburt	[NR]	EC,NEA,NWA	[55, 72, 95]
<i>Polykrikos kofoidii</i> Chatton	[NR]	NEA,NWA,SEP	[11, 23, 76]

(continued)

Species List 1.2 (continued)	Reports for C.R. ^a	World reports ^b	References for world reports ^c
Species and common synonyms			
Order NOCTILUCALES			
<i>Noctiluca scintillans</i> (Macartney) Ehrenberg	[35]	Au,Ca,Car,Med,NEA,SA,SEP,SWA,SWP NEA,SA	[5, 9, 20, 21, 23, 30, 52, 63] [9, 23]
<i>Spatulodinium pseudonoclituca</i> (Pouchet) Cachon & Cachon	[NR]		
Order PERIDINIALES			
<i>Blepharocysta splendormaris</i> (Ehrenberg) Ehrenberg	[99]	Car,NEA	[21, 23]
<i>Diplopsalis lenticula</i> Bergh	[NR]	Au,EC,Med,NEA	[7, 23, 72, 108]
<i>Diplopelma asymmetrica</i> (Manguin) Lebour	[99]	Ca,Car,EC,SWA	[5, 21, 47, 52, 66, 72]
Syn. <i>Dissodinium assimetricum</i> (Manguin) Loeblich			
<i>Heterocapsa niei</i> (Loeblich) Morrill	[NR]	Ca,GM	[24, 49, 67]
Syn. <i>Cachonima niei</i> Loeblich			
<i>Heterocapsa rotundata</i> (Lohmann) Hansen	[NR]	Car,NEA	[23, 109]
Syn. <i>Katodinium rotundatum</i> (Lohmann) Fott			
<i>Heterocapsa triquetra</i> (Ehrenberg) Balech	[NR]	Ca,EC,Med,NEA,SWA	[5, 7, 10, 23, 25, 52, 72]
Syn. <i>Peridinium triquetrum</i> (Ehrenberg) Lebour			
<i>Oxytoxum scolopax</i> Stein	[NR]	Ca,ETP	[41, 52, 66]
<i>Podolampas palmipes</i> Stein	[NR]	Ca,Car,EP,Med,NEA,SWA	[5, 10, 20, 21, 23, 41, 48, 52, 66]
<i>Proteridinium abei</i> (Paulsen) Balech	[NR]	Ca,Car,TP	[21, 48, 52, 66]
<i>Proteridinium bispinum</i> (Schiller) Balech	[NR]	NEA,SWA	[5, 92]
<i>Proteridinium cassum</i> (Balech) Balech	[NR]	GM,Med,SWA	[5]
<i>Proteridinium claudicans</i> (Paulsen) Balech	[NR]	Ca,Car,IO,Med,NEA,NWA,SEP,SWA	[5, 20, 21, 23, 48, 52, 66]
<i>Proteridinium conicum</i> (Gran) Balech	[99]	AU,Ca,Car,Med,NEP,NEA,NWA,SWA	[5, 10, 20, 21, 46, 49, 52, 66]
Syn. <i>Proteridinium biconicum</i> Dangeard & Balech			
<i>Proteridinium depressum</i> (Bailey) Balech	[99]	Ca,Car,GM,IO,Med,NEA,SA,SWA	[5, 7, 9, 10, 19, 21, 46, 49]
<i>Proteridinium divergens</i> (Ehrenberg) Balech	[NR]	Ca,Car,Med,NEA,SWA	[5, 10, 20, 21, 23, 48, 49]

<i>Protoperidinium elegans</i> (Cleve) Balech	[NR]	Ca, Car, TA, TP, SWA	[5, 21, 48, 49, 52, 66]
<i>Protoperidinium excentricum</i> (Paulsen) Balech	[100]	Ca, IO, NEA, SA, SEPSWA, SWP	[5, 23, 46, 49]
<i>Protoperidinium leonis</i> (Pavillard) Balech	[NR]	Ca, Car, IO, Med, NEA, SEP	[21, 46, 48, 52, 66]
<i>Protoperidinium mediterraneum</i> (Kofoid) Balech	[99]	Ca	[49]
<i>Protoperidinium ovum</i> (Schiller) Balech	[NR]	Au, Ca, Med, SWA	[5, 20, 52, 66, 108]
<i>Protoperidinium pentagonum</i> (Gran) Balech	[99]	Ca, Med, NEA, SWA	[5, 7, 10, 23, 48, 49, 66]
<i>Protoperidinium punctulatum</i> (Paulsen) Balech	[99]	AU, Ca, Car, Med, NEA, SA, SWA	[5, 9, 20, 21, 46, 49]
<i>Protoperidinium pyriforme</i> (Paulsen) Balech	[99]	Ca	[49]
<i>Protoperidinium quamerense</i> (Schröder) (Ballech)	[99]	Ca, Car, Med, NEA, SA, SWA	[5, 7, 9, 21, 23, 49]
Syn. <i>Peridinium globulium</i> (Stein) Ballech	[99]	Ca, Car, NEA, SWA	[5, 21, 23, 48, 49, 66]
<i>Protoperidinium quinquecorne</i> Abé	[99]	Car, NEA, NWP	[21, 23, 92]
<i>Protoperidinium solidicorne</i> (Manguin) Balech	[NR]	Car, IO, SWA, TA, TP	[5, 21]
<i>Protoperidinium steinii</i> (Jørgensen) Balech	[NR]	Ca, IO, Med, NEA, NWP	[10, 21, 46, 48]
<i>Protoperidinium venustum</i> (Matzenauer) Balech	[99]	Ca	[49, 66]
<i>Scrippsiella trochoidea</i> (Stein) Loeblich III	[100]	Au, Ca, Car, Med, NEA, SA, SEP, SWA	[5, 9, 10, 20, 21, 30, 46, 48, 52, 76]
CYANOBACTERIA			
<i>Anabaena</i> sp.	[NR]	NWP	[25]
<i>Johannesbaptistia pellucida</i> (Dickie) Taylor & Drouet	[NR]	NWA	[73]
<i>Merismopedia</i> sp. colonies	[NR]	n.a.	n.a.
<i>Trichodesmium erythraeum</i> (Ehrenberg) Gomont	[NR]	GM	[19]
Class PRYMNESIOPHYCEAE			
<i>Phaeocystis pouchetti</i> (Hariot) Lagerheim	[NR]	Ant, Au, NA, NEA, NWA, NWPTA	[8, 25, 28, 30, 57, 63]
Class RAPHIIDOPHYCEAE (Chloromonadophyceae)			
<i>Chlattonella marina</i> (Subrahmanyam) Hara & Chihara	[NR]	NWP	[25]
Class DICTYOCOPHYCEAE (Silicoflagellates)			
<i>Dityocha fibula</i> Ehrenberg	[100, 104]	Au, EC, CNP, Med	[7, 26, 71, 101]
<i>Dityocha speculum</i> Ehrenberg	[NR]	Au, Med	[7, 63, 69]
Syn. <i>Distephanus speculum</i> (Ehrenberg) Haeckel			

(continued)

Species List 1.2 (continued)

Species and common synonyms	Reports for C.R. ^a	World reports ^b	References for world reports ^c
Phylum NEOMONADA			
Class EBRIDEA			
<i>Elbria tripartita</i> (Schumann) Lemmermann	[NR]	EC, GM, Med, NWP, TP, NWP	[25, 33, 60, 72]
<i>Hermesinium adriaticum</i> Zacharias	[NR]	EC, GM, NWP, TP	[33]
Phylum PROTOZOA			
Class CILIATA			
Order GYMNOSTOMATIDA			
<i>Myrionecta rubra</i> (Lohmann) Jankowski	[100, 104]	Au, Ca, NEA, NWA, SEP, SWP	[14, 30, 56, 58, 74, 93, 107]
Syn. <i>Mesodinium rubrum</i> (Lohmann) Jankowski			
Syn. <i>Halteria pulex</i> Claparède & Lachmann			

^a NR = New record.

^b Ant = Antarctic, Au = Australia, BI = British Isles, Ca = Gulf of California and Pacific coast of México, Car = Caribbean, EC = East c coast of USA, CNP = Central North Pacific, CTP = Central Tropical Pacific, ETP = Eastern Tropical Pacific, GP = Gulf of Panamá, IO = Indian Ocean, GM = Gulf of México, Med = Mediterranean and adjacent seas, NEA = North Eastern Atlantic, NEP = North Eastern Pacific, NWA = North Western Atlantic, NWP = North Western Pacific, SA = South Africa, SWA = South Western Atlantic, SEP = South Eastern Pacific, SWP = South Western Pacific, TA = Tropical Atlantic, TP = Tropical Pacific

^c References are indicated by numbers according to the reference list.

Species List 2.1 Marine benthic algae and Cyanobacteria reported from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Phylum CHLOROPHYTA					
Order CHAETOPHORALES					
Family CHAETOPHORACEAE					
<i>Pringsheimiella scutata</i> (Reinke) Höhnelt ex Marchewianka (as <i>P. "scuttata"</i>) (13 as <i>P. udoteae</i> (Børgesen) Taylor)	NEA,M,SEA,NWA, C,NWP,NEP,I	B	To 7 m	Epiphytic	[8, 13, 15, 16]
Order ULYALES					
Family ULVACEAE					
* <i>Enteromorpha lingulata</i> J. Agardh	CEP,NEA,M,SWA, SWP,NWP,I	G,P	Intertidal in shallow calm water	Mangrove prop roots, sunken logs, dead coral and other hard substrates or epiphytic	[3, 6-8, 13, 16, 23, 24, 26, 27, 31]
<i>Ulva chaetomorphoides</i> (Børgesen) Hayden, Blomster, Maggs, P.C. Silva, M.J. Stanhope & J.R. Waaland (6, 8, 13, 15, 16, 19, 23 as <i>Enteromorpha chaetomorphoides</i> Børgesen)	NEA,C,NWP,SWP,SWA	B	Intertidal to 10m, calm water	Mangrove prop roots, epiphytic, and tangled with other algae	[6, 8, 13, 15, 16, 19, 23]
<i>Ulva fasciata</i> Delile	NEA,SEA,M,C,SWA, HW,NWP,SWP,SEP, NEP,IAA		Intertidal to 10m	Hard substrates	[6, 8, 13, 16, 23, 27]
* <i>Ulva flexuosa</i> Wulfen (as <i>Enteromorpha flexuosa</i> (Wulfen) J. Agardh)	NEA,SEA,M,C,SWP, I,AA,NEP,SEP, NWA,RS,NWP,CEPA	B,G,P	Intertidal to 5 m	Mangrove prop roots, wood, or epiphytic in brackish water of estuaries	[1, 3, 6, 8, 13, 15, 16, 19, 23, 24, 26, 27, 35]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Ulva kyllini</i> (Bilding) Hayden, Blomster, Maggs, P.C., Silva, M.J., Stanhope & J.R. Waaland (as <i>Enteromorpha kyllini</i> Bilding)	NEA,M,I,SWP,AA	ES	Upper intertidal, within fresh water influence	Rocks	[5, 6, 8, 13]
* <i>Ulva lactuca</i> Linnaeus	SEA,NEA,M,NWA, C,SWA,RS,NWP,SWP,CEP, SEP,IAA,A,RS	G,P	Intertidal to 10m, protected calm water	Coral rubble, hard substrates (often in shallow coves or harbors)	[1, 3, 6-8, 13, 16, 23, 24, 26, 27, 31, 35]
Family ULVELLACEAE					
<i>Ulva lens</i> P.L. Crouan & H.M. Crouan	NEA,SEA,M,C,NWA,NWP,SWP, SEP,CEP,NEPI,AA	B	Intertidal to 2 m	Epiphytic or on shells	[8, 15, 16, 19, 23]
Order CLADOPHORALES					
Family ANADYOMENACEAE					
<i>Anadyomene stellata</i> (Wulfen) C. Agardh	NEA,SEA,SWA,C,M,I,SWP, AA,A	B,H,I,N,P	Lower intertidal to 90 m	Mangrove prop rocks, coral, rocks, or other hard substrates	[6-8, 13, 15-17, 19-21, 23, 31, 35]
Family CLADOPHORACEAE					
* <i>Chaetomorpha antennina</i> (Bory de Saint-Vincent) Kützing (5, 6, 7, 23, 27 as <i>C. media</i> (C.Agardh) Kützing)	NEA,SEA,SWA,C,RS,I,NWP, CEP,SWP,AA,HW,NWA	ES,G,N,P	Intertidal, wave- beaten	Rocks	[1, 5-8, 16, 23, 24, 35]
<i>Chaetomorpha brachygonia</i> Harvey	SEA,NWA,SWA,C,I,NWP, NEP,SWP,HW,AA	P	Shallow, in calm water	Tangled with other algae	[8, 7, 23, 35]
<i>Chaetomorpha crassa</i> (C. Agardh) Kützing	NEA,SWA,C,M,RS,I, NWP,SWP,AA,A	B	Intertidal to 50 m	Tangled with other algae on man- grove prop roots or soft bottom	[8, 15, 16, 23]
<i>Chaetomorpha</i> <i>gracilis</i> Kützing	NEA,SEA,NWA,SWA, C,M,I,NWP,SWP,AA,A	P	Intertidal	Hard substrates	[6, 8, 13, 16, 23, 27, 35]

<i>Chaetomorpha indica</i> (Kützing) Kützing	RS,I,SWP,CEP,HW,AA	P	Shallow	Rocks	[4, 6, 8, 13]
<i>Chaetomorpha linum</i> (O.F. Müller) Kützing	NEA,SEA,NWA,C,M, SWA,RS,I,NWP,NEP, SWP,CEP,SEP,AA,A	B,P	To 3 m	In high nutrient areas	[6–8, 13, 15, 16, 23, 27, 35]
<i>Cladophora coelothrix</i> Kützing (7 as <i>C. repens</i> (J. Agardh) Harvey)	NEA,SWA,C,M,RS,I, SWP,CEP,AA	P	Shallow	Dead coral; rocks	[7, 8, 13, 23, 35]
* <i>Cladophora prolifera</i> (Roth) Kützing	NEA,SEA,NWA,SWA, C,M,RS,I,SWP,CEP,AA	B,ES	To 70 m	Fixed or floating; eutrophic environ- mental conditions	[3, 5, 8, 15, 16, 23, 24, 26]
<i>Cladophora vagabunda</i> (Linnaeus) Hoek (6 as <i>C. fascicularis</i> (Mertens ex C. Agardh) Kützing)	NEA,SEA,SWA,NWA, M,RS,C,NWP,NEP,HW, SEP,SWP,I,AA	B	Subtidal to 2 m	Rocks, tree trunks or other hard surfaces	[6, 8, 13, 15, 16, 23, 31]
<i>Rhizoclonium africanum</i> Kützing (6, 7, 13, 21 as <i>R. hookeri</i> Kützing)	NEA,SEA,C,I,SWP, HW,AA	N,P	Intertidal	Hard substrates	[6–8, 13, 21, 23, 35]
* <i>Rhizoclonium riparium</i> (Roth) Harvey	NEA,SEA,NWA,SWA, C,M,I,NWP,NEP,SWP, CEP,HW,AA,A	B,G	Intertidal to 1 m	Rocks or other hard surfaces	[1, 6, 8, 15, 16, 18, 23, 31]
* <i>Rhizoclonium implexum</i> (Dillwyn) Kützing (13, 4, 7 as <i>R. kochianum</i> Kützing; 23, 6, 31 as <i>R. "kochi- anum"</i> Kützing; 1, 6, 13, 31 as <i>R. kernerii</i> Stockmayer)	SEA,NWA,SWA,C,RS,I,AA, CEP,SWP,NEA,M,CWP	G,P	Intertidal to 2 m	n.a.	[1, 4, 6–8, 13, 23, 31]
* <i>Rhizoclonium tortuosum</i> (Dillwyn) Kützing (3, 26 as <i>R. lubricum</i> Setchell & N.L. Gardner)	NEA,SEA,NWA,SWA,C, M,RS,I,NWP,NEP,SWP,SEP, AA,A,CEP		Intertidal	n.a.	[3, 6, 13, 23, 26, 31]
Family BOODLEACEAE					
* <i>Phyllocladon anastomosans</i> (Harvey) Kraft & M. J. Wynne (6, 19 as <i>Struvea anastomosans</i> (Harvey) Piccone & Grunow ex Piccone)	NEA,SEA,C,I,NWP, CEP,HW,SWP,AA,RS,M	B,ES,N,P	To 1 m	Mangrove prop roots, rocks, or other hard sub- strates	[3, 5, 6, 8, 13, 16, 19, 23, 33]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Phylloctypon pulcherrimum</i> J.E. Gray (23 as <i>Struvea ramosa</i> Dickie)	NEA,C,I,SWP	2-90 m	Rocks or dead coral	[8, 14, 16, 23]	
<i>Struvea elegans</i> Børgesen	C,I,SWP,AA	2 m (13); 20-90 m, exclusively deepwater (17)	Rocks, dead coral or coral rubble	[8, 13, 14, 16]	
Family SIPHONOC LadACEAE					
<i>Chamaedoris penicillium</i> (J. Ellis & Solander) Kuntze	C,SWA	P	To 25 m	Generally on lime- stone surfaces	[8, 13, 16, 22, 23, 35]
<i>Cladophoropsis membranacea</i> (Hofman Bang ex C. Agardh) Børgesen	NEA,SEA,NWA,SWA, C,M,SWP,CEP,HW,AA	B,P	Intertidal to 10 m; calm water	Rocks, submerged wood or other hard substrates	[6-8, 13, 15-17, 19, 23, 35]
<i>Dicyosphaeria cavernosa</i> (Forsskål) Børgesen	SEA,SWA,C,RS,I,NWP, SWP,HW,AA	B,H,I,N,P	To 40 m	Rocks, dead coral	[6-8, 13, 15-20, 23, 31, 35]
<i>Ventricaria ventricosa</i> (J. Agardh) J.L. Olsen & J.A. West (6, 19, 21, 31 as <i>Valonia ventricosa</i> J. Agardh)	SEA,C,M,I,NWP, SWP,HW,AA	B,H,I,N,P	To 80 m	Mangrove prop roots, coral frag- ments or other hard substrates	[6-8, 13, 15-21, 23, 31, 35]
Family VALONIACEAE					
<i>Ernodeopsis verticillata</i> (Kützting) Børgesen	NEA,SEA,SWA,C,M,I,SWP	B,P	To 45 m, protected bays	Mangrove prop roots or other hard substrates	[6, 8, 13, 15, 16, 23, 35]
Order BRYOPSIDALES					
Family BRYOPSIDACEAE					
<i>Bryopsis hypnoides</i> J.V. Lamouroux	NEA,SEA,NWA,C, SWA,M,RS,I,CEP, HW,SEP,AA	B,P	Lower intertidal to 1 m, wavebeaten	Mangrove prop roots, coral frag- ments and other hard substrates, or epiphytic	[7, 8, 15, 16, 18, 23, 35]

* <i>Bryopsis pennata</i> var. <i>lepreurii</i> (Kützing) Collins & Hervey	SWA,C,I,CWP	Intertidal	Rocks	[3, 6, 8, 13, 23]
<i>Bryopsis plumosa</i> (Hudson) C. Agardh	NEA,SEA,NWA,SWA, C,M,RS,I,NWP, NEP,SEP,SWP,AA	B,P	Intertidal to 1 m	Hard substrates or epiphytic [6, 8, 13, 15, 16, 18, 23, 31, 35]
<i>Trichosolen longipedicellata</i> (H.L. Blomquist & Diaz-Pifferer)	n.a.	n.a.	n.a.	[6, 8, 13, 23]
D.M. John (6, 13 as <i>Pseudobryopsis longipedicellata</i> Blomquist & Diaz-Pifferer; 23 erroneously as <i>Trichosolen duchassaingii</i> (J. Agardh) W.R. Taylor)				
Family CODIACEAE				
<i>Codium decorticatum</i> (Woodward) M.A. Howe	NEA,SEA,NWA,SWA, C,M,RS,I,CEP,HW,A	B	Lower intertidal to 15 m	Rocks or other hard substrates [6, 8, 13, 15, 16, 18]
<i>Codium intertextum</i> F.S. Collins & Hervey	NEA,SEA,SWA,C	B,H,I,P	Subtidal to 20 m	Rocks or other hard substrates [6, 8, 13, 15, 16, 18–20, 23, 27, 31, 35]
<i>Codium isthmocladum</i> Vickers	SEA,NWA,SWA,C	B,H,I,N,P	To 15 m	Mangrove prop roots, coral rubble or other hard substrates [6–8, 13, 15, 16, 20, 21, 23, 27, 31, 35]
<i>Codium taylorii</i> P.C. Silva	NEA,SEA,NWA,SWA, C,I,SWP	B	To 10 m	Mangrove prop roots, coral rubble or other hard substrates [8, 15, 16, 18, 23]
Family CAULERPACEAE				
<i>Caulerpa cupressoides</i> (Vahl) C. Agardh	NEA,SEA,SWA,C,RS,I, NWP,SWP,HW,AA	B,H,I,N,P	To 3 m	Epiphytic, rocks, sandy bottom or fine sediments (mud in mangroves) [7, 8, 13, 15–19, 21, 23, 30, 35]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Caulerpa cupressoides</i> var. <i>lycopodium</i> Weber-van Bosse	SWA,C,RS,I,NWP,SWP,AA	P	To 5 m	Sandy bottom, hard substrates, also in sea grass beds	[8, 16, 23, 35]
<i>Caulerpa cupressoides</i> var. <i>mamillosa</i> (Montagne) Weber-van Bosse	SWA,C,I,SWP,AA	H,P	To 10 m	Sandy bottom or hard substrates often present in sea grass beds	[8, 16, 20, 23, 35]
<i>Caulerpa cupressoides</i> var. <i>turneri</i> Weber-van Bosse	SWA,C	B,P	Shallow	Sand, rocks	[8, 13, 15, 30, 31]
<i>Caulerpa mexicana</i> Sonder ex Kützing	NEA,SEA,SWA,C,M,RS,I,SWP,AA	B,H,I,N,P	To 15 m, calm	Coral rubble, sandy, or muddy bottom	[8, 13, 15–21, 23, 30, 31, 35]
<i>Caulerpa microphysa</i> (Weber-van Bosse) Feldmann	C,I,NWP,SWP,CEP,HW,AA	H,P	Shallow to 110 m	Hard substrates, sandy bottom	[7, 8, 16, 17, 23, 35]
<i>Caulerpa prolifera</i> (Forsskål) J. V. Lamouroux	NEA,SEA,SWA,NWA,C,M,RS,SWP	H,I,N,P	To 15 m	Sandy bottom in seagrass beds	[8, 13, 16, 20, 22, 23, 35]
<i>Caulerpa racemosa</i> (Forsskål) J. Agardh (27 also as <i>Caulerpa racemosa</i> var. <i>uvifera</i> (C. Agardh) J. Agardh)	NEA,SWA,SEA,C,M,RS,I,CEP,SWP,AA,HW	B,N,I,P	Intertidal to 50 m	Rocks or sandy habitats	[6–8, 13, 15–19, 21, 23, 27, 31, 35]
<i>Caulerpa racemosa</i> var. <i>macrophysa</i> (Sonder ex Kützing) W.R. Taylor	SWA,C,I,RS,NWP,SWP	B,H,I,P	Shallow	Hard substrates	[8, 13, 16, 18, 20, 27, 35]
<i>Caulerpa racemosa</i> var. <i>occidentalis</i> (J. Agardh) Børgesen	C,NWP,SWP,NEP,CEP,SEP,I,AA	B,H,I,P	To 3 m	Mangrove prop roots or other hard substrates	[6, 8, 13, 16, 23, 27, 31, 35]
* <i>Caulerpa racemosa</i> var. <i>peltata</i> (J.V. Lamouroux) Eubank (23 as <i>C. racemosa</i> var. <i>laetevirens</i> (Montagne) Weber-van Bosse)	NEA,C,RS,I,NWP,SWP,CEP,AA,SWA,NWA	B,ES,H,I,P	To 80 m	Mangrove prop roots, or other hard substrates	[3, 5–8, 13, 15, 16, 18–20, 23, 24, 27, 32, 35]

<i>Caulerpa sertularioides</i> (S.G. Gmelin) M. Howe	NEA,SEA,SWA,C,RS,I, NWP,CEP,SWP,HW,AA	B,H,I,N,P	To 10 m	Sandy bottom, man- grove prop roots, often present in seagrass beds	[6-8, 13, 15-21, 23, 27, 35]
<i>Caulerpa sertularioides</i> f. <i>brevipes</i> (J. Agardh) Svedelius	SWA,C,I,SWP	P	To 4 m	Rocks	[7, 8, 23, 27, 35]
<i>Caulerpa sertularioides</i> f. <i>farlowii</i> (Weber-van Bossse) Børgesen	SWA,C,I,SWP	B	To 15 m	Coral fragments	[8, 16, 19, 23, 27]
<i>Caulerpa sertularioides</i> f. <i>longiseta</i> (Bory de Saint-Vincent) Svedelius	SWA,C,I,NWP,SWP	P	Intertidal to 10 m	Sandy or muddy bottom	[6, 8, 13, 16, 23, 27, 31, 35]
<i>Caulerpa taxifolia</i> (M. Vahl) C. Agardh	NEA,C,M,SEA,RS,I, NWP,SWP,HW,AA	B,P	To 15 m, protected to moderately wave exposed	Sandy bottom or other fine sedi- ments	[8, 13, 15, 16, 18, 35]
<i>Caulerpa verticillata</i> J. Agardh	SEA,SWA,C,I,NWP, SWP,HW,AA	B,H,I,P	To 30 m	Mangrove prop roots, coral, or other hard sub- strates, often present in sea- grass beds	[6, 8, 15-20, 23, 31, 35]
<i>Caulerpa webbiana</i> Montagne	NEA,SEA,SWA, C,RS,I,SWP,SEP,HW,AA		To 50 m	Sandy bottom, rocks, dead coral or other hard sub- strates	[8, 13, 16, 23, 30, 31]
<i>Caulerpella ambigua</i> (Okamura) Prud'homme van Reine & Lokhorst (12 as <i>Caulerpa biloba</i> Kemperman & Stegenga; 5, 6, 13, 27 as <i>Caulerpa vickersiae</i> Børgesen) Family UDOTEACEAE	SEA,C,I,NWP,SWP,AA	B,ES,P	Intertidal to 20 m, protected	Mangrove prop roots, coral rubble or other hard substrates	[5, 6, 8, 12, 13, 16, 23, 27, 35]
<i>Avrainvillea longicaulis</i> (Kützting) G. Murray & Boodle	NWA,C,SWP	B,P	Intertidal to 4 m	Sandy bottom, rocks	[6, 8, 13, 15, 16, 18, 19, 23, 31, 35]
<i>Avrainvillea nigricans</i> Decaisne	SWA,C,I,NWP,SWP	B,H,I,N,P	To 30 m	Sandy habitats	[8, 13, 15-17, 20, 21, 35]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Avrainvillea rawsonii</i> (Dickie) M.A. Howe	C,I	P	To 25 m	Sandy habitats or hard substrates	[6-8, 13, 16, 23, 31, 35]
<i>Boodleopsis pusilla</i> (F.S. Collins) W.R. Taylor, A.B. Joly & Bernatowicz	SEA,NWA,SWA,C,I, NWP,SWP,AA		Intertidal to 1 m	Fine sediments (mud)	[6, 8, 13, 16, 23]
* <i>Halimeda discoidea</i> Decaisne	NEA,SEA,C,I,NWP,CEP, SWP,HW,AA	B,H,ES,N,P	To 80 m	Coral fragments or sand-covered hard surfaces	[3, 6-8, 15, 16, 18-21, 23, 24, 26, 35]
<i>Halimeda hummii</i> D. L. Ballantine	C	P	2-15 m	Hard substrates	[22, 23, 35]
<i>Halimeda opuntia</i> (Linnaeus) J. V. Lamouroux	SWA,C,M,I,NWP,CEP,SWP, HW,AA	B,H,I,N,P	To 25 m	Sand, rocks, dead coral	[6, 8, 13, 15, 16, 18, 20, 21, 23, 27, 31, 35]
<i>Halimeda tuna</i> (J. Ellis & Solander) J. V. Lamouroux	NEA,SEA,C,M,RS,I,NWP, CEP,SWP,SEP,AA,A	B,H,I,N,P	To 70 m	Rocks or other hard substrates	[6-8, 13, 15, 16, 19, 20, 21, 23, 31, 35]
<i>Penicillus capitatus</i> Lamarck	NEA,SWA,C,M	B,H,I,N,P	To 15 m	Sandy or muddy bottom	[6-8, 13, 15-21, 23, 31, 35]
<i>Rhipidosiphon javensis</i> Montagne (13, 23, 31 as <i>Udotea javensis</i> (Montagne) A.Gepp & E.S.Gepp; 13 as <i>Udotea</i> cf. " <i>javensis</i> " Gepp)	I,SWP,HW,AA,RS,NWP		To 15 m	Coral fragments	[8, 13, 23, 31]
<i>Rhipiliopsis stri</i> (Earle & J.R. Young) Farghaly & Denizot (7 as <i>Siphonoclatirius stri</i> S.Earle & J.R.Young)	C	B,P	Intertidal to 11 m	Shells, mangrove prop roots, in seagrass beds or on limestone	[7, 8, 16, 17, 23, 35]
<i>Rhipocephalus cf. phoenix</i> (J. Ellis & Solander) Kützing	C	B,H,I,N,P	To 20 m	Rocks, sand, often in seagrass beds	[7, 8, 13, 15-17, 19, 20, 21, 35]

<i>Udotea cyathiformis</i> Decaisne									
<i>Udotea flabellum</i> (J. Ellis & Solander) M.A. Howe	C,SWA SEA,NEA,SWA,C,I,NWP, SWP,AA	B,H,I,N,P B,N,P	To 30 m To 15 m	Sandy areas Sandy areas or sea- grass beds	[8, 15-21, 23, 35] [7, 8, 13, 15-19, 21, 22, 23, 35]				
Order DASYCLADALES Family DASYCLADACEAE <i>Neomeris annulata</i> Dickie	C,RS,I,NWP,HW,SWP,AA	B,H,I,P	Intertidal to 30m	Mangrove prop roots, coral fragments or rocks	[6-8, 115, 17-20, 23, 31, 35]				
Family POLYPHYSAEAE <i>Acetabularia calyculus</i> J.V. Lamouroux	SEA,NEA,SWA,C,M, RS,I,NWP,SWP,AA	G	To 5 m	Mangrove prop roots, coral rubble, shell fragments or other hard substrates	[1, 6, 13, 16, 23, 31]				
<i>Acetabularia crenulata</i> J.V. Lamouroux	C,I,SWP,NWP,AA	B,G,N,P	To 3 m, in protected areas	Mangrove prop roots, rocks, shells, or coral fragments	[6-8, 16, 17, 19, 21, 23, 30, 35]				
<i>Acetabularia farlowii</i> Solms-Laubach	C		Intertidal	Hard substrates	[6, 8, 13]				
<i>Acetabularia schenckii</i> K. Möbius (30 as <i>Acicularia schenckii</i> (K. Möbius) Solms-Laubach)	C,SWA,CEP	B,P	Shallow to 2 m, in protected areas	Rocks, shells or coral fragments	[8, 15, 16, 30, 35]				
<i>Parvocaulis polyphysoides</i> (P.L. Crouan & H.M. Crouan) S. Berger, U. Fettweiss, S. Gleissberg, L. B. Liddle, U. Richter, H. Sawitsky, H. & G.C. Zuccarello (16, 19, 20 as <i>Acetabularia polyphysoides</i> P.L. Crouan & H. M. Crouan, 23 as <i>Polyphysa polyphysoides</i> (P. Crouan & H. Crouan) Schmetter)	SEA,NEA,C,RS,I, NWP,HW,SWP	B,H,I,P	To 15 m	Coral fragments, rocks, or epi- phytic	[8, 16, 19, 20, 23, 35]				

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Phylum HETEROKONTOPHYTA					
Class PHAEOPHYCEAE					
Order ECTOCARPALES					
Family ACTINOSPORACEAE					
<i>Feldmannia irregularis</i> (Kützing)					
G. Hamel (6, 13 as <i>Giffordia</i> cf. <i>confijera</i> (Børgesen) W.R. Taylor)	NEA,SEA,SWA,M,C,RS,I, NWP,NEP,HW,SWP,AA		Less than 1 m	Mangrove prop roots, rocks, or other hard substrates or epiphytic	[6, 8, 13, 16, 23]
<i>Hincksia mitchelliae</i> (Harvey) P.C. Silva in P.C. Silva, Meñez & R.L. Moe (6, 13, 23 as <i>Giffordia mitchelliae</i> (Harvey) G. Hamel)	NEA,EA,NWA,SWA,C,M,RS,I, WP,NEP,SEP,HW,SWP,AA	B	Less than 1 m	Epiphytic or on hard substrates	[6, 8, 13, 16, 18, 23]
<i>Hincksia rallsiae</i> (Vickers) P.C. Silva in P.C. Silva, Meñez & R.L. Moe (6, 13, 23 as <i>Giffordia rallsiae</i> (Vickers) Taylor)	SEA,NEA,I,C,NWP,SWP		Intertidal	Rocks	[6, 8, 13, 23]
Family PYLAIELLACEAE					
<i>Bacheloita antillarum</i> (Grunow) Gerloff	NEA,SEA,C,I,NWP,SEP,HW, SWP,AA,A		n.a.	n.a.	[8, 23]
<i>Bacheloita fulvescens</i> (Bornet) Kuckuck ex G. Hamel	SEA,NEA,SWA,C,M,I		Shallow	Coral reef	[6, 8]
Family SCYTOSIPHONACEAE					
* <i>Colpomenia sinuosa</i> (Mertens ex Roth) Derbès & Solier in Castagne	NEA,SEA,SWA,C,M,RS,I,W,P, NEP,CEP,SEP,HW,SWP,AA,A	B,H,I,P	Intertidal to 15 m	Coral fragments or other hard substrates, epiphytic	[3, 6–8, 13, 16, 19, 20, 23, 24, 26, 31, 34]
<i>Rosenvingea intricata</i> (J. Agardh) Børgesen	SEA,NEA,SWA,C,M,RS,I,NWP, NEP,SEP,CEP,HW,SWP,AA	H,P	Lower intertidal to 35 m	Epiphytic or on hard substrates	[8, 13, 16, 20, 23, 30, 31, 34]
<i>Rosenvingea sanctae-crucis</i> Børgesen	SEA,NEA,SWA,C,I	B	Subtidal to 15 m	Epiphytic or on hard substrates	[8, 13, 15, 16, 23, 31, 13, 23, 16]

Order SCYTOHAMNALES

Family SCYTOHAMNACEAE

Asteronema breviaritculatum (J. Agardh) Ouriques & Bouzon
(6, 13, 23, 27 as *Ectocarpus breviaritculatus* J. Agardh)

Order SPHACELARIALES

Family SPHACELARIACEAE

**Sphacelaria rigidula* Kützinger
(3, 6 as *S. furcigera* Kützinger)

Sphacelaria tribuloides Meneghini

Order DICTYOTALES

Family DICTYOTACEAE

Dictyopteris delicatula
J.V. Lamouroux

Dictyopteris justii J.V. Lamouroux.

Dictyota bartayresiana J.V. Lamouroux

(6, 7, 13, 23 as *D. bartayresii* J.V. Lamouroux nom. illeg.)

Dictyota cervicornis Kützinger

SEA,NEA,SWA,I,C,HW,SWP, NWP,NEP, AA	ES	Intertidal, exposed to spray	Rocks	[5-8, 13, 23, 27]
NEA,SEA,NWA,C,M,RS,I,NWP, NEP,HW, SWP,SEP,AA,A		Intertidal to 3 m	Epiphytic, rocks or other hard sub- strates	[3, 6, 8, 13, 23, 27]
SEA,NEA,SWA,C,M,RS,I,NWP, SEP,HW,SWP,AA	B	Intertidal to 3 m	Epiphytic or on hard substrates	[8, 13, 15, 16, 19, 23]
SEA,NEA,SWA,C,I,NEP,NWP, SWP,AA	B,H,I,N,P	Intertidal to 30 m	Mangrove prop roots, coral frag- ments or other hard substrates, epiphytic	[6-8, 13, 15, 19-21, 23, 27, 31, 34]
SWA,C	P	Intertidal to 50 m	Coral fragments, shells, or other hard substrates	[8, 16, 23, 34]
NEA,SEA,SWA,C,I,NWP,HW, SWP,AA	B,P	To 1 m, protected	Mangrove prop roots, coral frag- ments or other hard substrates	[6-8, 13, 16, 23, 34]
SEA,NEA,SWA,C,I,RS,NWP,SWP,B,H,I,P		To 3 m	Rocks, coral fragments, shells, or other hard sub- strates	[7, 8, 15-19, 23, 31, 34]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Diclyota ciliolata</i> Kützing	SEA,NEA,SWA,C,RS,I,NWP,SWP,HW,AA	H,P	To 25 m	Coral fragments, rocks, or other hard substrates	[6–8, 13, 16, 23, 31]
* <i>Diclyota crenulata</i> J. Agardh	NEA,SEA,SWA,C,I,NEP,NWP,CEP,SEP,SWP	B,P	To 15 m	Hard substrates	[3, 6, 8, 13, 16, 23, 24, 26, 27, 34]
<i>Diclyota guineensis</i> (Kützing) P.L. Crouan & H.M. Crouan (30 as <i>Dilophus guineensis</i> (Kützing) J. Agardh)	SEA,NEA,SWA,C	B,P	Intertidal to 10 m, often wave exposed	Rocks, coral fragments	[8, 13, 16, 23, 30, 31]
<i>Diclyota jamaicensis</i> W.R. Taylor	C	B	Shallow	Rocks	[8, 15, 23, 27]
<i>Diclyota mertensii</i> (Martius) Kützing (6, 31 as <i>D. dentata</i> J.V. Lamouroux)	SEA,NEA,C,NWP,SWP	P	Intertidal to 15 m, moderately wave exposed	Epiphytic	[6–8, 13, 16, 23, 31, 34]
<i>Diclyota pinnatifida</i> Kützing (15, 19, 20, 21, 31 as <i>Dilophus alternans</i> J. Agardh)	SEA,NEA,C,I,NWA,SWA	B,N,P	Shallow to 26 m	Rocks, coral fragments	[8, 13, 15, 16, 19, 20, 21, 23, 31, 32, 34]
<i>Diclyota pulchella</i> Hörnig & Schmetter (5, 6, 7, 13, 23, 31 as <i>D. divaricata</i> J.V. Lamouroux; 13, 15, 19, 23 as <i>D. linearis</i> (C. Agardh) Greville; 6, 13, 19, 21, 23, 31 as <i>D. dichotoma</i> (Hudson) J.V. Lamouroux)	SEA,NEA,C	B,ES,N,P	Intertidal to 70 m, calm water	Epiphytic or on hard substrates	[3, 5–9, 13, 15, 16, 18, 19, 21, 23, 31, 34]
<i>Diclyota volubilis</i> Kützing	SEA,NEA,C	P	0.5–12 m	n.a.	[7, 8, 13]
* <i>Lobophora variegata</i> (J.V. Lamouroux) Womersley ex Oliveira (6, 31 as <i>Pocockiella variegata</i> (J.V. Lamouroux) Papenfuss)	SEA,NEA,SWA,C,I,M,RS,NEP,SEP,NWP,HW,SWP,AA	B,H,ES,N,P	Shallow to 120 m	Mangrove prop roots, coral rubble, rocks, or other hard substrates	[3, 5–8, 13, 15–21, 23, 31, 34]

<i>Padina gymnospora</i> (Kützling) Sonder (6 also as <i>Padina vickerstae</i> Hoyt)	SEA,NEA,SWA,C,I,WPHW, SWP,AA	B,H,I,P	Intertidal to 14 m	Mangrove prop roots, rocks, or coral rubble	[6–8, 13, 15, 16, 20, 23, 27, 31, 34]
<i>Padina pavonica</i> (Linnaeus) Thivy	NEA,SEA,SWA,C,M,RS,I, SWPNWP	B,H	Lower intertidal to 20 m	Mangrove prop roots, rocks, or coral (rubble)	[8, 13, 15, 16, 18, 20, 23, 31]
<i>Padina sanctae-erucis</i> Børgesen (as <i>P. "sanctae-erucis"</i>) (23 as <i>P.</i> <i>jamaicensis</i> (Collins) Papenfuss	SWA,C,I,NWPHW,SWP,AA	B,H,I,N,P	To 5 m	Rocks, shells, dead coral, coral rubble	[8, 13, 15–18, 20, 21, 23, 34]
<i>Spatoglossum schroederi</i> (C. Agardh) Kützling	SEA,NEA,SWA,C,M,I	P	2–46 m	Hard substrates	[6–8, 13, 16, 23, 27, 31, 34]
Order FUCALES					
Family SARGASSACEAE					
<i>Sargassum acinarium</i> (Linnaeus) Setchell	SEA,NEA,C,M,I,RS	B	To 3 m	Sandy areas in coral reef, around mangrove islands or in mangrove lagoons	[8, 15, 16, 23]
<i>Sargassum cymosum</i> C. Agardh	SEA,NEA,SWA,C,I		n.a.		[8, 13, 23, 31]
<i>Sargassum filipendula</i> C. Agardh	SEA,NEA,NWA,SWA,C,I	B,N,I,P	Subtidal to 33 m	Sandy bottom, rocks, shells, or dead coral	[6, 8, 13, 16, 19, 21, 23, 31, 34]
<i>Sargassum fluitans</i> (Børgesen) Børgesen	NWA,C,I,SWPNWP	B,N,I,P	Pelagic	Beach drift	[6–8, 13, 16, 18, 19, 21, 27, 34]
<i>Sargassum hystrix</i> J. Agardh	SEA,NEA,SWA,C	B,P	To 137 m	Rocks or coral frag- ments	[6, 8, 16, 19, 23, 27, 34]
<i>Sargassum hystrix</i> var. <i>buxifolium</i> Chauvin ex J. Agardh	NWA,SWA,C	B,H	To 15 m	Rocks or coral frag- ments	[8, 16, 19, 20, 23, 27]
<i>Sargassum hystrix</i> var. <i>spinulosum</i> (Kützling) Grunow	SWA,C	N	Shallow	Calcareous rocks	[8, 21, 23, 27]
<i>Sargassum polyacratium</i> Montagne	SWA,C,SWPNWP	B,G,H,I,N,P	About 14 m	Hard substrates	[1, 7, 8, 13, 15, 19, 20, 21, 34]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Sargassum polyceratum</i> var. <i>ovatum</i> (Collins) W.R. Taylor	SWA,C	B	Lower intertidal to 14 m	Rocks or coral rubble	[6, 8, 13, 16, 18, 19, 23, 31]
<i>Sargassum pteropleuron</i> Grunow	C,NWP;SWP;NWA		Shallow to 5 m	Rocks or coral fragments	[8, 16, 23]
<i>Sargassum rigidulum</i> Kützting	NEA,SEA,SWA,C,NWA		Shallow	n.a.	[8, 23]
<i>Sargassum vulgare</i> C. Agardh nom. illeg. (according to Silva et al. (1996) considered an illegitimate name with no replacement at present time)	NEA,SEA,SWA,C,M,I,NWP,SWP,NWA	B,N	To 2 m	Mangrove lagoons or in seagrass beds	[8, 13, 15, 16, 21, 23, 27]
<i>Turbinaria turbinata</i> (Linnaeus) Kuntze	SWA,C,I,SWP,NWP	B,H,I,P	To 5 m, behind reef crest in areas of strong turbulence	Hard substrates	[8, 15, 16, 18–20, 22, 23, 34]
Class XANTHOPHYCEAE					
Order VAUCHERIALES					
Family VAUCHERIAACEAE					
<i>Vaucheria dichotoma</i> (Linnaeus) Martius	NEA,SEA,C,M,NWA		2–5 m	Silt bottom	[6, 8]
Phylum RHODOPHYTA					
Class BANGIOPHYCEAE					
Order PORPHYRIDALES					
Family PORPHYRIDACEAE					
* <i>Stylonema alsidii</i> (Zanardini) K.M. Drew (6, 13 as <i>Goniotrichum alsidii</i> (Zanardini) M.A. Howe; 3 as <i>Goniotrichum elegans</i> (Chauvin) Zanardini)	NEA,SEA,NWA,SWA,C,M,I,RS,HW,SWP,SEP,AA	B	Shallow	Epiphytic, epizoid	[3, 6, 8, 13, 23]

Order ERYTHROPELTIDALES					
Family ERYTHROTRICHIACEAE					
* <i>Erythrotrichia carnea</i> (Dillwyn) J. Agardh	NEA,NWA,SWA,M,RS,C,NWP,I, NEP,CEP,SEP,HW,SWP,A,AA	G	Shallow	Epiphytic or on rocks	[1, 3, 6, 8, 13, 23]
<i>Sahlbingia subintegra</i> (Rosenvinge) Kommann (5, 6, 13 as <i>Erythrocladia subintegra</i> Rosenvinge; 7, 23 erroneously as <i>Erythrocladia irregularis</i> Rosenvinge)	SEA,NEA,NWA,SWA,C,M,I,NEP, ES NWP,SWP,A,AA	ES	Shallow to 16 m	Epiphytic	[5, 6, 8, 13]
Class FLORIDEOPHYCEAE					
Order ACROCHAETIALES					
Family ACROCHAETIACEAE					
<i>Acrochaetium caespitiforme</i> Børgesen	C		Shallow	Epiphytic	[8, 23, 25]
<i>Acrochaetium crassipes</i> (Børgesen) Børgesen (including "var. typica") (13, 25 as <i>Chromastrum crassipes</i> (Børgesen) Papenfuss)	SEA,NEA,SWA,NWA,M,RS,I, NWP,SWP,CEP		Shallow, exposed to waves	Epiphytic	[8, 13, 25]
<i>Acrochaetium hallandicum</i> (Kyllin) G. Hamel (6, 25 as <i>Acrochaetium</i> <i>dufouirii</i> Collins, synonym of <i>Audouinella dufouirii</i> (Collins) Garbary)	NEA,NEA,SEA,NWA,SWA,C,M, NWP,SWP		Shallow	Epiphytic	[6, 8, 25, 32]
<i>Acrochaetium opetigenum</i> Børgesen	C		To 20 m	Epiphytic	[8, 13, 25]
<i>Acrochaetium placalorhizum</i> Børgesen	C,AA		Shallow	Epiphytic	[6, 8, 31]
<i>Acrochaetium ryukuensis</i> (Nakamura) Papenfuss	SWP,NWP		Shallow, exposed	Epiphytic	[8, 13, 23, 25]
<i>Acrochaetium secundatum</i> (Lyngbye) Nägeli (13, 25 as <i>Chromastrum</i> <i>tenuissimum</i> (Collins) H. Stegenga & T. C. M. Kemperman)	NEA,SEA,NWA,M,I,RS,CEP, NWP,AA		Shallow, exposed	Epiphytic	[8, 13, 25]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Acrochaetium seriatum</i> Børgesen	NEA,SEA,C,I,NWP,HW,SWP	B	Shallow, protected or exposed	Epiphytic	[6, 8, 13, 19, 25]
<i>Chromastrum</i> sp.			n.a.	Epiphytic	[13, 25]
Order CORALLINALES					
Family SPOROLITHACEAE					
<i>Sporolithon episorum</i> (M.A. Howe) E.Y. Dawson (7 as <i>Archaeolithothamnion episorum</i> M.A. Howe)	C,I,NWP,SWP,AA	P	Intertidal to 30 m	Rocks or dead coral	[7, 8, 16, 23]
Family CORALLINACEAE					
<i>Amphiroa brasiliata</i> Decaisne	NWA,SWA,C,I		To 10 m	Epiphytic or on rocks	[8, 16, 23]
<i>Amphiroa fragilissima</i> (Linnaeus) J.V. Lamouroux	NEA,SEA,NWA,SWA,C,M,RS, I,CEP,SEP,HW,SWP,AA	B,H,I,N,P	To 60 m	Hard substrates often intermixed with other algae or seagrass	[6-8, 13, 15-21, 23, 27, 31]
<i>Amphiroa hancockii</i> W.R. Taylor	C,NWP,SWP	H,P	2-10 m, exposed to waves	Hard substrates	[6-8, 13, 16, 20, 23, 27, 31]
<i>Amphiroa rigida</i> var. <i>antillana</i> Børgesen	SEA,NEA,C,M,I,NEP,HW, SWP,AA	B,H,I,P	Shallow	Among marine phaeoalgae	[6-8, 13, 15, 17, 19, 23, 31]
<i>Amphiroa tribulus</i> (J. Ellis & Solander) J.V. Lamouroux	C,I,SWP	B,H,I,P	To 10 m	Hard substrates	[6-8, 13, 16, 19, 20, 23]
<i>Corallina officinalis</i> Linnaeus	NEA,SEA,NWA,SWA,C,M,I, NWP,AA,A		Intertidal to subtidal, exposed	Rocks, coral	[6, 8, 13, 23]
<i>Hatipiton subulatum</i> (J. Ellis & Solander) Johansen (as <i>H. "subulata"</i>)	NEA,SEA,SWA,C,M,I,HW,NEP		Intertidal to 15 m	Epiphytic	[8, 13, 23]

<i>Hydroolithon farinosum</i> (J.V. Lamouroux) D. Penrose & Y.M. Chamberlain (6, 7, 13, 19, 23, 27, 31 as <i>Foslitea farinosa</i> (J. V. Lamouroux) M.A. Howe)	NWA,NEA,SWA,C,M,RS,I,NWP, SWP,CEP,AA,A	B,P	To 15 m	Epiphytic, coral fragments, shells, or other hard substrates	[6-8, 13, 16, 18, 19, 23, 27, 31]
<i>Hydroolithon boergesenii</i> (Foslie) Foslie (27 as <i>Gonolithon boergesenii</i> Foslie)	SEA,NEA,C,SWP,NWP	B	Subtidal to 67 m	Dead coral	[6, 8, 13, 15, 16, 19, 23, 27]
<i>Hydroolithon munitum</i> (Foslie & M.A. Howe) Penrose (6, 13 as <i>Lithophyllum munitum</i> Foslie & Howe; 23 as <i>Neogonolithon munitum</i> (Foslie et Howe) Adey; 31 erroneously as <i>Lithothamnium munitum</i> Foslie & Howe)	AA,C		Subtidal	Dead coral	[6, 8, 13, 23, 31, 32]
<i>Jania adhaerens</i> J.V. Lamouroux	SEA,NEA,NWA,SWA,C,M,RS,I, CEP,HW,SWP,AA	B,H,N	To 35 m	Hard substrates or epiphytic	[6, 8, 13, 15, 16, 18, 20, 21, 23, 27]
* <i>Jania capillacea</i> Harvey	SEA,NEA,NWA,SWA,C,RS,I, CEP,SWP	B,ES,N,P	To 15 m	Epiphytic	[3, 5-8, 13, 15, 16, 19, 27]
<i>Jania pumila</i> J.V. Lamouroux	SEA,NEA,SWA,NWA,C,RS,I, HW,SWP		to 5 m	Epiphytic	[8, 16, 23]
* <i>Jania tenella</i> (Kützting) Grunow	SEA,NEA,I,RS,NEP,SEP,SWP	ES	2 m	Epiphytic on rocks	[3, 5, 6, 8, 13, 23]
<i>Mesophyllum incertum</i> (Foslie) M. Lemoine (6 as " <i>Lithothamnium incertum</i> Foslie)	NWA,C		Intertidal to 3 m	Hard substrate	[6, 8, 23]
<i>Mesophyllum mesomorphum</i> (Foslie) Adey (6, 7, 13, 23 as <i>Lithothamnium mesomorphum</i> Foslie)	C,I,HW,AA	B,P	To 35 m	Coral, rocks or epiphytic	[6-8, 13, 16, 18, 23]
<i>Neogonolithon erosum</i> (Foslie) Adey (6 as <i>Lithophyllum erosum</i> Foslie)	C		Intertidal	Coral	[6, 8, 23]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>*Neogoniolithon trichotomum</i> (Heydrich) Setchell & Mason (6, 13 as <i>Lithophyllum trichotomum</i> (Heydrich) M. Lemoine)	I,NW,SWP,CEP	P	Tide pools	Rocks	[6, 8, 13, 23]
<i>Pneophyllum</i> sp. (6 as <i>Heteroderma</i> sp.) n.a.	n.a.		n.a.	Epiphytic	[6]
<i>Pneophyllum confervicolum</i> (Kützing) Y.M. Chamberlain (5, 6 as <i>Heteroderma minutula</i> (Foslie) Foslie)	NEA,M,I,SWP,NWP, CEP,AA	ES	Shallow, exposed	Epiphytic	[5, 6, 8, 23]
<i>Pneophyllum fragile</i> Kützing (1, 13, 21 as <i>Fosliella lejolisii</i> (Rosanoff) M.A. Howe. 6 as <i>Heteroderma lejolisii</i> (Rosanoff) Foslie)	NEA,NWA,SWA,C,M,RS,I,NWP, CEP,AA	B,G,N	To 10 m	Epiphytic	[1, 6, 8, 13, 15, 16, 21, 32]
<i>Titanoderma pustulatum</i> (J.V. Lamouroux) Nägeli (6, 13 as <i>Dermatolithon pustulatum</i> (J.V. Lamouroux) Foslie)	NEA,SWA,NWA,C,M,I,RS,NEP, SWP,AA,A	B	To 5 m	Epiphytic	[6, 8, 13, 15, 16, 23, 27]
Order GELIDIALES					
Family GELIDIACEAE					
<i>Gelidium americanum</i> (W.R. Taylor) Santelices (23 as <i>G. americana</i> (W.R. Taylor) Santelices; 6, 13, 27, 31 as <i>Pterocladia americana</i> Taylor)	NWA,C,NEA,SWA		Intertidal to 8 m, wave exposed	Rocks, dead coral or other hard substrates	[6, 8, 13, 16, 23, 27, 31]
<i>Gelidium crinale</i> (Hare ex Turner) Gaillon	NEA,NWA,SWA,C,M,RS,I,CEP, HW,SWP,AA,A		Intertidal	Rocks	[6, 8, 13]
<i>Gelidium floridanum</i> W.R. Taylor	C		n.a.	[8, 29]	
<i>*Gelidium pusillum</i> (Stackhouse) Le Jolis	NEA,NWA,SWA,M,C,RS,I,NEP, CEP,HW,SWP,AA	ES,P	Intertidal to 8 m, wave exposed	Rocks, shells or other hard substrates	[3, 5-8, 13, 16, 23, 26, 27]

<i>Pterocladia pinnata</i> (Hudson) Papenfuss	SEA,NEA,SWA,C,M,SWP,NWP	Intertidal to 5 m	Rocks, sponges or other hard substrates	[6, 13, 8, 27, 31]
<i>Pterocladia bartlettii</i> (W.R. Taylor) Santelices (1, 6, 13, 23 as <i>Pterocladia bartlettii</i> W.R. Taylor)	C	Shallow	Hard substrates	[1, 6, 13, 23, 29]
** <i>Pterocladia beauchii</i> Freshwater	Costa Rica	Intertidal	Hard substrate	[29]
<i>Pterocladia capillacea</i> (S.G. Gmelin) Santelices & Hommersand (6, 23, 27 as <i>Pterocladia capillacea</i> (S.G. Gmelin) Bornet)	NEA,SWA,C,M,RS,CEP,SEP,HW,SWP,AA	Intertidal to 5 m	Rocks, sponges or other hard substrates	[6, 8, 16, 23, 27, 31, 32]
<i>Pterocladia melanoidea</i> (Schousboe ex Bornet) Santelices & Hommersand (6, 23, 13 as <i>P. melanoidea</i> (Schousboe ex Bornet) Dawson, Fredriksen & Rueness)	SEA,NEA,M	n.a.	n.a.	[6, 8, 13, 23]
<i>Pterocladia melanoidea</i> var. <i>gracilis</i> (Feldmann & G.Hamel) M.J. Wynne (6, 23, 13 as <i>Pterocladia melanoidea</i> var. <i>gracilis</i> (Feldmann et Hamel) Dawson)	SEA,NEA,M	n.a.	n.a.	[6, 8, 13, 23, 32]
<i>Pterocladia melanoidea</i> var. <i>filamentosa</i> (Bornet) M.J. Wynne (6, 23, 13 as <i>Pterocladia melanoidea</i> var. <i>filamentosa</i> (Bornet) Dawson)	SEA,NEA	n.a.	n.a.	[6, 8, 13, 23]
Family GELIDIACEAE				
<i>Gelidiella acerosa</i> (Forsskål) Feldmann & G. Hamel	SEA,NEA,SWA,NWA,C,RS,I,CEP,SEP,HW,SWP,AA	Intertidal to 7 m	Hard substrates	[6-8, 13, 15, 16, 20, 23, 27, 31]
<i>Gelidiella trinitatensis</i> W.R. Taylor	SWA,C	To 1 m	Mangrove prop roots or other hard substrates	[6, 8, 13, 15, 16, 23, 27]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Order HILDENBRANDIALES					
Family HILDENBRANDIACEAE					
<i>Hildenbrandia rubra</i> (Sommerfelt)	NEA,SWA,C,M,I,NWP,CEP, NEP,AA,A	ES,G,P	Intertidal to subtidal	Rocks	[1, 3, 6-8, 13, 23, 24]
Meneghini (as " <i>Hildenbrandia</i> ") (6, 24 as <i>H. prototypus</i> Nardo)					
Order NEMALIALES					
Family LIAGORACEAE					
<i>Ganonema farinosum</i> (J.V. Lamouroux)	SWA,NWA,C,M,I,RS,HW,SWP, CEP,AA	B	To 10m	Rocks and coral frag-ments in sandy protected areas	[8, 16, 19, 23]
K.C. Fan & Y.C. Wang (as <i>G. "farinosa"</i>) (16, 19, 23 as <i>Liagora farinosa</i> J.V. Lamouroux)					
<i>Helminthocladia cavadosii</i> (J.V. Lamouroux ex Duby) Setchell	NEA,EA,NWA,C,I		Shallow	Coral rubble	[8, 13, 23, 31]
* <i>Liagora ceranoides</i> J.V. Lamouroux (23 as " <i>L. ceranoides</i> " J.V. Lamouroux)	SEA,NEA,SWA,NWA,C,M,I,CEP, NWP,SWP,HW,AA	B,H,I,P	To 20m	Rocks or coral fragments	[3, 7, 8, 15, 16, 20, 23, 26]
* <i>Liagora valida</i> Harvey	SEA,NEA,SWA,NWA,C,I,CEP, HW,SWP,AA	B,H,I,P	Intertidal (tide pools) to 2 m, often wave exposed	Rocks or coral frag-ments	[3, 6-8, 13, 16, 19, 20, 23, 24, 26, 31]
<i>Liagoropsis schrammi</i> (P.L. Crouan & H.M. Crouan) Doty & I.A. Abbott (as <i>L. "schrammi"</i>) (23 also as <i>Nemalion schrammii</i> (P.L. Crouan & H.M. Crouan) Børgesen)	SEA,NEA,SWA,C,I,SWP,NWP		To 10m	Coral or shell frag-ments	[8, 16, 23]

Family GALAXAURACEAE					
* <i>Galaxaura marginata</i> (Ellis & Solander) J.V. Lamouroux (6 as <i>G. arborea</i> Kjellman; 13, 31 as <i>G. frutescens</i> Kjellmann; 3 as <i>G. veprecula</i> Kjellmann; 3 as <i>G. stipocaula</i> Kjellman; 26 as <i>G. stipocaulon</i> Kjellman)	SEA,NEA,NWA,SWA,C,RS,I,HW, B,H,P SWP,SEP,CEP,AA	Shallow to 10 m	Mangrove prop roots, rocks, on shallow reef flats or in tide pools	[6, 7, 13, 15, 18, 20, 23, 27, 31]	
<i>Galaxaura rugosa</i> (J. Ellis & Solander) J.V. Lamouroux (6, 7, 13, 23, 31 as <i>G. lapidescens</i> (Ellis & Solander) J.V. Lamouroux; 6, 7, 13, 20, 21, 31 as <i>G. squalida</i> Kjellman)	SEA,NEA,SWA,NWA,C,RS,I, CEP,HW,SWP,AA	To 12 m, protected	Mangrove prop roots, coral fragments or rocks	[6-8, 13, 15, 18, 16, 20, 21, 23, 31]	
* <i>Scinaia complanata</i> (F.S. Collins) A.D. Cotton	NEA,NWA,SWA,M,I,CEP	To 30 m	Coral fragments on sand plains	[3, 8, 13, 16, 23, 26, 30, 31]	
<i>Tricleocarpa cylindrica</i> (J. Ellis & Solander) Huisman & Borowitzka (6, 7, 13, 19, 27 as <i>Galaxaura cylindrica</i> (J. Ellis & Solander) J.V. Lamouroux)	SEA,NEA,SWA,NWA,C,I,RS, HW,SWP,AA	Intertidal to 15 m, protected	Coral fragments or rocks in sandy areas	[6-8, 13, 16, 19, 27]	
<i>Tricleocarpa fragilis</i> (Linnaeus) Huisman & Townsend (6, 7, 13, 19, 23, 27 as <i>Galaxaura oblongata</i> (J. Ellis & Solander) J.V. Lamouroux)	SEA,NEA,SWA,NWA,C,M,I,RS, SWP,SEP,HW,AA	Protected, to 30 m	Coral fragments or rocks	[6-8, 13, 15, 16, 18-20, 23, 27]	
Order BONNEMAIISONIALES					
Family BONNEMAIISONIACEAE					
* <i>Asparagopsis taxiformis</i> (Delile) Trevisan de Saint-Léon (by 1, 23 found only as <i>Falkenbergia hilbrandii</i> – sporophytic stage)	SEA,NEA,NWA,SWA,C,M,RS,I, SEP,NEP,HW,SWP,AA	To 1-14 m	Mangrove prop roots, coral, rocks, or epiphytic	[1, 8, 16, 19, 21, 23, 24]	

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Order GIGARTINALES					
Family CAULACANTHACEAE					
* <i>Catenella caespitosa</i> (Withering) L.M. Irvine in Parke & P.S. Dixon (7, 19, 21 as <i>C. repens</i> (Lightfoot) Batters; 6 as <i>C. opuntia</i> Greville)	NEA,SWA,M,C,SWP,NWP,I,SEP	B,N,P	Intertidal	Mangrove prop roots, rocks, or coral fragments	[6-8, 15, 16, 18, 19, 21, 23]
* <i>Catenella impudica</i> (Montagne) J. Agardh	SEA,NEA,SWA,C,I,SWP,NWP,SEP	ES	Intertidal	Mangrove prop roots, rocks, or coral fragments	[5, 6, 8, 13, 16, 23, 27]
Family CORYNOMORPHACEAE					
<i>Corynomorpha clavata</i> (Harvey) J. Agardh	C,NWA	N	Lower intertidal to 26m	Hard substrates	[8, 16, 23]
Family DUMONTIACEAE					
<i>Dudresnaya crassa</i> M.A. Howe	SEA,NEA,NWA,C	B,H	To 20m	Coral fragments	[8, 16, 19, 20, 23]
Family GIGARTINACEAE					
<i>Chondracanthus acicularis</i> (Roth) Fredericq (6, 13, 23, 31 as <i>Gigartina acicularis</i> (Roth) J.V. Lamouroux)	NEA,NWA,SWA,C,M,SWP,NWP,I,HW,AA		Lower intertidal	Rocks	[6, 8, 13, 23, 31]
Family HYPNEACEAE					
<i>Hypnea musciformis</i> (Wulfen) J.V. Lamouroux	SEA,NEA,NWA,SWA,M,C,HW,SWP,NWP,I,RS,AA	B,G,P	To 26m	Hard substrates or epiphytic	[1, 6, 8, 13, 15, 16, 19, 23, 27, 31]
* <i>Hypnea spinella</i> (C. Agardh) Kützing (5, 6, 7, 13, 19, 21, 23, 31 also as <i>Hypnea cervicornis</i> J. Agardh)	SEA,NEA,SWA,NWA,C,M,RS,I,HW,SWP,SEP,AA	B,ES,H,N,P	Intertidal to 30m	Rocks, coral fragments or epiphytic	[5-8, 13, 15, 16, 19-21, 23, 27, 31]
<i>Hypneocolax stellaris</i> Børgesen	SEA,NEA,C		n.a.	Hemiparasitic on <i>Hypnea musciformis</i>	[8, 23]

Family PEYSSONNELIACEAE						
<i>Peyssonnelia armorica</i> (P.L. Crouan & H.M. Crouan) Weber-van Bosse (cited by 23 as published by 6 as <i>Cruoriella armorica</i> P.L. Crouan & H.M. Crouan (No. 24214), but in 6 appears only No. 14214a published as <i>Gymnothamnion elegans</i> (Schousboe ex C. Agardh) J. Agardh. Therefore this report remains unclear.	SEA,NEA,SWA,C,M,I,AA	To 27 m	Hard substrates	[6, 8, 16, 23]		
<i>Peyssonnelia dubyi</i> P.L. Crouan & H.M. Crouan (as " <i>Peyssonnelia</i> ") (4, 6, 7, 13 as <i>Cruoriella dubyi</i> (P.L. Crouan & H.M. Crouan) F. Schmitz)	NEA,SWA,M,RS,I,SWP,NWP,I,AA	Lower intertidal	Calcareous encrusting algae on <i>Laminaria hyperborea</i> holdfasts	[4, 6-8, 13]		
* <i>Peyssonnelia rubra</i> (Greville) J. Agardh	NEA,NWA,C,M,RS,HW,SWP,I,AA	Intertidal	Rocks in subdued light conditions	[6-8, 23, 24, 27, 31]		
Family RHIZOPHYLLIDACEAE						
<i>Ochitodes secundiramea</i> (Montagne) M.A. Howe	C	To 15 m, exposed	Hard substrates	[6-8, 13, 15, 16, 18, 19, 23, 27, 31]		
Family SOLIERACEAE						
<i>Meristiella gelidium</i> (J. Agardh) D.P. Cheney & Gabrielson (13 as <i>Eucheuma acanthocladum</i> (Harvey) J. Agardh; 13, 7 as <i>Eucheuma gelidium</i> (J. Agardh) J. Agardh)	NWA,SWA,C	Shallow	n.a.	[7, 8, 13]		
<i>Meristiella echinocarpum</i> (Areschoug) D.P. Cheney & Gabrielson in Gabrielson & D.P. Cheney (13, 23 as <i>Eucheuma echinocarpum</i> Areschoug)	SEA,NEA,SWA,C	To 20 m	Coral	[8, 13, 15, 16, 18, 23]		

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Meristella schrammii</i> (P. Crouan & H. Crouan) D. P. Cheney & P. W. Gabrielson (6, 13, 23, 31 as <i>Eucheuma schrammii</i> (P. Crouan & H. Crouan) J. Agardh)	C	B	To 40 m, in moderate current	Rocks	[6, 8, 13, 15, 16, 23, 31]
<i>Solieria filiformis</i> (Kützting) Gabrielson (5, 6, 13 as <i>S. tenera</i> (J. Agardh) M.J. Wynne & W.R. Taylor; 31 as <i>Agardhiella tenera</i> (J. Agardh) Schmitz)	SEA,NEA,NWA,C,AA	ES	10–30 m	Rocks or coral rubble on sand plains	[6, 8, 16, 23, 31]
Order HALYMENIALES					
Family HALYMENIACEAE					
<i>Cryptonemia bengryi</i> W.R. Taylor	C,WA		Intertidal to subtidal, exposed to surf	Rocks	[8, 13, 23, 30, 31]
<i>Cryptonemia crenulata</i> (J. Agardh) J. Agardh	SEA,NEA,C,SWP,I,SWA,NWA	H	Lower intertidal to 30 m	Corals or rocks	[6, 8, 13, 16, 20, 23, 31]
<i>Cryptonemia luxurians</i> (C. Agardh) J. Agardh	C,SWP,NWP,I,A,SEA		Deeper than 3 m, exposed	Rocks	[6, 8, 13, 23, 31]
<i>Grateloupia dichotoma</i> J. Agardh	NEA,M,SWP,NWP,C		n.a.	n.a.	[6, 8, 13, 23, 27]
<i>Grateloupia flicina</i> (J.V. Lamouroux) C. Agardh	A,M,C,SWA,NEP,SWP,NWP,I,RS,SEA,NEA,SEP,HW	ES,G,P	Intertidal to 20 m	Rocks or coral rubble	[1, 5–8, 13, 16, 23, 27]
<i>Halymenia duchassaingii</i> (J. Agardh) Kylin	C,I,SEA,NEA	H	Shallow to 10 m	Rocks or coral	[6, 8, 13, 16, 20, 23, 31]
<i>Halymenia floresia</i> (Clemente) C. Agardh	SEA,NEA,NWA,SWA,C,M,RS,I,SWP,AA	N	5–40 m	Rocks, coral rubble or other hard substrates	[8, 16, 21, 23]

<i>Sebdenia flabellata</i> (J. Agardh) P.G.Parkinson (23 as <i>Halymenia agardhii</i> De Toni)	SWA,NWA,C,NEP,IAA,EA,SWP	H	10–55 m	Rocks or coral rubble	[8, 16, 20, 23]
Order GRACILARIALES Family GRACILARIACEAE <i>Gracilaria bursa-pastoris</i> (S.G. Gmelin) P.C. Silva	NEA,M,C,NEP,SWP,NWP,I,SWA,NWA,RS		To 5 m, exposed to moderate surf	Coral rubble, shell fragments or other hard substrates	[8, 16, 23]
<i>Gracilaria blodgettii</i> Harvey (6, 13, 23, 31 as <i>G. cylindrica</i> Børgesen)	C,SWP,NWP,IAA		1–2 m, protected	Rocks, coral fragments or other hard substrates in sand plains or seagrass beds	[6, 8, 13, 16, 23, 31]
<i>Gracilaria cervicornis</i> (Turner) J. Agardh (6, 7, 13, 31 as <i>G. ferox</i> J. Agardh)	SEA,NEA,M,C,I,SWA	B,P	To 10 m	Coral rubble, shell fragments or other hard substrates	[6, 8, 13, 15, 16, 23, 27, 31]
<i>Gracilaria cuneata</i> Areschoug	C,SWA,NWA		Shallow to 20 m	Coral rubble, shell fragments or other hard substrates	[6, 8, 13, 16, 23, 31]
<i>Gracilaria curvissiae</i> J. Agardh <i>Gracilaria damaecornis</i> J. Agardh	C C,SWP,NWP,SEA,NEA		To 10 m	Coral fragments Rocks, coral fragments or other hard substrates	[8, 23] [8, 16, 23]
<i>Gracilaria debilis</i> (Forsskål) Børgesen (23 as <i>Gracilaria wrightii</i> (Turner) J. Agardh)	SWP,NWP,I,RS,C		Shallow	hard substrates Coral rubble	[38, 13, 31, 21a]
<i>Gracilaria domingensis</i> (Kützing) Sonder ex Dickie	C,SWA	H	To 15 m	Coral fragments or other hard substrates	[6, 8, 13, 16, 20, 23, 27]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Gracilaria foliifera</i> (Forsskål) Børgesen	NEA,M,SWA,SWP,I, C,RS	G,P	Intertidal to 2 m	Rocks, coral fragments or shells	[6–8, 13, 23]
<i>Gracilaria gracilis</i> (Stackhouse) Steenoft, L.M. Irvine & Farnham (1, 6, 7, 13, 21, 23 as <i>G. verrucosa</i> (Hudson) Papenfuss)	M,NEP,NWP,I,RS,NEA,SEA, WP,SWP,C,CEP,AA,A	G,N,P	Intertidal to subtidal	Rocks	[1, 6–8, 13, 21, 23]
<i>Gracilaria mammillaris</i> (Montagne) M.A. Howe	NWA,C,NEP	B,H,I,P	To 60 m	Mangrove prop roots, rocks, or other hard substrates	[6–8, 13, 15, 16, 18, 20, 23, 31]
<i>Gracilaria ornata</i> Areschoug	SWA,NWA,C,NEP,SEA,NEA, SWP		Intertidal to 2 m	Coral	[6, 8, 13, 23, 31]
<i>Gracilaria tikvahiae</i> McLachlan (1, 13, 31 as <i>G. foliifera</i> (Forsskål) Børgesen var. <i>angustissima</i> W.R. Taylor)	SWA,C,HW	G	Intertidal to 10 m, in calm estuaries and bays	Rocks or coral fragments	[1, 8, 13, 16, 31]
<i>Gracilaria</i> aff. <i>usneoides</i> (C. Agardh) J. Agardh (23 as <i>Gracilaria</i> aff. <i>usneoides</i> (Mertens) J. Agardh)	SWA,C		n.a.	n.a.	[8, 23]
<i>Gracilaria venezuelensis</i> W.R. Taylor <i>Gracilaria</i> sp.	C,SWP		n.a.	n.a.	[8, 13, 23, 31]
<i>Gracilariopsis lemaneiformis</i> (Bory de Saint-Vincent) E. Y. Dawson, Acleto & Foldvik (6, 23 as <i>Gracilaria</i> <i>lemaniformis</i> (Bory) Weber-ván Bosse; 6, 7, 8, 13 as <i>Gracilaria</i> <i>sjoestedtii</i> (Kylm) Dawson)	C,SWP,NWP,SEA,NEP,IAA,SEP, ES SWA,NWA,HW	ES	To 30 m	Coral or shell fragments often in seagrass beds	[6, 8, 13, 16, 23]
<i>Hydropuntia crassissima</i> (P.L. Crouan & H.M. Crouan) M.J. Wynne (6, 7, 13, 20, 23, 31 as <i>Gracilaria crassissima</i> P.L. Crouan & H.M. Crouan) P.L. Crouan & H.M. Crouan in Schramm & Mazé)		B,P	Intertidal to 9 m	Hard substrates	[6–8, 13, 15, 16, 20, 23, 31]

Order RHODYMENIALES						
Family CHAMPIACEAE						
* <i>Champia parvula</i> (C. Agardh) Harvey	M,SWA,NWA,CEP,I,AA,NEA,S WP,HW	B,H,N	To 15 m	Sandy rocks or epiphytic	[3, 8, 13, 15, 16, 19–21, 23, 30, 31]	
<i>Champia vieillardii</i> Kützing	SEA,NEA,C,SWP,I,AA,HW		To 5 m	Epiphytic	[8, 16, 23]	
Family LOMENTARIACEAE						
<i>Boryocladia occidentalis</i> (Børgesen) Kylin	SEA,NEA,C,SWA,NWA		Subtidal to 55 m	Rocks or other hard substrates	[6, 8, 13, 16, 23, 27, 31]	
<i>Boryocladia shanksii</i> E. Y. Dawson	C	B	Intertidal to 55 m	Rocks, coral or other hard substrates	[6, 8, 13, 15, 16, 19, 23]	
* <i>Gelidiopsis intricata</i> (C. Agardh) Vickers	SEA,NEA,C,M,I,AA,SWA,NWA, HW,SWP	B	Intertidal to 10 m	Mangrove prop roots or other hard substrates	[6, 8, 13, 15, 16, 18, 23, 27]	
<i>Gelidiopsis planicaulis</i> (W.R. Taylor) W.R. Taylor	SEA,NEA,C,SWA,NWA	B	To 1 m, exposed to moderate surf	Mangrove prop roots, rocks, or other hard substrates	[6, 8, 13, 16, 23, 27, 31]	
<i>Gelidiopsis scoparia</i> (Montagne & Millardet) De Toni	C,SWP,I,AA,SWP,NWP,HW	B	Intertidal to 10 m	Hard substrates	[6, 8, 13, 15, 16, 23]	
Order CERAMIALES						
Family CERAMIAACEAE						
<i>Acrothamnion butleriae</i> (Collins) Kylin (6 as <i>Antithamnion butleriae</i> Collins)	SEA,NEA,C,I,HW,SWP	B	n.a.	On a nullipore	[6, 8, 13, 17, 23]	
<i>Aglaothamnion cordatum</i> (Børgesen) Feldmann-Mazoyer (23 as <i>Callithamnion cordatum</i> Børgesen)	SEA,NEA,M,SWA,NWA,C, SWP,NWP,NER,I,HW,AA		To 30 m	Epiphytic	[8, 16, 23]	
<i>Aglaothamnion halliae</i> (F.S. Collins) Aponte, D.L. Ballentine & J.N. Norris (8, 13, 23, 31 as <i>Callithamnion halliae</i> F. S. Collins)	C,NEA	B	3 m	Epiphytic	[8, 13, 17, 23, 31]	

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Anotrichium tenue</i> (C. Agardh) Nägeli (6, 13, 23 as <i>Griffithsia tenuis</i> C. Agardh)	M,C,CEPI,SEA,SWP,HW,AA,SWA,NWA,RS	B,G	To 30m	Epiphytic	[1, 6, 8, 13, 16, 19, 23]
<i>Anithammonium lherminieri</i> (P.L. Crouan & H.M. Crouan) Bornet ex Nasr	SEA,NEA,M,C,CEPI,AA,SWA,NWA,HW,SWP	B	To 1m	Epiphytic	[6, 8, 13, 15, 23]
<i>Anithammonium</i> sp.		P	n.a.	n.a.	[6, 7]
<i>Anithammonionella</i> sp.			n.a.	n.a.	[13]
* <i>Centroceras clavulatum</i> (C. Agardh) Montagne	M,C,SWA,NWA,SWP,NWP,CEPI,SEA,SEP,AA,SWP,HW	B,ES,G,N,P	Intertidal	Mangrove prop roots, rocks, and other hard substrates, or epiphytic	[3, 5-8, 13, 15-19, 21, 23, 27, 31]
<i>Ceramium brevizonatum</i> H.E. Petersen	SWPI		n.a.	Epiphytic	[1, 8, 13]
<i>Ceramium cimbriticum</i> H.E. Petersen (1, 6, 13, 23 as <i>C. fastigiatum</i> Harvey in Hooker; 31 also as <i>C. fastigiatum</i> f. <i>flaccidum</i> Petersen)	NEA,M,C,NEP,NWP,IAA,SEP	B,G	To 40m	Submerged woods	[1, 6, 8, 13, 16, 23, 31]
<i>Ceramium cruciatum</i> F.S. Collins & Hervey	C,SWPI	B	Intertidal to 1m	Mangrove prop roots or epiphytic	[6, 8, 13, 15, 16, 23]
<i>Ceramium diaphanum</i> (Lightfoot) Roth	M,C,SWP,NWP,IAA,A,HW,RS,SWA,SEA,NEA		Intertidal	Rocks, coral	[6, 8, 13, 23]
* <i>Ceramium flaccidum</i> (Kützting) Ardissonne (3, 5, 6 as <i>C. gracilimum</i> var. <i>byssoidesum</i> ; 3, 5 as <i>C. taylorii</i> Dawson)	NWA,SWA,M,C,NEA,I,SEA,HW,SWP,SEP,AA,CEP	B,ES,N	To 22m	Epiphytic or on sunken logs	[3, 5, 6, 8, 13, 15, 16, 18, 19, 21, 23]
<i>Ceramium leutezelburgii</i> O.C.Schmidt (6 as <i>C. leutezelbergii</i> Schm.)	I,SWA,NWA		Shallow	Epiphytic	[6, 8]

<i>Ceramium nitens</i> (C. Agardh) J. Agardh	C,SWP,NWP,SEA,NEA	B,H	To 15 m	Dead corals or epiphytic	[6, 8, 13, 15–20, 23, 31]
<i>Ceramium subtile</i> J. Agardh	C		Shallow	Submerged logs	[6, 8, 13, 23, 27, 31]
<i>Ceramium</i> sp.			n.a.	n.a.	[13, 31]
<i>Crouania attenuata</i> (C. Agardh) J. Agardh	C,M,NEA,NWP,SWP,IAA,SEP,CEPRS	B,N	To 20 m	Epiphytic	[8, 13, 16, 19, 21, 23]
<i>Crouania pleonospora</i> W.R. Taylor	C		To 20 m	Epiphytic	[8, 13, 16, 23]
<i>Dohrniiella antillana</i> (W.R. Taylor) Feldmann-Mazoyer	SEA,SWA,NWA,C		Shallow	Epiphytic or on hard substrates	[8, 23]
<i>Griffithsia schousboei</i> Montagne	M,C,SWA,NWA,I,HW,SEA		To 23 m	Rocks or epiphytic	[8, 13, 16]
<i>Griffithsia</i> sp.			n.a.	n.a.	[13]
<i>Gymnothamnion elegans</i> (Schousboe ex C. Agardh) J. Agardh	M,CEP,SWP,NWP,I,SEA,AA,SWA,NWA,C,SEP,HW		n.a.	n.a.	[6, 8, 13]
<i>Haloplegma diuperreyi</i> Montagne	C,I,SWP,AA,SWA,NWA,HW	H	To 15 m	Hard substrates in shaded habitats	[8, 16, 20, 23]
<i>Monosporus</i> sp.			n.a.	n.a.	[13]
<i>Pleonosporium caribaeum</i> (Børgesen) R.E. Norris (13 as <i>Mesothamnion caribaeum</i> Børgesen)	M,SWP,NWP,I,C,SEA,HW		Shallow	Epiphytic	[8, 13]
<i>Prilothamnion speluncarum</i> (Collins & Hervey) D.L. Ballantine & M.J. Wynne (5, 6, 13, 23 as <i>Spermothamnion speluncarum</i> (Collins & Hervey) M.A. Howe)	SEA,NEA,C,SWP,NWP,I	ES	Surfy shore	Rocks, coral	[5, 6, 8, 13, 23]
<i>Spermothamnion investiens</i> (P.L. Crouan & H.M. Crouan) Vickers	C,SEA,NEA,I	B	Shallow	n.a.	[8, 13, 19]
<i>Spyridia clavata</i> Kützinger	SWA,NWA,C,SEA,NEA,IRS		Shallow protected	Hard substrates	[8, 13, 23, 31]
* <i>Spyridia filamentosa</i> (Wulfen) Harvey in W.J. Hooker	M,C,NEA,I-AA,SEA,SWA,NWA,RS,CEP,HW,SWP	B,ES,H,I,N,P	To 8 m, calm protected	Hard substrates	[3, 5, 6, 7, 8, 13, 15–21, 23, 24, 27]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Spyridia hypnoides</i> (Bory de Saint-Vincent) Papeufuss (13 as <i>S. aculeata</i> (Schimp.) Kützing var. <i>hypnoides</i> J. Agardh)	SEA,NEA,M,SWA,NWA,C,I,SW PRS	B	To 8 m, in calm protected areas	n.a.	[8, 13, 16, 18]
<i>Tiffaniella gorgonea</i> (Montagne) Doty & Meñez	SEA,NEA,C		To 20 m	Epiphytic	[8, 13, 16]
<i>Tiffaniella sacchorhiza</i> (Seitchell & N.L. Gardner) Doty & Meñez	SEA,NEA,CEP,C,HW		Intertidal to 3 m	Epiphytic	[6, 8, 13, 23]
<i>Wrangelia argus</i> (Montagne) Montagne	SEA,NEA,C,SWA,NWA,I,SWP,AA	B,H,I,P	To 10 m	Rocks or epiphytic	[4, 6–8, 13, 16, 19, 20, 23, 27, 31]
<i>Wrangelia bicuspoidata</i> Børgesen Family DASYACEAE	C,SWP,NWPI	B	To 40 m	Epiphytic	[8, 15, 16, 23]
<i>Dasya rigidula</i> (Kützing) Ardissonne	SEA,NEA,M,I,C	B	To 10 m	Mangrove prop roots, rocks, or other hard substrates or epiphytic	[8, 13, 15–17, 23]
<i>Dictyurus occidentalis</i> J. Agardh	C,I		Lower intertidal to 30 m	Rocks or other hard substrates	[8, 13, 16, 22, 23]
<i>Heterosiphonia crispella</i> (C. Agardh) M.J. Wynne	M,C,SWP,IAA,SEA,SWA,NWA,RS	B	To 20 m, protected	Mangrove peat, rocks, shell fragments or other hard substrates	[8, 15, 16, 23]
<i>Heterosiphonia gibbesii</i> (Harvey) Falkenberg	C,SWP,SWA,NWA	B	To 6 m	Mangrove peat, coral fragments or other hard substrates	[8, 13, 16, 17, 22, 23]

Family DELESSERIACEAE							
* <i>Caloglossa lepreurii</i> (Montagne) G. Martens	SWA,NWA,C,SEA,SWP, NWP,I,SEP,AA	B,ES,G,P	Intertidal, protected areas	Mangrove prop roots, rocks, or other hard substrates	[1, 3, 5, 7, 8, 15, 16, 18, 19, 23, 24]		
* <i>Caloglossa stipitata</i> E. Post					[6, 8, 16, 23]		
<i>Martensia fragilis</i> Harvey (16, 19, 23 as <i>M. pavonia</i> (J. Agardh) J. Agardh)	SWP,NWP,IAA SWP,C,IAA,HW	B	n.a. To 30m	n.a. Epiphytic	[8, 16, 19, 23]		
Family RHODOMELACEAE							
<i>Acanthophora muscooides</i> (Linnaeus) Bory de Saint-Vincent	SEA,NEA,SWA,NWA,M,C,SWP, NWP,IAA	P	Intertidal to 18 m	Early colonizer on hard substrates	[6-8, 13, 16, 23, 27]		
<i>Acanthophora spicifera</i> (M. Vahl) Børgesen	C,SEA,NEA,I,SWA,NWA,HW,S WP,AA	B,H,I,N,P	Intertidal to 8 m	Early colonizer on hard substrates	[6-8, 13, 15, 16, 18- 21, 23, 27, 31]		
<i>Amanasia multifida</i> J.V. Lamouroux	C,SWA,NWA,I	P	Intertidal - 5 m, calm to exposed to waves	Rocks	[6-8, 13, 16, 23, 27, 30, 31]		
* <i>Bostrychia moritziana</i> (Sonder ex Kützling) J. Agardh	C,SEA,I,SWP,AA,NWA,SWA,N WP	G	Upper intertidal	Mangrove prop roots, rocks, or sea walls	[1, 8, 13, 16, 23, 31]		
* <i>Bostrychia radicans</i> (Montagne) Montagne (6, 13, 27 as <i>B. rivularis</i> Harvey)	C,SEA,NEA,CERI,SWP,SWA,S EP,AA	ES,G	Mid to lower inter- tidal calm water	Mangrove roots, rocks, mud, floating logs or sea walls; in saline or brackish water	[3, 5, 6, 8, 13, 16, 23, 27]		
* <i>Bostrychia tenella</i> (J.V. Lamouroux) J. Agardh (1, 3, 5, 6, 7, 13, 23 as <i>Bostrychia binderi</i> Harvey)	C,SEA,I,SWA,NWA,CEP,SWP,A A,SEP	B,ES,N,P	Upper intertidal	Mangrove prop roots, rocks, or sea walls	[1, 3, 5-7, 13, 15, 16, 18, 19, 21, 23, 24, 27]		
<i>Bryothamnion seaforthii</i> (Turner) Kützling	C,SEA,NEA,SWA,NWA,I		Intertidal to shallow	Coral	[6, 8, 13, 23, 27, 31]		
<i>Bryothamnion triquetrum</i> (S.G. Gmelin) M.A. Howe	C,SEA,NEA,SWA,NWA	P	Shallow to 20m	Hard substrates	[6-8, 13, 16, 23, 27, 31]		

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Chondria baileyana</i> (Montagne) Harvey	C,SWP,NWP		Intertidal to 5 m	Epiphytic or on rocks or other hard substrates	[8, 13, 16, 23, 31]
<i>Chondria dasyphylla</i> (Woodward) C. Agardh	NEA,M,C,CEP,I,SWA,NWP,SEP,SWP	B	Intertidal to 5 m	Coral rubble or fragments	[6, 8, 13, 17, 16, 23]
<i>Chondria floridana</i> (F.S. Collins) M.A. Howe	C,SWA,NWA		Intertidal to 80 m	Rocks or other hard substrates	[6, 8, 13, 16, 23, 31]
<i>Chondria polyrhiza</i> F.S. Collins & Harvey	M,C,SWA,NWA,SWP,NWP,I,HW	B	To 18 m	Hard substrates or epiphytic	[6, 8, 13, 15, 16, 19, 23]
<i>Chondria capillaris</i> (Hudson) M.J. Wynne (6, 13, 23, 31 as <i>C. tenuis-sima</i> (Goodenough & Woodward) C. Agardh)	M,C,SWP,NWP,I,NEA,RS		Intertidal to 1 m	Hard substrates	[6, 8, 13, 16, 23, 31]
<i>Chondrophycus corallopsis</i> (Montagne) Nam (1, 6, 13, 23, 31 as <i>Laurencia corallopsis</i> (Montagne) M.A. Howe)	SEA,NEA,C,SWP,NWP,I	B,G	Intertidal to 3 m	Rocks, coral	[1, 6, 8, 13, 23, 31]
<i>Chondrophycus gemmiferus</i> (Harvey) Garbary & Harper (7, 8, 15, 16, 21, 23 as <i>Laurencia gemmifera</i> Harvey)	C,SWA,NWA	B,N,I,P	To 20 m	Coral fragments in seagrass beds	[7, 8, 15, 16, 18, 21, 23]
<i>Chondrophycus papillosus</i> (C. Agardh) Garbary & Harper (6, 7, 13, 17, 15, 16, 18, 19, 20, 23, 27, 31 as <i>Laurencia papillosa</i> (C. Agardh) Greville)	SEA,NEA,M,C,I,AA,SWA,NWA,RS,SWP	B,H,I,P	Intertidal to 7 m	Hard substrates	[6, 7, 8, 13, 17, 15, 16, 18, 19, 20, 23, 27, 31]
* <i>Digenea simplex</i> (Wulfen) C. Agardh (6, 19, 31 as " <i>Digenia simplex</i> " (Wulfen) C. Agardh)	SEA,NEA,M,C,CEP,IAA,SWA,NWA,RS,SWP	B,G,H,I,P	Lower intertidal to 20 m	Coral fragments, rocks, or other hard substrates	[1, 3, 6, 7, 13, 15, 16, 18-20, 23, 24, 26, 31]

<i>Dipterosiphonia dendritica</i> (C. Agardh) F. Schmitz	M,SEP,AA,SWA,NWA,SEA,SW P,C	2 m		Epiphytic	[8, 23]
<i>Herposiphonia pecten-veneris</i> (Harvey) Falkenberg	C	To 2 m	B,N	Hard substrates or epiphytic	[8, 13, 15, 16, 18, 19, 21, 23]
* <i>Herposiphonia secunda</i> (C. Agardh) Ambrogn	C,SWA,NWA,SEA,NEA,M, CEP;SWP,NWP,I,HW,AA	Intertidal to 2 m	B,ES,N,P	Hard substrates or epiphytic	[3, 5, 7, 8, 17, 16, 19, 21, 23]
* <i>Herposiphonia secunda</i> f. <i>tenella</i> (C. Agardh) M.J. Wynne (3, 5 as <i>Herposiphonia tenella</i> (C. Agardh) Ambrogn)	SEA,NEA,M,SWA,NWA,C, SWP;CEP,I,AA,RS,SEP	Intertidal to 2 m	ES	Coral or epiphytic	[3, 5, 8, 16]
<i>Laurencia brongiartii</i> J. Agardh	SEA,NEA,SWP,NWP,I,AA	15 m	N	Rocks	[8, 21, 23]
<i>Laurencia filiformis</i> (C. Agardh) Montagne (6, 13 also as <i>L. scoparia</i> J. Agardh)	C,SWP,NWP,I,AA,SWA,NWA, SEA,NEA	To 2 m	B	Mangrove prop roots or other hard substrates	[6, 8, 13, 15, 16, 18, 23, 27]
<i>Laurencia intricata</i> J.V. Lamouroux	SEA,NEA,M,C,SWP,NWP,I,AA, RS,CEP	To 3 m	B,H	Rocks, shells or coral fragments in protected sandy areas	[6, 8, 13, 15, 16, 18, 20, 23, 27]
<i>Laurencia</i> c.f. <i>lata</i> M.A. Howe & W.R. Taylor	SWA,NWA,SEA,NEA	n.a.		n.a.	[8, 13]
<i>Laurencia microcladia</i> Kützing	SEA,NEA,M,C,SWA,NWA,SWP	Intertidal	B,P	Rocks	[6-8, 13, 15, 23, 27]
<i>Laurencia obtusa</i> (Hudson) J.V. Lamouroux	M,C,NEA,SEA,SWA,NWA,RS, HW,SWP,AA	Intertidal to 8 m, exposed to waves or currents	B,H,N,P	Rocks or dead coral	[6-8, 13, 15, 16, 18-21, 23, 31]
<i>Neosiphonia sphaerocarpa</i> (Børgesen) M.S. Kim & I.E. Lee (8, 13, 16, 19, 23 as <i>Polysiphonia sphaerocarpa</i> Børgesen)	SEA,NEA,M,HW,C,SWP,I,AA	Lower intertidal to 8 m, wave exposed areas	B	Hard substrates or epiphytic	[8, 13, 16, 19, 23]
<i>Osmundaria obtusiloba</i> (Mertens ex C. Agardh) R.E. Norris (23, 30 as <i>Vidalia obtusiloba</i> (Mertens ex C. Agardh) J. Agardh)	C,SWA,NWA,SWP,NWP,HW	Lower intertidal to 5 m, exposed to moderate wave action		Rocks	[8, 16, 23, 30]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Osmundea sinicola</i> (Setchell & N.L. Gardner) K.W. Nam (6, 13, 23 as <i>Laurencia sinicola</i> Setchell & N.L. Gardner)	SEP,CEP,NEP		Intertidal	Hard substrates	[6, 8, 13, 23]
<i>Polysiphonia atlantica</i> Kapraun & J.N. Norris (6, 13, 31 as <i>P. macrocarpa</i> Harvey, nom. illeg.)	NEA,M,C,SEA,NEA,AA	B,N	To 1 m	Rocks or other hard substrates	[6, 8, 13, 15, 16, 18, 21, 23, 31]
<i>Polysiphonia binneyi</i> Harvey	C		To 9 m	Rocks or coral fragments or epiphytic	[8, 13, 16, 23, 31]
* <i>Polysiphonia ferulacea</i> Suhr ex J. Agardh	SEA,NEA,M,SWA,NWA,C,SWP,NWP,AA	B	Lower intertidal to 36 m	Hard substrates or epiphytic	[6, 8, 13, 16, 17, 19, 23, 27]
<i>Polysiphonia gorgoniae</i> Harvey	C,SWP,NWP,I,SEA,NEA,RS		To 3 m, protected areas	Hard substrates or epiphytic	[8, 13, 16]
* <i>Polysiphonia howei</i> Hollenberg in W.R. Taylor	SWA,NWA,C,SEA,NEA,SWP,IA,A,CEPHW	G,P	Intertidal to subtidal	Rocks or other hard substrates or epiphytic	[1, 6, 7, 8, 13, 16, 23]
<i>Polysiphonia scopulorum</i> var. <i>villum</i> (J. Agardh) Hollenberg (in 23 reported as <i>P. setacea</i> Hollenberg as found by 6 (No. 24356), but in 6 published as <i>Lophosiphonia</i> sp. near <i>L. villum</i> (J. Agardh) Setchell & N.L. Gardner). It remains unclear if that specimen is either <i>Polysiphonia setacea</i> or <i>P. scopulorum</i> var. <i>villum</i>)	C,CEP,SWP,I,SEP,NEP	B	Surfy shore	Edge of reef	[8, 16, 19, 23]

* <i>Polysiphonia subtilissima</i> Montagne	M,C,SWA,SWP,NWPI,AA,SEA, NEA,HW	ES,G	Intertidal	Mangrove prop roots [1, 3, 5, 6, 8, 13, 16, 23] [31]
<i>Polysiphonia</i> sp.			n.a.	n.a.
Phylum CYANOBACTERIA				
Order NOSTOCALES				
Family RIVULARIACEAE				
* <i>Calothrix crustacea</i> Thuret	C,I,NEA,M,RS,CEP,SWP,AA	N	Intertidal to 30m	Epiphytic, mangrove prop roots, fine sediments (sand or mud) [3, 6, 8, 11, 21]
* <i>Calothrix pilosa</i> Harvey	C,CEP,I,SWA,NWA,SEP,SWP,AA		Intertidal	Rocks [3, 6, 8]
Order OSCILLATORIALES				
Family OSCILLATORIACEAE				
<i>Lyngbya majuscula</i> (Dillwyn) Harvey ex Gomont	NEA,C,CEPI,AA,RS,HW,SWP	B	Intertidal to 2m	Coral fragments, other hard substrates or floating [8, 15, 16, 23, 31]
* <i>Lyngbya polychroa</i> (Meneghini) Rabenhorst (1, 3, 5, 6 as <i>L. sordida</i> Gomont; 31 as " <i>Lingbya</i> " <i>sordida</i> (Zanardini) Gomont)	SWP,RS,C,I	B,ES,G	Intertidal to 2m	Epiphytic, rocks, washed-up logs [1, 3, 5, 6, 8, 15, 16, 18, 31]
Family PHORMIDIACEAE				
<i>Microcoleus chthonoplastes</i> (Mertens) Zanardini ex Gomont	SEA,NEA,M,C,AA	ES,G	Intertidal to 3m	Rocks, coral [1, 5, 6, 8, 31]
<i>Phormidium corallinae</i> (Kützing) Anagnostidis & Komárek (6 as <i>Oscillatoria corallinae</i> (Kützing) Gomont)	NEA,I,RS,AA		Intertidal	n.a. [6, 8]
* <i>Symploca hydrooides</i> (Harvey) Kützing	NEA,C,CEPI,HW,SWP,AA		To 20m	Rocks or sandy habitats [3, 6, 8, 16, 24]
<i>Symploca hydrooides</i> var. <i>fasciculata</i> (Kützing) Gomont	n.a.		n.a.	n.a. [6]

(continued)

Species List 2.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Family PSEUDONABENACEAE					
<i>Spirocoleus crosbyanus</i> (Tilden) P. Silva I (6 as <i>Phormidium crosbyanum</i> Tilden)			Intertidal	Rocks, sea walls	[6, 8]
Family SCHIZOTRICHACEAE					
* <i>Schizothrix calcicola</i> (C. Agardh) Gomont ex Gomont	C,I,AA,NEA,M,HW,SWP	B,G,P	Intertidal to 2 m	Epiphytic, rocks or other hard sub- strates	[1, 6-8, 11, 16, 18]
Order STIGONEMATALES					
Family MASTIGOCLADACEAE					
<i>Brachytrichia quoyi</i> (C. Agardh) Bomet & Flahault	NEA,SWP,NWP,C,I,AA	B	Intertidal	Epiphytic, mangrove prop roots, rocks, pilings, wood, or other hard sub- strates	[6, 8, 11, 16, 18, 31]

n.a. = information not available

*Species occur also at the Pacific coast

**Indicates endemic species

^aA = Antarctic; AA = Australasia; C = Caribbean; CEP = Central East Pacific; EA/EP = eastern Atlantic/Pacific; HW = Hawaiian Islands; I = Indian Ocean; M = Mediterranean; NEA/NEP = northeastern Atlantic/Pacific; NWA/NWP = northwestern Atlantic/Pacific; RS = Red Sea; SEA/SEP = southeastern Atlantic/Pacific; SWA/SWP = southwestern Atlantic/Pacific; TEP = tropical eastern Pacific; TWA = tropical west Atlantic; WA/WP = western Atlantic/Pacific

^bB = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cReferences are indicated by numbers according to the reference list

Species List 2.2 Marine benthic algae and Cyanobacteria reported from the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Phylum CHLOROPHYTYA					
Order ULVALES					
Family MONOSTROMATACEAE					
<i>Monostroma</i> c.f. <i>ecuadoreanum</i> W.R. Taylor	SEP	N	Intertidal	Fine sediments (mud flats)	[3, 6, 8]
Family ULVACEAE					
* <i>Enteromorpha lingulata</i> J. Agardh	CER,NEA,M,SWA,SWP,I,NWP	G,P	Intertidal in shallow calm water	Mangrove prop roots, sunken logs, dead coral and other hard substrates or epiphytic	[3, 6, 7, 8, 13, 16, 23, 24, 26, 27, 31, 33]
<i>Ulva compressa</i> Linnaeus (3 as <i>Enteromorpha compressa</i> (Linnaeus) Nees)	SWPEA,NEA,SEA,SWP,NWA,SWA,C,M,RS,I,NWP,NEP,CER,AA,SEP,HW,WP,A,		Intertidal to 25 m	Epiphytic, mangrove prop roots, rocks, or other hard substrates	[3, 8, 16]
* <i>Ulva flexuosa</i> Wulfen (as <i>Enteromorpha flexuosa</i> (Wulfen) J. Agardh)	NEA,SEA,M,C,SWP,I,AA,NEP,SEP,NWA,RS,NWP,CER,A	B, G,P	Intertidal to 5 m	Mangrove prop roots, wood, or epiphytic in brackish water of estuaries	[1, 3, 6, 8, 13, 15, 16, 19, 23, 24, 26, 27, 33]
* <i>Ulva lactuca</i> Linnaeus	NEA, NWP,NEP,CER,SWP,SEP,M, C,SEA,NWA,SWA,RS,I,AA,A	G,P	Intertidal to 10 m, protected calm water	Coral rubble, hard substrates (often in shallow coves or harbors)	[1, 3, 6-8, 13, 16, 23, 24, 26, 27, 31, 35]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Order CLADOPHORALES					
Family ANADYOMENACEAE					
<i>Willeria mexicana</i> Dawson	TEP		1–3 m	Hard substrate	[3]
Family CLADOPHORACEAE					
* <i>Chaetomorpha antennina</i> (Bory de Saint-Vincent) Kützing (5, 6, 7, 23 as <i>C. media</i> (C. Agardh) Kützing)	NEA, SWA, RS, NEP, CEP, SEP, HW, NWA, SWP, C, I, AA	ES, G, N, P	Intertidal, wave-beaten	Rocks	[1, 5, 6, 7, 8, 16, 23, 24]
<i>Chaetomorpha javanica</i> Kützing	SWP, I, SEP, SWP, AA	ES, P	Intertidal	Rocks	[5, 6, 8, 33]
<i>Cladophora crystallina</i> (Roth) Kützing	NWA, M, C, RS, SWP, I, AA	ES, G	14 m, calm water	Rocks	[1, 5, 6, 8]
<i>Cladophora lehmanniana</i> (Lindenbergh) Kützing (6 as <i>C. utriculosa</i> Kützing)	NEA, M, I, SEA, AA, SWP, C		To 8 m	Rocks	[4, 8]
* <i>Cladophora prolifera</i> (Roth) Kützing	NEA, SEA, NWA, SWA, C, M, RS, I, SWP, CEP, AA	B, ES	To 70 m	Fixed or floating, eutrophic environmental conditions	[3, 5, 8, 15, 16, 23, 24, 26]
<i>Cladophora sericea</i> (Hudson) Kützing (3 as <i>C. rudolphiana</i> (C. Agardh) Kützing)	M, NWA, I, AA, NEA, SEA, C, RS, NEP, CEP, SWP, CWP		Intertidal	Rocks	[3, 8]
<i>Cladophora socialis</i> Kützing	M, SEA, SWP, I, AA, CWP, CEP	P	Intertidal	Mangrove trees in estuary	[3, 8, 33]
* <i>Rhizoclonium riparium</i> (Roth) Harvey	NEA, M, C, SEA, NWA, SWA, NWP, NEP, CEP, CWP, I, A, HW, AA	B, G, P	Upper intertidal	Mangrove prop roots	[1, 6, 8, 15, 16, 18, 28, 33]
* <i>Rhizoclonium implexum</i> (Dillwyn) Kützing (13, 4, 7 as <i>R. kochianum</i> Kützing; 23, 6, 31 as <i>R. "kochianum"</i> Kützing; 1, 6, 13, 31 as <i>R. kernerii</i> Stockmayer)	SEA, NWA, SWA, C, RS, I, AA, CEP, SWP, NEA, M, CWP	G, P	Intertidal to 2 m	n.a.	[1, 4, 6, 7, 8, 13, 23, 31]

* <i>Rhizoclonium tortuosum</i> (Dillwyn) Kützing (3, 26 as <i>R. lubricum</i> Setchell & N.L. Gardner) Family BOODLEACEAE	NEA,SEA,NWA,SWA,C,RS,M,I, NWP,NEP,SEP,SWP,AA,A, CEP	Intertidal	n.a.	[3, 6, 13, 23, 26, 31]
<i>Boodlea composita</i> (Harvey) F. Brand (3 as <i>B. siamensis</i> Reinbold) * <i>Phyllocladon anastomosans</i> (Harvey) Kraft & M. J. Wynne (6, 19 as <i>Struvea anastomosans</i> (Harvey) Piccone & Grunow) Family SIPHONOCALADACEAE	C,NEP,I,NWP,CEP,CWP,H,W, SWP,AA,SEA,RS, NEA,C,NWP,M,SEA,I,CEP,H,W, SWP,AA,RS	To 10 m To 1 m	Hard substrates Mangrove prop roots, rocks, or other hard sub- strates	[3, 8, 33] [3, 5, 6, 8, 13, 16, 19, 23, 33]
<i>Cladophoropsis gracillima</i> E.Y. Dawson <i>Cladophoropsis peruviana</i> Howe	CWP, AA SEP,TEP	To 2 m, calm Shallow	Coral fragments Fine sediments (mud)	[3, 8] [5, 6]
<i>Cladophoropsis sundanensis</i> Reinbold BRYOPSIDALES Family BRYOPSIDACEAE	I,C,NWP,AA,CWP,H,W,SWP SWA,I,C,WCP	Shallow Intertidal	Sandy habitats, seepages Rocks	[3, 5, 8] [3, 6, 8, 13, 23]
* <i>Bryopsis pennata</i> var. <i>leptocurii</i> (Kützing) Collins & Hervey Family CODIACEAE <i>Codium</i> sp. Family CAULERPACEAE	NEA,NWP,IAA,RS,C,SWA, NWA,CEP,SWP	n.a. To 80 m	n.a. Mangrove prop roots, or other hard substrates	[3] [3, 5-8, 13, 15, 16, 18-20, 23, 24, 32, 33]
* <i>Caulerpa racemosa</i> var. <i>peltata</i> (J.V. Lamouroux) Eubank (23 as <i>C. racemosa</i> var. <i>laetevirens</i> (Montagne) Weber-van Boss) Family UDOTEACEAE <i>Boodleopsis verticillata</i> E. Y. Dawson	C,SWP,SEP	Upper intertidal	Mangrove prop roots	[28, 33]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Chlorodesmis hildebrandtii</i> A.Gepp & E.S.Gepp	I,CWP,NWP,HW,SWP,AA	ES	Intertidal to 2 m	Rocks	[3, 5, 8]
* <i>Halimeda discoidea</i> Decaisne	NEA,SEA,C,I,NWP,CEP,SWP,H W,AA	B,H,ES,N,P	To 80 m	Coral fragments or sand-covered hard surfaces	[3, 6, 7, 8, 15, 16, 18, 19, 21, 23, 24, 26, 33]
Phylum HETEROKONTOPHYTA					
Class PHAEOPHYCEAE					
Order ECTOCARPALES					
Family CHNOOSPORACEAE					
<i>Chnoospora implexa</i> Hering ex J. Agardh	I,RS,NWP,CWP,HW,SWP,AA		Subtidal	Rocks	[3, 8]
Family SCYTOSIPHONACEAE					
<i>Colpomenia ramosa</i> W.R. Taylor	CEP	P	Intertidal to 14 m	Rocks	[3, 8, 26]
* <i>Colpomenia sinuosa</i> (Mertens ex Roth) Derbès & Solier	NEA,SEA,SWA,C,M,RS,I, WP,NWP,CEP,SEP,HW,SWP, AA,A	B,H,P	Intertidal to 15 m	Coral fragments or other hard substrates, epiphytic	[3, 6, 7, 8, 13, 16, 19, 20, 23, 24, 26, 31]
<i>Roseminglea orientalis</i> (J. Agardh) Børgesen	NWA,C,NWP,I,CWP,HW,SWP, AA		6 m	n.a.	[4, 8]
Order SPHACELARIALES					
Family SPHACELARIACEAE					
* <i>Sphacelaria rigida</i> Kützting (3, 6 as <i>S. furcigera</i> Kützting)	NEA,EA,SEA,NWA,C,M,RS,I, WP,NWP,HW,SWP,SEP,AA,A		Intertidal to 3 m	Epiphytic, rocks or other hard sub- strates	[3, 6, 8, 13, 16, 23, 27]
Order DICTYOTALES					
Family DICTYOTACEAE					
<i>Dictyopteris repens</i> (Okamura) Børgesen	NEA,NWP,I,CWP,HW,SWP,AA	ES	Subtidal to 2 m, wave exposed	Rocks	[3, 5, 8]

<i>Dicoyota binghamiae</i> J. Agardh (3, 7, 24, 26 as <i>D. flabellata</i> (F.S. Collins) Setchell & N.L. Gardner)	NEP,CEP,NWP,CI,SEP,HW	P	21m	Rocks	[3, 7, 8, 24, 26]
* <i>Dicoyota crenulata</i> J. Agardh (23, 27 also as <i>D. jamaicensis</i> Taylor)	NEA,SEA,SWA,C,I,NEP,NWP, CEP,SEP,SWP,I	B,P	To 15m	Hard substrates	[3, 6, 8, 13, 16, 23, 24, 26, 27]
<i>Dicoyota</i> c.f. <i>friabilis</i> Setchell	NWP,I,CWP,SWP,HW	P	Subtidal to 2m	Rocks	[3, 8]
<i>Dicoyota masonii</i> Setchell & Gardner	CEP		Intertidal	n.a.	[4]
<i>Dicoyota divaricata</i> J.V. Lamouroux (according to De Clerck (pers. com. 2004), name should be restricted to Mediterranean specimens, Pacific specimens require revision)	M,SEA,C,SWA,NWP,CEP,I,CWP, HW,AA	B,ES,N,P	1–3 m	Rocks and dead coral	[3, 8]
<i>Dicoyota stolonifera</i> E. Y. Dawson	HW	N	Intertidal	Rocks	[6]
* <i>Lobophora variegata</i> (J.V. Lamouroux) Womersley ex Oliveira (6, 31 as <i>Pocockiella</i> <i>variegata</i> (Lamouroux) Papenfuss)	EA,SWA,C,I,M,RS,NEP,SEP, WPHW,SWP,AA	B,H,ES,N,P	Shallow to 120m	Mangrove prop roots, coral rubble, rocks, or other hard substrates	[3, 5–7, 13, 15–21, 23, 31, 34]
<i>Padina caulescens</i> Thivy	CEP	N	5–9 m	Rocks	[3, 6, 8]
<i>Padina crispata</i> Thivy	CEP	ES	Subtidal to 2 m, surf exposed	Rocks	[3, 5, 8, 24, 26]
<i>Padina durvillaei</i> Bory	SEA,CEP	N	0.5–2m	Rocks	[3, 6, 8, 24, 26]
Order LAMINARIALES					
Family SARGASSACEAE					
<i>Sargassum liebmannii</i> J. Agardh	SEP,CEP	ES,N	Subtidal	Rocks	[3, 5, 6, 8, 21a]
Phylum RHODOPHYTA					
Class BANGIOPHYCEAE					
Order PORPHYRIDALES					
Family PORPHYRIDACEAE					

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
* <i>Stylonema alsidii</i> (Zanardini) K.M. Drew (6, 13 as <i>Gontioirichium alsidii</i> (Zanardini) M. Howe; 3 as <i>G. elegans</i> (Chauvin) Zanardini)	NEA,SEA,NWA,SWA,C,M,I,RS,HW,SWP,SEP,AA	B	Shallow	Epiphytic, epizotic	[3, 6, 8, 13, 23]
Order ERYTHROPELTIDALES					
Family ERYTHROPELTIDACEAE					
<i>Smithora naiadum</i> (C.L. Anderson) G.J. Hollenberg (26 as <i>Porphyra naiadum</i> C.L. Anderson)	NEP,CEP		Subtidal	On barnacles on rocks	[8, 26]
Family ERYTHROTRICHIACEAE					
* <i>Erythrotrichia carnea</i> (Dillwyn) J. Agardh	NEA,NWA,SWA,M,RS,C,NWPI,NEP,CEP,SEP,HW,SWP,A,AA	G	Shallow	Epiphytic or on rocks	[1, 3, 6, 8, 13, 23]
Order BANGIALES					
Family BANGIACEAE					
<i>Bangia atropurpurea</i> (Roth) C. Agardh (3, 26 as <i>B. fuscopurpurea</i> (Dillwyn) Lyngbye)	NEA,M,SEA,SWA,C,I,NWP,NEP,AA,A,CWP,SEP,HW		Shallow, exposed to surf	Rocks	[3, 8, 26]
<i>Porphyra</i> sp.	n.a.		n.a.	Shells	[24]
Class FLORIDEOPHYCEAE					
Order ACROCHAETIALES					
Family ACROCHAETIACEAE					
<i>Acrochaetium infestans</i> M.A. Howe & Hoyt	NEA		3 m	Endozoic in hydroids	[4, 8]
<i>Acrochaetium vagum</i> (Drew) Jao (3 as <i>A. penetrale</i> (Drew) Papenfuss)	CEP		n.a.	n.a.	[3, 8]
Order CORALLINALES					
Family SPOROLITHACEAE					

** <i>Sporolithon pacificum</i> Dawson Family CORALLINACEAE	Costa Rica	Intertidal	Rocks	[4, 8]
<i>Amphiroa annulata</i> M. Lemoine	SEA, CEP, CWP, SWP	Intertidal	Rocks	[3, 8, 26]
<i>Amphiroa</i> c.f. <i>annulata</i> var. <i>pinnata</i> E. Y. Dawson	CEP	Intertidal	Rocks	[3, 8]
<i>Amphiroa beaufossii</i> J. V. Lamouroux	SEA, M, C, SWA, SWP, I, A, CWP	To 2 m	Hard substrates	[3, 8, 15, 16]
<i>Amphiroa dimorpha</i> M. Lemoine	CEP	Tide pools		[3, 5, 6, 8]
<i>Amphiroa foliacea</i> J. V. Lamouroux	NWP, CEP, I, SWP, HW, CWP, AA	Exposed to waves	Rocks	[5, 6, 8]
<i>Amphiroa minutissima</i> W. R. Taylor	CEP	Intertidal	Rocks	[3, 8, 26]
** <i>Amphiroa polymorpha</i> M. Lemoine	CEP	Intertidal, tide pools	Hard substrate	[8, 26]
<i>Amphiroa taylorii</i> E. Y. Dawson	CEP	Intertidal to shallow	Rocks	[3, 6, 8]
<i>Hydroolithon onkodes</i> (Heydrich) Penrose & Woelkerling (4 as <i>Porolithon onkodes</i> (Heydrich) Foslie)	NEA, C, SEA, CEP, HW, NW, P, I, AA, SWP, RS	Intertidal	n.a.	[4, 8]
* <i>Jania capillacea</i> Harvey	SEA, NEA, NWA, SWA, C, RS, I, CE P, SWP	To 15 m	Epiphytic	[3, 5, 6, 7, 8, 13, 15, 16, 19, 27]
<i>Jania longiarthra</i> E. Y. Dawson	M, CEP, SWP, I	0.5–1 m	Rocks	[3, 8]
* <i>Jania tenella</i> (Kützting) Grunow	SEA, NEA, I, RS, NEP, SEP, SWP	2 m	Epiphytic or on rocks	[3, 5, 6, 8, 13, 23]
<i>Jania tenella</i> var. <i>zaccae</i> Dawson	CEP, SWP	To 2 m	Epiphytic	[3, 6, 8]
<i>Lithophyllum canescens</i> (Foslie) Foslie (3, 5, 6 as <i>Dermatolithon canescens</i> (Foslie) Foslie)	CEP	Intertidal to 10 m	Dead coral or epiphytic	[3, 5, 6, 8]
<i>Lithothamnion</i> c.f. <i>heteromorphum</i> (Foslie) Foslie	Costa Rica	Shallow	Rocks	[3, 8]
<i>Lithothamnion validum</i> Foslie	M, CEP	18 m	n.a.	[3, 8, 26]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
**Neogoniolithon trichotomum (Heydrich) Setchell & Mason (6, 13 as <i>Lithophyllum trichotomum</i> (Heydrich) M. Lemoine)	I,N,NWP,SWP,CEP	P	Tide pools	Rocks	[6, 8, 13, 23]
**Porolithon castellum Dawson <i>Spongites decipiens</i> (Foslie) Y.M. Chamberlain (3 as <i>Lithophyllum</i> c.f. <i>decipiens</i> (Foslie) Foslie)	Costa Rica NEP,I		Intertidal to 8 m 2 m	Coral Coral fragments	[4, 8] [3, 8]
Order GELIDIALES Family GELIDIACEAE *Gelidium pusillum (Stackhouse) Le Jolis	NEA,NWA,SWA,M,C,RS,I,NEP, CEP,HW,SWP,AA	ES,P	Intertidal to 8 m, wave exposed	Rocks, shells or other hard sub- strates	[3, 5, 6, 7, 8, 13, 16, 23, 26, 27]
<i>Gelidium sclerophyllum</i> W.R. Taylor <i>Pterocladia menabbiana</i> Dawson	CEP Costa Rica	ES,N ES	5 m Subtidal, protected	Rocks Hard substrates	[3, 5, 6, 8, 26] [3, 5]
<i>Pterocladia musciformis</i> W.R. Taylor Family GELIDIACEAE	Costa Rica	ES	Shallow	Rocks	[3, 5, 8, 26]
<i>Gelidiella hancockii</i> E. Y. Dawson <i>Gelidiella machrisiana</i> E. Y. Dawson	CEP SEA,M,I,AA,HW,SWP	P	Intertidal Intertidal	Rocks Rocks or shell fragments	[4, 8] [3, 8]
<i>Gelidiella pinnosa</i> (Feldmann) Feldmann & G. Hamel (3 as <i>G. tenuissima</i> Feldmann & G. Hamel)	NEA,M,SWP,I,AA,SEA,SWA,C WP	ES	Intertidal to subtidal	Rocks	[3, 8]
Order HILDENBRANDIALES Family HILDENBRANDIACEAE *Hildenbrandia rubra (Sommerfelt) Meneghini (as " <i>Hildenbrandia</i> ") (6, 24, 26 as <i>H. prototypus</i> Nardo)	NEA,SWA,C,M,I,NWP,CEP, NEP,AA,A	ES,G,P	Intertidal to subtidal	Rocks	[1, 3, 6, 7, 8, 23, 24, 26]

Order NEMALIALES					
Family LIAGORACEAE					
* <i>Liagora ceranoides</i> J.V. Lamouroux (23 as " <i>L. cerantoides</i> " J.V. Lamouroux)	SEA,NEA,SWA,NWA,C,M,I,CEP; B,H,I,P WPS,SWP,HW,AA	B,H,I,P	To 20 m	Rocks or coral fragments	[3, 7, 8, 15, 16, 20, 23, 26]
* <i>Liagora valida</i> Harvey	SEA,NEA,SWA,NWA,C,I,CEP, HW,SWP,AA	B,H,I,P	Intertidal (tide pools) to 2 m, often wave exposed	Rocks or coral fragments	[3, 6, 7, 8, 13, 16, 19, 20, 23, 24, 26, 31]
Family GALAXAURACEAE					
<i>Galaxaura filamentosa</i> R. Chou ex W.R. Taylor	SEA,CEP,NWP,I,AA,SWP, CWP,HW		Intertidal	Rocks	[3, 8, 26]
* <i>Galaxaura marginata</i> (Ellis & Solander) J.V. Lamouroux (6 as <i>G. arborea</i> Kjellman; 13, 31, as <i>G. frutescens</i> Kjellman; 3 as <i>G. veprecula</i> Kjellman; 3 as <i>G. stupecaula</i> Kjellman; 26 as <i>G. stupecaulon</i> Kjellman)	SEA,NEA,NWA,SWA,C,RS,I, HW,SWP,SEP,CEP,AA	B,H,I,P	Shallow to 10 m	Mangrove prop roots, rocks, on shallow reef flats or in tide pools	[6, 7, 13, 15, 18, 20, 23, 27, 31]
<i>Galaxaura ramulosa</i> Kjellmann	CEP	P	1–3 m	Rocks, dead coral	[3, 7, 8]
* <i>Scinaia complanata</i> (F.S. Collins) A.D. Cotton	NEA,NWA,SWA,M,I,CEP		To 30 m	Coral fragments on sand plains	[3, 8, 13, 16, 23, 26, 30, 31]
<i>Scinaia confusa</i> (Setchell) Huisman (4 as <i>Gloiophloea confusa</i> Setchell)	CEP,NEP		25–30 m	n.a.	[4, 8]
<i>Scinaia johnstoniae</i> Setchell	SEA,CEP		10 m	n.a.	[3, 8, 26]
Order BONNEMAIISONIALES					
Family BONNEMAIISONIACEAE					
* <i>Asparagopsis taxiformis</i> (Delile) Trevisan (by 1, 23 only found as <i>Falkenbergia hillebrandii</i> – sporophytic stage)	SEA,NEA,NWA,SWA,C,M,RS,I, SEP,NEPHW,SWP,AA	B,G,N	To 14 m	mangrove prop roots, coral, rocks, or epiphytic	[1, 8, 16, 21, 23, 24]
Order GIGARTINIALES					
Family CAULACANTHACEAE					

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
* <i>Catenella caespitosa</i> (Withering) L.M. Irvine (7, 19, 21 as <i>C. repens</i> (Lightfoot) Batters; 6 as <i>C. opunitia</i> Greville)	NEA,SWA,M,C,SWP,NWP,I,SEP	B,N,P	Intertidal	Mangrove prop roots, rocks, or coral fragments	[6, 7, 8, 15, 16, 18, 19, 21, 23, 28]
* <i>Catenella impudica</i> (Montagne) J. Agardh	SEA,NEA,SWA,C,I,SWP,NWP,SEP	ES	Upper intertidal	Mangrove prop roots	[5, 6, 8, 27, 28]
<i>Caulacanthus ustulatus</i> (Turner) Kützing (3 as <i>C. c.f. indicus</i> Weber-van Bosse)	NEA,M,SWA,SEA,NWP,CEP, CWP,HW,AA,NEP,I		Subtidal	Rocks	[3, 8]
Family HYPNEACEAE					
<i>Hypnea esperi</i> Bory de Saint-Vincent nom. illeg.	M,NEP,NWP,I,AA,A,CEP,CWP		0.5–2 m	Rocks	[3, 8]
<i>Hypnea pannosa</i> J. Agardh	NEP,CEP,I,AA,SEA,RS,CWP,SWP,HW	ES,N,P	Subtidal, exposed to surf	Rocks	[3, 5, 6, 7, 8, 24]
* <i>Hypnea spinella</i> (C. Agardh) Kützing (5, 6, 7, 13, 19, 23, 31 also as <i>H. cervicornis</i> J. Agardh)	SEA,NEA,SWA,NWA,C,M,RS,I, HW,SWP,SEP,AA	B,ES,H,I,N,P	Intertidal to 30 m	Rocks, coral fragments or epiphytic	[5, 6, 7, 8, 13, 15, 16, 19, 20, 23, 27, 31]
Family PEYSSONNELIACEAE					
<i>Cruoriella fissurata</i> E. Y. Dawson	CEP,CWP	P	Intertidal to subtidal	Rocks	[3, 4, 7, 8]
<i>Cruoriella mexicana</i> (E. Y. Dawson) Denizot (3, 4 as <i>Cruoriopsis mexicana</i> E. Y. Dawson)	CEP		Intertidal to subtidal	Rocks	[3, 4, 8]
<i>Peyssonnelia conchicola</i> Piccone & Grunow	NWA,C,RS,I,CWP,CEP,SWP, HW,AA		20–60 m	Hard substrates	[3, 8, 16]
* <i>Peyssonnelia rubra</i> (Greville) J. Agardh	NEA,NWA,C,M,RS,HW,SWP,I, AA	P	Intertidal	Rocks in subdued light conditions	[6, 7, 8, 23, 24, 27, 31]
Family PHYLLOPORACEAE					

<i>Gymnogongrus johnstonii</i> (Setchell & Gardner) E. Y. Dawson	CEP	ES	Tidal estuary	n.a.	[4, 8]
Family SOLIERACEAE					
<i>Sarcoditoecha ecuadoreana</i> W.R. Taylor	CEP		10–50m	n.a.	[3, 26]
Family WURDEMANNIACEAE					
<i>Wurdemannia miniata</i> (Sprengel) Feldmann & G. Hamel	NEA,NWA,SWA,M.C,CEP,SWP, HW,I,AA,A	B,ES,N,P	Intertidal to 30m	Mangrove prop roots, rocks, or coral fragments	[3, 5, 6, 7, 8, 16, 19, 21, 26]
Order HALYMENIALES					
Family HALYMENIACEAE					
<i>Cryptonemia angustata</i> (Setchell & N.L. Gardner) E. Y. Dawson nom. illeg.	CEP	ES	5–30m	n.a.	[4, 5, 8]
<i>Cryptonemia limensis</i> (Kützing) J.A. Dawson (4 as <i>C. guaymasensis</i> (E. Y. Dawson) E. Y. Dawson)	CEP		8m	n.a.	[4, 8]
<i>Halymenia actinophylla</i> M.A. Howe	SEA,CEPHW		25–100m	n.a.	[4, 8]
Order GRACILARIALES					
Family GRACILARIACEAE					
<i>Gracilaria crispata</i> Setchell & Gardner	CEP,SEP	ES	Intertidal, tide pools	Rocks	[3, 5, 8]
** <i>Gracilaria crockeri</i> E. Y. Dawson	Costa Rica		n.a.	n.a.	[2, 3]
<i>Gracilaria tepocensis</i> (E. Y. Dawson) E. Y. Dawson	CEP,SEPC	ES	Subtidal to 5m	Hard substrate	[5, 8, 19a]
<i>Gracilariopsis costaricensis</i> E. Y. Dawson (3 also as <i>Gracilaria costaricensis</i> E. Y. Dawson)	CEP		Intertidal to 10m	Mud flats	[2, 3, 8]
<i>Gracilariopsis panamensis</i> (W.R. Taylor) E. Y. Dawson	CEP	P	3.5–36m	n.a.	[3, 8, 26]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Order RHODYMENIALES					
Family CHAMPIACEAE					
* <i>Champia parvula</i> (C. Agardh) Harvey	M,SWA,NWA,CEP,I,AA,NEA,S WP,HW	B,H,N	To 15 m	Sandy rocks or epiphytic	[3, 8, 13, 16, 19, 20, 21, 23, 30, 31]
Family LOMENTARIACEAE					
** <i>Botryocladia beaudettei</i> E. Y. Dawson	Costa Rica		6–7 m	cobble and shell bottom	[4, 8]
* <i>Gelidiopsis intricata</i> (C. Agardh) Vickers	SEA,NEA,C,M,I,AA,SWA,NWA, HW,SWP	B	intertidal to 10 m	mangrove prop roots or other hard substrates	[6, 8, 13, 15, 16, 18, 23, 27]
<i>Gelidiopsis tenuis</i> Setchell & Gardner	CEP,SEP	ES	subtidal to 3 m	rocks, dead coral	[3, 5, 8]
<i>Lomentaria baileyana</i> (Harvey) Farlow	SEA,NEA,SWA,NWA,C,I,CEP,S WP,NWP	B	dredged, to 57 m		[8, 26]
<i>Lomentaria hakodatensis</i> Yendo	M,NWP,NEP,CEP,SWP,HW,AA		8–15 m	n.a.	[4, 8]
Order CERAMIALES					
Family CERAMIAACEAE					
<i>Antithamionella elegans</i> (Berthold) J.H. Price & D.M. (3, 5, 7 as <i>Antithamion breviramosus</i> E. Y. Dawson)	NEA,SEA,NWA,C,M,CEP,SWP,I WP,NWP	P,ES	1–13 m	Epiphytic	[3, 5, 7, 8]
<i>Callithamnion marshallense</i> E. Y. Dawson	CEP		3 m	n.a.	[4, 8]
* <i>Centroceras clavulatum</i> (C. Agardh) Montagne	M,C,SWA,NWA,SWP,NWP, CEP,I,SEA,SEP,AA,SWP,HW	B,ES,G,N,P	Intertidal	Mangrove prop roots, rocks, and other hard substrates, or epiphytic	[3, 5, 6, 7, 13, 15, 16, 18, 19, 21, 23, 27, 31]
<i>Ceramium avalonae</i> E. Y. Dawson	I		5–15 m	n.a.	[4, 8]
<i>Ceramium equisetoides</i> E. Y. Dawson	CEP,SWP		Subtidal to 2 m	Rocks	[3, 8]

* <i>Ceramium flaccidum</i> (Harvey ex Kützting) Ardissone (3, 5, 6 as <i>C. gracillimum</i> var. <i>byssoides</i> ; 3, 5 as <i>C. taylorii</i> Dawson)	NWA,SWA,M,C,NEA,I,SEA,HW,SWP,SEP,AA,CEP	B,ES,N	To 22 m	Epiphytic or on sunken logs	[3, 5, 6, 8, 13, 15, 16, 18, 19, 21, 23, 31]
<i>Ceramium marshallense</i> E.Y. Dawson	SWP,I,AA		Subtidal to 2 m	n.a.	[3, 8]
<i>Ceramium macatlanense</i> E.Y. Dawson	SEA,CEP,SWP,I,AA,HW	ES	n.a.	n.a.	[3, 5, 8]
<i>Ceramium nakamurae</i> E.Y. Dawson	NWP		Intertidal	rocks	[3, 8]
<i>Ceramium personatum</i> Setchell & N.L. Gardner	CEP,SWP,		n.a.	Epiphytic	[3, 8, 26]
<i>Ceramium procumbens</i> Setchell & N.L. Gardner	NWP,CEP,I	ES	3–9 m	n.a.	[4, 5, 8]
<i>Ceramium vagans</i> P.C. Silva in P. Silva, Meñez, & Moe (3, 5 as <i>C. vagabunde</i> E.Y. Dawson)	SWP,HW,I	ES	Intertidal	Epiphytic or on rocks	[3, 5, 8]
<i>Griffithsia ovalis</i> Harvey	CEP,SWP,I,AA		Intertidal	Rocks	[6, 8]
<i>Pleonosporium globuliferum</i> Levring	CEP,SWP,SEP	ES	Subtidal to 2 m	Rocks	[3, 4, 5, 8]
* <i>Spyridia filamentosa</i> (Wulfen) Harvey	M,C,NEA,I,AA,SEA,SWA,NWA,RS,CEPHW,SWP	B,ES,H,I,N,P	To 8 m, calm protected	Hard substrates	[3, 6, 7, 8, 13, 15, 17, 16, 18, 19, 20, 21, 23, 24, 27]
<i>Wrangelia dumontii</i> (E.Y. Dawson) I.A. Abbott (4, 7 as <i>Antithamion dumontii</i> Dawson)	CEP,SWP	P	Intertidal	Coral fragments	[4, 7, 8]
Family DASYACEAE					
<i>Dasya</i> sp.		n.a.			[3]
<i>Heterosiphonia crispella</i> var. <i>laxa</i> (Børgesen) M.J. Wynne (3, 19 as <i>H. wurdemannii</i> var. <i>laxa</i> Børgesen)	NWA,SEA,C,I,AA,NEA,SWP	B	Subtidal to 2 m	Rocks	[3, 8, 19]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
Family DELESSERIACEAE					
* <i>Caloglossa lepreurii</i> (Montagne) G. Martens	SWA,NWA,C,SEA,SWP,NWP,I,S EP,AA	B,ES,G,P	Intertidal	Mangrove prop roots, rocks, or other hard sub- strates	[1, 3, 5, 7, 8, 15, 16, 18, 19, 23, 24, 28]
<i>Caloglossa lepreurii</i> var. <i>hookeri</i> Post	C,SWP,I,NWA		n.a.	n.a.	[3, 8]
* <i>Caloglossa stipitata</i> E. Post	SWP,I,NWP,I,AA		Intertidal	Mangrove prop roots	[6, 8, 28]
<i>Cryptopleura</i> sp.	n.a.		Intertidal to 2 m 24 m	Rocks	[3]
<i>Hypoglossum abyssicolum</i> Taylor	SEP,CEP			n.a.	[3, 8, 26]
Family RHODOMELACEAE					
<i>Bostrychia calliptera</i> (Montagne) Montagne	C,SEA,CEP,SWP,I	N,P	Intertidal	Rocks or mangrove roots	[6, 7, 8, 28]
* <i>Bostrychia moritziana</i> (Sonder ex Kützinger) J. Agardh	C,SEA,I,SWP,AA,NWA,SWA,N WP	G	Upper intertidal	Mangrove prop roots	[8, 28]
<i>Bostrychia pinnata</i> J. Tanaka & M. Chijjara	NWP,AA,SWP		Upper intertidal	Mangrove prop roots	[8, 28]
<i>Bostrychia pilulifera</i> Montagne	C,SEA,SWA		Upper intertidal	Mangrove prop roots	[8, 28]
* <i>Bostrychia radicans</i> (Montagne) Montagne (6, 13, 27 as <i>B. rivularis</i> Harvey)	C,SEA,NEA,CEP,I,SWP,SWA,S EP,AA	ES,G	Mid to lower inter- tidal calm water	Mangrove roots, rocks, mud, floating logs or sea walls; in saline or brackish water	[3, 5, 6, 8, 13, 16, 23, 27, 28]
<i>Bostrychia simpliciuscula</i> Harvey ex J. Agardh	SEA,NWP,I,SWP,AA		Intertidal	Mud? ("under man- groves")	[3, 8]
* <i>Bostrychia tenella</i> (J.V. Lamouroux) J. Agardh (1, 3, 5, 6, 7, 13, 23 as <i>B. binderi</i> Harvey)	C,SEA,I,SWA,NWA,CEP,SWP,A A,SEP	B,ES,N,P	Upper intertidal	Mangrove prop roots, [1, rocks, or sea walls	[1, 3, 5, 7, 8, 13, 15, 16, 18, 21, 23, 24, 27]

<i>Chondria californica</i> (Collins) Kylin	CEP,SEP		Dredged	Shells, hard substrates	[26, 8]
<i>Chondria lancifolia</i> Okamura	NWP		Subtidal to 2 m	Rocks	[3, 8]
<i>Chondria repens</i> Børgesen	SWP,I,AA,NWP		Intertidal	Rocks	[3, 8]
<i>Chondria platyclada</i> Taylor	CEP		Dredged, 18 m	n.a.	[26, 8]
* <i>Digenea simplex</i> (Wulfen) C. Agardh	SEA,NEA,M,C,CEP,I,AA,SWA,NWA,RS,SWP	B,G,H,P	Lower intertidal to 20 m	Coral fragments, rocks, or other hard substrates	[1, 3, 6, 7, 8, 13, 15, 16, 18, 23, 24, 26, 31]
(6, 31 as " <i>Digenia</i> " <i>simplex</i> (Wulfen) C. Agardh)					
* <i>Herposiphonia secunda</i> (C. Agardh) Ambrogn	C,SWA,NWA,SEA,NEA,M,CEP,SWP,NWP,I,HW,AA	B,ES,N,P	Intertidal to 2 m	Hard substrates or epiphytic	[3, 5, 78, 16, 19, 21, 23]
* <i>Herposiphonia secunda</i> f. <i>tenella</i> (C. Agardh) M.J. Wynne (3, 5 as <i>H. tenella</i> (C. Agardh) Ambrogn)	SEA,NEA,M,SWA,NWA,C,SWP,CEP,I,AA,RS,SEP	ES	Intertidal to 2 m	Coral or epiphytic	[3, 5, 8, 16]
<i>Herposiphonia subdisticha</i> Okamura	CEP,NWP,AA,SWP,SEP	ES	Intertidal to 2 m	Rocks	[3, 5, 8]
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	NEA,M,SEA,SWP,I	ES	Intertidal	Epiphytic	[3, 5, 8]
<i>Polysiphonia beaudettei</i> Hollenberg	SWP,HW,AA		4-60 m	Fine sediments (sand), rocks, or shells	[10]
<i>Polysiphonia bifurcata</i> Hollenberg	CEP		9-92 m	Fine sediments (sand, mud)	[3, 26]
* <i>Polysiphonia ferulacea</i> Suhr ex J. Agardh	SEA,NEA,M,SWA,NWA,C,SWP,NWP,I,AA	B	Lower intertidal to 36 m	Hard substrates or epiphytic	[6, 8, 13, 17, 16, 19, 23, 27, 31]
* <i>Polysiphonia howei</i> Hollenberg	SWA,NWA,C,SEA,NEA,SWP,I,AA,CEP,HW	G,P	Intertidal to subtidal	Rocks or other hard substrates or epiphytic	[1, 6, 7, 8, 13, 16, 23]
<i>Polysiphonia mollis</i> J.D. Hooker & Harvey	NEP,SEP,SWP,I,AA		Intertidal to 2 m	Epiphytic, rocks, coral	[3, 8]
<i>Polysiphonia scopulorum</i> Harvey (3 as <i>Lophosiphonia scopulorum</i> (Harvey) Wormsley)	NEA,SEA,M,C,NEP,SWP,I,HW,AA	B	Deeper tide pools	Rocks	[3, 8]
<i>Polysiphonia sertularioides</i> (Grateloup) J. Agardh (10, 16 as <i>P. flaccidissima</i> Hollenberg)	M,NWA,C,SEA,I,SWP,AA,NEA	B	To 50 m	Epiphytic	[8, 10, 16]

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>Polysiphonia simplex</i> Hollenberg	CEP,HW		Intertidal	Rocks or sandy habitat	[8, 10]
* <i>Polysiphonia subtilissima</i> Montagne	M,C,SWA,SWP,NWPI,AA,SEA, NEA,HW	ES,G	Intertidal	Mangrove prop roots	[1, 3, 5, 6, 8, 13, 16, 23]
Phylum CYANOBACTERIA					
Order CHROOCOCCALES					
Family DERMOCARPELLACEAE					
<i>Cyanocystis violacea</i> (P.L. Crouan & H.M. Crouan) Komárek & Anagnostidis (11, 24, 26 as <i>Dermocarpa violacea</i> P.L. Crouan & H.M. Crouan)	NEA,CEP		n.a.	Rocks	[11, 24, 26]
Family ENTOPHYSALIDACEAE					
<i>Entophysalis conferta</i> (Kützting) F.E.Drouet & W.A.Dailey	NEA,SEA,SWA,C,M,RS,I,SWP,AA	P	Intertidal	Epiphytic or fine sediments (sand, mud)	[3, 7, 8, 11]
<i>Entophysalis deusta</i> (Meneghini) F.E. Drouet & W.A. Dailey	C,M,NEA,I,SEA,RS,SWP,AA	G,P	Subtidal	Rocks, wood, shells, coral	[1, 3, 7, 8, 11]
<i>Entophysalis granulosa</i> Kützting	NEA,I,CEP,AA	G	n.a.	Rocks, epiphytic	[26, 24]
Family MERISMOPEDIACEAE					
<i>Merisopedia glauca</i> (Ehrenberg) Kützting	I,NEA,HW,AA		Intertidal?	Rocks	[8, 24, 26]
Order NOSTOCALES					
Family RIVULARIACEAE					
* <i>Calothrix crustacea</i> Thuret in Bomet & Thuret	C,I,NEA,M,RS,CEP,SWP,AA	N	Intertidal to 30 m	Epiphytic, mangrove prop roots, fine sediments (sand or mud)	[3, 6, 8, 11, 21]

* <i>Calothrix pilosa</i> Harvey	C,CEP,I,WA,SEP,SWP,AA						
<i>Isactis plana</i> (Harvey) Thuret ex Bornet & Flahault	NEA,CEP,I,AA						[3, 6, 8] [3, 8, 26]
Family SCYTONEMATACEAE							
<i>Plectonema norvegicum</i> Gomont	n.a.						[3]
Order OSCILLATORIALES							
Family OSCILLATORIACEAE							
<i>Lyngbya aestuarii</i> (Mertens) Liebman	NEA,CEP,AA	B,ES,G					
<i>Lyngbya confervoides</i> C. Agardh ex Gomont	EA,C,SEPI	B,P					
<i>Lyngbya gracilis</i> (Meneghini) Rabenhorst	I,CEP	G					
<i>Lyngbya gracilis</i> var. <i>monilis</i> (Setchell & N.L. Gardner) Drouet	CEP						
<i>Lyngbya semiplena</i> (C. Agardh) J. Agardh (3 as <i>L. semiplena</i> Gomont)	NEA,C,RS,CEP,I,SWP,AA						
* <i>Lyngbya polychroa</i> (Meneghini) Rabenhorst (1, 3, 5, 6 as <i>L. sordida</i> Gomont; 31 as <i>Lyngbya sordida</i> (Zanardini) Gomont)	SWP,RS,C,I						
<i>Planktothrix planctonica</i> (Elenkin) Anagnostidis & Komárek (3 as <i>Hydrocoleum lyngbyaceum</i> Kützing)	NEA,C,NEP,HW,AA,CEP	B,ES,G					
Family PHORMIDIACEAE							
<i>Hydrocoleum glutinosum</i> (C. Agardh) Gomont	NEA,I,AA						

(continued)

Species List 2.2 (continued)

Species	World distribution ^a	Central America ^b	Habitat	Substrate	References ^c
<i>*Symploca hydroides</i> (Harvey) Kützing	NEA, C, CEP, I, HW, SWP, A, A		To 20 m	Rocks or sandy habitats	[3, 6, 8, 16, 24]
Family SCHIZOTRICHACEAE					
<i>**Schizothrix calcicola</i> (C. Agardh) Gomont ex Gomont	C, I, A, A, NEA, M, HW, SWP	B, G, P	Intertidal to 2 m	Epiphytic, rocks or other hard substrates	[1, 3, 6, 7, 8, 11, 16, 18]
<i>Amphithrix violacea</i> (Kützing) Bornet & Flahault	n. a.		1–2 m above low water level (spray)	Rocks	[3, 8]

n. a. = information not available

*Species occur also at the Caribbean coast

**Indicates endemic species

^aA = Antarctic; AA = Australasia; C = Caribbean; CEP = Central East Pacific; EA/EP = eastern Atlantic/Pacific; HW = Hawaiian Islands; I = Indian Ocean; M = Mediterranean; NEA/NEP = northeastern Atlantic/Pacific; NWA/NWP = northwestern Atlantic/Pacific; RS = Red Sea; SEA/SEP = southeastern Atlantic/Pacific; SWA /SWP = southwestern Atlantic/Pacific; TEP = tropical east Pacific; TWA = tropical west Atlantic; WA /WP = western Atlantic/Pacific

^bB = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cReferences are indicated by numbers according to the reference list

Species List 3.1 Seagrasses found on the Caribbean coast of Costa Rica

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class ANGIOSPERMAE						
Order ALISMATALES						
Family HYDROCHARITACEAE						
<i>Halophila decipiens</i> Ostenfeld, 1902	ct	B,N,P	st	0–30	cr, sb	[3, 6, 9, 13]
<i>Thalassia testudinum</i> Banks ex König, 1805	Car, GM	B, G, H, N, P	st	0–10	cr, mb, rb, rub, sb	[2, 3, 4, 5, 6, 7, 8, 9, 10, 11]
Order NAJADALES						
Family CYMODOCEACEAE						
<i>Halodule wrightii</i> Ascherson, 1868	ct	B, N, P	st	0–15	cr, mb, rb, sb	[3, 6, 9]
<i>Syringodium filiforme</i> Kützing, 1860	Car, GM	B, N, P	st	0–5	cr, rb, rub, sb	[2, 3, 4, 5, 6, 9]

^aCar = Caribbean; ct = circumtropical; GM = Gulf of Mexico

^bB = Belize; G = Guatemala; H = Honduras; N = Nicaragua; P = Panamá

^cst = Subtidal

^dUppermost and lowermost occurrences (in meters)

^ecr = coral reefs; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom

^fReferences are indicated by numbers according to the reference list.

Species List 3.2 Seagrasses found on the Pacific coast of Costa Rica

	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
Order NAJADALES							
Family RUPPIACEAE							
<i>Ruppia maritima</i> Linnaeus, 1753	cp	CA	PM	st	1–3	sb	[1, 3, 6, 9, 12]
Order ALISMATALES							
Family HYDROCHARITACEAE							
<i>Halophila baillonis</i> Ascherson, 1874	Car,EP	P	PM	st	3–10	sb	[1, 3, 6, 9]

^aCar = Caribbean; cp = Cosmopolitan; EP = Eastern Pacific

^bCA = all Central American countries; P = Panama

^cPM = Pacific mainland

^dst = subtidal

^eUppermost and lowermost occurrence (in meters)

^fsb = sandy bottom

^gReference s are indicated by numbers according to the reference list

Species List 4.1 Mangrove species occurring along the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/ community ^d	Nuclear vegetation	Associated vegetation	References ^e
Family AVICENNIACEAE							
<i>Avicennia germinans</i> (L.) Steud., 1958	Car,WP	CA	it	mb	X		[1-3, 5]
Family COMBRETACEAE							
<i>Conocarpus erecta</i> L., 1753	Car,WP	CA	it	mb	X		[1-3, 5]
<i>Laguncularia racemosa</i> (L.) Gaertn.f., 1805	Car,WP	CA	it	mb	X		[1-3, 5]
Family							
RHIZOPHORACEAE							
<i>Rhizophora mangle</i> L., 1753	Car,WP	CA	it	mb	X		[1-3, 5]
Family APOCYNACEAE							
<i>Rhabdadenia biflora</i> (Jacq.) Muell. Arg., 1860	Car,WP	CA	st	sb		X	[3, 5]
Family ARACEAE							
<i>Montrichardia arborescens</i> (L.) Schott, 1854	Car,WP	CA	st	mb		X	[3]
Family EUPHORBIACEAE							
<i>Hippomane mancinella</i> L., 1753	cp	CA	st	sb		X	[3, 5]
Family FABACEAE							
<i>Mora oleifera</i> (Triana) Ducke, 1925	Car,WP	CA	st	mb		X	[1-3, 5]

(continued)

Family MELIACEAE						
<i>Carapa guianensis</i> Aubl., 1775	Car,WP	CA	st	sb	X	[1,-3, 5]
Family ARECACEAE						
<i>Raphia taedigera</i> (Mart.) Mart., 1828	WA,WP	CA	st	sb	X	[3]
Family PTERIDACEAE						
<i>Acrostichum aureum</i> L., 1753	ct	CA	st	sb	X	[1-3, 5]
<i>Acrostichum danaeifolium</i> Langsd. & Fisch., 1810	Car,WP	CA	st	sb	X	[1-3, 5]
Family TYPHACEAE						
<i>Typha latifolia</i> L., 1753	cp	CA	it	sb	X	[3]

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries

^cit = intertidal; st = subtidal

^dmb = muddy bottom; sb = sandy bottom

^eReferences are indicated by numbers according to the reference list

Species List 4.2 Mangrove species occurring along the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/community ^d	Nuclear vegetation	Associated vegetation	References ^e
Family AVICENNIACEAE							
<i>Avicennia bicolor</i> Standl., 1923	WP	CA	it	mb	X		[2, 3, 5]
<i>Avicennia germinans</i> (L.) Stearn, Car, WP 1958	Car, WP	CA	it	mb	X		[1-3, 5]
Family COMBRETACEAE							
<i>Conocarpus erecta</i> L., 1753	Car, WP	CA	it	mb	X		[1-3, 5]
<i>Laguncularia racemosa</i> (L.) Gaertn. f., 1805	Car, WP	CA	it	mb	X		[1-5]
Family PELLICIERACEAE							
<i>Pelliciera rhizophorae</i> Triana & Planch., 1862	WP	CR,P	it	sb	X		[1-5]
Family RHIZOPHORACEAE							
<i>Rhizophora mangle</i> L., 1753	Car, WP	CA	it	mb	X		[1-5]
<i>Rhizophora racemosa</i> G. Mey., 1818	WP	CA	it	mb	X		[1-5]
<i>Rhizophora x harrissonii</i> Leechman, 1918	WP	CA	it	mb	X		[1-3, 5]
Family ANNONACEAE							
<i>Annona glabra</i> L., 1753	WP	CA	st	mb		X	[3]
Family APOCYNACEAE							
<i>Rhabdadenia biflora</i> (Jacq.) Muell. Arg., 1860	Car, WP	CA	st	sb		X	[3, 5]
Family ARACEAE							
<i>Montrichardia arborescens</i> (L.) Schott, 1854	Car, WP	CA	st	mb		X	[3]

(continued)

Species List 4.2 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/ community ^d	Nuclear vegetation	Associated vegetation	References ^e
Family BIGNONIACEAE							
<i>Tabebuia palustris</i> Hemsl., 1882	WP	CA	st	sb		X	[3, 5]
<i>Phryganocydia phellosperma</i> (Hemsl.) Sandw., 1941	WP	CA	st	sb		X	[3, 5]
Family BOMBACACEAE							
<i>Pachira aquatica</i> Aubl., 1775	WP	CA	st	sb		X	[3]
Family BORAGINACEAE							
<i>Heliotropium curassavicum</i> L., 1753	WP	CA	st	sb		X	[3]
Family CYPERACEAE							
<i>Fimbristylis spadicosa</i> (L.) Vahl., 1805	WP	CA	st	sb		X	[3]
<i>Mariscus ligularis</i> (L.) Urb., 1900	WP	CA	st	sb		X	[3]
<i>Scirpus californicus</i> (C.D. Meyer) Steudel., 1841	WP	CA	st	mb		X	[3]
Family EUPHORBIACEAE							
<i>Hippomane mancinella</i> L., 1753	cp	CA	st	sb		X	[3, 5]
Family GRAMINEAE							
<i>Echinochloa colonum</i> (L.) Link., 1833	WP	CA	st	sb		X	[3]
<i>Echinochloa polystachya</i> (Kunth) Hitchc., 1920	WP	CA	st	sb		X	[3]
<i>Jouvea straminea</i> E. Fourn., 1876	WP	CA	st	sb		X	[3]

Family FABACEAE						
<i>Caesalpinia bonduc</i> (L.) Roxb., 1832	WP	CA	st	sb	X	[1-3, 5]
<i>Dalbergia browniei</i> (Jacq.) Schinz, 1898	WP	CA	st	mb	X	[1-3, 5]
<i>Mora oleifera</i> (Triana) Ducke, 1925	Car,WP	CA	st	mb	X	[1-5]
<i>Muelleria frutescens</i> (Aubl) Stand., 1933	WP	CA	st	sb	X	[1-3, 5]
<i>Pterocarpus officinalis</i> Jacq., 1763	WP	CA	st	mb	X	[1-3, 5]
Family AMARYLLIDACEAE						
<i>Crinum erubescens</i> Aitan, 1789	WP	CA	st	sb	X	[3]
<i>Hymenocallis littoralis</i> (Jacq.) Salisb., 1812	WP	CA	st	sb	X	[3]
Family MALVACEAE						
<i>Hibiscus pernambucensis</i> Arruda, 1810	WP	CA	st	sb	X	[1-3, 5]
<i>Hibiscus tiliaceus</i> L. 1753	WP	CA	st	sb	X	[5]
<i>Thespesia populnea</i> (L.) Solander ex Correa, 1807	ct	CA	st	sb	X	[1-3, 5]
<i>Pavonia paludicola</i> Nicolson, 1989	Car,WP	CA	st	sb	X	[1-3, 5]
<i>Pavonia spicata</i> Cav. 1787	Car,WP	CA	st	sb	X	[1, 5]
Family MELIACEAE						

(continued)

Species List 4.2 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/community ^d	Nuclear vegetation	Associated vegetation	References ^e
Family ARECACEAE							
<i>Manicaria saccifera</i> Gaertn., 1791	WP	CA	st	sb		X	[3]
<i>Raphia taedigera</i> (Mart.) Mart., 1828	WA, WP	CA	st	sb		X	[3, 5]
Family PTERIDACEAE							
<i>Acrostichum aureum</i> L., 1753	ct	CA	st	sb		X	[1-5]
<i>Acrostichum danaeifolium</i> Langsd. & Fisch., 1810	WP	CA	st	sb		X	[1-3, 5]
Family							
CHRYSOBALANACEAE							
<i>Chrysobalanus icaco</i> L., 1753	WP	CA	st	sb		X	[3]
Family RUBIACEAE							
<i>Rustia occidentalis</i> (Benth.) Hemsl., 1879	WP	CA	st	sb		X	[3]
Family TYPHACEAE							
<i>Typha domingensis</i> Pers., 1807	WP	CA	st	sb		X	[3]
<i>Typha latifolia</i> L., 1753	cp	CA	it	sb		X	[3]
Family VERBENACEAE							
<i>Clerodendrum pittieri</i> Moldenke, 1940	WP	CA	st	sb		X	[3]

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; P = Panama

^cit = intertidal; st = subtidal

^dmb = muddy bottom; sb = sandy bottom

^eReferences are indicated by numbers according to the reference list

Species List 5.1 Foraminifera of the Caribbean of Costa Rica

	Location	References
Phylum PROTOZOA		
Class SARCODINA		
SubClass GRANULORETICULOSEA		
Order FORAMINIFERIDA		
Family AMPHISTEGINIDAE		
<i>Amphistegina</i> spp.	Cahuita 9°44'N 82°49'W	[Mora-Baumgartner, this chapter]
Family GLOBIGERINIDAE		
<i>Globigerinoides ruber</i> (d'Orbigny, 1839)	Cahuita 9°44'N 82°49'W	[Mora-Baumgartner, this chapter]
<i>Orbulina universa</i> d'Orbigny, 1839	Cahuita 9°44'N 82°49'W	[Mora-Baumgartner, this chapter]
Family NUMMULITIDAE		
<i>Heterostegina depressa</i> d'Orbigny, 1826	Cahuita 9°44'N 82°48'W	[Mora-Baumgartner, this chapter]

Species List 5.2 Foraminifera of the Pacific of Costa Rica

	Location	References
Phylum PROTOZOA		
Class SARCODINA		
SubClass GRANULORETICULOSEA		
Order FORAMINIFERIDA		
Family AMMODISCIDAE		
<i>Glomospira gordialis</i> (Jones and Parker, 1860)	Santa Elena Bay	[3]
Family ANOMALINIDAE		
<i>Hanzawaia nitidula</i> (Bandy, 1953)	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
Family BAGGINIDAE		
<i>Cancris panamensis</i> Natland 1938	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Cancris sagra</i> (d'Orbigny, 1839)	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
Family BOLIVINITIDAE		
<i>Bolivina advena</i> Cushman, 1925	Salinas Bay	[5]
<i>Bolivina alata</i> Seguenza, 1862	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Bolivina argentea</i> Cushman, 1926	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bolivina costate</i> d'Orbigny, 1839	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bolivina costata</i> var. <i>bicostata</i> Cushman, 1926 (in ref.: <i>Bolivina bicostata</i>)	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Bolivina humilis</i> Cushman and McCulloch, 1942	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Bolivina laevigata</i> Brady, 1881	Isla del Coco	[5]
<i>Bolivina minuta</i> Natland, 1938	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bolivina plicata</i> d'Orbigny, 1839	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bolivina pygmaea</i> Brady, 1881	Culebra Bay	[5]
<i>Bolivina seminuda</i> Cushman, 1911	Off Costa Rica 9°15'N 84°15'W and Golfo Dulce	[1, 2]
<i>Bolivina striatula</i> (Cushman, 1922)	Off Costa Rica 9°15'N 84°15'W	[1]

(continued)

Species List 5.2 (continued)

	Location	References
<i>Bolivina subadvena</i> var. <i>acuminata</i> Cushman, 1926 (in ref.: <i>Bolivina acuminata</i>)	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
<i>Bolivina subadvena</i> var. <i>spissa</i> Cushman, 1926 (in ref.: <i>Bolivina spissa</i>)	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bolivina subexcavata</i> (Cushman and Wickenden, 1929)	Salinas Bay	[5]
<i>Bolivina tongi</i> var. <i>filacostata</i> (Cushman and McCulloch, 1942)	Isla del Coco	[5]
<i>Bolivina vaughani</i> (Natland, 1938)	Off Costa Rica 9°15'N 84° 15'W; Costa Rica 10°33'N 85°48'W	[1]
Family BULIMINIDAE		
<i>Bulimina pagoda</i> Cushman, 1927	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Bulimina pagoda</i> var. <i>denudata</i> Cushman, 1927 (in ref.: <i>Bulimina denudata</i>)	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
<i>Bulimina tenuata</i> Cushman, 1927	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Globobulimina pacifica</i> Cushman, 1927	Off Costa Rica 8°40'N 84°20'W	[1]
Family CASSIDULINIDAE		
<i>Cassidulina delicata</i> Cushman, 1927	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
<i>Cassidulina oblonga</i> Reuss, 1850	Off Costa Rica 9°15'N 84°15'W	[1][
<i>Cassidulina suglobosa</i> (Brady, 1881)	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
<i>Cassidulina subglobosa</i> var. <i>subcalifornica</i> Drooger, 1953 (in ref.: <i>Cassidulina. Subcalifornica</i>)	Off Costa Rica 8°40'N 84°20'W	[1]
Family CIBICIDIDAE		
<i>Cibicides fletcheri</i> Galloway and Wissler, 1927	Costa Rica 10°33'N 85°48'W	[1]
Family EGGERELLIDAE		
<i>Eggerelloides advenus</i> Cushman, 1922 (in ref.: <i>Eggerella advena</i>)	Isla del Coco	[3]
Family ELPHIDIIDAE		
<i>Elphidium crispum</i> (Linné, 1758)	Salinas Bay, Playa Blanca, Culebra Bay	[4]
<i>Elphidium simplex simplex</i> Cushman, 1936	Salinas Bay	[4]
<i>Epistominella bradyana</i> (Cushman, 1927)	Off Costa Rica 8 40'N 84 20'W; 9° 15' N 84°15'W	[1]
<i>Epistominella smithi</i> (R.E. and K.C. Stewart, 1930)	Off Costa Rica 9°15'N 84°15'W	[1]
Family FUSENKOINIDAE		
<i>Virgulina schreibersiana</i> Czjzek 1848 (in ref.: <i>Fursenkoina</i> <i>schreibersiana</i>)	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
Family GLOBIGERINIDAE		
<i>Globigerinoides sacculifer</i> (Brady, 1884)	Golfo Dulce	[2]

(continued)

Species List 5.2 (continued)

	Location	References
Family HAPLOPHRAGMOIDIDAE		
<i>Haplophragmoides columbiense</i> var. <i>evolutum</i> Cushman and McCulloch, 1939	Playa Blanca	[3]
<i>Haplophragmoides planissimum</i> Cushman, 1927	Santa Elena Bay	[3]
Family HAUERINIDAE		
<i>Massilina annectens</i> Schlumberger, 1893	Costa Rica 10°33'N 85°48'W	[1]
<i>Massilina robustior</i> Cushman and Valentine, 1930	Costa Rica 10°33'N 85°48'W	[1]
Family HETEROHELICIDAE		
<i>Bifarina hancocki</i> Cushman and McCulloch, 1942	Salinas Bay	[5]
<i>Bifarina pacifica</i> Cushman and McCulloch, 1942	Santa Elena Bay and Salinas Bay	[5]
Family HORMOSINIDAE		
<i>Reophax curtus</i> (Cushman, 1920)	Playa Blanca	[3]
<i>Reophax scorpiurus</i> Denys de Montfort, 1808	Santa Elena Bay	[3]
Family LAGENIDAE		
<i>Lagena amphora</i> Reuss, 1863	Playa Blanca and Off Costa Rica 9°15'N 84°15'W	[1, 7]
<i>Lagena hispidula</i> Cushman, 1913	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
<i>Lagena leaveis</i> (Montagu, 1803)	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Lagena striata</i> (d'Orbigny, 1839)	Salinas Bay	[7]
<i>Lagena sulcata</i> (Walker and Jacob, 1798)	Off Costa Rica 9°15'N 84°15'W	[1]
Family LITUOLIDAE		
<i>Ammobaculites foliaceus</i> var. <i>recurva</i> Earland, 1934	Salinas Bay and Playa Blanca.	[3]
Family LOXOSTOMATIDAE		
<i>Loxostomun limbatum</i> (Brady, 1881) (in ref.: <i>Loxostoma limbatum</i>)	Santa Elena Bay and Culebra Bay	[5]
Family MILIOLIDAE		
<i>Ammofrondicularia compressa</i> Cushman and McCulloch, 1939	Isla del Coco	[3]
<i>Quinqueloculina dutemplei</i> (d'Orbigny, 1846)	Costa Rica 10°33'N 85°48'W	[1]
<i>Quinqueloculina lamarckiana</i> (d'Orbigny, 1839)	Costa Rica 10°33'N 85°48'W	[1]
Family NONIONIDAE		
<i>Nonionella atlantica</i> (Cushman, 1947)	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W and Costa Rica 10°33'N 85°48'W	[1]
<i>Nonionella incisa</i> (Cushman, 1926)	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Nonionella stella</i> (Cushman and Moyer, 1930)	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
Family PLANORBULINIDAE		
<i>Planorbulina mediterraneensis</i> (d'Orbigny, 1826)	Costa Rica 10°33'N 85°48'W	[1]

(continued)

Species List 5.2 (continued)

	Location	References
Family PLANULINIDAE		
<i>Planulina limbata</i> Natland, 1938	Off Costa Rica 9°04'N 84°17'W	[8]
<i>Planulina ornata</i> (d'Orbigny, 1839)	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
Family REUSELLIDAE		
<i>Reusella aequa</i> Cushman and McCulloch, 1948	Culebra Bay	[6]
<i>Reusella pacifica</i> Cushman and McCulloch, 1948	Culebra Bay	[6]
Family SACCAMMINIDAE		
<i>Saccamina atlantica</i> (Cushman, 1944)	Off Costa Rica 9°15'N 84°15'W	[1]
Family SPHAERODINIDAE		
<i>Lagenamina hancoki</i> (Cushman and McCulloch 1948)	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
Family SPIROLOCULINIDAE		
<i>Spiroloculina dentata</i> Cushman and Tood, 1944	Costa Rica 10°33'N 85°48'W	[1]
Family TEXTULARIIDAE		
<i>Textularia foliacea</i> Heron-Allen and Earland, 1915	Off Costa Rica 9°15'N 84°15'W; Costa Rica 10°33'N 85°48'W	[1]
<i>Textularia vola</i> Lalicker and McCulloch, 1940	Costa Rica 10°33'N 85°48'W	[1]
Family TROCHAMMINIDAE		
<i>Trochammina charlottensis</i> Cushman, 1925	Bay Salinas, Isla del Coco	[3]
<i>Trochammina nitida</i> Brady, 1881	Cocos Island	[3]
<i>Trochammina pacifica</i> Cushman, 1925	Salinas Bay, Santa Elena Bay and Culebra Bay	[3]
<i>Trochammina rotaliformis</i> J. Wright, 1911	Isla del Coco	[3]
Family TURRILINIDAE		
<i>Buliminella curta</i> (Cushman, 1925)	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Buliminella elegantissima</i> (d'Orbigny, 1839)	Playa Blanca and 9°15'N 84°15'W	[1, 6]
<i>Buliminella parallela</i> Cushman and Parker, 1931	Culebra Bay	[6]
Family UVIGERINIDAE		
<i>Angulogerina bella</i> Phleger and Parker, 1951	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Trifarina bella</i> (Phleger y Parker, 1951)	Off Costa Rica 9°15'N 84°15'W	[1]
<i>Trifarina carinata</i> (Cushman, 1927)	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Uvigerina excellens</i> Tood, 1948	Off Costa Rica 8°40'N 84°20'W	[1]
<i>Uvigerina incilis</i> Tood, 1948	Off Costa Rica 8°40'N 84°20'W; 9°15'N 84°15'W	[1]
<i>Uvigerina peregrina</i> (Cushman, 1923)	Off Costa Rica 8°40'N 84°20'W	[1]
Family VAGINULINIDAE		
<i>Vaginulina exilis</i> Cushman and McCulloch, 1950	Isla del Coco	[7]
Family VALVULINIDAE		
<i>Gaudryina pauperata</i> Earland, 1934	Salinas Bay	[4]

Species List 6.1 Sponges reported from the Caribbean coast of Costa Rica. Classification as in Hooper & van Soest (2002)

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/Community ^d	References ^e
Class DEMOSPONGIAE					
SubClass TETRACTINOMORPHA					
Order SPIROPHORIDA					
Family TETILLIDAE					
<i>Cinachyrella alloclada</i> (Ulitzka, 1929)	CAR	P	be,st	cr	[4, 5, 9, 14]
Order ASTROPHORIDA					
Family ANCORINIDAE					
<i>Ecionemta megastylifera</i> Kilian, 1984	Car	n.a.	be,st	cr	[4]
<i>Penares cortius</i> de Laubentfels, 1930	Car,WP	n.a.	be,st	cr	[4]
* <i>Penares dominicana</i> (Pulitzer & Finali 1986)	Car	n.a.	be,st	cr	[11, UCR127]
* <i>Stelletta pudica</i> (Wiedenmayer, 1977)	BA	n.a.	st	cr,rb,rub	[18]
Family GEODIIDAE					
<i>Geodia gibberosa</i> (Lamarck, 1814)	Car	B	be,st	cr	[4, 14, 16]
Order HADROMERIDA					
Family CLIONAIDAE					
<i>Cliona caribbaea</i> Carter, 1882	Car	B,P	eb,st	cr,boring	[4, 5, 14–15,16]
<i>Cliona laticavola</i> Pang, 1971	Car	n.a.	eb,st	cr,boring	[14]
* <i>Sphectospongia vesparium</i> (Lamarck, 1815)	Car,FL	P	eb,st	cr,rb,rub,sg	[5, 9, 20]
Family PLACOSPONGIIDAE					
* <i>Placospongia intermedia</i> (Sollas, 1888)	Car,Chile	B,P	be,st	cr,rb,rub	[5, 13, 16, 20]
* <i>Placospongia melobestoides</i> (Gray, 1867)	Car	n.a.	be,st	cr	[14]
Family SPIRASTRELLIDAE					
* <i>Spirastrella coccinea</i> (Duchassaing & Michelotti, 1864)	Car	B,P	st	cr,rb,rub	[5, 9, 16, 20]
Family TETHYIIDAE					
* <i>Tethya</i> sp.	Car,EA Car,FL	n.a. B	be,st eb,st	cr,rb,rub cr,rb	[13, 20] [16, 20]

(continued)

Species List 6.1 (continued)

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/Community ^d	References ^e
SubClass CERACTINOMORPHA					
Order CHONDROSIDA					
Family CHONDRILLIDAE					
* <i>Chondrosia collectrix</i> Schmidt, 1870					
Order POECILOSCLERIDA					
SubOrder MICROCIONINA					
Family RASPAILIIDAE					
<i>Ectyoplasia ferax</i> (Duchassaing & Michelotti, 1864)					
* <i>Eurypon laughlini</i> (Diaz, Alvarez & van Soest, 1987)					
SubOrder MYXILLINA					
Family CRAMBEIDAE					
<i>Monanchora arbuscula</i> (Duchassaing & Michelotti, 1864)					
Family DESMACIDIDAE					
<i>Desmapsamma anchorata</i> (Carter, 1882)					
Family DESMACELLIDAE					
* <i>Bienna cribaria</i> (Alcolado & Gotera, 1986)					
Family IOTROCHOTIDAE					
<i>Iotrochota biratulata</i> (Higgin, 1877)					
Family TEDANIIDAE					
<i>Tedania (Tedania) ignis</i> (Duchassaing & Michelotti, 1864)					
Family MICROCIONIDAE					
* <i>Clathria (Thalysias) schoenus</i> (de Laubenfels, 1936)					
* <i>Clathria (Thalysias) virgulosa</i> (Lamarck, 1814)					
SubOrder MYCALINA					
Family MYCALIDAE					
<i>Mycale (Arenochalina) laxissima</i> (Duchassaing & Michelotti, 1864)					

<i>Mycale (Mycale) laevis</i> (Carter, 1882)	Car	B,P	be,ep,st	cr	[4, 5, 9, 14, 16, 21]
<i>Mycale (Zygomycale) angulosa</i> (Duchassaing & Michelotti, 1864)	Car	B,P	be,st	cr	[4, 5, 14, 16]
Order HALICONDRIDA					
Family AXINELLIDAE					
<i>Dragnacidon reticulatum</i> (Ridley & Dendy, 1886)	Car,EA,WA	P	be,st	cr,rb,sb	[4, 5, 9, 14, 21]
+ <i>Ptilocaulis walpersi</i> (Duchassaing & Michelotti, 1864)	BA,Car,FL	B,P	eb,st	cr,rb	[5, 9, 16, 21, UCR26]
Family DICTYONELLIDAE					
<i>Scopalina ruetzleri</i> (Wiedenmayer, 1977)	Car	B,P	be,st	cr	[4, 5, 16]
Family HALICHONDRIIDAE					
* <i>Amorphinopsis atlantica</i> Carvalho, Hajdu, Mothes & van Soest, 2004	SWA	n.a.	st	cr,rb	[20]
* <i>Axinyssa lithophaga</i> (Wiedenmayer, 1977)	BA	n.a.	eb,st	cr,rb,rub,sg	[18]
* <i>Halichondria (Halichondria) magniconulosa</i> Hechtel, 1965	Car	B,P	eb,st	cr,rb	[5, 10, 16]
<i>Halichondria (Halichondria) melanodocia</i> de Laubenfels, 1936	Car,WA	P	be,st	cr,m,sg	[4, 5, 21]
* <i>Hymeniacidon caerulea</i> Pulitzer-Finali, 1986	EA	B	st	cr,rb	[16, 20]
Order AGELASIDA					
Family AGELASIIDAE					
<i>Agelas clathroides</i> (Schmidt, 1870)	Car,WA	B,P	be,st	cr,rb	[4, 9, 21]
Order HAPLOSCLERIDA					
SubOrder HAPLOSCLERINA					
Family CALLYSPONGIIDAE					
<i>Callyspongia (Callyspongia) pallida</i> Hechtel, 1965	Car	n.a.	be,st	cr,rub	[4, 14, 21]
<i>Callyspongia (Cladochalina) vaginalis</i> (Lamarck, 1814)	Car,WA	B,G,P	be,st	cr	[4, 7, 9, 16, 21]
Family NIPHATIDAE					
<i>Amphimedon viridis</i> Duchassaing & Michelotti, 1864	Car,WA	n.a.	be,st	sg	[14, 21]
<i>Niphates alba</i> Van Soest, 1980	Car	n.a.	be,st	cr	[4, 21]

(continued)

Species List 6.1 (continued)

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/Community ^d	References ^e
<i>Niphates amorpha</i> Wiedenmayer, 1977	Car	P	be, st	cr	[9, 14]
* <i>Niphates caycedoi</i> (Zea & van Soest, 1986)	Car	n.a.	eb, st	cr, rb	[20]
<i>Niphates digitalis</i> (Lamarck, 1814)	Car	B, G, P	be, st	cr, rb	[4, 7, 9, 16, 21]
<i>Niphates erecta</i> Duchassaing & Michelotti, 1864	Car, WA	B, G, P	be, st	cr, rb	[4, 7, 9, 13, 16, 21]
Family CHALINIDAE					
* <i>Haliclona</i> (<i>Reniera</i>) <i>implexiformis</i> (Hechtel, 1965)	Car	B	eb, st	cr, rb	[16, 21]
* <i>Haliclona</i> (<i>Soestela</i>) <i>piscadaraensis</i> (Van Soest, 1980)	Car	n.a.	eb, st	cr, rb, rub	[12]
SubOrder PETROSINA					
Family PHLOEODICTYIDAE					
<i>Aka</i> <i>brevitubulata</i> (Pang, 1973)	Car	n.a.	be, st	cr, boring	[15]
<i>Aka</i> <i>coralliphagum</i> (Rützler, 1971)	Car	P	be, st	cr, boring	[9, 15]
* <i>Calyx podatypa</i> (de Laubenfels, 1934)	Car	B, P	eb, st	cr, rb, rub, sg	[9, 12, 16]
* <i>Oceanapia bartschi</i> (de Laubenfels, 1934)	Car	P			[9, 17]
Family PETROSIIDAE					
* <i>Neopetrosia carbonaria</i> (Lamarck, 1814)	Car	n.a.	eb, st	rb, rub	[20]
* <i>Neopetrosia subtriangularis</i> (Duchassaing, 1850)	BA, Car, FL	n.a.	be, eb, st	cr, rb, rub, sg	[21]
* <i>Petrosia</i> (<i>Petrosia</i>) <i>pellasarca</i> (de Laubenfels, 1934)	Car	P	eb, st	cr, rb	[5, 9, 21]
* <i>Petrosia</i> (<i>Petrosia</i>) <i>weinbergi</i> van Soest, 1980	Car	B, P	be, eb, st	cr, rb, rub	[5, 16, 21]
<i>Xestospongia muta</i> (Schmidt, 1870)	Car, WA	B, H, P	be, st	cr, rb, rub, sg	[4, 5, 7, 9, 16, 21]
* <i>Xestospongia proxima</i> (Duchassaing & Michelotti, 1864)	Car	B, P	eb, be, st	cr, rb	[5, 9, 16, 20]
Order DICTYOCERATIDA					
Family DYSIDEIDAE					
<i>Dysidea etheria</i> de Laubenfels, 1936	Car	B, P	be, st	cr, rb	[4, 5, 9, 16, 21]
* <i>Dysidea janinae</i> (Duchassaing & Michelotti, 1864)	Car	B	eb, st	cr, rb	[16, 20]
Family IRCINIIDAE					
<i>Ircinia campana</i> (Lamarck, 1816)	Car, WA	B, P	be, st	cr	[4, 5, 9, 14, 16, 21]
* <i>Ircinia felix</i> (Duchassaing & Michelotti, 1864)	BA, Car, EP	B, P	be, eb, st	cr, rb, rub, sg	[5, 9, 16, 21]
* <i>Ircinia strobilina</i> (Lamarck, 1816)	Car	B, P	be, eb, st	cr, rb, rub, sg	[5, 9, 16, 21]

Family SPONGIIDAE					
<i>Hyattella cavernosa</i> (Pallas, 1766)					[4, 5, 9, 21]
Order VERONGIDA					
Family APLYSINIDAE					
<i>Aiolochoroia crassa</i> (Hyatt, 1875)					[4, 5, 9, 14, 21, 116]
<i>Aplysina cauliformis</i> (Carter, 1882)					[5, 9, 14, 21]
<i>Aplysina fistularis insularis</i> (Duchassaing & Michelotti, 1864)					[4, 5, 9, 14, 16, 20]
<i>Aplysina fulva</i> (Pallas, 1776)					[4, 5, 9, 14, 16, 21]
<i>Aplysina lacunosa</i> (Pallas, 1776)					[4, 5, 9, 21]
<i>Verongula rigida</i> (Esper, 1794)					[4, 5, 9, 16, 21]

n.a. = Information not available

*New report for Costa Rica by Noam van der Hal

+New report for Costa Rica (Sponge Collection, Museo de Zoología, Universidad de Costa Rica)

^aBA = Bahamas; Car = Caribbean; FL = Florida; EA = eastern Atlantic; EP = eastern Pacific; FL = Florida; IP = Indo-Pacific; SWA = southwestern Atlantic; WP = western Pacific

^bB = Belize; G = Guatemala; H = Honduras; P = Panama

^cbe = benthic; eb = epibenthic; st = subtidal

^dcr = coral reefs; m = mangroves; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass

^eReferences are indicated by numbers according to the references list

Species List 6.2 Sponges from the Pacific of Costa Rica. Classification of the Demospongiae as in Hooper & van Soest (2002)

	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Class HEXACTINELLIDA							
Order AMPHIDISCOSIDA							
Family HYALONEMATIDAE							
<i>Hyalonema (Coscinonema) pateriferum</i> Wilson, 1904	EP	n.a.	IC	eb	1790	mb	[19, USNM8307]
Order HEXACTINOSIDA							
Family APHROCALLISTIDAE							
<i>Aphrocallistes vastus</i> Schulze, 1886	EP,NP	n.a.	IC	eb	245	r,sh	[19, USNM8573]
Family EURITIDAE							
<i>Eurete erectum</i> Schulze, 1899	EP	P	IC	eb	245	r,sh	[19, USNM8586]
<i>Eurete</i> sp.	EP	P	IC	eb	245	r,sh	[194, USNM8579]
Family TRETODICTYIDAE							
<i>Hexactinella tubulosa</i> Schulze, 1887	EP	n.a.	IC	eb	245	r,sh	[19, USNM8572]
Order LYSSACINOSIDA							
Family ROSSELLIDAE							
<i>Acanthascus (Stauracabyptus)</i> sp.	EP	n.a.	IC	eb	245	r,sh	[19, USNM8300]
Class DEMOSPONGIAE							
SubClass TETRAC TINOMORPHA							
Order SPIROPHORIDA							
Family TETILLIDAE							
* <i>Cinachyrella mutabilis</i> (de Laubenfels, 1930)	EP,GC	n.a.	PM	eb,st	5	sb	[20, UCR42]
* <i>Cinachyrella</i> sp.	Car,EP	n.a.	PM	it	0	r	[11]
Order ASTROPHORIDA							
Family GEODIIDAE							
* <i>Geodia</i> sp.	Car,EP	n.a.	PM	be,st	3.5	r	[11, 13, UCR145]

Family PACHASTRELLIDAE									
<i>Thenea fenestrata</i> (Schmidt, 1880)	EP	n.a.	IC	eb	2150	mb,r,sb	[19, USNM8286]		
Order HADROMERIDA									
Family PLACOSPONGIIDAE									
* <i>Placospongia carinata</i> (Bowerbank, 1858)	EP,IO	n.a.	PM	be,st	9	r	[8, 20]		
Family SPIRASTRELLIDAE									
* <i>Spirastrella sabogae</i> Boury-Esnault <i>et al.</i> 2000	FL	n.a.	PM	be,st	0–9	r	[1, 20]		
* <i>Spirastrella</i> sp.	Car,GC	n.a.	PM	be,st	n.a.	r	[20]		
* <i>Thoosa</i> sp.	Car	n.a.	PM	be,st	4	boring coral	[11, UCR182]		
Family SUBERITIDAE									
* <i>Terpios aff. fugax</i> Duchassaing & Michelotti, 1864	Car,EA,VI	n.a.	PM	be,st	0	r	[20]		
* <i>Pseudosuberites aff. sulcatus</i> Thiele, 1905	ME	n.a.	PM	be	0	r	[21, UCR135]		
Family TETHYIDAE									
** <i>Tethya</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM32827]		
SubClass CERACTINOMORPHA									
Order CHONDROSIDA									
Family CHONDRILIIDAE									
* <i>Chondrilla</i> sp.	Car,EP,ME	n.a.	PM	be,st	15	r	[2, 20]		
* <i>Chondrosia</i> sp.	Worldwide	n.a.	PM	be,st	9	r	[11]		
'LITHISTID' Demospongiae									
Family DESMANTHIDAE									
* <i>Desmanthus levii</i> Van Soest & Hajdu, 2000	Car,EP	n.a.	PM	be,st	9	r	[11]		

(continued)

Species List 6.2 (continued)

	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Order POECILOSCLERIDA							
SubOrder MICROCIONINA							
Family MICROCIONIDAE							
** <i>Clathria (Microciona)</i> sp. 1	Car,EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31932]
* <i>Clathria (Microciona)</i> sp. 2	Car,EP	n.a.	PM	be,st	8	r	[11]
* <i>Clathria (Thalysias)</i> sp. 1	Car,EP	n.a.	PM	be,st	0–9	r	[11]
* <i>Clathria (Thalysias)</i> sp. 2	Car,EP	n.a.	PM	be,st	4	r	[11]
Family RASPAILIIDAE							
* <i>Eurypon laughtlini</i> Díaz, Alvarez & Van Soest, 1987	Car	B	PM	be,st	9	r	[20]
** <i>Eurypon</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31940]
SubOrder MYXILLINA							
Family COELOSPHAERIDAE							
* <i>Lissodendoryx (Lissodendoryx)</i> aff. <i>isodictyalis</i> (Carter, 1882)	Car	n.a.	PM	be,st	n.a.	r	[20, 21, UCR209]
* <i>Lissodendoryx</i> sp.	Car,EP	n.a.	PM	be,st	15	r	[11]
Family HYMEDESMIIDAE							
* <i>Hymedesia (Hymedesia)</i> sp.	EA	n.a.	PM	eb,st	17	r	[20]
SubOrder MYCALINA							
Family ESPERIOPSISIDAE							
** <i>Uloxa</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31941]
Family MYCALIDAE							
* <i>Mycate (Carnia) cecilia</i> de Laubenfels, 1936	EP	P	PM	eb,st	8–17	r	[13, 20]
Order HALICHONDRIDA							
Family AXINELLIDAE							
** <i>Axinella</i> sp.	EP,GC	n.a.	PM	be,st	0	r	[USNM31931, 31937, UCR174]

* <i>Dragnacidon mexicanum</i> (de Laubenfels, 1935)	EP	n.a.	n.a.	be,st	n.a.	n.a.	[12, UCR114]
* <i>Dragnacidon ophisclera</i> (de Laubenfels, 1935)	EP	n.a.	PM	be,st	r	12–17	[12, UCR1]
<i>Phakellia lamelligera</i> Wilson, 1904	EP	n.a.	IC	eb	rb	120	[19, USNM8314]
* <i>Dragnacidon</i> sp. (cf. <i>Pseudotaximella</i>)	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31935]
* <i>Ptilocaulis aff. walpersi</i> (Duchassaing & Michelotti, 1864)	BA,Car,FL,VI	n.a.	PM	be,st	r	17–30	[21, UCR16, 41, 105]
Family DICTYONELLIDAE							
* <i>Acanthella aff. cubensis</i> (Alcolado, 1984)	Car	n.a.	PM	n.a.	n.a.	n.a.	[20, UCR23]
* <i>Stylissa</i> sp.	EP,Car,WP	n.a.	PM	be,st	cr	n.a.	[11, UCR178]
Family HALICHONDRIIDAE							
* <i>Amorphinopsis</i> sp.	Car	n.a.	PM	be,it	m,r	0	[11, UCR272]
* <i>Halichondria</i> (<i>Halichondria</i>) sp.	Car,EP	n.a.	PM	be,st	r	9	[10, 13, 21]
* <i>Hymeniacion</i> sp.	EP	n.a.	PM	be,st	r	10	[10]
Order HAPLOSCLERIDA							
SubOrder HAPLOSCLERINA							
Family CALLYSPONGIIDAE							
* <i>Callyspongia</i> sp.1	Worldwide	n.a.	PM	be,st	r	6–17	[11, UCR20]
* <i>Callyspongia</i> sp.2	Worldwide	n.a.	PM	be,st	r	5–9	[11]
* <i>Callyspongia</i> sp.3	Worldwide	n.a.	PM	be,st	r	10	[11]
* <i>Callyspongia</i> (<i>Cladochalina</i>) sp.	BA,Car	n.a.	PM	be,st	r	3–15	[11, UCR141, 143]
Family CHALINIDAE							
**cf. <i>Haliclona</i> (<i>Gellius</i>) (in ref. <i>Rhaphisia</i> sp.)	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31936]
* <i>Haliclona</i> sp. 1	Car,EP,WP	n.a.	PM	be,st	rb	10	[11, 13]
* <i>Haliclona</i> sp. 2	Car,EA	n.a.	PM	be,st	r	8–15	[11, 13]

(continued)

Species List 6.2 (continued)

	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Suborden PETROSINA							
Family PHLOEODICTYIDAE							
* <i>Oceanapia</i> sp.	Car,EP	n.a.	PM	be,st	15	r	[11]
Order DICTYOCERATIDA							
Family THORECTIDAE							
** <i>Smenospongia</i>	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31942]
Family SPONGIIDAE							
* <i>Hyattella</i> aff. <i>cavernosa</i> (Pallas, 1766)	Car	n.a.	PM	be,st	3	cr	[20, UCR24, 269]
* <i>Hyattella</i> sp.	Worldwide	n.a.	PM	be,st	17	r	[11]
Family DYSIDEIDAE							
** <i>Dysidea</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[3, USNM31933]
* <i>Pteraplysilla</i> sp.	EP,ME	n.a.	PM	be,st	17	r	[11]
Order DENDROCERATIDA							
Family DARWINELLIDAE							
** <i>Aplysilla</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[13, USNM31938]
** <i>Chelonaplysilla</i> sp.	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31939]
** <i>Dendrilla verongiformis</i> de Lauberfels, 1954	EP	n.a.	PM	n.a.	n.a.	n.a.	[USNM31860, 31934]
Order VERONGIDA							
Family APLYSINIDAE							
* <i>Aplysina chiriquiensis</i> Díaz, Van Soest, Rützler & Guzman, 2005	EP	P	PM	be,st	7–14	r	[6, 20, UCR5, 99, 140]
* <i>Aplysina gerardogreeni</i> Gomez & Bakus, 1992	EP	n.a.	PM	be,st	17–33	r	[20, UCR101, 205]
* <i>Aplysina</i> sp.	Car,EP,ME	P	PM	be,st	0	r	[11]

n.a. = Information not available

*New report for Costa Rica by Noam van der Hal and Rob W. M. van Soest

**New report for Costa Rica (Sponge Collection, Museo de Zoología, Universidad de Costa Rica)

In ref. = species name used in the publication

^aAU = Australia; BA = Bahamas; B = Belize; Car = Caribbean; EA = Eastern Atlantic; EP = eastern Pacific; FL = Florida; GC = Gulf of California; IO = Indian Ocean; ME = Mediterranean Sea; NP = northern Pacific; VI = Virgin Islands; WA = western Atlantic

^bp = Panama

^cIC = Isla del Coco; PM = Mainland

^dbe = benthic; eb = epibenthic; st = subtidal

^em = mangrove; mb = muddy bottom; r = rocks; rb = rocky bottom; sb = sandy bottom; sh = shells

^fDepth as reported in paper or depth of collection

^gReferences numbered as in the bibliography of this chapter; UCR = Catalogue number, Porifera collection, Museo de Zoología, Universidad de Costa Rica; USNM = Catalogue number, National Museum of Natural History, Smithsonian Institution, Washington, DC

Species List 7.1 Medusozoa (Hydrozoa, Scyphozoa, and Cubozoa) recorded from the Caribbean of Costa Rica, following the phylogenetic arrangement proposed by Marques & Collins (2004)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
SubPhylum MEDUSOZOA						
Class HYDROZOA						
SubClass TRACHYLINA						
Order TRACHYMEDUSAE						
Family GERYONIIDAE						
<i>Liriope tetraphylla</i> (Chamisso & Eysenhardt, 1821)	cp	N,P	IU	n	wc	[2, 3]
Family RHOPALON-EMATIDAE						
<i>Aglaura hemistoma</i> Péron & Lesueur, 1810	EA,EP,IP, WA,WP	CA	IU	ep	wc	[3, 6]
Order NARCOMEDUSAE						
Family AEGINIDAE						
<i>Aegina citrea</i> Eschscholtz, 1829	ct	CA	CC	n.a.	wc	[1]
<i>Solmundella bitentaculata</i> (Quoy & Gaimard, 1833)	IP	CA	CC	n,o	wc	[6]

n.a. = information not available

^acp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; N = Nicaragua; P = Panama

^cCC = Caribbean coastal waters; IU = Isla Uvita

^dep = epipelagic; n = neritic; o = oceanic

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 7.2 Medusozoa (Hydrozoa, Scyphozoa, and Cubozoa) recorded from the Pacific of Costa Rica, following the phylogenetic arrangement proposed by Marques & Collins (2004). The new records included in this chapter are marked with (*)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/ Community ^e	References ^f
SubPhylum						
MEDUSOZOA						
Class HYDROZOA						
Order LIMNOMEDUSAE						
sedis mutabilis						
Family OLINDIIDAE						
* <i>Olindias singularis</i> Browne, 1905	IP		GP	n,o	wc	[6, 10]
SubClass						
HYDROIDOLINA						
sedis mutabilis						
Order LEPHTHOTHECATA						
Family AEQUORIDAE						
<i>Aequorea coerulescens</i> (Brandt, 1838)	EP	P	GP,CR	n	wc	[10, 11]
<i>Aequorea macrodactyla</i> (Brandt, 1834)	EP	P	GP	n	wc	[3, 6, 10]
Family CAMPANULARIIDAE						
* <i>Clytia brunescens</i> (Bigelow, 1904)	IP		GP	n,o	wc	[6, 10]
* <i>Clytia hemisphaerica</i> (Linnaeus, 1767)	IP,MED		GP	n	wc	[6, 10]
<i>Clytia simplex</i> (Browne, 1902)	EP,IP,IO		GP,D	n,o	wc	[6, 10, 12]
<i>Clytia uchidai</i> Kramp, 1961	EP	N	GP,D	n,o	wc	[6, 10, 12]
<i>Obelia</i> spp.	cp		GP	n,o	wc	[6, 10]
Family DIPLEUROSO-MATIDAE						
<i>Dipleurosoma pacificum</i> Agassiz & Mayer, 1902	EP		GP	n,o	wc	[6, 10]
Family EUTIMIDAE						
<i>Eutima curva</i> Browne, 1905	IP		GP	n	wc	[6, 10]
* <i>Eutima orientalis</i> (Browne, 1905)	ct		GP	n	wc	[6, 10]
Family EIRENIDAE						
<i>Helgicirrha shultzei</i> Hartlaub, 1909	EA,Med		GD	mp,n	wc	[3, 6, 8]
<i>Phialopsis diegensis</i> Torrey, 1909	cp		D	ep,n	wc	[3, 5, 12]
Family LAODICEIDAE						
* <i>Laodicea marana</i> Agassiz & Mayer, 1899	Fiji,EP		GP	n	wc	[6, 10]

(continued)

Species List 7.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Family LOVENELLIDAE						
<i>Eucheilota comata</i> (Bigelow, 1909)	ep	P	D,GP	n	wc	[10, 11]
* <i>Eucheilota menoni</i> Kramp, 1959	ep		GP	n	wc	[10, 11]
Family MALAGAZZIIDAE						
<i>Malagazzia taenigonia</i> (Chow & Huang, 1958)	WP		D	n.a.	wc	[6, 8]
* <i>Octophiallucium bigelowi</i> Kramp, 1955	IO,WA	P	GP	mp,n	wc	[3, 10, 11]
Family MELICERTIDAE						
<i>Melicetum</i> sp.	EA,EP,WA		GP	n	wc	[6, 10]
Family PHIALELLIDAE						
<i>Phialella</i> sp.	EP,IP		GP	n	wc	[6, 10]
Order						
ANTHOATHECATA						
Family BOUGAINVILLIDAE						
<i>Bouganvillea fulva</i> Agassiz & Mayer, 1899	EA,IP,WA	N	GP,CR	n	wc	[6, 10, 11]
* <i>Bouganvillea muscus</i> Allmar, 1863	EA,EP,IP		GP	n	wc	[6, 10]
<i>Bouganvillea</i> sp.	CP		GD		wc	[6, 9]
* <i>Koellikerina fasciculata</i> (Péron & Lesuerur, 1810)	EA,Med		GP	mp,n	wc	[3, 9, 10]
* <i>Koellikerina multicirrata</i> (Kramp, 1928)	IO		GP	ep	wc	[3, 10]
<i>Lizzia ferrarii</i> Segura, 1980	EP	ES,N	CR	n.a.	wc	[11]
<i>Lizzia gracilis</i> (Mayer, 1900)	IO,WA	N	CR	n	wc	[11]
Family BYTHOTIARIDAE						
<i>Calycopsis papillata</i> Bigelow, 1818	EA,EP,IP,		D	n.a.	wc	[5, 12]
<i>Heterotiar minor</i> Vanhöffen, 1911	IO,IP	CA	GP	n	wc	[10, 11]
* <i>Kanaka pelagica</i> Uchida, 1947 <i>incerta sedis</i>	EP		GP	n	wc	[10, 11]
Family CLAVIDAE						
<i>Oceania armata</i> Kolliker, 1853	CP		CR,GD	mp,n	wc	[3, 8, 11]
Family CORYMORPHIDAE						
* <i>Vannucia forbesii</i> (Mayer, 1894)	IP,Med,WA		GP	n	wc	[6, 10]

(continued)

Species List 7.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Family CORYNIDAE						
* <i>Dipurena ophiogaster</i> Haeckel, 1879	EP,IP		GP	n	wc	[6, 9, 11]
<i>Sarsia cocometra</i> Bigelow, 1909	EP	CA	GP	n	wc	[5, 6, 10, 11, 12]
<i>Sarsia</i> spp. Lesson, 1843	cp		GP	n,o	wc	[6, 10]
Family CYTAEIDIDAE						
<i>Cytaeis tetrastyla</i> Eschscholtz, 1829	CT	P	D	mp,n,o	wc	[3, 11, 12]
Family EUCODONIIDAE						
<i>Eucodonium brownei</i> Hartlaub, 1907	IP,Med,WA		GD	mp,n	wc	[3, 8]
Family EUPHYSIDAE						
* <i>Euphysa aurata</i> Forbes, 1848	cp		GP	n	wc	[6, 10]
* <i>Euphysilla pyramidata</i> Kramp, 1955	cp		GP	n	wc	[3, 10, 11]
Family HYDRACTINIIDAE						
<i>Hydractinia simplex</i> Kramp, 1928	cp	N	CR	n.a.	wc	[11]
Family PANDEIDAE						
* <i>Amphinema australis</i> (Mayer, 1900)	cp		GP	n	wc	[3, 10]
* <i>Amphinema dinema</i> (Péron & Lesuerur, 1810)	IP,WA		GP	n	wc	[3, 10]
<i>Haliolitholus intermedius</i> (Browne, 1902)	Ant,EA, EP,WA	CA	D,GP	ep	wc	[3, 5, 10, 12]
<i>Haliolitholus pauper</i> Hartlaub, 1913	ct	CA	D,GP	n,o	wc	[10, 12]
<i>Leukartiara hoepplii</i> Hsu, 1928	cp	P	GP	n.a.	wc	[6, 10]
<i>Leukartiara octona</i> (Fleming, 1823)	cp	P	GP	n.a.	wc	[6, 9, 10]
<i>Pandea</i> sp.	cp		GD	n.a.	wc	[6, 8]
* <i>Pandaeopsis ikarii</i> Kramp, 1959	IP		GP	n.a.	wc	[6, 10]
Family POLYORCHIDAE						
<i>Polyorchis penicillatus</i> (Eschscholtz, 1829)	EP		IC	n.a.	wc	[5, 6]
Family PROBOSCIDACTYLA						
<i>Proboscidactyla ornata</i> (McCrary, 1857)	ct	N	CR	n	wc	[11]
Family PROTIARIDAE						
* <i>Haliitiara formosa</i> Fewkes, 1882	IO,WA		GP	n	wc	[6, 10]

(continued)

Species List 7.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Family TRICHYDRIDAE						
<i>*Trichydra pudica</i> Wright, 1858	EP	N	GP	n	wc	[10, 11]
Family TUBULARIIDAE						
<i>*Ectopleura dumortieri</i> (van Beneden, 1844)	EA,EP		GP	n	wc	[6, 10, 11]
<i>Ectopleura sacculifera</i> Kramp, 1957	EP	N	CR	n	wc	[11]
<i>Euphysora bigelowi</i> Mass, 1905	EP,IO		CR	n	wc	[11]
<i>Gotoea similis</i> Kramp, 1959	IO		CR	n.a.	wc	[11]
Family PORPITIDAE						
<i>Porpita porpita</i> (Linnaeus, 1758)	cp	CA	GP	ep,n	wc	[3, 10, 11]
Family ZANCLEIDAE						
<i>Zanclaea costata</i> Gegenbaur, 1857	cp		D,CR	n	wc	[3, 5, 12]
SubClass TRACHYLINA						
Order TRACHYMEDUSAE						
Family GERYONIIDAE						
<i>Geryonia proboscidalis</i> (Forsk., 1775)	ct	CA	D	ep	wc	[3, 5, 10]
<i>Liriope tetraphylla</i> (Chamisso & Eysenhardt, 1821)	cp	CA	D,GN,GP	ep,n,o	wc	[2–5, 10–12]
Family RHOPALONEMATIDAE						
<i>Aglantha</i> sp.	n.a.		GP	n	wc	[6, 10, 12]
<i>Aglantha digitale</i> (O.F. Muller, 1766)	Arc,EP,WP	CA	GP	n,o	wc	[6, 10, 12]
<i>Aglaura hemistoma</i> Péron & Lesuerur, 1810	EA,EP,IP,WA,WP	CA	D,GP	ep	wc	[3, 6, 10, 11, 12]
<i>Amphogona apicata</i> Kramp, 1957	EA,EP,WA,WP		D	bp	wc	[3, 4, 11, 12]
<i>Amphogona apsteini</i> (Vanhoffen, 1902)	IP,WA		GD	ep	wc	[3, 8]
<i>Pantachogon</i> sp.	cp		GD	bp	wc	[3, 8]
<i>Persa incolorata</i> McCrady, 1859	cp		GD	bp,ep	wc	[3, 8]
<i>Rhopalonema velatum</i> Gegenbaur, 1857	ct	CA	D,GP	ep,n,o	wc	[3, 10–12]
<i>Sminthea eurygaster</i> Gegenbaur, 1856	EA,WA,WP	P	CR	bp,mp	wc	[1]

(continued)

Species List 7.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Order						
NARCOMEDUSAE						
Family AEGINIDAE						
<i>Solmundella bitentaculata</i> cp (Quoy & Gaimard, 1833)		P,N	D,GP	n	wc	[3, 10–12]
Family CUNINIDAE						
<i>Cunina octonaria</i> ct McCrary, 1859		P	D,GP	ep,n	wc	[3, 10–12]
<i>Cunina peregrina</i> Bigelow,ct 1909			D	ep,n	wc	[4, 9–11]
Family SOLMARISIDAE						
<i>Pegantha clara</i> Bigelow, 1909	cp	ES,P	D	n	wc	[5, 12]
<i>Pegantha martagon</i> Haeckel, 1879	cp	N	D	n	wc	[5, 12]
<i>Pegantha triloba</i> Haeckel, 1879	ct	P	D	o	wc	[5, 12]
<i>Solmaris rhodoloma</i> (Brandt, 1838)	EP		D,GP	n	wc	[6, 10, 12]
Class SCYPHOZOA						
Order CORONATEAE						
Family ATOLLIDAE						
<i>Atolla wyvillei</i> Haeckel, 1880	EA,EP,WA	P	PM	bp	wc	[1, 2]
Family NAUSITHOIDAE						
<i>Nausithoe punctata</i> Kölliker, 1853	EA,EP,WA	H,G,N,P	GP	n.a.	wc	[10, Rodríguez, unpubl.]
Order RHIZOSTOMEAE						
Family STOMOLOPHIDAE						
<i>Stomolophus meleagris</i> L. Agassiz, 1862	cp		GN	n.a.	wc	[5]
Order SEMAEOSTOMAE						
Family PELAGIIDAE						
<i>Pelagia noctiluca</i> Péron and Lesueur, 1810	cp	CA	GN,GP	mp	wc	[1, 10, 11]
Family ULMARIDAE						
<i>Aurelia aurita</i> Linné, 1758	cp		PM	ep,mp	wc	[5, Rodríguez, unpublished]
Class CUBOZOA						

(continued)

Family CARYBDEIDAE

Species List 7.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
^a <i>Tripedalia cystophora</i> Conant, 1897	IO,WA		GN	bp	wc	[6, Rodríguez, unpublished]

Family

CHIRODROPIDAE

<i>Chiropsalmus</i> sp.	WA		GN	n.a.	wc	[5, 7]
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n.a. = information not available

^aAnt = Antarctic; Arc = arctic; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; B = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cD = Domo de Costa Rica; GD = Golfo Dulce; GN = Golfo de Nicoya; GP = Golfo de Papagayo; IC = Isla del Coco; PM = Pacific mainland

^dbp = bathypelagic; ep = epipelagic; mp = mesopelagic; n = neritic; o = oceanic

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 8.1 Siphonophores collected in Caribbean of Costa Rica following the taxonomic arrangement and nomenclature proposed by Totton (1965) and Pagès et al. (1992)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Depth ^e (m)	Habitat/Community ^f	References ^g
Order CYSTONECTAE							
Family PHYSALIIDAE							
<i>Physalia physalis</i> (Linnaeus, 1758)	ct-t	n.a.	CC	ep	0	p	[1, 2, 6, 7]
Order CALYCOPHORAE							
Family DIPHYIDAE							
<i>Abylopsis eschscholtzi</i> (Huxley, 1859)	ct-t		CC	Ep	0-200	wc	[1, 2, 5, 6] ^h
<i>Chelophyes appendiculata</i> (Eschscholtz, 1829)	ct-t	N.H	CC	Ep	0-300	wc	[1, 2]
<i>Chelophyes contorta</i> (Lens and van Riemsdijk, 1908)	t-t		IU	ep	0-200	wc	[1, 2, 9] ^h
<i>Enneagonum hyalinum</i> Quoy and Gaimard, 1827	ct-s		CC	ep	300-1000	wc	[2, 4, 5]
<i>Muggiaea atlantica</i> Cunningham, 1892	EA,Med,WA	CA	IU	Ep	0-100	wc	[1, 2, 4, 5] ^h
<i>Sulculeolaria quadrialvis</i> Blainville, 1834	ct-s	G.P	CC	ep	0-100	wc	[2, 3, 7, 9] ^h

^act = circumtropical; ct-t = circumtropical-temperate; ct-s = circumtropical-subtropical; t-t = tropical-temperate; EA = eastern Atlantic; EP = eastern Pacific;

Med = Mediterranean; WA = western Atlantic

^bCA = all Central American countries; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cCC = Caribbean coast; IU = Isla Uvita

^dep = epipelagic

^eUppermost and lowermost occurrences (in meters)

^fwc = water column; p = pleuston

^gReferences are indicated by numbers according to the Reference list.

^hRodríguez, K. unpublished data

Species List 8.2. Siphonophores collected in Pacific waters of Costa Rica. The systematic arrangement and nomenclature used was that proposed by Totton (1965) and Pagès *et al.* (1992)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth ^e (m)	Habitat/Community ^f	References ^g
Order CYSTONECTAE							
Family PHYSALIIDAE							
<i>Physallia physalis</i> Linnaeus, 1758	ct-t		GP, ICñ	surface	0	p	[2, 6, 7, F. Pagès, 2000 personal communication]
Family RHIZOPHYSIDAE							
<i>Rhizophysa eysenhardti</i> Gegenbaur, 1859	ct		GP	ep,mp	n.a.	wc	[8, 9]
Order PHYSONECTAE							
Family AGALMIDAE							
<i>Agalma elegans</i> (Sars, 1846)	ct-t		D,GP	ep,mp	0–200	wc	[2, 6, 8]
<i>Agalma okeni</i> Eschscholtz, 1825	ct-t	CA	D,GP	ep	0–200	wc	[2, 6, 8]
<i>Halistemma</i> sp. Hexley, 1859	n.a.		IC	mp	n.a.	wc	[8]
<i>Nanomia bijuga</i> (Chiaje, 1841)	ct-t		D,GP	ep,mp	0–200	wc	[2, 8]
Family FORSKALIIDAE							
<i>Forskalia edwardsi</i> Kolliker, 1853	ct-t		GP	ep	0–250	wc	[8, 9]
Family PHYSOPHORIDAE							
<i>Physophora hydrostatica</i> Forskål, 1775	ct-t		D	ep	0–200	wc	[2]
Order CALYCOPHORAE							
Family PRAYIDAE							
<i>Amphicaryon ernesti</i> Totton, 1954	ct-s		D	ep	0–200	wc	[2]
<i>Rosacea cymbiformis</i> (Chiaje, 1822)	EA, Med, WA		GD	ep,mp	0–675	wc	[4, 5]
<i>Rosacea flaccida</i> Biggs, Pugh & Carré, 1978	n.a.		GP	ep	0–50	wc	[8]

Family HIPPOPOIIDAE									
<i>Hippopodius hippopus</i> (Forskål, 1776)	ct-s		D	ep	0-200	wc	[2, 9]		
<i>Vogtia pentacantha</i> Kolliker, 1853	ct-t		D	mp	300-500	wc	[2, 4]		
Family DYPHIDAE									
<i>Sulculeolaria biloba</i> (Sars, 1846)	ct-s		D	ep	0-200	wc	[2, 4]		
<i>Sulculeolaria chuni</i> (Lens & van Riemsdijk, 1908)	ct-s		D,GD,GP	ep	0-200	wc	[2, 5, 8, 9]		
<i>Sulculeolaria quadrivalvis</i> Blainville, 1834	ct-s		D,GD,GP	ep	0-200	wc	[2, 4, 5, 8]		
<i>Sulculeolaria turgida</i> (Gegenbaur, 1853)	ct-s		D	ep	0-200	wc	[2, 4]		
<i>Chelophyes appendiculata</i> (Eschscholtz, 1829)	ct-t		D	ep	0-500	wc	[2]		
<i>Chelophyes contorta</i> (Lens & van Riemsdijk, 1908)	t-t		D,GD,GP,IC	ep	0-200	wc	[2, 8, 9]		
<i>Diphyes bojani</i> (Eschscholtz 1829)	ct-t	G	D,GD,GP,IC	ep	0-500	wc	[2, 5, 8, 9]		
<i>Diphyes dispar</i> Chamisso & Eysenhardt, 1821	ct-t	N	GD,GP	ep	0-500	wc	[4, 5, 8, 9]		
<i>Eudoxoides mitra</i> Huxley, 1859	ct-t		D,GD,GP,IC	ep	0-200	wc	[2, 8]		
<i>Lensia campanella</i> (Mosser, 1925)	ct-s		D,GD	ep	0-200	wc	[2, 6, 9]		
<i>Lensia challengerii</i> Totton, 1954	EA,EP,IO, WA,WP		D	ep	0-500	wc	[2, 9]		
<i>Lensia conoidea</i> (Keferstein & Ehlers, 1860)	temperate		D	ep	0-300	wc	[2, 9]		
<i>Lensia cossack</i> Totton, 1941	ct-s		D	ep,mp	0-200	wc	[2, 9]		
<i>Lensia hotspur</i> Totton, 1941	ct-s		D	ep	0-200	wc	[2, 4]		
<i>Lensia subtilis</i> (Chun, 1886)	ct-s		D,GD	ep	0-200	wc	[2, 5, 9]		

(continued)

Species List 8.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth ^e (m)	Habitat/Community ^f	References ^g
<i>Muggiata atlantica</i> Cunningham, 1892	EA,Med,WA		D,GD,GP,IC	ep	0–100	wc	[2, 4, 5, 8]
<i>Sphaeronectes gracilis</i> (Claus, 1873)	n.a.		GD	ep	0–100	wc	[5, 6]
Family ABYLIDAE							
<i>Abyla haeckeli</i> Lens & van Riemsdijk, 1908	ct-s		D	ep	0–200	wc	[2, 9]
<i>Abylopsis eschscholtzi</i> (Huxley, 1859)	ct-t		GD,GP,IC,D	ep	0–200	wc	[2, 5, 6, 8]
<i>Abylopsis tetragona</i> (Otto, 1823)	ct-t,Med	P	GP	ep	0–200	wc	[6, 8]
<i>Bassia bassensis</i> (Quoy & Gaimard, 1827)	ct-s	N	GD	ep	0–200	wc	[4, 5]
<i>Ceratacymba leuckarti</i> (Huxley, 1859)	ct-s		D	ep	0–200	wc	[2, 9]
<i>Erneogonum hyalinum</i> Quoy & Gaimard, 1827	ct-s		D	ep	0–200	wc	[2, 4, 5]

n.a. = information not available

^aAnt = Antarctic; Arc = Arctic; cp = cosmopolitan; ct = circumtropical; ct-t = circumtropical; ct-s = circumtropical-subtropical; t-t = tropical-temperate; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; G = Guatemala, N = Nicaragua; P = Panama

^cD = Costa Rica Dome; GD = Golfo Dulce; GP = Golfo de Papagayo; IC = Isla del Coco; ICñ = Isla del Caño

^dep = epipelagic; mp = mesopelagic; n = neritic

^eUppermost and lowermost occurrences (in meters)

^fwc = water column; p = pleuston

^gReferences are indicated by numbers according to the reference list

Species List 9.1 Zoanths, actinarians, and corallimorpharians found on the Caribbean coast of Costa Rica

		World distribution ^a			Central America ^b		Oceanic distribution ^c		Habitat/ Community ^d	References ^e
Class ANTHOZOA										
Order ZOANTHINARIA										
Family ZOANTHIDAE										
	<i>Palythoa caribaeorum</i>	Duchassaing & Michelotti, 1860	Car	G,H,N	it,st,eb	rb,cr			[1, 2, 3]	
	<i>Palythoa grandis</i>	Verrill, 1900	Car		st,eb	cr			[1]	
	<i>Zoanthus pulchellus</i>	Duchassaing & Michelotti, 1860	Car		st,eb	cr			[1]	
	<i>Zoanthus sociatus</i>	Ellis & Solander, 1786	Car	H,N,P	st,eb	rb,cr			[1,2]	
Family PARAZOANTHIDAE										
	<i>Parazoanthus parasiticus</i>	(Duchassaing & Michelotti)	Car		st	c,cr			[2]	
Order ACTINIARIA										
Family ACTINIIDAE										
	<i>Anthopleura</i> sp.		Car		st,eb	rb,cr			[1]	
	<i>Condylactis gigantea</i>	(Weinland, 1860)	Car	G	st,eb	rb,cr			[1,3]	
Family AIPTASIIDAE										
	<i>Bartholomea annulata</i>	(Lesueur, 1817)	Car	G	st,eb	rb,cr			[1,3]	
Family ALICIIDAE										
	<i>Alicia mirabilis</i>	Johnson, 1861	Car		st,eb	rb,cr			[1]	
	<i>Lebrunia coralligens</i>	(Wilson, 1890)	Car		st,eb	rb,cr			[1]	
Family STICHODACTYLIDAE										
	<i>Stichodactyla helianthus</i>	(Ellis, 1768)	Car		st,eb	rb,cr			[1]	

(continued)

Species List 9.1 (continued)

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/ Community ^d	References ^e
Order CORALLIMORPHARIA					
Family ACTINODISCIDAE					
<i>Discosoma sanctithomae</i> (Duchassaing & Michelotti, 1860)	Car		st,eb	rb,cr	[2]
Family CORALLIMORPHIDAE					
<i>Ricordea florida</i> (Duchassaing & Michelotti, 1860)	Car		st,eb	rb,cr	[2]

^a Car = Caribbean

^b G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^c eb = epibenthic; it = intertidal; st = subtidal

^d c = commensal; cr = coral reefs; rb = rocky bottom

^e References are indicated by numbers according to the reference list.

Species List 9.2 Zoanths, actinarians, and corallimorpharians found on the Pacific coast of Costa Rica

	World distribution ^a	Costa Rica ^b	Oceanic distribution ^c	Habitat/ Community ^d	References ^e
Class ANTHOZOA					
Order ACTINARIA					
Family Hormathiidae					
<i>Telmatactis cricoides</i> (Duchassaing, 1850)	EP	IC	st,eb	rb,cr	[1]

^aEP = eastern Pacific

^bIC = Isla del Coco

^ceb = epibenthic; st = subtidal

^dcr = coral reefs; rb = rocky bottom

^eReferences are indicated by numbers according to the reference list

Species List 10.1 Octocorals from Caribbean shallow waters of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d (m)	Habitat/ Community ^e	References ^f
ALCYONACEA						
Group STOLONIFERA						
Family CLAVULARIDAE						
<i>Carijoa risei</i> (Duchassaing & Michelotti, 1860)	cp	G	B	1.5–8	cr,rb	[7, 9, 10]
ALCYONACEA						
Group SCLERAXONIA						
Family BRIAREIDAE						
<i>Briareum asbestinum</i> (Pallas, 1766)	Car	B,H,P	B	0.5–12	cr,rb	[7, 10]
Family ANTHOTHELIDAE						
<i>Erythropodium caribaeorum</i> (Duchassaing & Michelotti, 1860)	Car	B,G,H,P	B	0.5–12	cr,rb	[7, 9, 10]
Group CALCAXONIA						
Family ELLISELLIDAE						
<i>Ellisella barbadensis</i> (Duchassaing & Michelotti, 1864)	Car,WA	B,H	B	30–35	cr,rb	[6]
Group HOLAXONIA						
Family PLEXAURIDAE						
<i>Eunicea (Euniceopsis) fusca</i> (Duchassaing & Michelotti, 1860)	Car	B,H	B	4–10	cr,rb	[7, 10]
<i>Eunicea (Euniceopsis) knighti</i> Bayer, 1961	Car	B,H	B	3–6	cr,rb	[7, 10]
<i>Eunicea (Euniceopsis) laciniata</i> (Duchassaing & Michelotti, 1860)	Car	B,H	B	3–6	cr,rb	[7, 10]
<i>Eunicea (Euniceopsis) succinea</i> (Pallas, 1766)	Car	B,H	B	3–6	cr,rb	[7, 10]
<i>Eunicea (Euniceopsis) tourneforti</i> atra Milne Edwards & Haime, 1857	Car	B,H	B	3–6	cr,rb	[7, 10]
<i>Eunicea (Euniceopsis) tourneforti tourneforti</i> Edwards & Haime, 1857	Car	B,H	B	3–10	cr,rb	[7, 10]

<i>Muricea atlantica</i> (Kükenthal, 1919)	Car	B,H	B	3-16	cr,rb	[7, 10]
<i>Muriceopsis bayeriana</i> Sánchez, 2001	Car	P	B	4-6	cr,rb	[13]
<i>Muriceopsis flavida</i> (Lamarck, 1815)	Car	B,H	b	3-15	cr,rb	[7, 10]
? <i>Muriceopsis sulphurea</i> (Donovan, 1825)	Car	B,H	b	4-6	cr,rb	[7, 10]
<i>Plexaura flexuosa</i> Lamouroux, 1821	Car	B,H	b	3-9	cr,rb	[7, 10]
? <i>Plexaura nina</i> Bayer & Diechmann, 1958	Car	B,H	b	2-3	cr,rb	[7, 10]
<i>Plexaurella dichotoma</i> (Esper, 1791)	Car	B,H	b	2-5	cr,rb	[7, 10]
<i>Plexaurella fusifera</i> Kuzne, 1916	Car	B,H	b	2-4	cr,rb	[7, 10]
<i>Plexaurella grisea</i> Kuzne, 1916	Car	B,H	b	2-6	cr,rb	[7, 10]
Family GORGONIIDAE						
<i>Gorgonia flabellum</i> Linnaeus, 1758	Car	B,H	b	0.25-16	cr,rb	[7, 10]
<i>Gorgonia ventalina</i> Linnaeus, 1758	Car	B,H,G	b	2-4	cr,rb	[7, 9, 10]
<i>Pseudoplexaura flagellosa</i> (Houttuyn, 1772)	Car	B,H	b	3-6	cr,rb	[7, 10]
<i>Pseudoplexaura porosa</i> (Houttuyn, 1772)	Car	B,H	b	3-6	cr,rb	[7, 10]
<i>Pseudopterogorgia acerosa</i> (Pallas, 1766)	Car	B,H,P	b	3-6	cr,rb	[7, 10]
<i>Pseudopterogorgia americana</i> (Gmelin, 1791)	Car	B,H,P	b	3-7	cr,rb	[7, 10]
<i>Pseudopterogorgia rigida</i> (Bielschowsky, 1929)	Car	B,H	b	14	cr,rb	[7, 10]
<i>Pterogorgia anceps</i> (Pallas, 1766)	Car	B,H	b	15	cr,rb	[11]

? = doubtful identification

^aCar = Caribbean; cp = cosmopolitan WA = western Atlantic

^bB = Belize; G = Guatemala, H = Honduras; P = Panama

^cb = benthic

^dUppermost and lowermost occurrences (in meters)

^erb = rocky bottom; cr = coral reefs

^fReferences are indicated by numbers according to the reference list

Species List 10.2 Octocorals from Pacific shallow waters of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth ^e (m)	Habitat/Community ^f	References ^g
ALCYONACEA							
Group HOLAXONIA							
Family GORGONIIDAE							
<i>Leptogorgia alba</i> (Duchassaing & Michelotti, 1864)	EP	ES,P,N	PM,IC	b	n.a	n.a	[7, 14]
<i>Leptogorgia cofrini</i> Breedy & Guzmán, 2005	EP	P	PM	b	1–25	rb	[4]
<i>Leptogorgia cuspidata</i> Verrill, 1865	EP	P,ES	PM	b	5–20	rb	[5]
<i>Leptogorgia diffusa</i> Verrill, 1868	EP	P	PM	b	7–26	mb,rb	[5, 7, 14]
<i>Leptogorgia exigua</i> Verrill, 1870	EP	N	PM	b	shallow water	rb	[5, 15]
<i>Leptogorgia laxa</i> Hickson, 1928	EP	P	PM	b	5–20	rb	[5]
<i>Leptogorgia pumila</i> Verrill, 1868	EP	P	PM	b	5–25	rb	[5]
<i>Leptogorgia ramulus</i> Valenciennes, 1846	EP	P,ES,N	PM	b	10–25	rb	[5]
<i>Leptogorgia regis</i> Hickson, 1928	EP	P	PM	b	18–73	rb	[5]
<i>Leptogorgia rigida</i> Verrill, 1864	EP	ES,P	PM	b	5–30	rb	[5]
<i>Leptogorgia taboguilla</i> Hickson, 1928	EP	P	PM	b	3–30	rb	[5]
<i>Eugorgia bradleyi</i> Verrill, 1868	EP	P	PM	b	n.a	mb,rb	[7, 14]
<i>Eugorgia daniana</i> Verrill, 1868	EP	P	PM	b	11–17	mb,rb	[7, 14]
<i>Pacificgorgia adamssii</i> (Verrill, 1868)	EP	N,P	PM	b	20–35	rb	[2, 3, 7, 14]
<i>Pacificgorgia bayeri</i> Breedy, 2001	EP	P	PM	b	10–12	rb	[1, 2, 3]
<i>Pacificgorgia cairnsi</i> Breedy & Guzmán, 2003	EP	P	PM	b	7–22	rb	[3]
<i>Pacificgorgia curta</i> Breedy & Guzmán, 2003	EP		IC	b	20–25	rb	[3]
<i>Pacificgorgia eximia</i> (Verrill, 1868)	EP	P	PM	b	25	rb	[2, 3]
<i>Pacificgorgia firma</i> Breedy & Guzmán, 2003	EP	P	PM	b	0.5–8	rb	[3]
<i>Pacificgorgia flavimaculata</i> Breedy & Guzmán, 2003	EP		PM	b	3	rb	[3]
<i>Pacificgorgia irene</i> Bayer, 1951	EP	P	PM	b	12–33	rb	[2, 3]
<i>Pacificgorgia lacerata</i> Breedy & Guzmán, 2003	EP		PM	b	18	rb	[3]
<i>Pacificgorgia rubicunda</i> Breedy & Guzmán, 2003	EP	P	PM	b	20–25	rb	[3]
<i>Pacificgorgia samarensis</i> Breedy & Guzmán, 2003	EP		PM	b	8–12	rb	[3]
<i>Pacificgorgia senta</i> Breedy & Guzmán, 2003	EP	P	PM	b	40	rb	[3]

<i>Pacifigorgia stenobrochis</i> (Valenciennes, 1846)	EP	P	PM	b	12-30	rb	[2, 3]
<i>Pacifigorgia tupperi</i> Breedy & Guzmán, 2003	EP		PM	b	25-28	rb	[3]
Family PLEXAURIDAE							
<i>Psammogorgia arbuscula</i> (Verrill, 1866)	EP	P	PM	b	shallow water	mb,rb	[7, 14]
Order PENNATULACEA							
Family PENNATULIDAE							
<i>Ptilosarcus undulatum</i> Verrill, 1865	EP	P	IC	b	shallow water	mb	[7, 8, 12]
Family RENILLIDAE							
<i>Renilla amethystina</i> Verrill, 1861	EP	P	PM	b	dredged	mb	[7]

n.a. = information not available

^aEP = eastern Pacific

^bES = El Salvador; N = Nicaragua; P = Panama

^cPM = Pacific mainland; IC = Isla del Coco

^db = benthic

^eUppermost and lowermost occurrences (in meters)

^frb = rocky bottom; mb = muddy bottom

^gReferences are indicated by numbers according to the reference list

Species List 11.1 Stony corals (hydrocorals and scleractinians) from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class HYDROZOA						
Order FILIFORA						
Family STYLASTERIDAE						
SubFamily STYLASTERINAE						
<i>Stylaster roseus</i> (Pallas, 1766)	Car, WA	B, G	be, st	0.5–35	cr, rb	[1, 7, 8, 13]
Order CAPITATA						
Family MILLEPORIDAE						
<i>Millepora alaicornis</i> Linnaeus, 1758	Car, WA	B, H, N, P	be, st	0.1–45	cr	[1, 7, 8, 14, 17, 18, 23]
<i>Millepora complanata</i> Lamarck, 1816	Car, WA	B, G, H, N, P	be, st	0.1–45	cr	[1, 7, 8, 13, 14, 17, 18, 23]
Class ANTHOZOA						
Order SCLERACTINIA						
SubOrder ASTROCOENIINA						
Family ASTROCOENIIDAE						
<i>Stephanocoenia intersepta</i> (Lamarck, 1816)	Car, WA	B, G, H, P	be, st	0–100	cr	[1, 5, 8, 10, 13, 17, 18]
Family POCILLOPORIDAE						
<i>Madracis decactis</i> (Lyman, 1859)	Car, EA, WA	B, G, H, P	be, st	0–98	cr	[1, 8, 10, 13, 17, 18]
<i>Madracis mirabilis</i> (Lyman, 1859)	Car, WA	B, G, H, P	be, st	0–60	cr	[1, 8, 10, 13, 14, 17, 18, 25]
Family ACROPORIDAE						
<i>Acropora cervicornis</i> (Lamarck, 1816)	Car	B, H, N, P	be, st	0–50	cr	[1, 8, 10, 14, 17, 18, 23, 24]
<i>Acropora palmata</i> (Lamarck, 1816)	Car	B, H, N, P	be, st	0–23	cr	[1, 8, 10, 13, 14, 17, 18, 23, 24]

SubOrder FUNGIINA

Family PORITIDAE

Porites astreoides Lamarck, 1816

Car,EA,WA B,G,H,N,P be,st 0-70 cr,sg [1, 8, 10, 13, 14, 17, 18, 23, 26]

Porites divaricata Lesueur, 1821

Car B,G,H,N,P be,st 0-47 cr [1, 8, 10, 13, 17, 18, 23, 26]

Porites furcata Lamarck, 1816

Car B,H,N,P be,st 0-50 cr,sg [1, 8, 10, 17, 18, 23, 26]

Porites porites (Pallas, 1766)

Car,EA B,G,H,N,P be,st 0-50 cr,sg [1, 8, 10, 13, 14, 17, 18, 23, 26]

Family SIDERASTREIDAE

Siderastrea radians (Pallas, 1766)

Car,EA B,G,H,P be,st 0-33 cr,sg [1, 8, 10, 13, 17, 18, 25]

Siderastrea siderea (Ellis & Solander, 1786)

Car B,G,H,N,P be,it,st 0-70 cr [1, 8, 10, 13, 14, 17, 18, 23, 25]

Family AGARICIIDAE

Agaricia agaricites (Linnaeus, 1758)

Car,WA B,G,H,N,P be,st 0-75 cr [1, 8, 10, 13, 14, 18, 19, 23, 25]

Agaricia agaricites forma *carinata* (Wells, 1973)

Car B,P be,st 0-75 n.a. [1, 10, 18]

Agaricia agaricites forma *danai* (Milne Edwards & Haime, 1851)

Car H,N,P be,st 0-75 cr [10, 18, 23]

Agaricia agaricites forma *purpurea* (Lesueur, 1821)

Car B,H,P be,st 0-75 cr [1, 10, 17, 18]

Agaricia fragilis Dana, 1846

Car,WA B,H,P be,st 0-102 cr [1, 5, 8, 10, 14, 17, 18, 25]

Agaricia humilis Verrill, 1902

Car B,H,N,P be,st 0-70 cr [1, 8, 10, 17, 18, 23, 25]

Agaricia tenuifolia Dana, 1846

Car B,G,H,P be,st 0-35 cr [1, 5, 8, 10, 13, 14, 17, 18, 25]

Leptoseris cucullata (Ellis & Solander, 1786)

Car B,G,H,N,P be,st 2-108 cr [1, 8, 10, 13, 14, 17, 18, 23, 25]

(continued)

Species List 11.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
SubOrder FAVIINA						
Family FAVIIDAE						
SubFamily FAVIINAE						
<i>Cladocora arbuscula</i> (Lesueur, 1821)	Car	B,H	be,st	0-35	cr,sg	[1, 8, 10, 17, 26]
<i>Colpophyllia breviserialis</i> Milne Edwards & Haime, 1849	Car	H,P	be,st	10-25	cr	[8, 10, 17, 18]
<i>Colpophyllia natans</i> (Houttuyn, 1772)	Car	B,H,N,P	be,st	0-55	cr	[1, 8, 10, 13, 17, 18, 23, 26]
<i>Diploria clavosa</i> (Ellis & Solander, 1786)	Car	B,H,P	be,st	0-41	cr,sg	[1, 8, 10, 17, 18, 26]
<i>Diploria labyrinthiformis</i> (Linnaeus, 1758)	Car	B,H,P	be,st	0-43	cr	[1, 8, 10, 14, 17, 18, 26]
<i>Diploria strigosa</i> (Dana, 1846)	Car	B,G,H,P	be,st	0-47	cr	[1, 5, 8, 10, 13, 17, 18, 26]
<i>Favia fragum</i> (Esper, 1797)	Car,EA,WA	B,H,P	be,st	0-30	cr,rb	[1, 5, 8, 10, 17, 18, 26]
<i>Manicina areolata</i> (Linnaeus, 1758)	Car	B,G,H,N,P	be,st	0-65	cr,sb,sg	[1, 8, 10, 13, 17, 18, 23, 26]
SubFamily MONTASTRAEINAE						
<i>Montastraea annularis</i> (Ellis & Solander, 1786)	Car	B,G,H,N,P	be,st	0-20	cr	[1, 13, 17, 18, 23, 26]
<i>Montastraea cavernosa</i> (Linnaeus, 1767)	Car,EA,WA	B,G,H,N,P	be,st	0-113	cr	[1, 8, 10, 13, 14, 17, 18, 23, 26]
<i>Montastraea franksi</i> (Gregory, 1895)	Car	G,H,P	be,st	2-50	cr	[10, 13, 17, 18]
Family RHIZANGIIDAE						
<i>Astrangia solitaria</i> (Lesueur, 1817)	Car	B,H,N,P	be,it,st	0-51	cr,rb	[1, 4, 9]
Family OCULINIDAE						
<i>Oculina diffusa</i> Lamarck, 1816	Car	G,H,P	be,st	0-23	cr	[8, 10, 13, 17, 18, 25]
Family MEANDRINIDAE						
<i>Dichocoenia stellaris</i> Milne Edwards & Haime, 1848	Car	H,P	be,st	0-30	cr	[8, 10, 17, 18]
<i>Dichocoenia stokesi</i> Milne Edwards & Haime, 1848	Car	B,H,N,P	be,st	0-72	cr	[1, 8, 10, 17, 18, 23, 25]

<i>Meandrina meandrites</i> (Linnaeus, 1758)	Car	B,G,H,N,P	be,st	0-80	cr	[1, 6, 8, 13, 17, 18, 23, 25]
Family MUSSIDAE						
<i>Isophyllastrea rigida</i> (Dana, 1846)	Car	B,H,P	be,st	0-35	cr	[1, 5, 8, 10, 17, 18, 26]
<i>Isophyllia sinuosa</i> (Ellis & Solander, 1786)	Car	B,H,P	be,st	0-35	cr	[1, 8, 10, 17, 18, 26]
<i>Massa angulosa</i> (Pallas, 1766)	Car	B,G,H,P	be,st	0-59	cr	[1, 8, 10, 13, 17, 18, 26]
<i>Mycetophyllia danaana</i> Milne Edwards & Haime, 1849	Car	B,G,H,P	be,st	0-50	cr	[1, 8, 10, 13, 14, 17, 18, 26]
<i>Mycetophyllia lanarkiana</i> Milne Edwards & Haime, 1848	Car	B,H,P	be,st	0-75	cr	[1, 8, 10, 17, 18, 26]
<i>Scolymia cubensis</i> Milne Edwards & Haime, 1849	Car,WA	B,G,H,P	be,st	0-92	cr	[1, 10, 13, 17, 18, 26]
<i>Scolymia lacera</i> (Pallas, 1766)	Car	B,H,P	be,st	3-80	cr	[1, 10, 17, 18]
SubOrder CARYOPHYLLIINA						
Family CARYOPHYLLIIDAE						
<i>Colangia immersa</i> Pourtaès, 1871	Car	B,H,P	be,st	0.5-347	cr,rb	[4, 6, 9]
<i>Eusmitia fastigiata</i> (Pallas, 1766)	Car	B,G,H,P	be,st	0-65	cr	[1, 8, 10, 13, 17, 18, 25]
<i>Phyllangia americana</i> Milne Edwards & Haime, 1849	Car,WA	B,G,H,N	be,st	0-53	cr,rb	[4, 8, 9, 10, 13]
<i>Phyllangia dispersa</i> Verrill, 1864	cp		be,st	12	cr,rb	[9]
SubOrder DENDROPHYLLIINA						
Family DENDROPHYLLIIDAE						
<i>Dendrophyllia</i> sp.	Car		be,st	n.a.	cr	[8, 9]

n.a. = information not available

^aCar = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; WA = western Atlantic

^bB = Belize; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cbe = benthic, it = intertidal, st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecr = coral reefs; rb = rocky bottom; sb = sandy bottom; sg = seagrass

^fReferences are indicated by numbers according to the reference list

Species List 11.2 Stony corals (hydrocorals and scleractinians) from the Pacific of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
			Endemic	Pacific ^c				
Class HYDROZOA								
Order FILIFORA								
Family STYLASTERIDAE								
<i>Errina macrogastra</i> Marenzeller, 1904	EP			IC	be,st	549–704	rb	[3, 8]
<i>Pliobothrus fistulosus</i> Cairns, 1991	EP	X		IC	be,st	546–631	rb	[3, 8]
<i>Sylaster cocosensis</i> Cairns, 1991	EP	X		IC	be,st	293–576	cr	[3, 8]
<i>Sylaster galapagensis</i> Cairns, 1986	EP			IC	be,st	549–717	rb	[3, 8]
<i>Sylaster marenzelleri</i> Cairns, 1986	EP			IC	be,st	84–631	rb	[3, 8]
Class ANTHOZOA								
Order SCLERACTINIA								
SubOrder ASTROCOENIINA								
Family POCILLOPORIDAE								
<i>Pocillopora capitata</i> Verrill, 1864	EP,WPIO	ES		PM	be,st	0–37	cr	[5, 11, 22, 25]
<i>Pocillopora damicornis</i> (Linnaeus, 1758)	EP,WPIO,RS	ES,P		IC,PM	be,st	0–26	cr,rb	[11, 21, 22, 25]
<i>Pocillopora elegans</i> Dana, 1846	EP,WPIO	ES,P		IC,PM	be,it,st	0–18	cr,rb	[5, 11, 21, 22, 25]
<i>Pocillopora eydouxi</i> Milne Edwards & Haime, 1860	EP,WPIO,RS	P		IC,PM	be,st	1–21	cr	[11, 21, 25]
<i>Pocillopora inflata</i> Glynn, 1999	EP	P		PM	be,st		cr	[15]
<i>Pocillopora meandrina</i> Dana, 1846	EP,WPIO	ES,P		IC,PM	be,st	0–18	cr	[11, 21, 22, 25]
SubOrder FUNGIINA								
Family PORITIDAE								
<i>Porites lobata</i> Dana, 1846	EP,WPIO,RS	ES,P		IC,PM	be,it,st	0–37	cr	[11, 21, 22, 26]
<i>Porites panamensis</i> Verrill, 1866	EP	ES,P		PM	be,st	0–45	cr	[5, 11, 21, 22, 26]
<i>Porites rus</i> (Forskål, 1775)	EP,WPIO,RS			PM	be,st	7	rb	[11, 26]
Family SIDERASTREIDAE								
<i>Psammocora obtusangula</i> (Lamarek, 1816)	EP,WPIO	P		PM	be,st	3	cr	[11, 21, 25]
<i>Psammocora stellata</i> (Verrill, 1866)	EP,WPIO	P		IC,PM	be,st	1–35	cr	[5, 11, 21, 25]

<i>Psammodora superficialis</i> Gardiner, 1898	EP,WPIO,RS	P	IC,PM	be,st	1-25	cr	[11, 21, 25]
Family AGARICIIDAE							
<i>Gardineroseris planulata</i> (Dana, 1846)	EP,WPIO,RS	P	IC,PM	be,st	6-31	cr	[11, 21, 25]
<i>Leptoseris papyracea</i> (Dana, 1846)	EP,WPIO	P	IC,PM	be,st	8-16	cr	[11, 21, 25]
<i>Leptoseris scabra</i> Vaughan, 1907	EP,WPIO,RS		IC	be,st	10-36	cr	[11, 25]
<i>Pavona chiriquensis</i> Glynn et al. 2001	EP	P	IC,PM	be,st	3-20	cr	[16, 21, pers. obs.]
<i>Pavona clavus</i> (Dana, 1846)	EP,WPIO,RS	P	IC,PM	be,st	1-35	cr	[11, 21, 25]
<i>Pavona frondifera</i> (Lamarck, 1816)	EP,WPIO,RS	P	PM	be,st	2-16	cr	[11, 21, 25]
<i>Pavona gigantea</i> Verrill, 1869	EP,WPIO	ES,P	IC,PM	be,st	0-31	cr	[5, 11, 21, 22, 25]
<i>Pavona maldivensis</i> (Gardiner, 1905)	EP,WPIO,RS	P	IC,PM	be,st	13-37	cr	[11, 21, 25]
<i>Pavona varians</i> Verrill, 1864	EP,WPIO,RS	P	IC,PM	be,st	4-79	cr	[11, 21, 25]
<i>Pavona xarifae</i> Scheer & Pillai, 1974	EP,WPIO,RS		IC	be,st	19	cr	[5, 11]
Family FUNGIIDAE							
<i>Fungia (Cycloseris) curvata</i> Hoeksema, 1989	EP,WPIO,RS	P	IC,PM	be,st	24-72	cr,rub	[11, 19, 25]
<i>Fungia (Cycloseris) distorta</i> Michelin, 1842	EP,WPIO,RS	P	IC,PM	be,st	1-85	cr,rub	[11, 19, 21, 25]
SubOrder FAVIINA							
Family FAVIIDAE							
SubFamily FAVIINAE							
<i>Cladocora debilis</i> Milne Edwards & Haime, 1849	EP,WA,Car	P	IC	be,st	46-275	rb	[9, 12]
<i>Cladocora pacifica</i> Cairns, 1991	EP		IC	be,st	45-274	rb	[2, 9]
Family RHIZANGIIDAE							
<i>Astrangia brownii</i> Palmer, 1928	EP		PM	be,st	0-10	cr,rb	[2, 9]
<i>Astrangia dentata</i> Verrill, 1866	EP	P	IC,PM	be,st	0-15	cr,rb	[2, 9]
<i>Astrangia equatorialis</i> Durham & Barnard, 1952	EP		PM	be,st	0-15	cr,rb	[2, 9]
<i>Astrangia haimae</i> Verrill, 1866	EP	ES,P	PM	be,st	0-64	cr,rb	[8, 9, 12]
<i>Cutlicia stellata</i> Dana 1846	EP	P	IC	be,st	0-27	cr	[2, 9]
<i>Oulangia bradleyi</i> Verrill, 1866	EP	ES,P	PM	be,st	0-63	cr,rb	[2, 8, 9, 12, 22]

(continued)

Species List 11.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
SubOrder CARYOPHYLLIINA								
Family CARYOPHYLLIIDAE								
<i>Anomocora carinata</i> Cairns, 1991	EP		X	IC	be,st	614–785	rb	[2]
<i>Caryophyllia diomedea</i> Marenzeller, 1904	EP,WP,IO	P		IC	be,st	245–806	rb	[2, 5]
<i>Caryophyllia perculata</i> Cairns, 1991	EP	P		IC	be,st	54–316	rb	[2]
<i>Coenoclyathus bowersi</i> Vaughan, 1906	EP	P		IC	be,st	9–302	rb	[2, 9, 12]
<i>Desmophyllum dianthus</i> (Esper, 1794)	EP,cp			IC	be,st	373–806	rb	[2]
<i>Polycyathus hondaensis</i> (Durham & Barnard, 1952)	EP	P		IC	be,st	55–84	rb	[2, 12]
<i>Tethocyathus prahli</i> Lattig & Cairns 2000	Car,EP			IC	be,st	303–333	rb	[20]
Family FLABELLIDAE								
<i>Javania cailleti</i> (Duchassaing & Michelotti, 1864)	EP,cp			IC	be,st	86–2165	rb	[2, 5]
SubOrder DENDROPHYLLIINA								
Family DENDROPHYLLIIDAE								
<i>Cladopsammia eguchii</i> (Wells, 1982)	EP,WP	ES,P		PM	be,st	1–85	cr,rb	[2, 22]
<i>Cladopsammia gracilis</i> (Milne Edwards & Haime, 1848)	EP			PM	be,st	0–12	rb	[2]
<i>Dendrophyllia oldroydii</i> Oldroyd, 1924	EP			IC,PM	be,st	315–576	rb	[2]
<i>Endopachys grayi</i> Milne Edwards & Haime, 1848	EP,WP,IO,RS			IC	be,st	20–183	cr,rb	[2]
<i>Rhizopsammia verrilli</i> Van der Horst, 1922	EP,WP,IO			IC	be,st	6–20	cr,rb	[2, 5]
<i>Tubastrea coccinea</i> Lesson, 1829	EP,cp	ES		PM	be,st	1.5–54	cr,rb	[2, 5, 22]

n.a. = information not available

^aCar = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; RS = Red Sea; WA = western Atlantic; WP = western Pacific^bES = El Salvador; P = Panama^cIC = Isla del Coco; PM = Pacific mainland^dbe = benthic; it = intertidal; st = subtidal^eUppermost and lowermost occurrences (in meters)^fcr = coral reefs; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom^gReferences are indicated by numbers according to the reference list

Species List 12.1 List of sipunculans reported for the Caribbean coast of Costa Rica, Central America

Species	World distribution ^a	Costa Rica	Oceanic distribution ^b	Depth (m) ^c	Habitat/Community ^d	References ^e
Class SIPUNCULIDEA						
Order SIPUNCULIFORMES						
Family SIPUNCULIDAE						
<i>Sipunculus phalloides phalloides</i> (Pallas, 1774)	Car,EA,EP	Cahuita reefs	it,st	0–15	cr,rb,sb	[3, 6, 11, 12]
Class PHASCOLOSOMATIDEA						
Order PHASCOLOSOMATIFORMES						
Family PHASCOLOSOMATIDAE						
<i>Anitilesoma anillarum</i> (Grube, 1858)	Car,WA,EA, IO,IP,EP	Cahuita reefs	it,st	0–15	ch,cr	[3, 5, 11, 12]
<i>Phascolosoma (Phascolosoma) perlucens</i> Baird, 1868	Car,EA,EP,WP,IO	Cahuita reefs	it,st	0–15	ch,cr	[3, 5, 11, 12]
Order ASPIDOSIPHONIFORMES						
Family ASPIDOSIPHONIDAE						
<i>Aspidosiphon (Paraspidosiphon) parvulus</i> (Gerould, 1913)	Car,WA	Cahuita reefs	it,st	0–15	ch,cr	[3, 7, 11, 12, 17]

^aCar = Caribbean; EA = Eastern Atlantic; EP = Eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; WA = Western Atlantic

^bit = intertidal; st = subtidal

^cUppermost and lowermost occurrences (in meters) in Costa Rica

^dch = coral heads; cr = coral reefs; rb = rubble bottom; sb = sandy bottom

^eReferences are indicated by numbers according to the reference list

Species List 12.2 List of sipunculian species reported for the Pacific coast of Costa Rica, Central America

Species	World distribution ^a	Costa Rica ^b	Oceanic distribution ^e	Depth (m) ^d	Habitat/ community ^e	References ^f
Class SIPUNCULIDEA						
Order SIPUNCULIFORMES						
Family SIPUNCULIDAE						
<i>Siphonosoma vastum</i> (Selenka & Bulow, 1883)	EP,IP,WA,WP	ICa	st	5	ur,cf	[3, 4, 10, 11, 12]
<i>Sipunculus</i> (<i>Sipunculus</i>) <i>nudus</i> Linnaeus, 1766	cp	GN	it,st	1–18	sb,mb	[3, 6, 11, 12, 27]
<i>Sipunculus</i> (<i>Sipunculus</i>) <i>phalloides</i> (Pallas, 1774)	Car,EA,EP	GN,PN	it,st	1–10	sb	[3, 6, 11, 12]
<i>Xenosiphon branchiatus</i> (Fisher, 1895)	EP,WA	GN,PN	it	1–3	sb	[3, 6, 11, 12]
Order GOLFIGIFORMES						
Family GOLFIGIIDAE						
<i>Nephasoma pellucidum pellucidum</i> (Keferstein, 1865)	Car,IO,SP,WA	GN	it	1–3	ur	[3, 11, 12, 13]
Family PHASCOLIIONIDAE						
<i>Phascolion</i> (<i>Phascolion</i>) <i>strombus</i> (Montagu, 1804)	Arc, Ant, Car, EP, Med, RS, SP	GN	st	18	gs	[3, 11, 12]
Class PHASCOLOSOMATIDEA						
Order PHASCOLOSOMATIFORMES						
Family PHASCOLOSOMATIDAE						
<i>Anitllesoma antillarum</i> (Grube, 1858)	Car,EA,EP,IO,IP,WA	GD,GN,PN	it	1–3	ed,ur	[3, 5, 11, 12, 27]
<i>Apionsoma</i> (<i>Edmondsius</i>) <i>pectinatum</i> (Keferstein, 1867)	ct	GN,PN	it	1–3	ur	[3, 11, 12]
<i>Apionsoma</i> (<i>Apionsoma</i>) <i>trichocephalus</i> Sluiter, 1902	ct	GN	st	7–26	sb,mb	[3, 11, 12]
<i>Phascolosoma</i> (<i>Phascolosoma</i>) <i>nigrescens</i> (Keferstein, 1865)	ct	GD,GN,PN	it,st	1–5	ur,cf	[3, 5, 11, 12]

<i>Phascolosoma (Phascolosoma) perlucens</i> Baird, 1868	Car,EA,EP,IO,WP	GD,GN,IC,PN	it	1-3	ed	[3, 5, 11, 12, 27]
Order ASPIDOSIPHONIFORMES						
Family ASPIDOSIPHONIDAE						
<i>Aspidosiphon (Aspidosiphon) elegans</i> (Chamisso and Eysenhardt, 1821)	Car,RS,WP	GD	st	5	cf	[3, 7, 11, 12]
<i>Aspidosiphon (Paraspidosiphon) fischeri</i> Broeke, 1925	Car,EP	PN	it	1-3	ed	[3, 7, 11, 12, 21]
<i>Aspidosiphon (Aspidosiphon) gracilis schne-</i> <i>hageni</i> (Fisher, 1913)	EP,SP	GN	st	18	gs	[3, 7, 11, 12]
<i>Aspidosiphon (Aspidosiphon) muelleri</i> Diesing, 1851	Med,NA,RS,WP	GN	st	12-18	sb	[3, 7, 11, 12]

^aAnt = Antarctic; Arc = Arctic; Car = Caribbean; cp = Cosmopolitan; ct = Circumtropical; EA = Eastern Atlantic; EP = Eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; RS = Red Sea; SP = South Pacific; WA = Western Atlantic; WP = Western Pacific

^bGN = Golfo de Nicoya; GD = Golfo Dulce; PN = Península de Nicoya; IC = Isla del Coco; ICA = Isla del Caño

^cit = intertidal; st = subtidal

^dUppermost and lowermost occurrences (in meters), in Costa Rica

^ecf = coral fragments; cr = coral reefs; ed = endolithic; gs = gastropod shells; mb = muddy bottom; rb = rubble bottom; sb = sandy bottom; ur = under rocks

^fReferences are indicated by numbers according to the reference list

Species List 13.1 Polychaetes from the Caribbean of Central America

Species	World distribution ^a	Central America ^b	Costa Rica location ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Family ACOETIDAE							
<i>Acoetes pleei</i> Audouin & Milne-Edwards	Car,WA	P	NR	it,st	n.a.	mb, sb	[29, 82]
Family ALCIOPIDAE							
<i>Rhynchonerella moebii</i> (Apstein)	Car	H	NR	n.a.	pelagic	ep	[71]
Family AMPHARETIDAE							
<i>Isolda bipinnata</i> Fauchald	Car	P	NR	ep	n.a.	it	[29]
Family AMPHINOMIDAE							
<i>Eurythoe chilensis</i> Kimberg	Ant,SA,SP	B	NR	st	5-18	sb,ep	[114]
<i>Eurythoe complanata</i> (Pallas)	ct	P	NR	it	n.a.	cr,ep	[29, 69]
<i>Hermodice carunculata</i> Pallas	Car,WA	P,B	NR	it,st	4	cr	[29, 71, 110]
<i>Linopherus canariensis</i> Langerhans	Car	P	NR	it	n.a.	ep	[29]
Family APHRODITIDAE							
<i>Aphrodita diplops</i> Fauchald	Car	P	NR	it	n.a.	sb	[29]
Family CAPITELLIDAE							
<i>Capitella capitata</i> (Fabricius) complex	cp	B	NR	st	5-18	ep	[114]
<i>Capitella jonesi</i> (Hartman)	Car,EA	B	NR	st	12	sb	[114]
<i>Dasybranchus lumbricoides</i> Grube	EP,GM	P	NR	it	n.a.	ep	[29]
<i>Mediomastus ambiseta</i> (Hartman)	EP,GM,WA	B	NR	st	5-18	ep, sb	[114]
<i>Notomastus latericeus</i> Sars	cp	B	NR	st	5-18	ep, sb	[114]
<i>Notomastus lineatus</i> Claparède	cp	P	NR	it	n.a.	ep, sb	[29]
Family CHAETOPTERIDAE							
Chaetopteridae sp. A	n.a.	B	NR	st	5-18	ep	[114]
<i>Spiochaetopterus costarum</i> (Claparède)	cp	B	NR	st	5	ep	[114]
Family CHRYSOPETALIDAE							
<i>Bhawania goodiei</i> Webster	ct	B,P	NR	it	23	ep, sb	[29, 69, 114]
<i>Bhawania</i> sp. A	n.a.	B	NR	st	18	ep	[114]

Family CIRRATULIDAE									
<i>Aphelochaeta marioni</i> (Saint-Joseph)	EA, SA, WA, WP	B	NR	st	5	ep		[114]	
<i>Cauleriella</i> sp.	n.a.	B	NR	st	5-18	ep		[114]	
<i>Cirratulus cirratus?</i> (Müller)	cp	P	NR	it	n.a.	ep		[29]	
<i>Cirratulus</i> sp.	n.a.	B	NR	st	12-18	ep, sb		[114]	
<i>Cirriformia punctata</i> (Grube)	Car, WA	P	NR	it	n.a.	ep		[29]	
<i>Dodecaceria concharum</i> Oersted	cp	P	NR	it	n.a.	ep		[29]	
Family DORVILLEIDAE									
<i>Dorvillea cerasina</i> (Ehlers)	Car, EP, WA,	P	NR	it	n.a.	rub		[29, 69]	
<i>Dorvillea rubrovittatus</i> (Grube)	Car, WA	P	NR	it	n.a.	ep		[29]	
<i>Dorvillea (Schistomerigos) longicornis</i> (Ehlers)	Car, EP	P	NR	it	n.a.	ep		[29, 69]	
<i>Protodorvillea kefersteini</i> McIntosh	Ant, EA, Med, SA, WA	B	NR	st	5-23	ep, sb		[114]	
Family EULEPETHIDAE									
<i>Grubeulepis fimbriata</i> (Treadwell)	Car	P	NR	st	8	n.a.		[79]	
Family EUNICIDAE									
<i>Eunice aedificatrix</i> (Monro)	Car, EP	P	NR	it	n.a.	cr, ep		[29, 69]	
<i>Eunice afra</i> Peters	ct	P	NR	it	n.a.	cr, ep		[29, 69]	
<i>Eunice antennata</i> (Savigny)	ct	P	NR	it	n.a.	cr, ep, rub		[29, 69]	
<i>Eunice aphroditois</i> (Pallas)	ct	P	NR	it	n.a.	cr, ep		[29, 69]	
<i>Eunice cariboea</i> Grube	Car, EP	P	NR	it, st	n.a.	cr, ep, rb		[29, 69]	
<i>Eunice filamentosa</i> Grube	Car, WA	P	NR	it	n.a.	ep		[29, 69]	
<i>Eunice websteri</i> Fauchald	Car, WA	P	NR	it	n.a.	cr		[29]	
<i>Lysidice ninetta</i> Audouin & Milne-Edwards	ct	B	NR	st	5-23	ep, sb		[114]	
<i>Marphysa amadae</i> Fauchald	Car	P	NR	it	n.a.	ep		[29]	
<i>Nematoneis unicornis</i> (Grube)	ct	P	NR	it	n.a.	ep		[29]	
<i>Palola sicilensis</i> (Grube)	ct	P, B	NR	it, st	n.a.	cr, ep, rb		[29, 69, 114]	
Family FLABELLIGERIDAE									
<i>Pherusa inflata</i> (Treadwell)	Car, EP	P	NR	it	n.a.	cr, ep		[29]	

(continued)

Species List 13.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica location ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Family GLYCERIDAE							
<i>Glycera brevicirris</i> Grube	cp	B	NR	st	5–23	ep,it, sb	[6, 29, 114]
<i>Glycera oxycephala</i> Ehlers	cp	P	M	it, st	n.a.	ep, mb, sb	[6, 29]
<i>Glycera sphyrobranchia</i> Schmarda	ct	H, P	NR	it, st	34	n.a.	[6, 71]
<i>Glycera tessellata</i> Grube	ct	P	NR	it	n.a.	ep	[29]
<i>Hemipodia pustulata</i> (Friedrich)	EP, Car		C, L	it	n.a.	sb	[6, 23, 27]
Family GONIADIDAE							
<i>Goniada acicula</i> Hartman	ct	P	NR	it	n.a.	ep	[29]
Family HESIONIDAE							
<i>Hesione picta</i> Müller	Car, WA	P	NR	it	n.a.	cr, ep	[29]
<i>Podarke obscura</i> Verrill	Car, WA	P	NR	it, st	18	ep	[29, 114]
Family LOPADORHYNCHIDAE							
<i>Lopadorhynchus brevis</i> Grube	Car, EA, EP, WA	H	NR	ep	n.a.	wc	[71]
<i>Lopadorhynchus uncinatus</i> Fauvel	Car, EP, WA	H	NR	ep	n.a.	wc	[71]
Family LUMBRINERIDAE							
<i>Lumbrineris inflata</i> Moore	EP, Car	P	NR	it	n.a.	ep	[29]
<i>Lumbrineris latreilli</i> (Audouin & Milne-Edwards)	cp	B	NR	st	5–12	ep, sb	[114]
<i>Scoletoma tetraura</i> (Schmarda)	cp	B	NR	st	18–23	ep, sb	[114]
Family MAGELONIDAE							
<i>Magelona pettiboneae</i> Jones	Car	B	NR	st	5–23	ep, sb	[114]
<i>Magelona riojai</i> Jones	Car, EP	B	NR	st	5–23	ep, sb	[114]
Family MALDANIDAE							
<i>Axiobella mucosa</i> (Andrews)	Car, WA	B	NR	st	5–23	ep, sb	[114]
<i>Nicomache antillensis</i> Augener	Car, EP	B	NR	st	5–12	ep, sb	[114]
<i>Sabaco elongatus</i> (Verrill)	Car, WA, EP	B	NR	st	6	n.a.	[71]
Family NEREIDIDAE							
<i>Ceratonereis irritabilis</i> (Webster)	Car, WA	P	NR	it	n.a.	Rub	[29]

<i>Ceratonereis singularis</i> Treadwell	ct	B,P	NR	it,st	12-23	cr,ep, sb	[27, 29, 69, 114]
<i>Laonereis culveri</i> (Webster)	Car, WA	B	NR	st	12-23	ep, sb	[114]
<i>Namalycastis borealis</i> Glasby	Car, WA	B	NR	it	n.a.	mb, sb	[36]
<i>Namalycastis macroplatis</i> Glasby	Car	P	NR	it	n.a.	n.a.	[36]
<i>Namameris amboinensis</i> (Pflugfelder)	ct	B	NR	it	n.a.	mb	[36]
<i>Neanthes galeata</i> Fauchald	Car	P	NR	it	n.a.	ep	[29]
<i>Neanthes succinea</i> (Frey & Leuckart)	cp	P	NR	it	n.a.	ep, rb	[29, 69]
Nereidae juv.	n.a.	B	NR	st	5-18	ep	[114]
<i>Nereis callaona</i> (Grube)	EP, Car	P	NR	it	n.a.	ep	[29]
<i>Nereis panamensis</i> Fauchald	Car	P	NR	it	n.a.	cr, ep	[29]
<i>Nereis riisei</i> Grube	Car, EP, WA	P	NR	it	n.a.	cr, ep, sb	[2, 29, 69]
<i>Nereis trifasciata</i> Grube	Car	H	NR	st	34	n.a.	[71]
<i>Perinereis anderssoni</i> Kimberg	Car, WA	P	NR	it	n.a.	cr, ep	[29, 69]
<i>Platynereis dumerilii</i> (Audouin & Milne-Edwards)	ct	B, P	NR	it	n.a.	ep, rb	[29, 69, 114]
<i>Pseudonereis variegata</i> (Grube)	ct	P	NR	it	n.a.	cr, ep, rub	[29, 69]
Family OENONIDAE							
<i>Arabella iricolor</i> (Montagu)	cp	B	NR	st	12	sb	[114]
<i>Arabella multidentata</i> (Ehlers)	Car, WA	P	NR	st	n.a.	n.a.	[14]
<i>Arabella mutans</i> (Chamberlin)	Car, EP	P	NR	it	n.a.	cr, ep, sb	[29, 69]
<i>Oenone fulgida</i> (Savigny)	ct	P	NR	it, st	n.a.	cr, ep	[29, 69]
Family ONUPHIDAE							
<i>Americanuphis magna</i> (Andrews)	EP, Car	B	NR	st	1	sb	[30]
<i>Diopatra cuprea</i> (Bosc)	Car, WA	B, P	NR	st	n.a.	mb	[29, 30]
<i>Hirsutonuphis geminata</i> (Fauchald)	Car	B	NR	st	0.15	sb	[30]
<i>Kimbergonuphis microcephala</i> (Hartman)	EP	B	NR	st	5-23	ep, sb	[114]
<i>Kimbergonuphis pulchra</i> (Fauchald)	Car	B	NR	st	0.15	sb	[30]
<i>Kimbergonuphis vermilionensis</i> (Fauchald)	EP, Car	P	NR	it	n.a.	ep	[29]
<i>Kimbergonuphis virgata</i> (Fauchald)	Car	B	NR	st	0.15-1	sb	[30]
<i>Mooreonuphis dangrigae</i> (Fauchald)	Car	B	NR	st	0.15-1.5	rub, sb	[30]

(continued)

Species List 13.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica location ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Family OPHELIIIDAE							
<i>Polyphthalmus pictus</i> (Dujardin)	Car	B	NR	st	4	n.a.	[71]
Family ORBINIIDAE							
<i>Naineris setosa</i> (Verrill)	Car	B	NR	st	5	ep,mb	[98, 114]
<i>Naineris</i> sp.	Car	B	NR	st	n.a.	mb	[98]
<i>Pettibonella multiuncinata</i> Solis-Weiss & Fauchald	Car	B	NR	st	n.a.	mb	[98]
<i>Protoarcia pigmentata</i> Solis-Weiss & Fauchald	Car	B	NR	st	n.a.	mb	[98]
Family OWENIIDAE							
<i>Owenia fusiformis</i> Delle Chiaje	EP,Car	P	NR	it	n.a.	ep	[15, 29]
Family PARAONIDAE							
<i>Paraonis belgicae</i> Fauvel	Ant,Car,SA,WA	B	NR	st	5–23	ep,sb	[114]
Family PHOLOIDAE							
<i>Taylorpholoe hirsuta</i> (Rullier & Amoureux)	Car,WA	B	NR	st	4.5–23	ep,sb	[83, 114]
Family PHYLLODOCIDAE							
<i>Eulalia myriacycla</i> (Schmarda)	Car,WA	B,P	NR	it	0–16	cr,rub	[25, 29]
<i>Eulalia viridis</i> (Linnaeus)	EA,SP,WP	B	NR	st	18	ep	[114]
<i>Eulalia</i> sp.	n.a.	B	NR	st	22	rub	[25]
<i>Eulalia</i> sp. indet.	Car	P	NR	it	n.a.	ep	[29, 69]
<i>Eumida muritica</i> Eibye-Jacobsen	Car	B	NR	it,st	0–18	rub	[25]
<i>Hesionura coineati</i> (Laubier)	Car,EA,WA	B	NR	st	0.6–12	rub,sb	[25]
<i>Hesionura elongata</i> (Southern)	Car,EA	B	NR	st	5–12	ep,sb	[114]
<i>Mysidoides</i> near <i>borealis</i> Théel	WA	B	NR	st	4.5–16	sb	[25]
<i>Nereiphylla</i> cf. <i>fragilis</i> (Webster)	WA	B	NR	st	1–25	rub	[25]
<i>Nereiphylla mimica</i> Eibye-Jacobsen	Car	B	NR	it,st	0–28	rub	[25]
<i>Nereiphylla</i> sp.	n.a.	B	NR	st	2–3	n.a.	[25]
<i>Phyllodoce erythrophylla</i> (Schmarda)	Car	B,P	NR	it	0–36	ep,rub	[25, 29]
<i>Phyllodoce madeirensis</i> Langerhans	cp	P	NR	st	n.a.	cr	[73]

<i>Phyllodoce panamensis</i> Treadwell	EP	B	NR	st	18	ep	[114]
<i>Phyllodoce</i> sp. A	n.a.	B	NR	st	n.a.	cr	[25]
<i>Phyllodoce</i> sp. B	n.a.	B	NR	st	0.6–36	rub, sb	[25]
<i>Phyllodoce</i> sp. C	n.a.	B	NR	st	25	rub, sb	[25]
? <i>Protomystides</i> sp.	n.a.	B	NR	st	12	sb	[25]
<i>Pterocirrus foliosus</i> Claparède	Car	B	NR	it, st	0–1	rub	[25]
<i>Pterocirrus</i> cf. <i>macroceros</i> (Grube)	Car, EA, WA	B, P	NR	it, st	8	ep, rub	[25, 29]
<i>Sige belizensis</i> Malmgren	Car	B	NR	it, st	0–28	rub	[25]
Family PILARGIDAE							
<i>Parandalia americana</i> (Hartman)	Car	G	NR	st	21–23	sb	[45]
<i>Synelmis albini</i> (Langerhans)	ct	B	NR	st	5–18	ep, sb	[114]
Family PISIONIDAE							
<i>Pisionidens indica</i> (Aiyar and Alikuhni)	EA, EP, WA		C	it	n.a.	sb	[23, 27]
Family POLYNOIDAE							
<i>Halosydna leucohyba</i> (Schmarda)	Car, WA	P	NR	it	n.a.	cr	[29]
<i>Harmothoe aculeata</i> Andrews	Car, SA, WA	B	NR	st	5	ep	[114]
<i>Harmothoe benthophila</i> Ehlers	Car	H	NR	ep	n.a.	wc	[71]
<i>Harmothoe crusicus</i> (Grube)	Car	P	NR	st	n.a.	n.a.	[1]
<i>Lepidasthenia varius</i> Treadwell	Car, EP, WA	P	NR	it	n.a.	cr	[29]
<i>Lepidonotus humilis</i> Augener	Car, EP	P	NR	it	n.a.	cr, ep, rub	[29]
<i>Lepidonotus</i> sp.	n.a.	B	NR	st	23	n.a.	[114]
Family SABELLARIIDAE							
<i>Sabellaria floridensis</i> Hartman	Car, EP	P	NR	it	n.a.	cr	[29]
Family SABELLIDAE							
<i>Amphiglenea lindae</i> Rouse & Gambi	Car	B	NR	st	1–3	cr, sb	[88]
<i>Bispira melanostigma</i> (Schmarda)	Car, EP	P	NR	it	n.a.	cr, ep	[29]
<i>Branchiomma nigromaculata</i> (Baird)	Car	B	NR	st	5	ep	[114]
<i>Chone duneri</i> Malmgren	n.a.	B	NR	st	5–18	ep, sb	[114]

(continued)

Species List 13.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica location ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Demonax leucaspis</i> ? Kimberg	Car,EP	P	NR	it	n.a.	ep,rb	[29, 70]
<i>Fabricia infratorquata</i> Fitzhugh	EP	B	NR	st	n.a.	mb	[32]
<i>Fabriciola trilobata</i> Fitzhugh	EP	B	NR	st	n.a.	mb	[32]
<i>Jasmineira</i> sp.	n.a.	B	NR	st	5–23	ep,sb	[114]
<i>Megalomma lobiferum</i> (Ehlers)	Car,WA	P	NR	st	n.a.	cr,ep,rb	[29, 77]
<i>Notaulax occidentalis</i> (Baird)	Car	B,P	NR	it,st	8	cr,ep	[29, 70, 77]
<i>Oriopsis androgynae</i> Rouse	Car	B	NR	it	n.a.	rb	[87]
<i>Perkinsiana fonticola</i> (Hoagland)	Car,WA	P	NR	it	n.a.	cr,ep	[29, 59]
<i>Pseudofabricioloa quasincisura</i> Fitzhugh	Car	B	NR	st	1	ep	[33]
<i>Pseudopotamilla reniformis</i> (Müller)	cp	P	NR	it	n.a.	cr	[29]
Sabellidae juv.	n.a.	B	NR	st	23	sb	[114]
Family SERPULIDAE							
<i>Sclerostyla tenacis</i> (Mörch)	Car	P	NR	st	n.a.	n.a.	[2, 50]
<i>Spiraserpula caribensis</i> Pillai & ten Hove	Car,WA	P	NR	it	n.a.	ep	[85]
<i>Vermilopsis annulata</i> (Schmarda)	Car	B	NR	st	17–47	rb	[61]
<i>Vermilopsis glandigera infundibulum</i> group	n.a.	B	NR	st	17–47	rb	[61]
Family SIGALIONIDAE							
<i>Psammolyce spinosa</i> Hartman	Car,EP	P	NR	it	n.a.	ep	[29]
<i>Sigalion arenicola</i> Verrill	SA,WA	B	NR	st	18	ep	[114]
Family SPIONIDAE							
<i>Dispio uncinata</i> Hartman	Car,EP,GM,WA	P	NR	it	n.a.	sb	[27]
<i>Polydora cornuta</i> Bosc	EA,EP,SP,WA	B	NR	st	5	ep	[114]
<i>Prionospio heterobranchia</i> Moore	WA	B,P	NR	it	n.a.	ep,sb	[29, 114]
<i>Scoletepis (Scoletepis) squamata</i> (Müller)	Car,EA,EP, Med,WA	P	C,L	it	n.a.	sb	[27, 28]
Spionidae sp.	n.a.	B	NR	st	12	sb	[114]
Family SPIORBIDAE							
<i>Janua (Dexiospira) psuedocorrugata</i> (Montagu)	ct	B	NR	st	5	ep	[114]

Family SYLLIDAE									
<i>Autolytus anoplos</i> Monro	Car	P	NR	it	n.a.	cr,ep,rub	[29, 69]		
<i>Branchiosyllis exilis</i> (Gravier)	ct	P	NR	it,st	n.a.	cr,ep,rub	[2, 29]		
<i>Brania mediodentata</i> Westheide	Car,EP	B	NR	st	1	ep	[91]		
<i>Brania oculata</i> (Hartmann-Schröder)	ct	B	NR	st	1	ep	[91]		
<i>Dentatisyllis mangalis</i> Russell	Car	B	NR	st	1	ep	[92]		
<i>Eurysyllis tuberculata</i> Ehlers	EA,Med,RS	B	NR	st	5-23	ep,sb	[114]		
<i>Eusyllis blomstrandii</i> Malmgren	cp	B	NR	st	5-12	ep,sb	[114]		
<i>Exogone dispar</i> (Webster)	Car,EA,EP,Med	B	NR	st	5-23	ep,sb	[114]		
<i>Exogone lourei</i> Berkeley & Berkeley	EP,WA	B	NR	st	1	ep	[91]		
<i>Exogone naidinoides</i> Westheide	Car,EP	B	NR	st	1	ep	[91]		
<i>Exogone occidentalis</i> Westheide	EP	B	NR	st	1	ep	[91]		
<i>Haplosyllis spongicola</i> (Grube)	ct	B,H,P	NR	it	n.a.	ep	[29, 69, 71]		
<i>Odontosyllis luminosa</i> San Martin	Car	B	NR	eb	n.a.	wc	[35]		
<i>Odontosyllis twincayensis</i> Russell	Car	B	NR	st	n.a.	mb	[90]		
<i>Opisthosyllis brunnea</i> Langerhans	Car,EP,WA	P	NR	it	n.a.	cr,ep	[29, 69]		
<i>Opisthosyllis nuchalis</i> Verrill	Car	B	NR	st	4	n.a.	[71]		
<i>Parapionosyllis longicirrata</i> (Webster & Benedict)	WA	B	NR	st	5-23	ep,sb	[114]		
<i>Plakosyllis quadrioculata</i> Perkins	WA	B	NR	st	1	ep	[91]		
<i>Procerata</i> sp.	n.a.	B	NR	st	23	sb	[114]		
<i>Pseudobrania clavata</i> (Claparède)	cp	B	NR	st	1	ep	[91]		
<i>Sphaerosyllis belizensis</i> Russell	Car	B	NR	st	1	ep	[89]		
<i>Sphaerosyllis bilobata</i> Perkins	Car,WA	B	NR	st	1	ep	[91]		
<i>Sphaerosyllis longilamina</i> Russell	Car	B	NR	st	1	ep	[89]		
<i>Sphaerosyllis magnidentata</i> Perkins	Car,WA	B	NR	st	1	ep	[91]		
<i>Sphaerosyllis parvoculata</i> Russell	Car	B	NR	st	1	ep	[89]		
<i>Sphaerosyllis pirifera</i> Claparède	n.a.	B	NR	st	5-23	ep,sb	[114]		
<i>Sphaerosyllis piriferopsis</i> Perkins	Car,WA	B	NR	st	1	ep	[91]		
<i>Sphaerosyllis riseri</i> Perkins	Car,WA	B	NR	st	1	ep	[91]		
<i>Sphaerosyllis taylora</i> Perkins	Car,WA	B	NR	st	1	ep	[91]		

(continued)

Species List 13.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica location ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Typosyllis aciculata</i> Treadwell	Car,EP	P	NR	it,st	n.a.	ep	[29]
<i>Typosyllis anops</i> (Ehlers)	ct	P	NR	it	n.a.	cr,ep,rub	[29]
<i>Typosyllis armillaris</i> (Müller)	Car	P	NR	st	n.a.	n.a.	[2]
<i>Typosyllis brachychaeta</i> Schmarda	Car	B	NR	st	4	n.a.	[71]
<i>Typosyllis corallicola</i> Verrill	Car	H,P	NR	st	34	n.a.	[2, 71]
<i>Typosyllis cornuta</i> Rathke	cp	B,P	NR	it,st	5–18	cr,ep,rub,sb	[29, 69, 114]
<i>Typosyllis hyalina</i> Grube	cp	B	NR	st	5–18	ep,sb	[114]
<i>Typosyllis mexicana</i> (Rioja)	Car	P	NR	it	n.a.	ep	[29]
<i>Typosyllis prolifera</i> ? (Krohn)	ct	P	NR	it	n.a.	ep	[29]
<i>Typosyllis variegata</i> (Grube)	cp	P	NR	it	n.a.	cr,ep,rb	[29, 69]
Family TEREBELLIDAE							
<i>Eupolyommia nebulosa</i> (Montagu)	ct	P	NR	it	n.a.	sb	[29, 70]
<i>Lanicides taboguillae</i> (Chamberlin)	Car,EP	P	NR	it	n.a.	cr	[29]
<i>Loimia medusa</i> (Savigny)	cp	B,P	NR	it	n.a.	ep	[29, 71]
<i>Paraeupolyommia carus</i> Young & Kritzler	Car	B	NR	st	n.a.	sb	[115]
<i>Pista cristata</i> (Müller)	cp	B,H	NR	st	12–34	sb	[71, 114]
<i>Pista fasciata</i> (Grube)	ct	P	NR	it	n.a.	cr,ep	[29]
<i>Polycirrus</i> sp.	n.a.	B	NR	st	5–23	ep,sb	[114]
<i>Streptosoma crassibranchia</i> Treadwell	Car,EP	P	NR	it	n.a.	ep,rb,sb	[29, 70]
Terebellidae juv.	n.a.	B	NR	st	5	ep	[114]
<i>Thelepus pascua</i> (Fauchald)	Car	P	NR	it	n.a.	ep	[29, 52]
<i>Thelepus setosus</i> (Quatrefages)	cp	B,P	NR	it,st	23	cr	[29, 114]
Family TOMOPTERIDAE							
<i>Tomopteris kefersteini</i> Greff	Car,EA	H	NR	ep	n.a.	wc	[71]
? <i>Tomopteris nisseni</i> Rosa	Car,EP,WA	H	NR	ep	n.a.	wc	[71]

Family TRICHOBRANCHIDAE

Terebellides parvus Solis-Weiss, Fauchald & Blankenshtyn

Trichobranchus glacialis Malmgren

cp Car B NR st n.a. mb [99]

ep, sb NR st 5-23 ep, sb [114]

n.a. = information not available

^aAnt = Antarctic; Car = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; GM = Gulf of Mexico; Med = Mediterranean; RS = Red Sea; SA = south Atlantic; SP = south Pacific; WA = western Atlantic; WP = western Pacific

^bB = Belize; G = Guatemala; H = Honduras; P = Panama

^cC = Cahuita; L = Limon; M = Manzanillo; NR = no Costa Rican record

^deb = epibenthic; ep = epipelagic; it = intertidal; st = subtidal

^eUppermost and lowermost occurrences (in meters).

^fcr = coral reef; ep = epiphytic; it = intertidal; mb = muddy bottom; rb = rock bottom; rub = rubble bottom; sb = sand bottom; wc = water column

^gReferences are indicated by numbers according to the reference list

Species List 13.2 Polychaeta and Echiura from the Pacific of Central America

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f		References ^g
		Central America ^b	Endemic	Pacific ^c	Oceanic			Habitat/Community ^f	References ^g	
Family ACOETIDAE										
<i>Acoetes grubei</i> (Kinberg)	EP	G,P	NR	NR	it,st	0–20	sb		[82]	
<i>Acoetes mortenseni</i> (Monro)	EP	G,P	GN	GN	it,st	12–20	mb, sb		[16, 29, 41, 65, 82, 67, 109]	
<i>Acoetes pacifica</i> (Treadwell)	Car, EP	P	NR	NR	st	n.a.	rub, sb		[29, 41, 67]	
<i>Euarche tubifex</i> Ehlers	cp	P	NR	NR	st	n.a.	mb, rub		[29, 67]	
<i>Polydontes frons</i> Hartman	EP	P	NR	NR	st	n.a.	mb		[41]	
<i>Polydontes lupinus</i> (Stimpson)	EP, WA	P	NR	NR	it	n.a.	mb		[82]	
<i>Polydontes oculus</i> (Treadwell)	Car, EP	P	GN	GN	it, st	13–18	mb, sb		[16, 29, 65, 67]	
<i>Polydontes panamensis</i> (Chamberlin)	EP	P	NR	NR	n.a.	n.a.	n.a.		[12]	
Family ACROCIRRIDAE										
<i>Acrocirrus</i> sp.	n.a.				st	64	sb		[74]	
Family ALCIOPIDAE										
<i>Eulalia magnapupula</i> Treadwell	EP	P	NR	NR	st	900	n.a.		[103]	
<i>Vanadis fuscipunctata</i> Treadwell	EP, WA	P	NR	NR	ep	n.a.	n.a.		[104]	
Family AMPHARETIDAE										
<i>Amphicteis scaphobranchiata</i> Moore	GM, EP		GD	GD	st	n.a.	mb		[16]	
<i>Amphicteis</i> sp.	n.a.		GN	GN	st	n.a.	mb		[65, 109]	
<i>Melina</i> sp.	n.a.		GN	GN	st	15–22	mb		[16, 65, 109]	
Family AMPHINOMIDAE										
<i>Chloea entypa</i> Chamberlin	EP	P	IC	IC	it, st	n.a.	sb		[29, 41, 42, 69]	
<i>Chloea englochis</i> Ehlers	EP	P	NR	NR	st	63	n.a.		[103]	
<i>Chloea pseudenglochis</i> Augener	EP	P	GP	GP	it, st	n.a.	n.a.		[2]	
<i>Chloea viridis</i> Schmarda	Car, EP, WA	P	GSE, IC	GSE, IC	it, st	11–90	cr, mb		[29, 42, 43, 68, 69, 102]	

	ct	P	GSE,IC	it,st	n.a.	cr,ep	
<i>Eurythoe complanata</i> (Pallas)		P			n.a.		[11, 29, 42, 43, 57, 68, 69, 103]
<i>Eurythoe</i> sp.	n.a.		GN	st	n.a.	n.a.	[62]
<i>Hermodice carunculata</i> (Pallas)	Car,EP	P	GSE	it,st	n.a.	n.a.	[43, 103]
<i>Linopherus kristiani</i> Salazar-Vallejo	EP	ES	GD	st	n.a.	mb	[17, 66]
<i>Linopherus oculata</i> (Treadwell)	EP	P	NR	it	n.a.	ep,wc	[4, 29, 67, 103]
<i>Linopherus spiralis</i> (Wesenberg-Lund)	IG,WA		GN	it	n.a.	mb	[65, 105, 107, 109]
<i>Notopygos crinita</i> Grube	EA,WA		n.a.	st	183	n.a.	[102]
<i>Notopygos maculata</i> (Kinberg)	EP	P	NR	n.a.	n.a.	n.a.	[12]
<i>Notopygos ornata</i> Grube	Car,EP,WA	P	GN,GSE	it	n.a.	cr	[11, 29, 38, 42, 55, 57, 68, 69, 103]
<i>Pherocardia striata</i> (Kinberg)	ct	P	NR	it	n.a.	cr	[29, 42, 68, 69]
<i>Pseudeurythoe ambigua</i> (Monro)	EP	P	NR	st	11-22	mb	[69]
Family APHRODITIDAE							
<i>Aphrodita japonica</i> Marenzeller	EP,WP		GN	st	n.a.	rub,sb	[16, 29, 41, 69]
<i>Aphrodita negligens</i> Moore	EP,WP	P	NR	st	1251	mb	[26]
<i>Aphrodita</i> sp.	n.a.		PM	st	90	mb	[103]
<i>Laetmonice producta</i> Grube	EP	P	NR	st	999	sb	[26]
<i>Pontogenia laeviseta</i> Hartman	EP	P	NR	st	26-36	rb	[41]
Family CAPITELLIDAE							
<i>Capitella capitata</i> (Fabricius) complex	cp		GD,GN	it,st	40-43	mb,sb	[17, 21, 65, 109]
<i>Dasybranchus lumbricoides</i> Grube	GM,EP	ES,P	GN	it	n.a.	ep,sb	[21, 24, 29, 66, 68]
<i>Decamastus nudus</i> Thomassin	EP,IO		GD,GN	st	11-42	mb,sb	[16, 21, 65, 109]
<i>Heteromastus filiformis</i> (Claparède)	cp		GN	it	n.a.	sb	[21]
<i>Leiochrides cf. pallidior</i> (Chamberlin)	EP		GN	st	18	sb	[21]
<i>Mastobranthus variabilis</i> Ewing	GM,EP		GN	st	18	sb	[21]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		ES	EP,GM,WA	Endemic	Pacific ^c				
<i>Mediomastus ambiseta</i> (Hartman)	EP,GM,WA	ES			GD,GN	it,st	11–50	mb, sb	[16, 17, 21, 49]
<i>Mediomastus californiensis</i> Hartman	EP,GM,WA				GD,GN	st	9–200	mb, sb	[16, 17, 21, 63, 64, 65, 105–109, 24]
<i>Notodasus dexteræ</i> Fauchald	EP	P			NR	it	n.a.	sb	[27, 28]
<i>Notomastus hemipodus</i> Hartman	EP,GM,WA				GN	st	9–46	mb, sb	[16, 21, 63, 64, 65, 105, 109]
<i>Notomastus lineatus</i> Claparède	cp				GN	it	n.a.	sb	[21]
<i>Notomastus tenuis</i> Moore	EP				GN	st	14–24	sb	[21]
<i>Notomastus</i> sp.	n.a.	P			NR	it	n.a.	sb	[68]
<i>Mediomastus</i> sp.	n.a.				GD	st	64	sb	[74]
Family CHAETOPTERIDAE									
<i>Chaetopterus variopedatus</i> (Renier)	cp	P			NR	it,st	26	cr	[12, 29, 70]
<i>Mesochaetopterus alipes</i> Monro	EP	P			NR	it	n.a.	n.a.	[29, 68]
<i>Mesochaetopterus minuta</i> Potts	EP	P			NR	it	n.a.	sb	[68]
<i>Spiochaetopterus costarum</i> (Claparède)	cp	P			GN	it,st	11–26	cr, sb	[16, 29, 64, 65, 70, 109]
Family CHRYSOPETALIDAE									
<i>Bhawania goodiei</i> Webster	ct	P			NR	it	n.a.	ep	[29, 69]
<i>Bhawania riveti</i> (Gravier)	EP	P			NR	it	n.a.	ep, rb	[29, 69]
<i>Chrysopetalum occidentale</i> Johnson	EP	N, P			NR	it	n.a.	n.a.	[2, 29, 69]
<i>Chrysopetalum macrophthalum</i> Hartmann-Schröder	EP	ES			GN	it	n.a.	sb	[49]
<i>Chrysopetalum Paessleri</i> Augener	EP	N			NR	n.a.	n.a.	n.a.	[1]
<i>Palaenotus chrysolepis</i> Schmarda	ct	P			NR	st	n.a.	ep	[29, 69]

<i>Palaequor nicoyensis</i> Watson-Russel	EP	X	GN	st	11-44	mb, sb	[65, 109, 111]
Family CIRRATULIDAE							
<i>Aphelochaeta glandaria</i> Blake	EP		GD, GN	st	11-18	mb, sb	[16, 17, 60]
<i>Aphelochaeta marioni</i> (Saint Joseph)	EA		GD	st	64	sb	[74]
<i>Aphelochaeta monilaris</i> (Hartman)	EP		GD	st	64	sb	[74]
<i>Aphelochaeta multifilis</i> (Moore)	EP		GD	st	64-70	mb, sb	[74]
<i>Caulierella magnaoculata</i> Hartmann-Schröder	EP		GN	st	11-26	mb, sb	[16, 65, 109]
<i>Chaetozone corona</i> Berkeley & Berkeley	EP		GN	st	n.a.	mb	[17, 60, 65, 109]
<i>Chaetozone hedgепethi</i> Blake	EP		GN	st	11	sb	[16]
<i>Chaetozone</i> sp.	n.a.		GD	st	64	sb	[74]
<i>Chaetozone</i> sp. D	n.a.		GN	st	11-26	mb, sb	[16]
<i>Chaetozone</i> sp. E	n.a.		GN	st	18	sb	[16, 64, 65, 109]
<i>Chaetozone</i> sp. X	n.a.		GN	st	18	sb	[16]
<i>Cirratulus cirratulus</i> (Müller)	cp		GD	st	64-254	mb, sb	[74]
<i>Cirratulus? cirratulus</i> (Müller)	cp	P	NR	it	n.a.	sb	[27]
<i>Cirratulus exuberans</i> Chamberlin	EP	P	NR	st	7-9	sb	[11, 68]
<i>Cirratulus polytricha</i> Schmarda	EP	P	NR	n.a.	n.a.	n.a.	[68]
<i>Cirratulus</i> sp.	n.a.		GN	st	11-26	mb, sb	[16]
<i>Cirratulus</i> sp. A	n.a.		GD	st	70	mb	[74]
<i>Cirratulus</i> sp. B	n.a.		GD	st	70	mb	[74]
<i>Cirriformia luxuriosa</i> (Moore)	EP	P	NR	it	n.a.	rb	[29]
<i>Cirriformia spirobrancha</i> (Moore)	EP		GD	st	70	mb	[74]
<i>Cirriformia tentaculata</i> (Montagu)	ct	P	NR	it	n.a.	rb	[29, 70]
<i>Monticellina cryptica</i> Blake	EP		GN	st	11-26	mb, sb	[16]
<i>Monticellina secunda</i> (Banse & Hobson)	EP		GN	st	11-18	sb	[16]
<i>Monticellina serratiseta</i> (Banse & Hobson)	EP		GN	st	18	sb	[16]
<i>Monticellina tessellata</i> (Hartman)	EP		GN	st	11-18	mb, sb	[16, 65, 109]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		America ^b	Endemic	Pacific ^c	Endemic				
<i>Monticellina</i> sp. B	n.a.			GN		st	18–26	mb,sb	[16, 65, 105]
cf. <i>Tharyx epitoca</i> Monro	Ant			GD		st	64	sb	[74]
<i>Tharyx parvus</i> Berkeley	EP			GN		it,st	n.a.	mb,sb	[65, 105, 107, 109]
<i>Tharyx</i> sp. X	n.a.			GN		st	11–26	mb,sb	[16]
<i>Timarete perbranchiata</i> (Chamberlin)	EP	P		NR		st	54	sb	[29]
Family COSSURIDAE									
<i>Cossura brunnea</i> Fauchald	EP,WA			GD,GN		st	11–18	mb	[16, 17, 60, 65, 109]
<i>Cossura laeviseta</i> Hartmann-Schröder	EP			GN		st	11–26	mb,sb	[16]
Cossuridae sp.	n.a.			GD		st	64–70	mb	[74]
Family DORVILLEIDAE									
<i>Dorvillea bioculata</i> (Grube)	EP		X	GN		st	n.a.	n.a.	[38]
<i>Dorvillea cerasina</i> (Ehlers)	Car,EP,WA	P		NR		it	n.a.	rub	[29, 69]
<i>Dorvillea (Schistomerings) annulata</i> (Moore)	EP			GN		st	11	sb	[16]
<i>Dorvillea (Schistomerings) pacifica</i> (Westheide)	EP			GN		st	11–26	mb,sb	[16, 65, 109]
<i>Dorvillea vittata</i> (Grube)	EP		X	GN		st	n.a.	n.a.	[38]
Dorvilleidae sp.	n.a.			GD		st	70	mb	[74]
<i>Meiodorvillea</i> sp.	n.a.			GN		st	n.a.	mb	[65, 109]
<i>Pettibonea</i> sp. A	n.a.			GN		st	11–18	sb	[16]
<i>Pettibonea</i> sp. B	n.a.			GN		st	26	mb	[16]
<i>Pettiboneia duofurca</i> Wolf	GM			GD		st	n.a.	mb	[17, 60]
<i>Pettiboneia</i> sp.	n.a.			GD		st	n.a.	mb	[17, 60]
Family EULEPETHIDAE									
<i>Grubeulepis ecuadorensis</i> Pettibone	EP			GN		st	18	sb	[16, 65]

<i>Grubeulepis fimbriata</i> (Treadwell)	Car,EP,WA	P	NR	st	12–20	mb, sb	[41]
<i>Grubeulepis mexicana</i> Berkeley & Berkeley	EP	G	NR	it, st	13–20	mb, rub, sb	[43, 79]
<i>Pareulepis</i> sp.	n.a.		GD	st	254	mb	[74]
Family EUNICIDAE							
<i>Eunice aedificatrix</i> (Monro)	Car, EP	P	NR	it	n.a.	cr, ep	[29, 68, 69]
<i>Eunice afra</i> Peters	ct	P	NR	it	n.a.	cr, ep	[29, 69]
<i>Eunice aphroditois</i> (Pallas)	ct	P	GN	it	n.a.	cr, ep	[29, 38, 44, 69]
<i>Eunice australis</i> Quatrefages	WP	P	NR	st	7–9	sb	[68]
<i>Eunice biannulata</i> Moore	EP	P	NR	it	n.a.	cr	[29, 44, 69]
<i>Eunice cariboea</i> Grube	Car, EP	P	NR	it, st	n.a.	cr, ep, rb	[29, 44, 69]
<i>Eunice cedroensis</i> Fauchald	EP	P	GN	st	20–46	mb, sb	[16]
<i>Eunice filamentosa</i> Grube	Car, EP, WA	P	NR	it	n.a.	ep	[29, 69]
<i>Eunice guanica</i> (Treadwell)	EP, WA	P	NR	it	n.a.	n.a.	[43]
<i>Eunice lupei</i> Grube	EP		GN	st	n.a.	n.a.	[38]
<i>Eunice macrobranchia</i> Schmarda	SA	P	NR	it	n.a.	n.a.	[68]
<i>Eunice mutilata</i> Webster	Car, EP, WA	P	GSE	st	2	ep, mb	[29, 43, 44]
<i>Eunice panamena</i> (Chamberlin)	EP	P	NR	it	n.a.	n.a.	[31]
<i>Eunice reducta</i> Fauchald	EP	P	NR	st	16	n.a.	[29, 44, 69]
<i>Eunice schemacephala</i> Schmarda	EP	P	GD	st	70	mb	[43, 74]
<i>Eunice segregata</i> (Chamberlin)	EP	P	NR	st	580–1000	sb	[12]
<i>Eunice vittata</i> (delle Chiaje)	cp	P	NR	n.a.	8	n.a.	[43]
<i>Eunice vittatopsis</i> Fauchald	EP	P	GD	st	36	mb, rub	[17, 29, 60, 65, 69, 109]
<i>Lyisidice ninetta</i> Audouin & Milne-Edwards	ct	P	NR	it, st	9	cr, ep, rb	[29, 68, 69]
<i>Marphysa conferta</i> Moore	EP	P	GD	st	n.a.	mb	[17]
<i>Marphysa mortenseni</i> Monro	EP	P	NR	it	n.a.	sb	[68]

(continued)

<i>Glycera pacifica</i> Kimberg	EP,WP	P		NR	it,st	11-16	sb	[6]	
<i>Glycera prosobranchia</i> Boggemann & Fiege	Car,EP	P		GN	st	10-28	mb,sb	[5, 6, 16, 65, 109]	
<i>Glycera sphyrobranchia</i> Schmarda	ct	P		NR	st	n.a.	n.a.	[6, 65, 109]	
<i>Glycera tessellata</i> Grube	cp	P		GN	st	18-46	mb,sb	[16, 42]	
<i>Hemipodia pustulata</i> (Friedrich)	Car,EP	ES,P		GN,PM	it,st	n.a.	sb	[6, 27, 34, 49, 96]	
<i>Hemipodia californiensis</i> (Hartman)	EP	ES		GN,PM	it,st	11-26	mb,sb	[6, 16, 17, 60, 65, 109]	
Family GONIADIDAE									
<i>Glycinde armigera</i> Moore	EP	P		GD,GN	st	4-254	mb	[16, 42, 65, 74, 105, 106, 107, 108, 09]	
<i>Glycinde paucignatha</i> Hartmann-Schröder	EP	ES		GN	it	n.a.	n.a.	[49, 65, 66, 109]	
<i>Goniada brunnea</i> Treadwell	EP,WA			GN	st	11-18	sb	[16, 65, 109]	
Family HESIONIDAE									
<i>Glyphohesione nicoyensis</i> Dean	EP		X	GN	st	11-25	mb,sb	[18]	
<i>Gyptis brunnea</i> (Hartman)	EP			GD	st	n.a.	mb	[17, 60]	
<i>Gyptis cf. hians</i> Fauchald & Hancock	EP			GN	st	11	sb	[16]	
<i>Gyptis</i> sp. A	n.a.			GN	st	18	sb	[16]	
<i>Hesione intertexta</i> Grube	EP	P		NR	it	n.a.	cr,ep	[12, 29, 68, 69]	
<i>Hesione panamena</i> Chamberlin	EP	P		NR	it	n.a.	n.a.	[12]	
<i>Hesionides arenarius</i> Friedrich	EP	ES		NR	it	n.a.	sb	[49]	
<i>Microphthalmus</i> sp.	n.a.			GN	st	n.a.	mb	[65, 109]	
<i>Ophiadromus pugettensis</i> (Johnson)	EP	P		NR	it	n.a.	rb	[29]	
<i>Orseis brevis</i> Hartmann-Schröder	EP	ES		NR	it	n.a.	sb	[49]	
<i>Parahesione</i> sp.	n.a.			GN	st	n.a.	mb,sb	[65, 109]	

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^b	Depth (m) ^e	Habitat/ Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Podarke minuta</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]
<i>Podarke pugetensis</i> Johnson	EP		GN	st	11–26	mb, sb	[16]
<i>Podarkeopsis brevipalpa</i> (Hartmann-Schröder)	EP	ES	GD, GN	st	11–26	mb, sb	[16, 17, 49, 60, 65, 66, 109]
<i>Struwela noodii</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]
Family LONGOSOMATIDAE							
<i>Heterospio catalinensis</i> Hartman	EP		GN	st	n.a.	mb	[65, 109]
Family LOPADORHYNCHIDAE							
<i>Lopadorhynchus nationalis</i> Reibisch	EP, WA	P	NR	ep	n.a.	wc	[104]
<i>Pelagobia longicirrata</i> Greeff	cp	P	NR	ep	n.a.	wc	[104]
Family LUMBRINERIDAE							
<i>Angeneria</i> (sic) sp. (= <i>Augenaria</i>)	n.a.		GD	st	70	mb	[74]
<i>Eranno chilensis</i> (Kinberg)	EP	P	GD	st	36	mb, sb	[17, 29, 69]
<i>Kuwaitia dolichognatha</i> Rioja	EP		GN	st	18	sb	[16]
<i>Lumbrinerides acuta</i> (Verrill)	GM, WA		GD	st	64	sb	[65, 74, 109]
<i>Lumbrineris cruzensis</i> ? Hartman	EP	P	NR	st	36–54	sb	[29]
<i>Lumbrineris erecta</i> (Moore)	EP	P	NR	it	45	mb, rb	[29, 44, 69]
<i>Lumbrineris inflata</i> Moore	Car, EP	P	GD	it, st	64–70	ep, mb	[29, 65, 74, 109]
<i>Lumbrineris latreilli</i> Audouin & Milne-Edwards	cp	P	GD, GP	st	26–64	cr, sb	[29, 43, 44, 49, 69]
<i>Lumbrineris limicola</i> Hartman	EP		GN	st	11–18	sb	[16, 65, 109]
<i>Lumbrineris magnanuchalata</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	n.a.	[49, 66]
<i>Lumbrineris monroi</i> Fauchald	EP	P	NR	it	n.a.	sb	[27, 28]
<i>Lumbrineris moorei</i> Hartman	EP		GD	st	64	sb	[74]
<i>Lumbrineris uncinigera</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	n.a.	[49, 66]
<i>Lumbrineris zonata</i> (Johnson)	EP	P	GD	it, st	70	mb, sb	[27, 28, 74]

<i>Lumbrineris</i> sp.	n.a.	ES	NR	st	n.a.	cr	[65, 96, 109]
<i>Ninoe foliosa</i> Fauchald	EP		GD,GN	st	11	mb, sb	[16, 17]
<i>Ninoe gemmea</i> Moore	EP		GD	st	64	sb	[74]
<i>Ninoe</i> sp. A	n.a.		GD	st	70	mb	[74]
<i>Ninoe</i> sp. B	n.a.		GD	st	70	mb	[74]
<i>Paraninoe fusca</i> (Moore)	EP		GD	st	64	sb	[74]
<i>Scoletoma erecta</i> (Moore)	EP		GN	st	11–26	mb, sb	[16]
<i>Scoletoma monroi</i> (Fauchald)	EP		GN	st	11–26	mb, sb	[16]
<i>Scoletoma platylobata</i> (Fauchald)	EP		GD,GN	st	26	mb	[16, 17, 60]
<i>Scoletoma tetraura</i> (Schmarda)	ct	P	GN, GSE	it, st	11–26	mb, sb	[16, 29, 44, 65, 69, 105–109]
Family MAGELONIDAE							
<i>Magelona</i> (cf) <i>californica</i> Hartman	EP, WP		GN	st	46	mb	[16, 65, 109]
<i>Magelona papillicornis</i> Müller	cp	P	NR	it	n.a.	rb	[29, 70]
<i>Magelona pitelkai</i> Hartman	EP		GN	st	11–26	mb, sb	[16, 65, 109]
<i>Magelona ritojai</i> Jones	Car, EP		PM	it	n.a.	sb	[27]
<i>Magelona</i> sp. A	n.a.		GN	st	9–26	mb, sb	[16, 65, 109]
<i>Magelona</i> sp. B	n.a.		GD, GN	st	11–26	mb, sb	[16, 17, 60, 65, 109]
Family MALDANIDAE							
<i>Chlymenella</i> sp.	n.a.		GN	st	n.a.	mb	[65, 109]
<i>Isocirrus longiceps</i> (Moore)	EP		GN	st	n.a.	mb	[65, 109]
<i>Isocirrus tropicus</i> (Monro)	EP	P	NR	it	n.a.	sb	[68, 93]
<i>Maldane cristata</i> Treadwell	EP	P	NR	st	580	mb	[26]
<i>Maldane gorgonensis</i> Monro	EP	P	NR	st	54	sb	[29]
<i>Maldane meridionalis</i> (Chamberlin)	EP, WP	G	NR	st	3520–4609	n.a.	[37]
<i>Maldanella fibrillate</i> Chamberlin	EP	P	NR	st	2648	n.a.	[12]
Maldanidae sp. indet.	n.a.	P	NR	it	n.a.	rb	[29]
Maldanidae sp. A	n.a.		GN	st	n.a.	mb	[65, 109]
<i>Petaloproctus crenatua</i> Chamberlin	EP	P	NR	st	1393	sb	[12]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
Family NEPHTYIDAE								
<i>Aglaophamus verrilli</i> (McIntosh)	Car,EP,WA	P	GD,GN	st	11–18	sb	[16, 29, 42, 65, 109]	
<i>Aglaophamus tabogensis</i> (Monro)	EP	P	GN	st	11–18	mb, sb	[16, 29, 65, 69, 109]	
<i>Aglaophamus longosetosa</i> Oersted	EA	P	NR	st	26	sb	[68]	
<i>Nephtys assimilis</i> Oersted	EP,WA	G	NR	st	0–26	mb, sb	[42]	
<i>Nephtys brevibranchis</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]	
<i>Nephtys furcifera</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]	
<i>Nephtys magellanica</i> Augener	EP	P	NR	st	45	sb	[42]	
<i>Nephtys monroi</i> Hartman	EP	P	GN	it, st	n.a.	mb	[29, 46, 65, 69, 105, 107, 108, 109]	
<i>Nephtys oculata</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	n.a.	[49, 66]	
<i>Nephtys panamensis</i> Monro	EP	P	GN	st	9–22	sb	[16, 42, 65, 68, 109]	
<i>Nephtys singularis</i> Hartman	EP	ES, P	GN, PM	it, st	n.a.	sb	[27, 29, 46, 69, 96]	
<i>Nephtys squamosa</i> Ehlers	Car, EP, WA	P	NR	st	n.a.	sb	[29, 69]	
<i>Nephtys</i> sp.	n.a.		GD	st	64	mb	[65, 74, 109]	
Family NEREIDIDAE								
<i>Ceratonereis singularis</i> Treadwell	ct	P	GD	st	n.a.	cr, mb	[17, 20, 27, 29, 42, 65, 69, 76, 109]	
<i>Ceratonereis</i> sp.	n.a.		GD	st	64	n.a.	[74]	

<i>Eunereis patitillae</i> Fauchald	EP	P	NR	it	n.a.	rub	[29]
<i>Gymnonereis crosslandi</i> (Monro)	EP,GM		GD	st	13-46	mb, sb	[16, 17, 20, 60, 65, 105-109]
"juvenile" nereid	EP	ES	NR	it	n.a.	sb	[49]
<i>Laeonereis brunnea</i> Hartmann-Schröder	EP	ES	GD,GN	it	n.a.	mb, sb	[20, 49, 66]
<i>Leptonereis laevis</i> Kinberg	EP		GN	st	11-18	sb	[20]
<i>Neanthes micromma</i> Harper	EP,GM		GD,GN	st	11-40	mb, sb	[16, 20, 65, 109]
<i>Neanthes pseudonoodti</i> Fauchald	EP	P	GD	it, st	n.a.	ep	[20, 29]
<i>Neanthes roosevelti</i> Hartman	EP		GD	st	n.a.	ep	[20]
<i>Neanthes succinea</i> (Frey & Leuckart)	cp	P	GN	it	n.a.	ep, rb	[16, 20, 29, 69, 105, 107, 108, 109]
Nereidae sp. 1	n.a.		GN	it	n.a.	sb	[24]
<i>Nereis callaona</i> (Grube)	Car, EP	P	NR	it	n.a.	ep	[29]
<i>Nereis costaricensis</i> Dean	EP		GN	it	n.a.	mb	[20]
<i>Nereis rigida</i> Grube	EP		GN	it, st	n.a.	n.a.	[20, 39]
<i>Nereis rissei</i> Grube	Car, EP, WA	P	GP	it	n.a.	cr, ep, sb	[1, 20, 29, 42, 43, 69]
<i>Nereis segrex</i> Chamberlin	EP	P	NR	st	1340	sb	[12]
<i>Nereis zonata</i> Malmgren	cp		GN	st	11-18	sb	[16, 20]
<i>Nereis</i> sp.	n.a.		GD	st	64-254	n.a.	[74]
<i>Perinereis anderssoni</i> Kinberg	EP	P	NR	it	n.a.	n.a.	[43]
<i>Perinereis helleri</i> Grube	EP		IC	st	n.a.	n.a.	[102]
<i>Perinereis seridentata</i> (Hartmann-Schröder)	EP	ES	GD, GN	it	n.a.	sb	[20, 49, 66]
<i>Platynereis dumerilii</i> (Audouin & Milne-Edwards)	EP, W	P	GP	it	n.a.	ep, rb	[20, 29, 43, 69]
<i>Pseudonereis gallapagensis</i> Kinberg	EP, W	P	GD	it, st	n.a.	ep, rb	[20, 29]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
Family OENONIDAE							
<i>Arabella mutans</i> (Chamberlin)	Car,EP	P	NR	it	n.a.	cr,ep,sb	[29, 44, 68, 69]
<i>Arabella panamensis</i> Colbath	EP	P	GN	st	18	sb	[13, 14, 16, 65, 109]
<i>Arabella semimaculata</i> (Moore)	EP		PM	it	n.a.	n.a.	[16]
<i>Arabellida</i> sic) sp.	n.a.		GD	st	64–70	mb	[74]
<i>Driloneis falcata</i> Moore	EP	P	GN	st	18–26	cr,rub	[16, 29, 65, 69, 109]
<i>Driloneis mexicana</i> Fauchald	EP	P	NR	it	n.a.	rb	[29]
<i>Driloneis nuda</i> Moore	EP	P	n.a.	it,st	11–26	cr,sb	[16, 29, 69]
cf <i>Notocirrus californiensis</i> Hartman	EP		n.a.	st	254	mb	[74]
<i>Oenone fulgida</i> (Savigny)	ct	P	GSE	st	5–9	ep,mb,sb	[44]
Family ONUPHIDAE							
<i>Americonuphis reesei</i> Fauchald	EP	P	NR	it	n.a.	rb	[27, 29, 68, 69]
<i>Australonuphis hartmanae</i> (Friedrich)	EP	ES	NR	st	n.a.	sb	[27, 28, 34, 96]
<i>Diopatra denitculata</i> Fauchald	EP	P	NR	st	36–54	mb,sb	[29, 69]
<i>Diopatra farallonensis</i> Hobson	EP		n.a.	st	42	mb	[16, 17, 60]
<i>Diopatra Kristitiani</i> Paxton	EP	G,P	NR	it	n.a.	cr,rb,sb	[29, 68, 69, 75]
<i>Diopatra neotridens</i> Hartman	EP	G,P	NR	st	5–101	sb	[44, 65, 109]
<i>Diopatra obliqua</i> Hartman	EP	ES,G,P	NR	it		sb	[27, 44, 75]
<i>Diopatra ornata</i> Moore	EP	ES,P	GD,GN	st	11–18	mb,sb	[16, 17, 29, 43, 49, 60, 65, 69, 108, 109]
<i>Diopatra rhizophorae</i> Grube	EP	ES,N,P	NR	it	n.a.	n.a.	[38, 69, 75]
<i>Diopatra splendidissima</i> Kinberg	EP	P	NR	st	26	sb	[27, 28, 68]
<i>Diopatra tridentata</i> Hartman	EP	G,P	GN,GSE	st	11–18	sb	[16, 44, 65, 109]

<i>Hyalinoecia juvenalis</i> Moore	EP	P	GSE	st	n.a.	mb	[44]
<i>Hyalinoecia stricta</i> Moore	EP	P	NR	st	983-2286	mb,sb	[12]
<i>Kimbergonuphis gorgonensis</i> (Monro)	EP	P	NR	st	36	sb	[29]
<i>Kimbergonuphis microcephala</i> (Hartman)	EP	G	GN	st	3.6-9	mb,sb	[16, 44, 65, 109]
<i>Kimbergonuphis vexillaria</i> Moore	EP		GN	st	11-46	mb,sb	[16, 65, 109]
<i>Kimbergonuphis</i> sp. A	n.a.		GN	st	18	mb	[16]
<i>Mooreonuphis nebulosa</i> (Moore)	GM,EP	P	GN	st	11-20	rb,sb	[16, 29, 44, 65, 69, 109]
<i>Mooreonuphis peruana</i> (Hartman)	EP	P	NR	st	n.a.	cr	[44]
<i>Onuphis eremita</i> Audouin & Milne-Edwards	Car,EA,EP	G	NR	st	3.6-9	sb	[44]
<i>Onuphis</i> sp.	n.a.		n.a.	st	64-354	mb	[74]
<i>Paradiopatra cobra</i> (Chamberlin)	EP	P	NR	st	3190	mb	[12]
<i>Paradiopatra crassisetosa</i> (Chamberlin)	EP	P	NR	st	711-1046	mb,sb	[12]
<i>Paradiopatra lepta</i> (Chamberlin)	EP	P	NR	st	2286	n.a.	[12]
<i>Paradiopatra solenotecton</i> (Chamberlin)	EP	P	NR	st	2286	n.a.	[12]
<i>Paranorthis fissurata</i> Fauchald	EP	P	NR	st	983	mb	[26]
Family OPHELIIDAE							
<i>Annotrypane bermudensis</i> Treadwell	WA		GSE	st	6	mb	[103]
<i>Armandia bravis</i> (Moore)	EP	P	GD,GN	it,st	18	mb,sb	[16, 17, 27, 28, 65, 109]
<i>Armandia salvadoriana</i> Hartmann-Schröder	EP	ES	GN	st	7-18	sb	[16, 48, 106, 107]
<i>Euzonus (Thoracophelia) furciferus</i> (Ehlers)	EP		PM	it	n.a.	sb	[27, 28]
<i>Ophelina</i> sp.	n.a.		GN	st	18	sb	[16]
<i>Ophelina</i> sp.	n.a.	P	NR	it	n.a.	rb	[28]
Family ORBINIIDAE							
<i>Leitoscoloplos panamensis</i> (Monro)	EP	P	NR	st	11-22	mb	[29, 70]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Leitoscoloplos pugettensis</i> (Pettibone)	EP	ES	GN	it,st	11–26	mb, sb	[16, 24, 65, 66, 109]
<i>Leodamas latum</i> (Chamberlin)	EP	P	NR	st	580	mb	[12]
<i>Naineris</i> sp.	n.a.		GN	st	n.a.	mb	[65, 109]
<i>Orbina johnsoni</i> (Moore)	EP	ES	PM	it	n.a.	sb	[27, 28, 47, 96]
<i>Scoloplos armiger</i> (Müller)	cp	ES	GN	st	11–22	sb	[16, 49, 65, 109]
<i>Scoloplos ohlmi</i> Ehlers	EP, WP		GN	st	11–20	sb	[16, 65, 109]
<i>Scoloplos riseri</i> (Pettibone)	GM, WA		GN	st	18	sb	[16]
<i>Scoloplos tribulosus</i> (Ehlers)	EP		GN	st	11–26	mb, sb	[16, 65, 109]
<i>Scoloplos treadwelli</i> Eisig	Car, EP, WA		GN	st	11–26	mb, sb	[16, 65, 109]
Family OWENIIDAE							
<i>Owenia fusiformis</i> Delle Chiaje	EP	ES	NR	it	n.a.	sb	[15, 49]
Family PARAOONIDAE							
<i>Acesta</i> (<i>Acmira</i>) <i>lopezi</i> Berkeley & Berkeley	CP	ES	GN	it	n.a.	mb	[24, 65, 66, 105, 106, 107, 109]
<i>Aricidea</i> (<i>Acmira</i>) <i>catherinae</i> Laubier	Car, EA, EP, Med, WA		GD, GN	st	11–44	mb, sb	[16, 17, 60, 65, 109]
<i>Aricidea</i> (<i>Acmira</i>) <i>finitima</i> Strelzov	EP, WA		GN	st	11–26	mb, sb	[16, 65, 109]
<i>Aricidea</i> (<i>Acmira</i>) <i>longicirrata</i> Hartmann-Schröder	EP		GN	st	11	sb	[16]
<i>Aricidea</i> (<i>Acmira</i>) <i>minima</i> Strelzov	WA		GN	st	11–18	sb	[16]
<i>Aricidea</i> (<i>Acmira</i>) <i>mirifica</i> Strelzov	Ant, EP, WP		GN	st	18–26	mb, sb	[16]
<i>Aricidea</i> (<i>Allia</i>) sp.	n.a.		GD	st	n.a.	mb	[17]
<i>Aricidea</i> (<i>Aricidea</i>) <i>fragilis</i> Webster	EA, GM, WA, [WP		GN	st	11–26	mb, sb	[16, 65, 109]

<i>Aricidea</i> sp. A	n.a.	GN	st	11-26	mb, sb	[16]
<i>Aricidea</i> sp. B	n.a.	GN	st	18-26	mb, sb	[16]
<i>Aricidea</i> sp. C	n.a.	GN	st	18	sb	[16]
<i>Levensenia gracilis</i> (Tauber)	E.A, EP, WP	GD, GN	st	11-44	mb, sb	[16, 17, 60]
<i>Paradoneis</i> (cf) <i>forticirratius</i> (Strelzov)	EP, WP	GN	st	9-26	mb, sb	[16, 65, 109]
<i>Paradoneis</i> <i>lyra</i> (Southern)	E.A, WA, EP	GD	st	64-70	mb	[74]
<i>Paratoneis</i> sp. A	n.a.	GD	st	70	mb	[74]
<i>Paratoneis</i> sp. B	n.a.	GD	st	70	mb	[74]
<i>Paraonides playbranchia</i> (Hartman)	P	NR	it	n.a.	sb	[27, 28]
<i>Taubertia</i> sp.	n.a.	GN	st	n.a.	mb	[64, 65, 109]
Family PECTINARIIDAE						
<i>Pectinaria californiensis</i> Hartman	EP	GN	it	n.a.	sb	[105, 107, 106]
<i>Pectinaria gouldii</i> Verrill	Car, WA	GN	it	n.a.	mb	[103]
<i>Pectinaria (Lagis) tenera</i> Hartmann-Schröder	EP	NR	it	n.a.	sb	[49]
Family PHOLOIDAE						
<i>Pholoides asperus</i> (Johnson)	EP	GN	st	11-18	sb	[16]
Family PHYLLODOCIDAE						
<i>Eteone</i> sp.	n.a.	GD	st	70	mb	[74]
<i>Eulalia lobocephalica</i> Kinberg	P	NR	it	n.a.	cr	[29, 69]
<i>Eulalia</i> sp.	Car, EP	NR	st	n.a.	n.a.	[29, 69]
<i>Eteone aesturina</i> Hartmann-Schröder	EP	GN	it, st	9-26	mb, sb	[16, 49, 65, 109, 113]
<i>Kimbergia longicirris</i> (Grube)	EP	NR	it	n.a.	n.a.	[39]
<i>Paranaitis polynoides</i> Moore	n.a.	GD	st	n.a.	mb	[65, 109]
<i>Phylodoce flavescens</i> Grube	EP	GN	it, st	n.a.	n.a.	[39]
<i>Phylodoce groenlandica</i> Oersted	P	NR	st	n.a.	wc	[103]
<i>Phylodoce madeirensis</i> (Langerhans)	cp	GD, GN	it, st	11-24	ep, mb, sb	[12, 16, 17, 28, 29, 34, 65, 69, 96, 109]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a		Central America ^b		Costa Rica		Depth (m) ^e	Habitat/ Community ^f	References ^g
	EP	GM,WA	P	ES	Endemic	Pacific ^c			
<i>Phyllodoce medipapillata</i> Moore	EP		P			NR	n.a.	n.a.	[12]
<i>Phyllodoce multiseriata</i> Rioja	EP		P			NR	n.a.	rb	[28]
<i>Phyllodoce nicoyensis</i> Treadwell	EP					GN	9	mb	[16, 101, 102]
<i>Phyllodoce oculata</i> Ehlers	EP		P			NR	45	wc	[103]
<i>Phyllodoce panamensis</i> Treadwell	EP		P			GN	18	ep, sb	[12, 16, 29, 69, 94, 100]
<i>Phyllodoce patagonica</i> (Kinberg)	EP, IP		P			NR	7–9	sb	[68]
<i>Phyllodoce pseudoseriata</i> Hartmann-Schröder	EP		ES			NR	n.a.	sb	[49]
<i>Phyllodoce puntarenae</i> Grube	EP				X	GN	n.a.	n.a.	[39]
<i>Sige bifoliata</i> Moore	EP		P			NR	n.a.	rub	[29]
Family PILARGIDAE									
<i>Ancistrostylis hamata</i> (Hartman)	EP					GD, GN	11–200	mb, sb	[16, 17, 19, 65, 109]
<i>Ancistrostylis hartmanae</i> Pettibone	EP, WA					GD	n.a.	sb	[19]
<i>Ancistrostylis jonesi</i> Pettibone	EP, WA					GN	11–26	mb, sb	[19]
<i>Ancistrostylis ocellata</i> Hartmann-Schröder	EP		ES			NR	n.a.	sb	[24, 49]
<i>Ancistrostylis papillosa</i> (Jones)	EP, GM, WA					GN	11–46	mb, sb	[19, 65, 109]
<i>Cabira incerta</i> Webster	EP, WA					GN	11–26	mb, sb	[16, 19]
<i>Loandalia riojai</i> Salazar-Vallejo	EP					GN	18	sb	[19]
<i>Parandalia gracilis</i> Hartmann-Schröder	EP		ES			NR	n.a.	n.a.	[49, 66]
<i>Parandalia tricuspidis</i> (Müller)	EP, GM, SA					GN	11–35	mb, sb	[16, 19, 65, 109]
<i>Pilargis berkeleyae</i> Saint Joseph	EP, GM, SA					GN	18	sb	[16, 19, 65, 109]
<i>Sigambra ocellata</i> (Hartmann-Schröder)	EP		ES			NR	n.a.	n.a.	[66]

<i>Sigambra pettiboneae</i> Hartmann-Schröder	EP,WP		GD	it	n.a.	sb	[19]
<i>Sigambra tentaculata</i> (Treadwell)	EP,WA		GD,GN	st	11-200	mb, sb	[16, 17, 19, 60, 63, 64, 65, 74, 105, 106, 107, 109]
<i>Sigambra vargasi</i> Dean	EP	X	GN	st	11-46	mb, sb	[19]
<i>Sigambra</i> sp. A	n.a.		GD	it	n.a.	sb	[19]
<i>Synelmis albini</i> (Langerhans)	ct	P	GN	it, st	9-46	cr, rub	[16, 19, 29, 63, 64, 65, 69, 105, 109]
Family PISIONIDAE							
<i>Pisione garciaivaldecasasi</i> Martin, Lopez & Camacho	EP	P	NR	st	n.a.	fw	[95]
<i>Pisione remota</i> (Southern)	cp		GP, PM	it	n.a.	sb	[27]
<i>Pisionidens indica</i> Aiyar & Alikunhi	E.A., EP, WA	ES	NR	st	n.a.	sb	[28, 34, 49, 96, 97]
Family POECILOCHAETIDAE							
<i>Poecilochaetus tropicus</i> Okuda	WP		GN	st	18	sb	[16, 65, 109]
Family POLYNOIDAE							
<i>Admetella hastigerens</i> Chamberlin	EP	P	NR	st	1046	sb	[12]
<i>Chaetacanthus magnificus</i> (Grube)	ct	P	NR	st	n.a.	cr, rub	[29, 41, 67]
<i>Eulagisca panamensis</i> Hartman	EP	P	NR	it	n.a.	n.a.	[41]
<i>Halosydna fuscicornimorata</i> (Grube)	EP	P	NR	st	n.a.	cr	[41]
<i>Halosydna glabra</i> Hartman	EP	P	NR	it	n.a.	ep	[29, 41, 67]
<i>Halosydna galapagensis</i> Monro	EP	P	NR	it	n.a.	n.a.	[67]
<i>Halosydnetta fuscocomaculata</i> (Grube)	Car	P	NR	st	n.a.	cr	[67]
<i>Harmothoe balboensis</i> Monro	EP	P	GN	st	11-26	mb, sb	[16, 65, 67, 109]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
		P	GN	Endemic	Pacific ^c				
<i>Harmothoe hirsuta</i> Johnson	EP	P	GN			it	n.a.	cr,ep,rb	[12, 29, 65, 67, 109]
<i>Harmothoe lunulata</i> (delle Chiaje)	cp		GN			st	11–26	mb,sb	[16, 67]
<i>Harmothoe mexicana</i> Chamberlin	EP	P	NR			st	580	cr,mb	[26, 41]
Harmothoinae sp.	n.a.		GN			st	11	sb	[16]
<i>Iphione ovata</i> Kinberg	EP	B ¹ P	GSE			it,st	n.a.	cr,rb	[29, 41, 67, 81]
<i>Leanira fimbriatum</i> Hartman	EP	P	NR			it	n.a.	n.a.	[41]
<i>Lepidasthenia gigas</i> (Johnson)	EP	P	NR			it	n.a.	cr,ep,rb	[29, 41, 67]
<i>Lepidasthenia minikoiensis</i> Potts	IO	P	NR			st	n.a.	n.a.	[67]
<i>Lepidasthenia varius</i> Treadwell	Car,EP,WA		GSE			st	3–7	cr	[103]
<i>Lepidonotus crosslandi</i> Monro	EP	P	NR			it	n.a.	cr,ep,rb	[29, 67]
<i>Lepidonotus furcillatus</i> (Ehlers)	EP,IP	P	NR			st	54–90	mb,rb,sb	[41]
<i>Lepidonotus humilis</i> Augener	Car,EP	P	NR			it	n.a.	cr,ep,rub	[29, 67]
<i>Lepidonotus hupferi</i> Augener	EA,EP	P	NR			st	21	n.a.	[41]
<i>Lepidonotus nesophilus</i> Chamberlin	EP	P	NR			st	n.a.	cr,ep	[29]
<i>Lepidonotus panamensis</i> Hartman	EP	P	NR			st	54–90	mb,rb,sb	[41]
<i>Lepidonotus squamatus</i> (Linnaeus)	EP		GN			st	18	sb	[16]
<i>Lepidonotus tomentosus</i> (Grube)	EP,WA		GN			st	n.a.	n.a.	[38]
<i>Mayella articulata</i> Hartmann-Schröder	EP	ES	NR			it	n.a.	sb	[49]
<i>Pareulagisca panamensis</i> (Hartman)	EP	P	NR			it	n.a.	rb	[41, 84]
<i>Polynoe</i> sp.	n.a.		GN			st	11	sb	[16]
<i>Thomora johnstoni</i> (Kinberg)	EP	P	NR			st	n.a.	ep,rub,sb	[12, 29, 41, 54, 67]
<i>Thomora taeniata</i> (Ehlers)	EP,WA	P	NR			st	n.a.	ep	[29]
Family QUESTIDAE									
Questidae sp.	n.a.		GD			st	70	mb	[74]

Family SABELLARIIDAE									
<i>Idanthyrsus armatus</i>	EP,WP	P		NR	st	36	sb	[29, 70]	
<i>Idanthyrsus cretus</i>	EP	P		GP	st	2	cr,rub	[12, 29, 44, 70]	
<i>Phragmatopoma attenuata</i>	EP	P		NR	it	n.a.	n.a.	[29, 70]	
<i>Sabellaria alcocki</i>	ct	P		NR	it	n.a.	rub	[29]	
<i>Sabellaria floridensis</i>	Car,EP	P		NR	it	n.a.	cr	[29]	
<i>Sabellaria gracilis</i>	EP			GN	st	n.a.	mb	[65, 109]	
<i>Sabellaria moorei</i>	EP	P		NR	it	n.a.	rb	[29, 70]	
<i>Sabellaria spinulosa</i>	EP,WA	P		NR	it	n.a.	rb	[29, 70]	
<i>Sabellida</i> (<i>Sabellaria</i> ?) sp.	n.a.			GD	st	70	mb	[74]	
Family SABELLIDAE									
<i>Bispira monroi</i>	EP	P		n.a.	it,st	n.a.	cr,rb	[29, 68, 70, 78]	
<i>Chone minuta</i>	EP	ES,P		GP,GSE	it	n.a.	sb	[27, 66]	
<i>Chone mollis</i>	EP			GN	it	n.a.	sb	[105, 107]	
<i>Chone</i> sp.	n.a.			GN	st	n.a.	n.a.	[64, 65, 109]	
<i>Demonax leucaspis</i> ? Kinberg	Car,EP	P		NR	it	n.a.	ep,rb	[29, 70]	
<i>Euratella</i> sp.	n.a.			n.a.	st	n.a.	mb	[65, 109]	
<i>Hypsicomus phaeotenia</i>	ct	P		NR	it,st	n.a.	ep,cr	[29, 70]	
<i>Megalomma gesae</i>	EP	ES		NR	it	n.a.	sb	[49]	
<i>Megalomma pacifici</i>	EP			n.a.	st	n.a.	n.a.	[11, 12, 40]	
<i>Pseudopotamilla intermedia</i>	EP	P		NR	it	n.a.	rb	[29, 70]	
<i>Pseudopotamilla ocellata</i>	EP	P		NR	it	n.a.	rub	[29]	
<i>Sabella crassicornis</i>	EP,Car			GD	st	n.a.	mb	[78]	
<i>Sabella pacifici</i>	EP		X	GN	st	n.a.	n.a.	[40]	
Family SERPULIDAE									
<i>Croslandiella multispinosa</i>	EP	P		NR	st	9-11	sb	[70]	
<i>Croslandiella multispinosa</i> var. <i>inarmata</i>	EP	P		NR	st	36	sb	[70]	
<i>Crucigera websteri</i>	EP	P		NR	st	1-4	rub	[51, 68, 70]	

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic	Pacific ^c	Endemic				
<i>Hydroides albiceps</i> (Grube)	EP,WP	P		NR		st	n.a.	rub	[53]
<i>Hydroides crucigera</i> Mörch	EP			GN		st	n.a.	n.a.	[70, 72]
<i>Hydroides exalta</i> (Marenzeller)	EP	P		NR		st	9	ep	[70]
<i>Hydroides gairacensis</i> Augener	Car,EP,WA	P		NR		st	2-4	rub	[116]
<i>Hydroides lunulifera</i> (Claparède)	Car	P		NR		it	n.a.	n.a.	[70]
<i>Hydroides uncinata</i> (Philippi)	EP	P		NR		st	2-4	rub	[70]
<i>Pomatostegus krøyeri</i> Mörch	EP		X	GN		st	n.a.	n.a.	[72]
<i>Pomatostegus stellatus</i> (Abildgaard)	EP	P		GN		it,st	9-18	sb	[40, 43, 68, 70]
<i>Protula tubularia</i> var. <i>balboensis</i> Monro	EP	P		NR		it	n.a.	rb	[70]
<i>Schizocraspedon</i> sp.	n.a.			GN		st	n.a.	mb	[65, 109]
<i>Serpula tricornis</i> (Mörch)	EP	P		NR		n.a.	n.a.	n.a.	[12]
<i>Spirobranchus contereii</i> (Gravier)	Car	P		NR		it	n.a.	n.a.	[70]
<i>Spirobranchus giganteus</i> Pallas	Car,EP,WA	P		GN		it,st	7	cr,rb	[70, 72]
<i>Vermiliopsis glandigerus</i> Gravier	EP	P		NR		st	9	ep	[70]
cf <i>Vermiliopsis multiamulata</i> (Moore)	EP			GD		st	70	mb	[74]
Family SIGALIONIDAE									
<i>Sigalion lewisii</i> Berkeley & Berkeley	EP	G		NR		st	18	n.a.	[3]
<i>Sthenelais fusca</i> Johnson	EP	P		NR		it	n.a.	cr,rb,sb,sg	[29, 69]
<i>Psammolyce antipoda</i> (Schmarda)	Med,WP			GSE		it	n.a.	rb	[41]
<i>Psammolyce antipoda</i> Hartman									
<i>Psammolyce fimbriata</i> Hartman	EP	P		NR		st	45	mb	[41]
<i>Psammolyce spinosa</i> Hartman	Car,EP			IC		st	73-84	sb	[41]
<i>Sigalion lewisii</i> Berkeley & Berkeley	EP	G,P		NR		it	n.a.	sb	[29, 41]
<i>Sigalion spinosus</i> (Hartman)	EP,WA			IC		st	20-125	sb	[41]
<i>Sigalion</i> sp.	n.a.			GN		st	12-18	sb	[16, 65, 109]

Sigalionidae sp.	n.a.	GN	st	11	sb	[16, 65]
<i>Sthenelais fusca</i> Johnson	EP	GN,GP, GSE	st	4-90	mb, sb	[16, 41, 65, 109]
<i>Sthenelais helenae</i> Kinberg	EP	PM	it	n.a.	sb	[27, 80]
<i>Sthenelais</i> sp.	EP	NR	it	n.a.	n.a.	[96]
<i>Sthenelaimella uniformis</i> Moore	EP	GD	st	n.a.	mb	[16]
Family SPIONIDAE						
<i>Apironospio pygmaea</i> (Hartman)	EP,WA	GN	st	9-35	mb, sb	[16, 65, 109]
<i>Boccardia polybranchia</i> (Haswell)	cp	NR	st	2-26	cr, rub	[29, 70]
<i>Boccardia proboscidea</i> Hartman	EP	NR	it	n.a.	rb	[29]
<i>Boccardia tricuspa</i> (Hartman)	EP	NR	it	n.a.	rb	[29]
<i>Caraziella citrona</i> (Hartman)	EP	GN	it	n.a.	mb	[65, 106-109]
<i>Dipolydora socialis</i> (Schmarda)	EP,SA,SP,WA,WP	GN	st	11-26	mb, sb	[16]
<i>Dispio glabrilamellata</i> Blake & Kudenov	SP	GN	st	18	sb	[16]
<i>Dispio schusteriae</i> Friedrich	EP	NR	st	n.a.	sb	[34, 96]
<i>Dispio uncinata</i> Hartman	Car,EP,WA	GN	st	18	sb	[16, 27, 28, 65, 109]
<i>Laonice bassensis</i> Blake & Kudenov	SP	GN	st	20	sb	[16, 65, 109]
<i>Laonice japonica</i> (Moore)	EP	NR	it	n.a.	n.a.	[29, 70]
<i>Laonice</i> sp.	n.a.	GD	st	n.a.	mb	[16]
<i>Malacoceros indicus</i> (Fauvel)	ct	GN	st	1-18	sb	[16, 65, 109]
<i>Paraprionospio pinnata</i> (Ehlers)	EP	GD,GN	st	11-22	mb, sb	[16, 24, 64, 65, 70, 86, 105-109]
<i>Polydora cornuta</i> Bosc	EA,EP,SP,WA	GN	st	11	sb	[16]
<i>Polydora punctata</i> Hartmann-Schröder	EP	NR	it	n.a.	fw	[49]
<i>Prionospio (Aquilaspio)</i> sp.	n.a.	GD	st	n.a.	mb	[17]
<i>Prionospio delta</i> Hartman	EA,EP,WA	GN	it,st	n.a.	mb	[65, 105-109]
<i>Prionospio (Prionospio) ehlersi</i> Fauvel	cp	GD	st	n.a.	mb	[17]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Prionospio (Minuspio) lighti</i> Maciolek	EP		GD	st	n.a.	mb	[17]
<i>Prionospio (Minuspio) multibranchiata</i> Berkeley	GM,EP		GN	st	11–35	mb,sb	[16, 63, 64, 65, 109]
<i>Prionospio (Minuspio) (cf.) pulchra</i> Imajima	WP		GN	st	11–26	mb,sb	[16]
<i>Prionospio (Minuspio)</i> sp.	n.a.		GD	st	n.a.	mb	[17, 60]
<i>Prionospio (Prionospio) dubia</i> Day	EA,EP,Med,SP,WA,WP		GN	st	11–26	mb,sb	[16]
<i>Pygospio</i> sp.	n.a.		GD	st	70	mb	[74]
<i>Scolecopsis arenicola</i> (Hartmann-Schröder)	EP	ES	NR	it	n.a.	sb	[49]
<i>Scolecopsis (Scolecopsis) squamata</i> (Müller)	Car,EA,EP,Med,WA	ES,P	GN,IC	it	n.a.	sb	[23, 27, 28, 96]
<i>Scolecopsis</i> sp.	n.a.		GN	st	18	sb	[16]
<i>Spio blakei</i> (Blake & Kudenov)	EP,SP		GN	st	13	sb	[16, 65, 109]
<i>Spio maculata</i> (Hartman)	EP		GD	st	n.a.	mb	[74]
Spionidae sp.	n.a.		GD	st	64–70	mb	[74]
<i>Spiophanes duplex</i> (Chamberlin)	GM,EP		GN	st	11–26	mb,sb	[16, 84, 65, 105, 106, 107, 108, 109]
<i>Spiophanes kroeyeri</i> Grube	cp		n.a.	st	n.a.	mb	[17]
<i>Streblospio</i> sp.	EP	ES	NR	it	n.a.	sb	[49]
Family SPIROBIDAE							
<i>Pileolaria berkeleyana</i> (Rioja)	EP,WP	P	GD,P	it	n.a.	rb	[58]
<i>Pileolaria marginata</i> Knight-Jones	EP		GD,GP	it	n.a.	n.a.	[58]

<i>Pileolaria (Simplicaria) pseudomilitaris</i> Thiriot-Quevrecx	EP,WP	P	GD,GP, PM	it	n.a.	rb	[58]
<i>Spirorbis bidentatus</i> Bailey	Car,EP,WP	P	NR	st	n.a.	rb	[58]
<i>Spirorbis langerhansi</i> Caullery & Mesnil	EP	P	NR	n.a.	n.a.	n.a.	[10]
<i>Spirorbis marioni</i> (Caullery & Mesnil)	EP,WP	P	GD,GP, PM	it	n.a.	rb	[10, 58]
Family STERNASPIDAE							
<i>Sternaspis cf. maior</i> Chamberlin	EP		GN	st	11–265	mb, sb	[12, 16, 65, 109]
Family SYLLIDAE							
<i>Amblyosyllis cf. granosa</i> Ehlers	EP,SP	P	NR	st	1–2.5	cr, rub	[9]
<i>Amblyosyllis speciosa</i> Izuka	EP,WA,WP	P	NR	st	2.5	cr, rub	[9]
<i>Autolytus cf. magnus</i> Berkeley	EP	P	NR	it	n.a.	ep	[29]
<i>Autolytus multidentatus</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	n.a.	[49]
<i>Autolytus multidentatus</i> Westheide	EP	P	NR	st	2–16	cr, rub	[9]
<i>Branchiosyllis exilis</i> (Graviet)	ct	P	NR	st	1.2–16	cr, ep, rub	[8, 29, 69]
<i>Branchiosyllis pacifica</i> Rioja	EP	P	NR	st	2.5–12	cr, ep, rub	[8]
<i>Branchiosyllis salina</i> (Hartmann-Schröder)	EP	ES	NR	it	n.a.	sb	[49]
<i>Eusyllis lamelligera</i> Marion & Bobretsky	ct	P	NR	st	2–16	ep	[9]
<i>Eusyllis spirocirrata</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	n.a.	[49]
<i>Exogone brevitannata</i> Hartmann-Schröder	ct	P	GN	st	1.2–22	cr, ep, sb	[9, 16, 49, 65, 109]
<i>Exogone exmouthensis</i> Hartmann-Schröder	Car,EP,IP	P	NR	st	2–3	ep	[9]
<i>Exogone lourei</i> Berkeley & Berkeley	Car,EA,EP,GM	P	NR	st	2–12	cr, ep, rub	[9]
<i>Exogone naidinoides</i> Westheide	Car,EP	P	NR	st	2–16	cr, rub	[9]
<i>Exogone</i> sp.	n.a.		GD	st	70	mb	[74]
<i>Grubeosyllis concinna</i> (Westheide)	EP	P	NR	st	2–18	ep	[9]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Haplopyllis spongicola</i> (Grube)	ct	P	NR	it	1–18	cr,ep,rub	[7, 30, 69]
<i>Odontopyllis brevipes</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]
<i>Odontopyllis dugesiana</i> Claparède	EP,WA	P	NR	it	n.a.	n.a.	[68]
<i>Odontopyllis fulgurans</i> (Audouin & Milne Edward)	EP,WA,WP	P	NR	st	3–16	ep	[9]
<i>Odontopyllis polycera</i> (Schmarda)	Car,EP,WA	P	GN	it	n.a.	n.a.	[29, 65, 69, 109]
<i>Opisthodonta mitchelli</i> Kudenov & Harris	EP	P	NR	st	3–6	cr,ep,rub	[9]
<i>Opisthosyllis arboricola</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]
<i>Opisthosyllis brunnea</i> Langerhans	ct	P	NR	it	1.4–2.5	cr,ep	[8, 29, 69]
<i>Parasphaerosyllis malmatii</i> Capa San Martín & López	EP	P	NR	st	2.5	n.a.	[7]
<i>Parasphaerosyllis</i> sp.	n.a.	P	NR	st	2.5	cr,rub	[8]
<i>Pionosyllis articulata</i> Kudenov & Harris	EP	P	NR	st	2.5–6	cr,ep,rub	[9]
<i>Proceraea</i> cf. <i>cornuta</i> (Agassiz)	cp	P	NR	st	1.2–16	cr,rub	[9]
<i>Proceraea</i> sp.	n.a.	P	NR	st	n.a.	n.a.	[9]
<i>Prosphaerosyllis</i> (<i>Prosphaerosyllis</i>) sp.	n.a.	P	NR	st	1	cr,rub	[9]
<i>Pseudosyllides curacaoensis</i> Augener	Car	P	GN	st	n.a.	n.a.	[64, 65, 109]
<i>Sphaerosyllis californiensis</i> Hartman	EP	P	NR	st	2.5–12	cr,rub	[9]
<i>Sphaerosyllis centroamericana</i> Hartmann-Schröder	EP	ES	NR	it	n.a.	sb	[49]
<i>Sphaerosyllis</i> (<i>Sphaerosyllis</i>) <i>magnidentata</i> Perkins	Car,EP,WA	P	NR	st	1–2	cr,ep,rub	[9]
<i>Syllidae</i> sp. 1 (<i>Sphaerosyllis</i> ?)	n.a.	P	GN	it	n.a.	sb	[106]
<i>Syllides</i> cf. <i>reishi</i> Dorsey	EP	P	NR	st	2.5–6	cr,ep,rub	[9]

<i>Syllis castroviejoi</i> Capa, San Martín & Lopez	EP	P	NR	st	1-6	cr,rub	[8]
<i>Syllis magna</i> (Westheide)	EA,EP	P	NR	st	1.2-6	cr,ep,rub	[8]
<i>Syllis pigmenta</i> (Chamberlin)	EP,WP	P	NR	st	4.5	cr,rub	[8]
<i>Syllis</i> sp.	n.a.	P	NR	st	n.a.	n.a.	[8]
<i>Typosyllis aciculata</i> (Treadwell)	Car,EP	P	NR	it,st	2.5	cr,ep,rub	[9, 29]
<i>Typosyllis alternata</i> (Moore)	EP,Med,WA	P	NR	st	2	cr,rub	[8]
<i>Typosyllis anops</i> (Ehlers)	ct	P	NR	it,st	1-15	cr,ep,rub	[8, 29]
<i>Typosyllis armillaris</i> (Müller)	cp	P	NR	st	1-18	cr,ep,rub	[8]
<i>Typosyllis bella</i> (Chamberlin)	EP	P	NR	st	2-12	cr,rub	[8]
<i>Typosyllis beneliahuae</i> (Campoy & Alquezar)	Car,EA,EP WA	P	NR	st	1-6	cr,rub	[8]
<i>Typosyllis hotosaneanui</i> (Hartmann- Schröder)	Car,EP,WA	P	NR	st	1.2-2.5	cr,rub	[8]
<i>Typosyllis caeca</i> (Monro)	EP	P	NR	st	n.a.	ep	[29, 69]
<i>Typosyllis corallicola</i> (Verrill)	EA,EP,WA	P	NR	st	2.5-16	cr,rub	[8]
<i>Typosyllis garciai</i> (Campoy)	Car,EA,EP	P	NR	st	2.5-16	cr,rub	[8]
<i>Typosyllis heterochaeta</i> (Moore)	EP	P	GN	st	9-70	ep,mb,sb	[16, 17, 29, 64, 65, 69, 74, 109]
<i>Typosyllis heterocirrata</i> (Hartmann- Schröder)	Car,EP	ES,P	NR	it,st	2.5-12	cr,ep,rub,sb	[9, 49]
<i>Typosyllis hyalina</i> (Grube)	cp	P	NR	st	1-6	cr,rub	[8, 29, 69]
<i>Typosyllis prolifera</i> (Krohn)	cp	P	NR	st	1-6	cr,ep,rub	[8]
<i>Trypanosyllis taeniaeformis</i> (Haswell)	EP	P	NR	st	1-16	cr,rub	[8, 29, 69]
<i>Typosyllis truncata</i> (Haswell)	EP,WP	P	NR	st	2.5-16	cr,ep,rub	[8]
<i>Typosyllis variegata</i> (Grube)	cp	P	NR	it	n.a.	cr,ep,rb	[29, 69]
Family TEREBELLIDAE							
<i>Eupolyommia nebulosa</i> (Montagu)	ct	P	GD	it,st	n.a.	ep,mb	[17, 29, 70]
<i>Eupolyommia regnans</i> Chamberlin	EP	P	NR	it	n.a.	rb	[11, 12, 29, 70]
<i>Lanicides taboguillae</i> (Chamberlin)	Car,EP	P	NR	it	n.a.	cr	[29, 12]
<i>Loimia annulifilis</i> (Grube)	EP	P	NR	it	n.a.	n.a.	[29, 70]

(continued)

Species List 13.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Endemic	Pacific ^c	Endemic	Pacific ^c				
<i>Loimia ingens</i> (Grube)	cp		GN	GN	GN	st	15	mb	[16]
<i>Loimia medusa</i> (Savigny)	cp	P	GN	GN	GN	it	n.a.	ep	[29, 65, 68, 109]
<i>Lysilla</i> (?) sp.	n.a.		GN	GN	GN	st	15	mb	[16, 65, 109]
<i>Neoamphitrite robusta</i> (Johnson)	EP		GN	GN	GN	st	22	sb	[16]
<i>Nicolea chilensis</i> (Schmarda)	EP	P	NR	NR	NR	it,st	n.a.	n.a.	[68]
<i>Pista agassizi</i> Hilbig	EP	P	NR	NR	NR	it	n.a.	rub	[29]
<i>Pista alata</i> Moore	EP	P	NR	NR	NR	it	n.a.	rb,sb	[29, 70]
<i>Pista elongata</i> Moore	EP	P	NR	NR	NR	it	n.a.	rb	[29, 70]
<i>Pista herpini</i> ? Fauvel	EP,IO	P	NR	NR	NR	it	n.a.	n.a.	[29, 70]
<i>Pista</i> sp.	n.a.	P	NR	NR	NR	st	26	mb,sb	[68]
<i>Polycerine</i> sp.	n.a.		GD	GD	GD	st	70	mb	[49]
<i>Pseudampharete</i> sp.	n.a.		GN	GN	GN	st	14	sb	[16]
<i>Scionides</i> sp.	n.a.		GD	GD	GD	st	n.a.	mb	[17]
<i>Streblosoma comatus</i> (Grube)	EP		GN	GN	GN	st	n.a.	n.a.	[40]
<i>Streblosoma crassibranchia</i> Treadwell	Car,EP	P	GN	GN	GN	it,st	20	ep,mb,rb,sb	[16, 29, 65, 70, 109]
<i>Terebella alata</i> Grube	EP		X	GN	GN	st	n.a.	n.a.	[40]
<i>Terebella frondosa</i> Grube	EP		X	GN	GN	st	n.a.	n.a.	[40]
<i>Terebella gorgonae</i> Monro	EP	P	GSE	GSE	GSE	it,st	4	n.a.	[29, 70, 103]
<i>Terebella panamena</i> Chamberlin	EP	P	NR	NR	NR	it	n.a.	n.a.	[12]
<i>Thelepus comatus</i> (Grube)	EP	P	NR	NR	NR	st	n.a.	rub	[68]
<i>Thelepus pericensis</i> Chamberlin	EP	P	NR	NR	NR	n.a.	n.a.	n.a.	[12]
Family TOMOPTERIDAE									
<i>Tomopteris nisseni</i> Rosa	E,A,EP,WA		IC	IC	IC	mp	n.a.	wc	[103]
<i>Tomopteris septentrionalis</i> Quatrefages	EP	P	NR	NR	NR	ep	n.a.	n.a.	[104]
Family TRICHOBRANCHIDAE									
<i>Terebellides californica</i> Williams	EP		GD	GD	GD	st	n.a.	mb	[17, 60]

<i>Terebellides reishi</i> Williams	EP	P	GN	st	2–36	sb	[16, 65, 109, 112]
<i>Terebellides stroemi</i> ? Sars	cp	P	NR	st	54	sb	[29, 70]
<i>Thelepus</i> sp.	n.a.		GN	st	18–26	mb, sb	[16]
Family TROCHOCHAETIDAE							
<i>Trochochaeta kirkegaardii</i> Pettibone	EA		GN	st	40	mb	[16, 64, 65, 109]
Family TYPHOSCOLECIDAE							
<i>Travistopsis lanceolata</i> Southern	EP, WA	P	NR	st	900	wc	[103]
<i>Travistopsis kowalevskii</i> Wagner	EP	P	NR	n.a.	n.a.	n.a.	[104]
Phylum ECHIURA							
Order ECHIUROINEA							
Family THALASSEMIDAE							
<i>Thalassema steinbecki</i> Fisher	EP		GN	it	n.a.	rb	[22]

n.a. = information not available

^aAnt = Antarctic; Arc = Arctic; Car = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; GM = Gulf of Mexico; IG = Iranian Gulf; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; SA = south Atlantic; WA = western Atlantic; WP = western Pacific

^bES = El Salvador; G = Guatemala; N = Nicaragua; P = Panama

^cGSE = Golfo de Santa Elena; GD = Golfo Dulce; GN = Golfo de Nicoya; GP = Golfo de Papagayo; IC = Isla del Coco; NR = no Costa Rican record;

PM = Pacific Mainland

^dep = epipelagic; it = intertidal; mp = mesopelagic; st = subtidal

^eUppermost/lowermost occurrences (in meters)

^fcr = coral reef; ep = epiphytic; fw = freshwater; mb = muddy bottom; rb = rock bottom; sb = sand bottom; sg = rubble bottom; sg = seagrass; wc = water Column

^gReferences are indicated by numbers according to the reference list

Species List 14.1 Stomatopod taxa from the Caribbean Coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
SubPhylum CRUSTACEA						
Class MALACOSTRACA						
SubClass HOPLOCARIDA						
Order STOMATOPODA						
SuperFamily GONODACTYLOIDEA						
Family GONODACTYLIDAE						
<i>Neonodactylus curacaoensis</i> Schmitt, 1924	Car,WA	B,H	st	1–38	cr	[24, 25, 27]
<i>Neonodactylus oerstedii</i> (Hansen, 1895)	Car,WA		it,st	0–76	cr	[24, 25, 27]
Family PSEUDOSQUILLIDAE						
<i>Pseudosquilla ciliata</i> (Fabricius, 1787)	Car,EA,IP,WA		it,st	8–110	cr,sb,sg	[10, 17, 24, 25, 27]
<i>Pseudosquillisma oculata</i> (Brullé, 1837)	Car,EA,IP,WA	N	it,st	0–60	rb,sb	[13, 24, 25, 27]
SuperFamily LYSIOSQUILLIDAE						
Family LYSIOSQUILLIDAE						
<i>Lysiosquilla glabriuscula</i> (Lamarck, 1818)	Car,WA		st	1–60	rb,rub	[24, 25, 27]
SuperFamily SQUILLIDAE						
Family SQUILLIDAE						
<i>Squilla empusa</i> Say, 1818	Car,WA		st	0–54	mb	[9, 10, 13, 22, 25, 27]

n.a. = information not available

^aCar = Caribbean; EA = eastern Atlantic; IP = Indo-Pacific; WA = western Atlantic^bB = Belize; H = Honduras; N = Nicaragua^cit = intertidal; st = subtidal^dUppermost and lowermost occurrences (in meters)^ecr = coral reefs; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass^fReferences are indicated by numbers according to the reference list

Species List 14.2 Stomatopod taxa from Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica Endemic	Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Subphylum CRUSTACEA								
Class MALACOSTRACA								
SubClass HOPLOCARIDA								
Order STOMATOPODA								
SuperFamily GONODACTYLOIDEA								
Family HEMISQUILLIDAE								
<i>Hemisquilla californiensis</i> Stephenson, 1967	ETP	P	PM	b	33–110	mb, sb		[7, 8, 25]
Family GONODACTYLIDAE								
<i>Neogonodactylus albicinctus</i> (Manning & Reaka, 1979)	ETP		x	PM	0–17	mb, rb, rub, sb		[18, 19, 25]
<i>Neogonodactylus bahiahondensis</i> (Schmitt, 1940)	ETP	P	PM	it, st		cr, mb, rb, rub		[14, 19, 23, 25]
<i>Neogonodactylus costaricensis</i> (Manning & Reaka, 1978)	ETP		x	PM	9–20	bm, rb, rub, sb, sh		[14, 18, 19, 25]
<i>Neogonodactylus festae</i> (Nobili, 1901)	ETP	ES	PM	it, st	0–15	cl, mb, rb, sb		[14, 16, 21, 23, 25]
<i>Neogonodactylus stanschi</i> (Schmitt, 1940)	ETP		PM	it, st	1–17	cr, rub, sh		[21, 25]
<i>Neogonodactylus zacae</i> (Manning, 1972)	ETP	P	PM, IC	it, st	0–37	cr, rb, rub, sb, algae		[5, 14, 21, 23, 25]
Family PSEUDOSQUILLIDAE								
<i>Pseudosquilla adistalta</i> Manning, 1964	ETP	P	PM, IC	eb	0–6	cr, rb, sb		[5, 8, 14, 25]
SuperFamily LYSIOSQUILLOIDEA								
Family CORONIDIDAE								
<i>Coronida schmitti</i> Manning, 1976	ETP		IC	eb		rub		[7, 25]
<i>Neocoronida cocosiana</i> (Manning, 1972)	ETP		IC	eb				[15, 19, 25]

(continued)

Species List 14.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
Family LYSIOSQUILLIDAE								
<i>Lysiosquilla manningi</i> Boyko, 2000	ETP		PM		n.a.	20–48	n.a.	[3, 8, 14, 21, 25]
Family NANNOSQUILLIDAE								
<i>Bigelowina biniensis</i> (Bigelow, 1893)	ETP,WA	P	PM		st	2–20	sb,rb,rub	[4, 13, 21, 25, 26]
<i>Nanosquilla californiensis</i> (Manning, 1961)	ETP		PM		st	9–48	rb,sb,algae	[8, 21, 25]
<i>Nanosquilla canica</i> Manning & Reaka, 1979	ETP		PM		b	5–23	sb	[8, 11, 18, 23, 25]
SuperFamily SQUILLOIDEA								
Family SQUILLIDAE								
<i>Cloridopsis dubia</i> (H. Milne Edwards, 1837)	ETP,WA	B,ES,P	PM		b	To 73	mb	[8, 21, 23, 25]
<i>Crenatosquilla oculinova</i> (Glassell, 1942)	ETP	P	PM,IC		b	0–28	mb,sb	[5, 8, 21, 25]
<i>Meiosquilla dawsoni</i> Manning, 1970	ETP	P	PM		it	0–25	cl,mb,rb	[8, 14, 21, 25]
<i>Meiosquilla swetti</i> (Schmitt, 1940)	ETP	N,P	PM		st	5.4–45	m,rb,rub,sb	[8, 14, 21, 25]
<i>Squilla aculeata aculeata</i> Bigelow, 1893	ETP,SEP	ES,N,P	PM		it,st	0–73	cl,mb	[7, 8, 21, 25]
<i>Squilla biformis</i> Bigelow, 1891	ETP	P	PM		n.a.	28–518	n.a.	[5, 7, 8, 25]
<i>Squilla bigelowi</i> Schmitt, 1940	ETP		PM		b	6–150	mb	[2, 6, 8, 12, 25, 27]
<i>Squilla hancocki</i> Schmitt, 1940	ETP		PM		b	27–220	mb	[8, 21, 25]
<i>Squilla mantodea</i> Bigelow, 1893	ETP		PM		b	4–60	sb	[7, 8, 20, 25]
<i>Squilla panamensis</i> Bigelow, 1891	ETP	P	PM		b	18–102	mb,sb	[5, 8, 14, 25]
<i>Squilla parva</i> Bigelow, 1891	ETP	ES	PM		b	7–46	mb,sb	[8, 14, 25]
Family EURYSQUILLIDAE								
<i>Eurysquilla veleronis</i> (Schmitt, 1940)	ETP	P	PM		st	13–118	mb	[8, 25, 27]
SuperFamily UNCERTAIN								
Family PARASQUILLIDAE								
<i>Parasquilla similis</i> Manning, 1970	ETP	P	PM		b	73–125	mb,sb	[7, 8, 21, 25]
<i>Pseudosquillopsis marmorata</i> (Lockington, 1877)	ETP,NEP		PM		b	0–99	mb,rb,sb	[8, 21, 25]

n.a. = information not available

^aWA = western Atlantic; EPT = eastern tropical Pacific; SEP = southern eastern Pacific; NEP = northeastern Pacific

^bB = Belize; ES = El Salvador; N = Nicaragua; P = Panama

^cPM = Pacific mainland; IC = Isla del Coco

^db = benthic; eb = epibenthic; it = intertidal; st = subtidal

^eUppermost and lowermost occurrences (in meters)

^fcl = coastal lagoons; cr = coral reefs; mb = muddy bottom; m = mangroves; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sh = shells fragments

^gReferences are indicated by numbers according to the references list

Species List 15.1 Euphausiid species recorded in Caribbean waters of Costa Rica. Systematic account follows Baker *et al.* (1990)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class MALACOSTRACA						
Order EUPHAUSIACEA						
Family EUPHAUSIIDAE						
<i>Euphausia americana</i> Hansen, 1911	cp	B,H,N,P	ep	0–2500	wc	[4]
<i>Euphausia brevis</i> Hansen, 1905	cp	H,P	ep	0–1872	wc	[4]
<i>Euphausia gibboides</i> Ortmann, 1893	cp	CA	ep	0–750	wc	[3]
<i>Euphausia hemigibba</i> Hansen, 1910	cp	B,H	ep	50–600	wc	[4,5]
<i>Euphausia pseudogibba</i> Ortmann, 1893	EA,IO,WA,WP	B,G,H,N	ep	0–550	wc	[3]
<i>Euphausia tenera</i> Hansen, 1905	cp	CA	ep	0–1000	wc	[2,4]
<i>Nematoscelis atlantica</i> Hansen, 1910	cp	CA	ep	50–781	wc	[3]
<i>Nematoscelis microps</i> G.O. Sars, 1883	cp	CA	ep	50–820	wc	[5]
<i>Nematoscelis tenella</i> G.O. Sars, 1883	cp	n.a	mp	100–600	wc	[4]
<i>Stylocheiron carinatum</i> G.O. Sars, 1883	cp	CA	ep	0–285	wc	[5]
<i>Stylocheiron elongatum</i> G.O. Sars, 1883	cp	CA	mp	181–820	wc	[5]
<i>Stylocheiron longicorne</i> G.O. Sars, 1883	cp	CA	mp	0–1638	wc	[3,4]
<i>Stylocheiron maximum</i> Hansen, 1908	cp	CA	mp	256–805	wc	[3,5]
<i>Thysanopoda aequalis</i> Hansen, 1905	cp	CA	ep	0–1272	wc	[3]

n.a = information not available

^acp = cosmopolitan; EA = eastern Atlantic; IO = Indian Ocean; WA = western Atlantic; WP = western Pacific^bCA = all Central American countries; B = Belize; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama^cep = epipelagic; mp = mesopelagic; bp = bathypelagic^duppermost and lowermost occurrences (in meters)^ewc = water column^fReferences are indicated by numbers according to the reference list

Species List 15.2 Euphausiid species recorded in Costa Rican waters of the eastern tropical Pacific Ocean. Systematic account follows Baker *et al.* (1990)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class MALACOSTRACA						
Order EUPHAUSIACEA						
Family EUPHAUSIIDAE						
<i>Euphausia diomedae</i> Ortmann, 1894	EP,WP	ES,G,H,N	ep	0-200	wc	[1, 5, 6]
<i>Euphausia distinguenda</i> Hansen, 1911	EP	CA	ep	0-280	wc	[1, 2, 3, 5, 6]
<i>Euphausia eximia</i> Hansen, 1911	EP	CA	ep	0-700	wc	[1, 2, 6]
<i>Euphausia gibboides</i> Ortmann, 1893	cp	P	ep	50-500	wc	[1, 3, 6]
<i>Euphausia lamelligera</i> Hansen, 1911	EP	CA	ep	0-280	wc	[1, 6]
<i>Euphausia paragibba</i> Hansen, 1910	EP,WP	n.a	ep	0-100	wc	[6]
<i>Euphausia tenera</i> Hansen, 1905	cp	ES,G,H,N	ep	0-500	wc	[1]
<i>Nematobrachion boöpis</i> (Calman, 1905)	cp	n.a	mp	500-600	wc	[6]
<i>Nematobrachion flexipes</i> (Ortmann, 1893)	cp	N,P	ep	300-600	wc	[1, 6]
<i>Nematoscelis gracilis</i> Hansen, 1910	EP,IQ,WP	CA	ep	200-600	wc	[1, 3, 6]
<i>Nyctiphanes simplex</i> Hansen, 1911	EP	n.a	n	0-300	wc	[6]
<i>Stylocheiron abbreviatum</i> G.O. Sars, 1883	cp	P	mp	100-400	wc	[1, 6]
<i>Stylocheiron affine</i> Hansen, 1910	cp	CA	ep	0-300	wc	[1, 3, 6]
<i>Stylocheiron carinatum</i> G.O. Sars, 1883	cp	CA	ep	0-300	wc	[1, 5, 6]
<i>Stylocheiron longicorne</i> G.O. Sars, 1883	cp	P	mp	100-400	wc	[1, 3, 6]
<i>Stylocheiron maximum</i> Hansen, 1908	cp	P	mp	150-300	wc	[1, 3, 5, 6]
<i>Thysanopoda cornuta</i> Illig, 1905	EP,WP	G	bp	1000	wc	[1]
<i>Thysanopoda egregia</i> Hansen, 1905	cp	G	bp	1000	wc	[1]
<i>Thysanopoda monacantha</i> Ortmann, 1893	cp	n.a	mp	100-800	wc	[6]
<i>Thysanopoda orientalis</i> Hansen, 1910	cp	n.a	mp	500-700	wc	[6]

(continued)

Species List 15.2 (continued)

n.a = information not available

^acp = cosmopolitan; EP = eastern Pacific; IO = Indian Ocean; WP = western Pacific

^bCA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cn = neritic; ep = epipelagic; mp = mesopelagic; bp = bathypelagic

^duppermost and lowermost occurrences (in meters)

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 16.1 Caribbean Costa Rica. Species of Dendrobranchiata, Stenopodidea, Caridea, Astacidea, Thalassinidea, and Palinura

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Family PENAEIDAE						
<i>Farfantepenaeus brasiliensis</i> (Latreille, 1817)	Car,WA	CA	b	3–365	sb,mb	[111, 124, 129]
<i>Farfantepenaeus subtilis</i> (Pérez-Farfante, 1967)	Car,WA	CA	b	1–190	mb	[101b, 111, 129]
<i>Metapenaeopsis martinella</i> Pérez-Farfante, 1971	Car,WA		st	4–137	sg	[112, 134]
<i>Metapenaeopsis smithi</i> (Schmitt, 1924a)	Car		b	n.a.	rb, sb, cr, sg	[112, 129, 134]
<i>Litopenaeus schmitti</i> (Burkenroad, 1936a)	Car,WA	B,CA	b	2–50	mb, rub	[101b, 111, 129]
<i>Xiphopenaeus kroyeri</i> (Heller, 1862)	Car,ETP,WA	CA	b	1–70	mb, sb	[101b, 113, 129, 130]
Family SICYONIIDAE						
<i>Sicyonia laevigata</i> Stimpson, 1871	Car,ETP,WA	P	st	0–90	sh	[129, 130]
<i>Sicyonia parri</i> (Burkenroad, 1934)	Car,WA		sl,l	Up to 83	sb, sg	[134, 151]
Family SERGESTIDAE						
<i>Acetes americanus</i> Ortmann, 1893	Car,WA	P	epi	0–42	wc	[109]
Family LUCIFERIDAE						
<i>Lucifer faxoni</i> Borradaile, 1915	Car,EA,WA		epi	6–20	wc	[129]
STENOPODIDEA						
Family STENOPODIDAE						
<i>Stenopus hispidus</i> Olivier, 1811	IP,RS,WP		eb	0–25	rb, cr	[2, 25, 101b, 129]
<i>Stenopus scutellatus</i> Rankin, 1898	WA		epi	2–4	rb, cr, sg	[129]
CARIDEA						
Family RHYNCHOCINETIDAE						
<i>Cinethorhynchus rigens</i> (Gordon, 1936)	Car,WA		sl,l	n.a.	rb, cr	[129]
Family OGYRIDIDAE						
<i>Ogyrides hayi</i> Williams, 1981	Car,WA		st	1–3	sb	[151, 134]

(continued)

Species List 16.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Family GNATHOPHYLLIDAE						
<i>Gnathophyllum americanum</i> Guérin-Ménéville, 1855	Car,EA,IP,RS,WA		st	1–50	rb,sg,cr	[101b, 134, 151]
Family ATIYIDAE						
<i>Jonga serrei</i> (Bouvier, 1909)	Car		eb	n.a.	m,f	[126b]
Family PALAEMONIDAE						
<i>Brachycarpus biunguiculatus</i> (Lucas, 1849)	ct	CA	st	n.a.	cr	[88, 129]
<i>Leander tenuicornis</i> (Say, 1818)	ct	CA	n	n.a.	cr,f,sg	[25, 129]
<i>Macrobrachium acanthurus</i> (Wiegmann, 1836)	Car,WA	b	b	n.a.	mb,m	[2, 22b, 88, 101b, 129]
<i>Macrobrachium carcinus</i> (Linnaeus, 1758)	Car,WA	b	b	n.a.	rb,sb, estuary	[88, 129]
<i>Palaemon northropi</i> (Rankin, 1898)	Car,WA	b	b	0.3–0.6	mb,sb,m	[22b, 25, 88, 132b]
<i>Periclimenes americanus</i> Kingsley, 1878	Car,WA	st	st	1–73	m,sh,sp	[2, 101b, 134, 151]
<i>Periclimenes longicaudatus</i> (Stimpson, 1860)	Car,WA	epi	epi	11–20	cr,sg	[25, 129]
<i>Periclimenes paivai</i> Chace, 1969	Car,WA	epi	epi	05–1	c (anemones)	[25, 134]
<i>Pontonia domestica</i> Gibbs, 1850	Car,EA,WA	n.a.	n.a.	n.a.	c	[87, 129, 151]
Family ALPHEIDAE						
<i>Alpheus armatus</i> Rathbun, 1901	Car,WA	epi	epi	8	c (anemones)	[25, 129]
<i>Alpheus armillatus</i> H. Milne Edwards, 1837	Car,WA	epi	epi	0–14	rb,sg,sh	[129, 151]
<i>Alpheus floridanus</i> Kingsley, 1878	EA,ETP,WA	CA	b,epi	0–37	rb,sb,mb,cr	[90, 129]
<i>Alpheus formosus</i> Gibbs, 1850	Car,WA	n.a.	n.a.	0–42	variety of habitats	[2, 101b, 129]
<i>Alpheus nuttingi</i> (Schmitt, 1924)	Car,WA	epi	epi	n.a.	sb (pebbles),cr	[129]
<i>Alpheus ridleyi</i> Pocok, 1890	Car,WA	sl,l	sl,l	>7	cr,sg	[25, 129]
<i>Alpheus simus</i> Guérin-Ménéville, 1856	Car,WA	epi	epi	n.a.	cr	[28, 89, 129, 151]
<i>Synalpheus fritzmulleri</i> Coutière, 1909	Car,ETP,WA	CA	n.a.	0–75	variety of habitats	[27, 101b, 129, 130, 151]
Family HIPPOLYTIDAE						
<i>Hippolyte curacaoensis</i> Schmitt, 1924	Car,WA	st,epi	st,epi	1–5	rb,sb,mb,sg	[25, 134]
<i>Latreutes ficorum</i> (Fabricius, 1798)	Car,EA,WA	it,st	it,st	1–1.5	cl,m,rb,sg,sh	[25, 101b, 134]
<i>Latreutes parvulus</i> (Stimpson, 1866)	Car,EA,WA	l	l	1.5–44	variety of habitats	[25, 134]

<i>Lysmata anchisteus</i> Chace, 1972	Car		it,st	<3	rb,mb	[25, 134]
<i>Lysmata intermedia</i> Kingsley, 1878	Car,EA,ETP,WA		sl	to 22	sg	[25, 134]
<i>Lysmata moorei</i> (Rathbun, 1901)	Car,WA,EA		it	0	n.a.	[25, 134]
<i>Thor floridanus</i> Kingsley, 1878	Car,WA		it	0-1	rb,sb,sg	[25, 134]
<i>Tozeuma carolinense</i> Kingsley, 1878	Car,WA	P	it	0-1.5	rb,sg	[25, 134]
Family PROCESSIONAE						
<i>Ambidexter symmetricus</i> Manning & Chace, 1971	Car,WA		it,st	0.5-6	sb,sg	[25, 134]
<i>Processa fimbriata</i> Manning & Chace, 1971	Car,WA		ir,st	0.5-37	rb,sg,sh,cr	[25, 134]
THALASSINIDEA						
Family AXIIDAE						
<i>Axiopsis hirsutimana</i> (Boesch & Smalley, 1972)	WA		epi	8	cr	[2, 129]
Family UPOGEBIIDAE						
<i>Pomatogobia operculata</i> (Schmitt, 1924)	Car,WA		mp	n.a.	cr	[129, 153]
<i>Upogebia acanthura</i> (Coelho, 1973)	Car,WA	B	epi	6-70	cr,sp	[153]
PALINURA						
Family PALINURIDAE						
<i>Panulirus argus</i> Latreille, 1804	Car,WA		b	0-90	mb,cr,rub	[101b, 122, 126, 129]
<i>Panulirus guttatus</i> (Latreille, 1804)	Car,WA		b	0-20	cr	[101b, 129, 151]
Family SYNAXIDAE						
<i>Palaurellus gundlachi</i> (Von Martens, 1881)	Car,WA		n.a.	n.a.	cr	[2, 101b, 129]
Family SCYLLARIDAE						
<i>Scyllarus planorbis</i> Holthuis, 1969	Car		n.a.	n.a.	n.a.	[132b]

n.a. = information not available

^aCar = Caribbean; ct = circumtropical; EA = eastern Atlantic; ETP = eastern tropical Pacific; IP = Indo-Pacific; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; B = Belize; ES = El Salvador; H = Honduras; N = Nicaragua; P = Panama

^cb = benthic; eb = epibenthic; epi = epipelagic; it = intertidal; l = littoral; mp = mesopelagic; n = neritic; sl = sublittoral; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ec = commensal; cl = coastal lagoon; cr = coral reefs; f = flotsam; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; sh = shells fragments; sp = sponges; wc = water column

^fReferences are indicated by numbers according to the references list

Species List 16.2 Pacific Costa Rica. Species of Dendrobranchiata, Stenopodidea, Caridea, Astacidea, Thalassinidea, and Palinura

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/ Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
Family BENTHESICYMIDAE							
<i>Benthiscymus tanneri</i> Faxon, 1893	ETP	P	IC	b	200–2,406	mb	[36, 37, 79b]
Family PENAEIDAE							
<i>Farfantepenaeus brevis</i> (Kingsley, 1878)	EP	CA	PM	b	20–180	mb, sb	[102, 130]
<i>Farfantepenaeus californiensis</i> (Holmes, 1900)	EP	CA	PM	b	2–180	mb, sb	[130]
<i>Metapenaeopsis beebi</i> (Burkenroad, 1938)	ETP	CA	PM	b	5.5–91	sb	[113, 130]
<i>Litopenaeus occidentalis</i> (Streets, 1871)	ETP	CA	PM	b	2–160	mb	[91, 102, 130]
<i>Litopenaeus stylirostris</i> (Stimpson, 1874)	ETP	CA	PM	b	5–45	mb, sb	[102, 130]
<i>Litopenaeus vannamei</i> (Boone, 1931)	EP	CA	PM	b	5–72	mb	[102, 130]
<i>Pelagopenaeus balboae</i> (Faxon, 1893)	Car, EA, ETP, WP	P	IC type locality	b	1,280	n.a.	[36, 37, 113]
<i>Protrachypene precipua</i> Burkenroad, 1934	ETP	ES, N, P	PM	b	40	mb	[102, 130]
<i>Rimopenaeus byrdi</i> (Burkenroad, 1934)	ETP	CA	PM	it, st	2–40	mb	[102, 130]
<i>Rimopenaeus faoe</i> (Obarrio, 1954)	ETP	CA	PM	n.a.	24	n.a.	[130]
<i>Rimopenaeus pacificus</i> (Burkenroad, 1934)	ETP	CA	PM	b	2–100	sb	[102, 130]
<i>Trachysalambria brevisuturae</i> (Burkenroad, 1934)	ETP	CA	PM	b	4–64	sb	[130]
<i>Xiphopenaeus kroyeri</i> (Heller, 1862)	Car, ETP, WA	CA	PM	b	70	sb	[102, 129, 130]
Family SOLENOGERIDAE							
<i>Haliporoides diomedea</i> (Faxon, 1893)	EP, ETP	P	PM	b	240–1,865	mb	[36, 37, 130]
<i>Hymenopenaeus doris</i> (Faxon, 1893)	ETP	CA	IC, PM type locality	b	549–4,802	n.a.	[36, 37, 111b, 113, 130, 148b]
<i>Hymenopenaeus nereus</i> (Faxon, 1893)	ETP	P	PM, IC	b	1,300–3,300	n.a.	[36, 37, 111b, 113, 130, 148b]

<i>Solenocera agassizi</i> Faxon, 1893	ETP	CA	PM	b	16-384	mb, sb	[36, 37, 130, 148, 148b]
<i>Solenocera florea</i> Burkenroad, 1938	ETP	CA	PM	b	13-183	sb	[102, 130]
<i>Solenocera mutator</i> Burkenroad, 1938	EP,ETP	CA	PM	b	> 90	mb	[130, 132]
Family SICYONIIDAE							
<i>Sicyonia affinis</i> Faxon, 1893	ETP	CA	PM, IC	b	77-205	rb, sh	[75, 77, 130]
			locality				
<i>Sicyonia affinis</i> (Burkenroad, 1934)	ETP	CA	PM	epi	2-242	sb	[75, 130]
<i>Sicyonia disdorsalis</i> (Burkenroad, 1934)	ETP	CA	PM	n.a.	3-100	mb, sb	[75, 130]
<i>Sicyonia disedwardsi</i> (Burkenroad, 1934)	ETP	CA	PM, IC	n.a.	n.a.	rb, sb	[75, 130]
<i>Sicyonia laevigata</i> Stimpson, 1871	Car, WA, ETP	P	PM	st	0-90	sh	[75, 130, 148]
<i>Sicyonia martini</i> Pérez-Farfante & Boothe, 1981	ETP	CA	PM	b	14-32	mb, rb, rub, sb	[75, 130, 148]
<i>Sicyonia penicillata</i> Lockington, 1879	ETP	CA	PM	b	26-139	mb, sb	[79c, 148, 148b]
<i>Sicyonia picta</i> Faxon, 1893	ETP	CA	PM	b	0-400	sb, sh	[75, 130, 148]
Family SERGESTIDAE							
<i>Sergestes pestifer</i> Burkenroad, 1937	EP		PM	mp	180-250	wc	[83, 130]
CARIDEA							
Family OPHOPHORIDAE							
<i>Acanthephyra curvirostris</i> Wood-Mason, 1891	ETP, IP, NEP, WA	CA	PM	mp	3,000-4,970	wc	[83, 130]
<i>Meningodora mollis</i> Smith, 1882	ETP, IP, NEP, WA	CA	IC	mp	0-2,000	wc	[83, 130]
Family PASIPHAEIDAE							
<i>Leptochela serratorbita</i> Bate, 1888	Car, ETP, WA	CA	PM	b	0-110	mb, sb	[83, 130]
<i>Pasiphaea magna</i> Faxon, 1893	ETP, NEP	CA	PM	bp	n.a.	wc	[83, 130]
Family NEMATOCARCINIDAE							
<i>Nematocarcinus agassizi</i> Faxon 1893	ETP		IC	b	41-1,651	mb, rb, sb	[37, 145, 148b]
<i>Nematocarcinus ensifer</i> (Smith, 1882)	EA, ETP, WA		IC	b	1,218-3,212	mb	[37, 145]
Family GNATHOPHYLLIDAE							
<i>Gnathophyllium panamense</i> Faxon, 1893	ETP	CA	PM	epi	0-20	rb	[130]

(continued)

Species List 16.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
Family PALAEMONIDAE							
<i>Ascidonia pusilla</i> (Holthuis, 1951)	ETP		PM	st	n.a.	c	[40, 41, 130, 148b]
<i>Brachycarpus biunguiculatus</i> (Lucas, 1849)	ct	CA	PM, IC	st	n.a.	cr	[88, 130]
<i>Femera chacei</i> Holthuis, 1951	EP, ETP, IP	CA	PM	epi	n.a.	cr	[88, 130]
<i>Harpilopsis depressa</i> (Stimpson, 1860)	ETP, I, PRS	CA	PM, IC	epi	n.a.	cr	[130, 148]
<i>Macrobrachium americanum</i> Bate, 1868	ETP	CA	PM, IC	b	n.a.	estuary	[1b, 88, 130]
<i>Macrobrachium hancocki</i> Holthuis, 1952	ETP		PM, IC	b	n.a.	estuary	[1b, 88, 145b]
<i>Macrobrachium panamense</i> Rathbun, 1912	ETP	H	PM	b	n.a.	estuary	[88, 130]
<i>Macrobrachium tenellum</i> (Smith, 1871)	ETP	CA	PM	b	n.a.	cl, mb, sb, sg, estuary	[88, 130]
<i>Neopontonides henryvonprahli</i> Ramos, 1995	ETP		PM	epi	1–6	cr (soft coral)	[134]
<i>Palaemon gracilis</i> (Smith, 1871)	ETP	CA	PM	b	n.a.	cl, estuary	[88, 130, 148]
<i>Palaemon ritteri</i> Holmes, 1895	ETP, NEP	P	PM, IC	epi	0–38	cl, cr, rb, sb	[87, 88, 130, 148]
<i>Palaemonella holmesti</i> (Nobili, 1907)	ETP	CA	PM	b, epi	2–90	cr, rb, sb, sg	[87, 130, 148]
<i>Palaemonetes schmitti</i> Holthuis, 1950	ETP	P	PM	b	n.a.	estuary	[130, 133]
<i>Periclimenaeus spinosus</i> Holthuis, 1951	ETP	CA	PM type locality	epi	n.a.	estuary	[87, 121, 130]
<i>Periclimenes infraspinis</i> (Rathbun, 1902)	ETP, NEP	CA	PM	b, epi	n.a.	sb, mb, sg	[87, 130]
<i>Periclimenes lucasi</i> Chace, 1937	ETP	CA	PM	epi, l	0–90	mb, sb	[130, 132, 148]
<i>Periclimenes murcielagensis</i> Vargas, 2000	ETP		PM type locality	epi	25	cr (black coral)	[128]
<i>Pontonia margarita</i> Smith, 1869	ETP, WA	CA	PM	n.a.	n.a.	c	[14, 87, 130, 148]
<i>Pontonia pinnae</i> Lockington, 1878	ETP	CA	PM	n.a.	n.a.	c	[87, 130, 148]
<i>Pontonia simplex</i> Holthuis, 1951	ETP	CA	PM	n.a.	n.a.	c	[130, 148]
<i>Veleronia laevifrons</i> Holthuis, 1951	ETP	CA	PM	epi	3–13	cr, rt, sb (soft coral)	[87, 130, 148]
<i>Veleronia serratifrons</i> Holthuis, 1951	ETP	P	PM	epi	7–18	cr (soft coral), rb, sh	[87, 130, 148]

<i>Waldola schmitti</i> Holthuis, 1951	ETP	CA	PM	epi	n.a.	cr (soft coral), [87, 130, 148] rb, sb, sh
Family ALPHEIDAE						
<i>Alpheus aequus</i> Kim & Abele, 1988	ETP		PM type locality	epi	0-5	[90, 148]
<i>Alpheus antepaenulitimus</i> Kim & Abele, 1988	ETP	P	PM	b	n.a.	[90]
<i>Alpheus bellimanus</i> Lockington, 1877	ETP	P	PM	st	0-300	cr, mb, rb, rub, sb
<i>Alpheus bouvieri</i> A. Milne Edwards, 1878	EA, ETP, WA	P	PM	epi	0-1	mb, rub, sb
<i>Alpheus cristulifrons</i> Rathbun, 1900	ETP	CA	PM	epi	0-1	[90, 130, 148] cr, rb
<i>Alpheus cylindricus</i> Kingsley, 1878	ETP, WA	CA	PM	b, epi	0-37	cr, rb, sb
<i>Alpheus floridanus</i> Kingsley, 1878	EA, ETP, WA	CA	PM	b, epi	0-37	cr, mb, rb, sb
<i>Alpheus galapagensis</i> Sivertsen, 1933	ETP	CA	PM, IC	epi	0-37	cr, mb, rb, sb
<i>Alpheus hamus</i> Kim & Abele, 1988	ETP	P	PM	n.a.	n.a.	[1, 130]
<i>Alpheus hebes</i> Kim & Abele, 1988	ETP	CA	PM, IC	b, epi	0-47	cr, mb, rb, sb
<i>Alpheus hyoungae</i> Kim & Abele, 1988	ETP	CA, P	PM	b, epi	n.a.	cr, rb, sb
<i>Alpheus levisculus</i> Dana, 1852	ETP, IP, WP	CA	PM	epi	0-68	cr, rb
<i>Alpheus longiquus</i> Kim & Abele, 1988	ETP	CA	PM, IC	epi	n.a.	cr, rb, rub
<i>Alpheus lotini</i> Guérin-Ménéville, 1829	EP, ETP, IP	CA, P	PM, IC	epi	n.a.	c, cr
<i>Alpheus malleator</i> Dana, 1852	EA, WA	CA	PM	b, epi	0-1	rb, sb
<i>Alpheus marini</i> Kim & Abele, 1988	ETP	P	PM	b, epi	0-1	mb, rb, sb
<i>Alpheus mazatlanicus</i> Wicksten, 1983	ETP	CA	PM	b, epi	n.a.	m, sb
<i>Alpheus normanni</i> Kingsley, 1878	ETP, WA	CA	PM	epi	0-73	rb, sb, sh
<i>Alpheus pacificus</i> Dana, 1852	ETP, IO, IP, RS		PM, IC	b	0-20	rb, rub
<i>Alpheus panamensis</i> Kingsley, 1878	ETP		PM	n.a.	0-1	mb, rb, sb
<i>Alpheus paracrinatus</i> Miers, 1881	ct		PM	epi	n.a.	cr, sg
<i>Alpheus rostratus</i> Kim & Abele, 1988	ETP	CA	PM	epi	0-5.5	cr, rb
<i>Alpheus saxidomus</i> Holthuis, 1980	ETP	P	IC, PM type locality	b	n.a.	rb (basalt)

(continued)

Species List 16.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Alpheus sulcatus</i> Kingsley, 1870	EA,ETP,IO,IPRS	CA	PM	epi	0–1.3	cr,rb,rb	[90, 130]
<i>Alpheus umbo</i> Kim & Abele, 1988	ETP	CA	PM	b	n.a.	cr,rb	[90, 130, 148]
<i>Alpheus villus</i> Kim & Abele, 1988	ETP	P	IC	b	n.a.	rub (pebble)	[90, 130, 148]
<i>Alpheus websteri</i> Kingsley, 1880	ETP,WA	CA	PM	b,epi	0–6	cl,cr,rb,rb	[90, 130, 148]
<i>Automate dolichognatha</i> Dellan, 1888	ETP,RS,WA,WP		IC	b,epi	0–18	sb,rb	[143, 148ab]
<i>Pomagnathus corallinus</i> Chace, 1962	ETP	CA	PM	it,st	n.a.	cr	[130, 143, 149]
<i>Synalpheus biunguiculatus</i> (Stimpson, 1860)	EP,ETP		PM	b,epi	0–10	cr,rb,rb (pebbles)	[130, 143, 148]
<i>Synalpheus charon</i> (Heller, 1861)	ETP,IO,RS,WP	CA	PM	it	n.a.	cr	[130, 143, 148]
<i>Synalpheus digueti</i> Coutière, 1909	ETP	CA	PM	epi	0–10	cr,rb	[130, 143, 148]
<i>Synalpheus recessus</i> Abele & Kim, 1989	ETP	P	PM	n.a.	20	n.a.	[3, 132, 130]
<i>Synalpheus sanjosei</i> Coutière, 1909	ETP		PM	it,st	n.a.	rb	[130, 143]
Family HIPPOLYTIDAE							
<i>Hippolyte californiensis</i> Holmes, 1895	ETP,NEP		PM	it,st	0–10	c (soft coral), rb,rb,sg,	[134, 148b]
<i>Hippolyte williamsi</i> Schmitt, 1924	ETP,SEP		PM	st	1.5–2	rb,sg	[134, 148b]
<i>Lysmata argenteopunctata</i> Wicksten, 2000	ETP		PM	it,st	0–35	cr,rb	[134, 147, 148b]
<i>Lysmata galapagensis</i> Schmitt, 1924	ETP	P	PM	it,st	0–10	m,rb	[134, 147, 148b]
<i>Thor albigicola</i> Wicksten, 1987	ETP	CA	PM	epi	0–25	cr,f,mb,rb, rub,rb,	[130, 144]
<i>Thor amboinensis</i> (De Man, 1888)	ETP,IP,WA	P	IC	epi	20	c (anemones)	[25, 130, 147]
<i>Thor cocoensis</i> Wicksten & Vargas, 2001	ETP		IC type locality	epi	4–25	rb,rb,rb	[149]
<i>Trachycaris restricta</i> (A. Milne Edwards, 1878)	EA,ETP,WA	CA	PM	epi	0–100	cr,mb,rb,rb	[130, 148ab]
Family PROCESSIDAE							
<i>Ambidexter panamensis</i> Abele, 1972	ETP	P	PM	b,epi	5	m,rb,rb	[130, 134]

<i>Processa peruviana</i> Wicksten, 1983	ETP	CA	b	31-107	sb	[130, 132, 145]
Family PANDALIDAE						
<i>Heterocarpus affinis</i> Faxon, 1825	ETP	CA	b	1,208-1,244	n.a.	[85, 106, 130]
<i>Heterocarpus hostilis</i> Faxon, 1893	ETP	P	b	187-1,900	mb	[36, 37, 77, 148b]
<i>Heterocarpus vicarius</i> Faxon, 1893	ETP	CA	b	62-1,454	n.a.	[85, 106, 132, 130]
<i>Pantomus affinis</i> Chace, 1937	ETP	CA	b	3-733	mb,rb,sh	[85, 106, 132, 130]
<i>Plesionika mexicana</i> Chace, 1937	ETP,NEP	CA	b,epi	28-258	mb,sh,sh	[85, 132, 130, 143]
<i>Plesionika trispinus</i> Squires & Barragán, 1976	ETP	n.a.	b	96-500	sb	[85, 130, 132]
Family CRANGONIDAE						
<i>Pontophilus gracilis occidentales</i> Faxon, 1893	ETP	G	b	1,789-4,082	n.a.	[26, 106]
<i>Sclerocrangon atrox</i> Faxon, 1893	ETP	CA	b	800-1,250	n.a.	[77, 130, 145]
Family GLYPHOCRANGONIDAE						
<i>Glyphocrangon alata</i> Faxon, 1893	ETP,SEP	CA	b	600-1,335	n.a.	[26, 106, 130, 139, 148b]
<i>Glyphocrangon sicaria</i> Faxon, 1893	ETP	P	b	1,454-3,310	n.a.	[130, 139, 148b]
<i>Glyphocrangon vicaria</i> Faxon, 1893	ETP,NEP	CA	b	1,375-3,880	n.a.	[130, 139, 148b]
ASTACIDEA						
Family NEPHROPSIDAE						
<i>Nephropsis occidentalis</i> Faxon, 1893	ETP,SEP	CA	b	270-1,310	mb	[77, 78, 130]
THALASSINIDEA						
Family AXIIDAE						
<i>Axiopsis serratifrons</i> (A. Milne Edwards, 1873)	ETP,IPRS,WA	n.a.	it	21	mb	[78, 99, 130]
Family CALLIANASSIDAE						
<i>Biffarius fragilis</i> (Biffar, 1970)	ETP,WA	n.a.	sl	n.a.	n.a.	[7, 101, 130]
<i>Callinectes seitcheri</i> Bott, 1955	ETP,SEP	ES	it	n.a.	sb	[99, 130]
<i>Lepidophthalmus bocourti</i> (A. Milne Edwards, 1870)	ETP	CA	it	n.a.	mb	[99, 130]

(continued)

Species List 16.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
Family CALLIANIDEIDAE							
<i>Callianidea laevicauda</i> Gill, 1859	Car,ETP	CA	PM	it,st	n.a.	n.a.	[99, 130]
Family UPOGEBIIDAE							
<i>Pomatogebia cocosia</i> (Williams, 1986)	ETP	n.a.	X	it	n.a.	cr	[99, 130, 152]
<i>Pomatogebia rugosa</i> (Lockington, 1878)	ETP	n.a.	PM	mp	0–18	cr	[29, 39, 130]
<i>Upogebia burkenroadi</i> Williams, 1986	ETP	CA	PM	b,epi		holes covered with mud	[130, 155]
<i>Upogebia cortesi</i> Williams & Vargas, 2000	ETP	n.a.	PM	b	40	rb	[155]
<i>Upogebia dawsoni</i> Williams, 1986	ETP	CA,P	PM	b	n.a.	estuary	[130, 152]
<i>Upogebia jonesi</i> Williams, 1986	ETP	CA,P	PM	b	0–73	mb, sb	[130, 152]
<i>Upogebia maccraryae</i> Williams, 1986	ETP	ES	PM	b,epi	n.a.	m,mb, holes in rotten wood	[130, 152]
<i>Upogebia spinigera</i> (Smith, 1871)	ETP	ES	PM	b,epi	n.a.	variety of habitats	[130, 152]
<i>Upogebia vargasae</i> Williams, 1997	ETP	n.a.	X?	b	n.a.	holes in mud flats	[130, 154]
PALINURA							
Family POLYCHELIDAE							
<i>Stereomastis nana</i> (Smith, 1884)	c	n.a.	IC	bp	1,544–2,412	mb,rb, sb	[37, 145]
<i>Stereomastis sculpta pacifica</i> (Faxon, 1893)	EP	CA	PM	b,bp (larvae)	1,000–3,692	mb	[78, 130, 140, 145]
Family PALINURIDAE							
<i>Panulirus gracilis</i> Streets, 1871	ETP	CA	PM,IC	b	15–22	rb	[77, 78, 86, 130]
<i>Panulirus penicillatus</i> Olivier, 1791	ETP,IP	n.a.	PM,IC	b	0–8	cr,rb	[77, 78, 86, 130]
Family SCYLLARIDAE							
<i>Evivacus princeps</i> S.I. Smith, 1869	ETP	n.a.	PM	b,epi	3–90	mb, sb	[78, 130]

n.a. = information not available

^a c = cosmopolitan; Car = Caribbean; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; ETP = eastern tropical Pacific; IO = Indian Ocean; IP = Indo-Pacific; NEP = northeastern Pacific; RS = Red Sea; SEP = southern tropical Pacific; WA = western Atlantic; WP = western Pacific

^b CA = all Central American countries; B = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^c IC = Isla del Coco; PM = Pacific mainland

^d b = benthic; bp = bathypelagic; eb = epibenthic; epi = epipelagic; it = intertidal; l = littoral; mp = mesopelagic; sl = sublittoral; st = subtidal.

^e Uppermost and lowermost occurrences (in meters)

^f c = commensal; cl = coastal lagoon; cr = coral reefs; f = flotsam; m = mangroves; mb = muddy bottom; n = neuston; rb = rocky bottom; rub = rubble bottom;

sb = sandy bottom; sg = seagrass; sh = shells fragments; wc = water column

[§] References are indicated by numbers according to the references list.

Species List 16.3 Caribbean Costa Rica. Species of Anomura

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Family COENOBITIDAE						
<i>Coenobita clypeatus</i> (Herbst, 1791)	Car,WA	n.a.	sp		sb,t	[13, 131, 146]
Family DIOGENIDAE						
<i>Calcinus tibecens</i> (Herbst, 1791)	Car,WA	n.a.	eb	0–33	cr,rb	[18, 131]
<i>Petrochirus diogenes</i> (Linnaeus, 1758)	Car,WA	n.a.	b,eb	18–128	mb, sb, sg, sh	[2, 131, 146]
Family GALATHEIDAE						
<i>Munida flinti</i> Benedict, 1902	WA	n.a.	ep	110–203	wc	[6, 23, 131, present study]
Family PORCELLANIDAE						
<i>Megalobrachium mortenseni</i> Haig, 1962	Car,WA	P	n.a.	>1.5	rb, sb	[57, 131, 135, 136]
<i>Megalobrachium poeyi</i> (Guérin, 1856)	Car,WA	P	st	n.a.	rb, sg	[131, 135, 137]
<i>Megalobrachium roseum</i> (Rathbun, 1900)	Car	P	l	>1.5	rb	[57, 131, 135, 136]
<i>Megalobrachium sortium</i> (Say, 1818)	Car,WA	P	l	n.a.	rb	[131, 135, 136]
<i>Minyocerus angustus</i> (Diana, 1852)	Car,WA	N	n.a.	to 29	c	[54, 131, 135]
<i>Pachycheles cristobalensis</i> Gore, 1970	Car	P	it, st	0–3	cr, rb	[53, 57, 131]
<i>Pachycheles pilosus</i> (H. Milne Edwards, 1837)	Car,WA	n.a.	st	1–3	cr, rb, rub	[131, 135, 137]
<i>Pachycheles serratus</i> (Benedict, 1901)	Car	P	st	0–6	cr	[55, 57, 131, 135]
<i>Petrolisthes armatus</i> (Gibbes, 1850)	Car,EA,WA,	ES,H,P	it, st	0–30	cr, m, mb, rb	[57, 65, 67, 107, 131, 135]
<i>Petrolisthes galathinus</i> (Bosc, 1801)	Car,ETP,WA	ES,P	it,l	0–54	cr, rb, sp	[55, 65, 131, 135]
Family ALBUNEIDAE						
<i>Albunea paretii</i> Guérin-Meneville, 1853	EA,WA	H,P	l	0–38	sb	[11, 131, 146]
<i>Lepidopa luciae</i> Boyko, 2002	Car	n.a.	it	n.a.	sb	[11]
<i>Lepidopa richmondi</i> Benedict, 1903	Car,WA	N	it	0	sb	[11, 32, 33, 131]
Family HIPPIDAE						
<i>Emerita brasiliensis</i> Schmitt, 1935	Car,WA	n.a.	it	0	sb	[32, 35, 131]
<i>Hippa cubensis</i> (de Saussure, 1857)	Car,EA,WA	n.a.	it	0	sb	[2, 32, 131]

^aCar = Caribbean; EA = eastern Atlantic; WA = western Atlantic

^bCA = all Central American countries; ES = El Salvador; H = Honduras, N = Nicaragua; P = Panama

^cb = benthic; eb = epibenthic; ep = epipelagic; it = intertidal; l = littoral; sp = supralittoral; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ec = commensal; cr = coral reefs; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sh = shells; sp = sponges; t = terrestrial

^fReferences are indicated by numbers according to the references list

Species List 16.4 Pacific Costa Rica. Species of Anomura

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
Family COENOBITIDAE								
<i>Coenobita compressus</i> Milne Edwards, 1837								
	ETP	CA		PM, IC	sp		sb, t	[4, 10, 12, 13, 114, 123, 131]
Family DIOGENIDAE								
<i>Allodardanus rugosus</i> Haig & Provenzano, 1965								
	ETP		X	IC type locality	b	70–84	sb	[71, 131]
<i>Aniculus elegans</i> Stimpson, 1859	ETP	ES, P		PM	eb	10.5	cr, rb, rub, sb	[5, 123, 131]
<i>Calcinus explorator</i> Boone, 1930	ETP	n.a.		IC	it	n.a.	rb	[10, 123, 131]
<i>Calcinus obscurus</i> Stimpson, 1859	ETP	ES		PM	it	n.a.	rb, sb	[5, 131]
<i>Cancellus tanneri</i> Faxon, 1893	ETP		X	IC type locality	eb	n.a.	cr dead	[36, 131]
<i>Clibanarius albidigitus</i> Nobili, 1901	ETP	ES, P		PM	it	n.a.	rb	[107, 108, 123, 131]
<i>Clibanarius panamensis</i> Stimpson, 1859	ETP	CA		PM	it	n.a.	rb	[5, 79, 108, 131]
<i>Dardanus sinistriipes</i> (Stimpson, 1858)	ETP	ES, P		PM	b, eb	2–110	rub, sb	[5, 102, 123, 131]
<i>Paguristes bakeri</i> Holmes, 1900	ETP, NEP	n.a.		PM	b, mp	40–232	sb	[83, 108, 123, 131]
<i>Paguristes digueti</i> Bouvier, 1893	ETP	n.a.		PM	b	13–60	sb	[123, 131]
<i>Paguristes fecundus</i> Faxon, 1893	ETP		X	IC type locality	b	120	rb	[36, 131]
<i>Paguristes praedator</i> Glassell, 1937	ETP	n.a.		PM	b	>60	n.a.	[72, 108, 131]
<i>Petrochirus californiensis</i> Bouvier, 1895	ETP	CA		PM	b	0–110	mb, sb	[5, 79, 123, 131]
<i>Trizopagurus magnificus</i> (Bouvier, 1895)	ETP	ES		PM	eb	0–9	cr, mb	[5, 10, 131]
Family LITHODIDAE								
<i>Neolithodes diomedea</i> (Benedict, 1894)								
	ETP, NEP, SEP	n.a.		IC	b	640–2,450	n.a.	[37, 100, 131]

(continued)

Species List 16.4 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		SEP	ETP	IC	Pacific ^c				
<i>Paralomis longipes</i> Faxon, 1893	SEP	n.a.		IC		b	1,000	n.a.	[68, 83, 108, 131, 145]
Family PAGURIDAE									
<i>Catapagurus diomedea</i> Faxon, 1893	ETP	n.a.		IC		n.a.	333	n.a.	[37, 83, 131]
<i>Enallopaguropsis janetae</i> McLaughlin, 1982	ETP		X	IC type locality		b,eb	146	n.a.	[83, 105, 131]
<i>Iridopagurus occidentalis</i> Faxon, 1893	ETP	n.a.		IC		b,eb	22–121	n.a.	[36, 37, 42, 97, 131]
<i>Manucomplanus longimanus</i> (Faxon, 1893)	ETP	n.a.		IC		b,eb	37–121	n.a.	[36, 98, 131]
<i>Pagurus albus</i> (Benedict, 1892)	ETP,NEP	n.a.		PM		b		sb	[9, 83, 123, 131]
<i>Pagurus gladius</i> (Benedict, 1892)	ETP	n.a.		PM		b	36–91	n.a.	[98, 102, 123, 131]
<i>Pagurus lepidus</i> (Bouvier, 1898)	ETP	n.a.		PM		it,eb,sl	0–40	rb,rub	[74, 83, 97, 123, 131]
<i>Pagurus nanodes</i> Haig & Harvey, 1991	ETP	n.a.		PM		it,st	0–3.5	rb,rub	[70, 131]
<i>Pagurus vetaultae</i> Harvey & McLaughlin, 1991	ETP	n.a.		PM		eb,st	1–7	rb	[74, 131]
<i>Pagurus virgulatus</i> Haig & Harvey	ETP	n.a.		PM,IC		n.a.	5–40	n.a.	[70, 131]
<i>Phimochirus californiensis</i> (Benedict, 1892)	ETP	n.a.		PM,IC		l	to 129	n.a.	[72, 104, 131]
<i>Phimochirus roseus</i> Benedict, 1892	ETP	n.a.		PM		it,st	0–3	n.a.	[104, 131]
<i>Phimochirus venustus</i> (Bouvier, 1898)	ETP	n.a.		PM		sl	8–20	n.a.	[104, 131]
<i>Rhodochirus hirtimanus</i> (Faxon, 1893)	ETP	n.a.		IC		n.a.	36–182	n.a.	[37, 104, 131]
<i>Tomopagurus merimaculosus</i> (Glassell, 1937)	ETP	n.a.		PM		n.a.	35–183	n.a.	[103, 131]
<i>Tomopagurus purpuratus</i> (Benedict, 1892)	ETP	n.a.		PM		n.a.	36–274	n.a.	[103, 131]
<i>Xylopagurus cancellarius</i> Walton, 1950	ETP	n.a.		PM		n.a.	>73	wood, holes in <i>Typha</i>	[96, 131]

Family PARAPAGURIDAE									
<i>Parapagurus holthuisi</i> Lemaitre, 1989	ETP,SEP	n.a.	n.a.	n.a.	>200	n.a.	PM	n.a.	[83, 95, 97, 131]
<i>Probeebei mirabilis</i> Boone, 1926	ETP	n.a.	n.a.	n.a.	1,145-3,995	n.a.	IC	n.a.	[8, 131, 145]
Family GALATHEIDAE									
<i>Munida gracilipes</i> Faxon, 1893	ETP	P	ep	mb	280	mb	PM	ep	[37, 82, 97, 131]
<i>Munida obesa</i> Faxon, 1893	ETP	P	eb	mb,sh	333-384	mb,sh	PM	eb	[37, 79, 82, 97, 131]
<i>Munida perlata</i> Benedict, 1902	ETP	n.a.	eb	sb,rb	190-3,292	sb,rb	PM,IC	eb	[37, 82, 108, 131, 146]
<i>Munida refulgens</i> Faxon, 1893	ETP	n.a.	eb	rb,sh	95-183	rb,sh	PM,IC	eb	[37, 82, 131, 145]
<i>Munidopsis albatrossae</i> Pequenat & Pequenat, 1973	ETP	n.a.	n.a.	n.a.	3,570	n.a.	PM	n.a.	[110, 131, 145]
<i>Munidopsis antonii</i> (Filhol, 1884)	cp	n.a.	n.a.	n.a.	2,519-3,676	n.a.	PM	n.a.	[131, 156]
<i>Munidopsis aspera</i> (A. Milne Edwards, 1880)	EP	n.a.	eb	rb,sh	104-2,748	rb,sh	IC	eb	[37, 131, 145]
<i>Munidopsis diomedea</i> (Faxon, 1893)	EP	n.a.	eb	mb	768-3,790	mb	IC	eb	[37, 131, 145]
<i>Munidopsis hamata</i> Faxon, 1893	ETP	P	eb	mb,rb	936-1,337	mb,rb	PM	eb	[37, 131, 145]
<i>Munidopsis nitida</i> Milne Edwards, 1880	ETP,NEP	P	eb	mb	2,030-2,875	mb	IC	eb	[3b, 37, 131, 145]
<i>Munidopsis vicina</i> Faxon, 1893	ETP	P	eb	mb	3,063-3,885	mb	IC	eb	[37, 84, 145]
<i>Pleuroncodes monodon</i> (Milne Edwards, 1837)	ETP,SEP	n.a.	b	mb,sb	172-523	mb,sb	PM	b	[37, 84, 131]
Family PORCELLANIDAE									
<i>Euceramus panatellus</i> Glassell, 1938	ETP	G	st	sb	9-40	sb	PM	st	[65, 131]
<i>Euceramus transversilineatus</i> (Lockington, 1878)	ETP	P	st	mb,rb, sb,sh	4-60	mb,rb, sb,sh	PM	st	[3, 65, 127, 131]
<i>Megalobrachium erosum</i> (Glassell, 1936)	ETP	P	l	mb,rb, sb,sh	9-46	mb,rb, sb,sh	PM	l	[55, 65, 131]
<i>Megalobrachium festai</i> (Nobili, 1901)	ETP	ES,P	n.a.	cr,rb	0-8	cr,rb	PM	n.a.	[55, 131]
<i>Megalobrachium garthi</i> Haig, 1957	ETP	P	l	rb,rb	0-7	rb,rb	PM	l	[64, 65, 131]
<i>Megalobrachium pacificum</i> (Gore & Abele, 1973)	ETP	P	it	rb	0	rb	PM	it	[55, 56, 131]
<i>Megalobrachium tuberculipes</i> (Lockington, 1878)	ETP	n.a.	l	sp	0-20	sp	PM	l	[55, 65, 67, 131]
<i>Neopisosoma bicapillatum</i> Haig, 1960	ETP	n.a.	l	rb	n.a.	rb	PM	l	[65, 131]

(continued)

Species List 16.4 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
<i>Neopisosoma dohenyi</i> Haig, 1960	ETP	P	PM	l	to 8	cr	[131, 138]
<i>Neopisosoma mexicanum</i> (Streets, 1871)	ETP	ES,N	PM	l	n.a.	rb	[65, 107, 108, 131]
<i>Orthochela pumila</i> Glassell, 1936	ETP	P	PM	eb	n.a.	c	[66, 72, 131]
<i>Pachycheles biocellatus</i> (Lockington, 1878)	ETP	P	PM,IC	eb,l	to 26	cr,rb	[55, 65, 131, 138]
<i>Pachycheles calculosus</i> Haig, 1960	ETP	P	PM	eb,l	0-8	cr,rb	[55, 65, 131]
<i>Pachycheles chacei</i> Haig, 1956	Car,ETP	ES,G,P	PM	eb,l	0-8	cr	[55, 63, 67, 131]
<i>Pachycheles panamensis</i> Faxon, 1893	ETP	ES,P	PM	it,l	0-8	cr,rb,mb	[55, 65, 131]
<i>Pachycheles spinidactylus</i> Haig, 1957	ETP	G,P	PM	it,l	0-8	rb,sp	[55, 64, 65, 131]
<i>Pachycheles subsetosus</i> Haig, 1960	ETP	ES	PM	st	10-15	sh	[65, 107, 131]
<i>Pachycheles velerae</i> Haig, 1960	ETP,SEP	n.a.	IC	n.a.	36-121	rb	[65, 73, 131]
<i>Pachycheles vicarious</i> Nobili, 1901	ETP	ES	PM	it,st	0-8	cr,rb	[57, 65, 131, 138]
<i>Petrolisthes agassizii</i> Faxon, 1893	ETP	ES,P	PM	it,st	0-10	cr,rb	[55, 65, 67, 131, 138]
<i>Petrolisthes armatus</i> (Gibbs, 1850)	Car,ETP,WA	ES,P	PM	n.a.	0-30	variety of habitats	[65, 67, 131]
<i>Petrolisthes artifrons</i> Haig, 1960	ETP	ES,P	PM	it,st	0-20	cr,rb	[55, 65, 67, 107, 131, 138]
<i>Petrolisthes cocoensis</i> Haig, 1960	ETP		IC type locality	it	0	rb	[65]
<i>Petrolisthes edwardsii</i> (de Saussure, 1853)	ETP	N,P	PM,IC	it,l	0-40	cr,rb	[55, 65, 67, 131, 138]
<i>Petrolisthes galapagensis</i> Haig, 1960	ETP	n.a.	PM	it,st	0-5	rb	[55, 65, 131]
<i>Petrolisthes galathinus</i> (Bosc, 1801)	Car,WA,ETP	ES,P	PM	it,l	0-54	cr,rb,sp	[55, 65]
<i>Petrolisthes glasselli</i> Haig, 1957	ETP	P	PM,IC	l	0-8	cr	[57, 65, 67, 131]
<i>Petrolisthes haigae</i> Chace, 1962	ETP	P	PM,IC	n.a.	0-12	cr,rb	[24, 55, 131]
<i>Petrolisthes hians</i> Nobili, 1901	ETP	ES,P	PM	l	0-34	cr	[55, 65, 67, 131]

<i>Petrolisthes holotrichus</i> Nobili, 1901	ETP	ES,P	PM	b,l	n.a.	rb	[55, 65, 67, 131]
<i>Petrolisthes lewisi</i> Glassell, 1936	ETP	N,P	PM	b,it	0	rb	[55, 65, 131]
<i>Petrolisthes nobili</i> Haig, 1960	ETP	N,P	PM	b,it	0	rb	[65, 67, 97, 131]
<i>Petrolisthes ortmanni</i> Nobili, 1901	ETP	n.a.	PM,IC	l	0-7	c,cr,rb	[3, 65, 131]
<i>Petrolisthes platymerus</i> Haig, 1960	ETP	P	PM	b,l	n.a.	rb	[55, 65, 67, 131]
<i>Petrolisthes polymytus</i> Glassell, 1937	ETP	n.a.	PM	b,l	0-8	cr,rb,sp	[55, 65, 67, 131]
<i>Petrolisthes robsonae</i> Glassell, 1945	ETP	ES,P	PM	l	0-6	mb,m (leaves)	[55, 65, 67, 131]
<i>Petrolisthes tonsorius</i> Haig, 1960	ETP	N	PM,IC	b,l	0-18	rb	[65, 67, 131]
<i>Petrolisthes tridentatus</i> Stimpson, 1858	Car,WA,ETP	N,P	PM	b,l	n.a.	rb	[55, 65, 67, 131]
<i>Petrolisthes zacae</i> Haig, 1968	ETP	P	PM	b,it	n.a.	mb	[57, 67, 131]
<i>Pisidia magdalenensis</i> (Glassell, 1936)	ETP	ES,P	PM	it,l	0-76	c,cr,rub	[57, 65, 67, 131, 138]
<i>Polyonyx nitidus</i> Lockington, 1878	ETP	P	PM	l,st	6-33	cr,m (leaves on the bottom)	[65, 131, 138]
<i>Porcellana cancrisocialis</i> Glassell, 1936	ETP	P	PM,IC	n.a.	0-108	c	[57, 65, 67, 131]
<i>Porcellana paguriconviva</i> Glassell, 1936	ETP	P	PM,IC	n.a.	0-100	c	[57, 65, 67, 131]
<i>Ulloaia perpusillia</i> Glassell, 1938	ETP	P	PM	n.a.	0-16	c	[57, 65, 131]
Family ALBUNEIDAE							
<i>Albunea lucacia</i> (de Saussure, 1853)	ETP	G,P	PM	n.a.	0-45	sb	[11, 52, 79, 97, 131]
<i>Lepidopa deamae</i> Benedict, 1903	ETP	CA	PM	it	0	sb	[11, 33, 52, 79, 97, 108, 131]
<i>Lepidopa mearnsi</i> Benedict, 1903	ETP	N	PM	it	0	sb	[11, 33, 52, 69, 97, 131]
<i>Lepidopa mexicana</i> Efford, 1971	ETP	P	PM	n.a.	n.a.	sb	[11, 32, 33, 52, 97, 131]
Family HIPPIDAE							
<i>Emerita rathbunae</i> Schmitt, 1935	ETP	CA	PM	it	0	sb	[32, 35, 69, 79, 131]

(continued)

Species List 16.4 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
<i>Hippa pacifica</i> (Dana, 1852)	ETP	CA		PM,IC	it,st	n.a.	sb	[9, 34, 69, 131]
<i>Hippa strigillata</i> (Stimpson, 1860)	ETP	n.a.		PM	it	0	sb	[34, 108, 131]

^aCar = Caribbean; cp = cosmopolitan; EP = eastern Pacific; ETP= eastern tropical Pacific; NEP= northeastern Pacific; SEP= southern eastern Pacific
WA = western Atlantic

^bCA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cPM = Pacific mainland; IC = Isla del Coco

^db = benthic; eb= epibenthic; ep = epipelagic; it = intertidal; l = littoral; mp = mesopelagic; sl = sublittoral; sp = supralittoral; st = subtidal

^eUppermost and lowermost occurrences (in meters)

^fc = commensal; cr = coral reefs; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sh = shells; sp = sponges;
t = terrestrial

^gReferences are indicated by numbers according to the references list

Species List 16.5 Caribbean Costa Rica. Species of Brachyura

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Infraorder BRACHYURA						
Family RANINIDAE						
<i>Raninoides lamarki</i> Milne Edwards & Bouvier, 1923	Car	P	b,eb	45–240	mb,sh	[120, 108]
<i>Raninoides loevis</i> (Latreille, 1825)	Car,WA,ETP	P	b	18–73	variety of habitats	[108, 120, 151]
Family CALAPPIDAE						
<i>Calappa angusta</i> A. Milne Edwards, 1880	WA	n.a.	l	14–210	cr,rb,sh	[120, 151]
<i>Calappa cinerea</i> Holthuis, 1958	Car,WA	n.a.	b	0–10	sb	[94, 108, 151]
<i>Calappa ocellata</i> Holthuis, 1958	WA	n.a.	b	0–80	sb	[94, 108, 151]
<i>Calappa sulcata</i> Rathbun, 1898	WA	n.a.	b	0–183	mb	[94, 108]
<i>Hepatus pudibundus</i> (Herbst, 1785)	EA,WA	n.a.	b,eb	0–49	mb,rb,sh	[94, 108, 151]
Family LEUCOSIIDAE						
<i>Ebalia cartosa</i> (Stimpson, 1860)	Car,WA	n.a.	eb	0–131	cr,rb,sg	[94, 151]
<i>Iliacantha liodactylus</i> Rathbun, 1898	WA,Car	n.a.	b	8–60	mb,sh	[120, 132b]
<i>Persephona punctata punctata</i> Linnaeus, 1758	Car,WA	n.a.	b,eb	14.6	mb,algae	[120, present study]
Family MAJIDAE						
<i>Anasimus latus</i> Rathbun, 1894	WA	n.a.	eb	48–161	cr,rb	[132b, 151]
<i>Chorinus heros</i> (Herbst, 1790)	Car,WA	n.a.	it	4.5–20	cr,rb,sh,sp	[101b, 108, 115]
<i>Epialtus bituberculatus</i> Milne Edwards, 1834	Car,WA	n.a.	it	n.a.	rub,algae	[94, 101b, 108]
<i>Epialtus longirostris</i> Stimpson, 1860	Car,WA	n.a.	l	to 54	calcareous algae	[94, 108]
<i>Eucinetops blakiana</i> Rathbun, 1896	Car,WA	n.a.	n.a.	3	n.a.	[108, 117]
<i>Libinia ferreirae</i> Brito-Capello, 1871	Car,WA	n.a.	l	0–27	mb	[94, 108]
<i>Macroeloma trispinosum nodipes</i> (Desbonne, 1867)	Car,WA	n.a.	l	0–48	cr,rb,sh,sg	[2, 108, 115, 151]
<i>Microphrys bicornutus</i> (Latreille, 1821)	Car,WA	n.a.	eb	0–30	m,cr,sg,algae	[108, 151]

(continued)

Species List 16.5 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
<i>Microphrys interruptus</i> Rathbun, 1920	Car	n.a.	it	0-46	rb,sg	[94, 108]
<i>Mithrax (Mithraculus) coryphe</i> (Herbst, 1801)	Car,WA	P	it,st	0-55	cr,mb,rb,rb,sg,sh	[94, 108, 115]
<i>Mithrax (Mithraculus) forceps</i> (A. Milne Edwards, 1875)	Car,WA	n.a.	it,st	0-90	cr,rb	[108, 151]
<i>Mithrax (Mithrax) pilosus</i> Rathbun, 1892	Car,WA	P	st	5-20	rb	[108, 115, present study]
<i>Mithrax (Mithrax) verrucosus</i> Milne Edwards, 1832	Car,WA	H	it	0	cr,rb	[94, 101b, 108, 115, 151]
<i>Pitho lherminieri</i> (Schramm, 1867)	Car,WA	n.a.	l	1-220	cr,mb,rb,rb,sg,sh	[94, 108, 115, 151]
<i>Stenorhynchus setticornis</i> (Herbst, 1788)	Car,WA	n.a.	l	0-188	cr,rb,sg,rb	[94, 101b, 108, 151]
Family PARTHENOPIDAE						
<i>Parthenope serrata</i> (Milne Edwards, 1834)	Car,NEP	n.a.	it,l	to 110	mb,sh	[94, 115]
Family PORTUNIDAE						
<i>Arenaeus cribarius</i> (Lamarck, 1818)	Car,WA	n.a.	it,st	0-68	sb	[108, 151]
<i>Callinectes bocourti</i> Milne Edwards, 1879	Car,WA	n.a.	st	20	m,mb,sh	[108, 151]
<i>Callinectes larvatus</i> Ordway, 1863	Car,WA	n.a.	it,st	0-15	m,mb,rb,rb,sg	[108, 151]
<i>Callinectes ornatus</i> Ordway, 1863	WA	n.a.	b	0-75	mb,sh	[132b, 151]
<i>Callinectes sapidus</i> Rathbun, 1896	Car,EA,EP,Med,WA	G,P	it,st	0-90	variety of habitats	[151]
<i>Cronius ruber</i> (Lamarck, 1818)	EA,ETP,WA	ES,G,P	l	0-105	cr,rb,sh	[51, 151]
<i>Cronius tumidulus</i> (Stimpson, 1871)	Car,WA	n.a.	st	5-73	cr,rb,sh,sg	[108, 115]
<i>Lupella forceps</i> (Fabricius, 1756)	Car	n.a.	b	13-15	mb,sg	[94, 118, 132b]
<i>Portunus gibbesii</i> (Stimpson, 1859)	WA	n.a.	l	0-393	sh,sh	[101b, 132b, 151]
<i>Portunus spinicarpus</i> (Stimpson, 1871)	WA	n.a.	b,fl	9-550	mb,sh,sg	[132b, 151]
Family XANTHIDAE						
<i>Carpilius corallinus</i> (Herbst, 1783)	Car,WA	n.a.	it,st,eb	0-46	cr,rb,sh	[94, 108, 115]

<i>Catleptodius floridanus</i> (Gibbes, 1850)	Car,WA	n.a.	St,b	0-33	cr,m,mb,rb,sb,sg	[94, 108, 115]
<i>Chionidella longimana</i> (Milne Edwards, 1834)	Car,EA,WA	n.a.	st	5-154	cr,rb	[94, 108, 115]
<i>Ozius reticulatus</i> (Desbonne & Schramm, 1867)	Car	P	it	0	rb	[108, 118]
<i>Xantho denticulatus</i> White, 1848	Car,EA	n.a.	it,st	0-12	cr	[94, present study]
Family GECARCINIDAE						
<i>Cardisoma guanhumi</i> Latreille, 1825	Car,WA	n.a.	c	0	m,t	[13, 94, 125]
<i>Gecarcinus lateralis lateralis</i> (Fremerville, 1835)	Car,ETP,WA	ES,H	c	0	t	[13, 125]
Family GRAPSIDAE						
<i>Armases americanum</i> (de Saussure, 1858)	Car	G,H,P	n.a.	0	t	[1]
<i>Plagusia depressa</i> (Fabricius, 1775)	Car,EA,WA	n.a.	it	0	rb	[94, 108]
<i>Percnon gibbesi</i> Milne Edwards, 1853	Car,EA,ETP,SEP,NEP,WA	P	it,st	0-12	cr,rb	[94, 115, present study]
<i>Sesarma crassipes</i> Cano, 1889	Car,WA	n.a.	n.a.	0	estuary	[1]
Family OCYPODIDAE						
<i>Ocyropde quadrata</i> (Fabricius, 1787)	Car,WA	n.a.	sp	0	sb	[13, 101b, 116]
<i>Uca mordax</i> (Smith, 1870)	Car,EA	G,N	it	0	mb	[31, present study]
<i>Ucidus cordatus cordatus</i> (Linnaeus, 1763)	Car,EA	n.a.	it	0	m,mb	[13, 116]

^aCar = Caribbean; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; ETP = eastern tropical Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; NEP = northeastern Pacific; RS = Red Sea; SEP = southern eastern Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cIC = Isla del Coco; PM = Pacific mainland

^db = benthic; c = coastal; eb = epibenthic; fl = floating; it = intertidal; l = littoral; sp = supralittoral; st = subtidal; t = terrestrial

^eUppermost and lowermost occurrences (in meters)

^fcl = coastal lagoons; cr = coral reefs; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass;

sh = shells fragments; sp = sponges; t = terrestrial

^gReferences are indicated by numbers according to the reference list

Species List 16.6 Pacific Costa Rica. Species of Brachyura

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Infraorder BRACHYURA							
Family DROMIIDAE							
<i>Hypoconcha panamensis</i> Smith, 1869	ETP	P	PM	b,eb	2–183	cr.mb.sb.sh, algae	[120, 46, 132]
Family DYNOMENIDAE							
<i>Dynomene ursula</i> Stimpson, 1860	ETP	N,P	PM,IC	b,eb	0–130	mb.rb.rub.sb.sh	[46, 108]
Family RANINIDAE							
<i>Ranilla fornicata</i> Faxon, 1893	ETP		IC	b	13–183	cr.mb.sb	[36, 37, 80, 120]
<i>Raninoides benedicti</i> Rathbun, 1935	ETP	P	PM	b,eb	4–48	sh	[115, 120, 132]
Family DORIPPIDAE							
<i>Ethusa ciliatifrons</i> Faxon, 1893	ETP	P	PM	b	24–410	mb.sb	[46, 76, 132]
<i>Ethusa lata</i> Rathbun, 1893	ETP	P	PM,IC	b,eb	28–115	variety of habitats	[46, 76, 102, 120, 132]
<i>Ethusa panamensis</i> Finnegan, 1931	ETP	ES,N,P	PM	b,eb	3.5–63	variety of habitats	[46, 76, 80, 120, 132]
<i>Ethusina robusta</i> (Miers, 1886)	ETP,IP	n.a.	PM	b	460–3,260	mb	[80]
<i>Ethusina smithiana</i> Faxon, 1893	ETP	n.a.	IC	b	245	rub.sb	[37, 79b, 120, 145]
Family CALAPPIDAE							
<i>Acanthocarpus delsolari</i> Garth, 1973	ETP	n.a.	PM	b	93–250	mb	[48, 108, 132]
<i>Calappa convexa</i> Saussure, 1853	ETP	P	PM,IC	b,eb	0–58.5	cr.rb.rub.sb.sh	[46, 80, 120, 132, 157]
<i>Calappa saussurei</i> Rathbun, 1898	ETP	N,P	PM,IC	b,eb	13–275	sb.rub	[46, 80, 120, 132, 157]
<i>Cryptosoma bairdii</i> Rathbun, 1898	ETP,WA	P	PM,IC	b,eb	2.7–229	n.a.	[80, 94, 120, 132, 157]
<i>Hepatus kossmanni</i> Neumann, 1878	ETP	ES,G,P	PM	b	3.5–46	mb	[46, 80, 102, 120, 132]

<i>Osachila kaiserae</i> Zimmerman & Martin, 1999	ETP	P	PM,IC	n.a.	2-219	rb, rub, sb	[46, 108, 157]
<i>Platymera gaudichaudii</i> (Milne Edwards, 1837)	EA,ETP,NEP,SEP	P	PM	b,eb	22-399	mb, sb, sh	[46, 80, 108]
Family LEUCOSIIDAE							
<i>Ebalia clarionensis</i> Rathbun, 1935	ETP	n.a.	IC	b	55-100	rub, sb	[157]
<i>Ebalia magdalenensis</i> Rathbun, 1933	ETP	n.a.	PM	b,eb	3.6-33	mb, sb, sh	[46, 120]
<i>Iliacantha Hancocki</i> Rathbun, 1935	ETP	P	PM	b,eb	9-73	mb, rb, sb, sh, algae	[46, 102, 120, 132]
<i>Iliacantha schmitti</i> Rathbun, 1935	ETP	P	PM	b,eb	18-275	mb, rb, sb, sh, algae	[46, 120, 132]
<i>Leucosilia jurinei</i> (Saussure, 1853)	ETP	N,P	PM	eb	n.a.	algae <i>Spyridia filamentoza</i>	[46, 80, 120]
<i>Lithadia cumingii</i> Bell, 1855	ETP	ES,P	PM	b,eb	3.6-93	mb, rub, sb, sh	[46, 80, 132]
<i>Persephona orbicularis</i> Bell, 1855	ETP	P	PM	b	30-40	mb	[108, 132]
<i>Persephona subovata</i> (Rathbun, 1898)	ETP	P	PM	b,eb	36-93	mb, sb, sh	[120]
<i>Persephona townsendi</i> (Rathbun, 1893)	ETP	CA	PM	b,eb	3.5-104	mb, sb, sh, man-grove leaves	[46]
<i>Randallia agaricias</i> Rathbun, 1898	ETP	CA	PM	b,eb	5.5-100	mb, rb, sb, sh, algae	[46, 120, 132]
<i>Randallia bulligera</i> Rathbun, 1898	ETP	CA	PM	b	3.6-55	mb, rb	[120, 132]
<i>Randallia minuta</i> Rathbun, 1935	ETP	P	PM type locality	b,eb	18-64	rb, sb, algae	[46, 120, 132]
<i>Uhlias ellipticus</i> Stimpson, 1871	ETP	P	PM	eb	0-2	cr	[46, 80, 108]
Family MAJIDAE							
<i>Acanthonyx petiverii</i> Milne Edwards, 1834	ETP,WA	N,P	PM	l	to 30	cl, cr, algae	[81]
<i>Ala cornuta</i> (Stimpson, 1860)	ETP	P	PM	l	to 22	cl, cr, mb, rb, sb	[81]
<i>Collodes granosus</i> Stimpson, 1860	ETP	G,P	PM	b	3.5-55	mb, sb	[81]
<i>Collodes robsonae</i> Garth, 1958	ETP	ES,P	PM	n.a.	30-55	mb, sb, sh	[44, 108]
<i>Collodes tenuirostris</i> Rathbun, 1893	ETP	P	PM	b	5.5-265	mb, sb, algae	[44, 81]
<i>Epialtus sulcirostris</i> Stimpson, 1860	ETP	n.a.	PM	it,l	0-5	rb, on <i>Sargassum liebmanni</i>	[43, 81, 108]

(continued)

Species List 16.6 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Eucinotops panamensis</i> Rathbun, 1923	ETP	P	PM	it	0	rb	[43, 81]
<i>Eupleurodon trifurcatus</i> Stimpson, 1871	ETP	n.a.	PM	it	0	rb	[43, 81, 108]
<i>Euprognatha bifida</i> Rathbun, 1893	ETP	P	PM,IC	l	2–175	mb,rub,sb	[43, 81]
<i>Euprognatha granulata</i> Faxon, 1893	ETP	n.a.	IC	l	95	mb,rub,sb	[36, 37, 43]
<i>Hemus finneganae</i> Garth, 1958	ETP	P	PM	l	0–59	cr,mb,rb,sb	[43, 81]
<i>Herbstia pubescens</i> Stimpson, 1871	ETP	P	PM	st	4–10	cr	[43, 81]
<i>Herbstia tumida</i> (Stimpson, 1871)	ETP	P	PM,IC	l	0–92	cr,rb,sb	[43, 81, 132]
<i>Inachoides laevis</i> Stimpson, 1860	ETP	G,N,P	PM	l	3–102	mb,sb	[43, 81]
<i>Lissa aurivilliusi</i> Rathbun, 1898	ETP	P	PM	l	3.5–128	rub,sb,sh	[43, 81]
<i>Lissa tuberosa</i> Rathbun, 1898	ETP	P	IC	l	0–86	sb,rb,rub	[43, 81]
<i>Macrocoeloma maccullochia</i> Garth, 1940	ETP	n.a.	PM	st	4–80	rb,sb,sh, coralline algae	[43, 81]
<i>Maiopsis panamensis</i> Faxon, 1893	EP	P	PM	eb	7.5–335	mb,rb,sb	[81, 102, 132]
<i>Microphrys branchialis</i> Rathbun, 1892	ETP	P	PM	eb	9–90	cr,mb,rb,sb	[43, 44, 81]
<i>Microphrys platysoma</i> (Stimpson, 1860)	ETP	P	PM	l	0–73	cr,rb,sb	[43, 44, 81]
<i>Mithrax (Mithrax) armatus</i> de Sausure, 1853	ETP	N,P	PM	it	0	cr,rb, brown algae	[43, 81]
<i>Mithrax denticulatus</i> Bell, 1835	ETP,NEP	P	PM,IC	it	0–24	cr,rb, algae	[30, 43, 81]
<i>Mithrax pygmaeus</i> Bell, 1835	ETP	P	PM	it,st	0–46	cr,sb	[43, 44, 81]
<i>Mithrax spinipes</i> (Bell, 1835)	ETP	n.a.	IC	l	0–295	cr,mb,rb,sb	[43, 81]
<i>Mithrax tuberculatus</i> Stimpson, 1860	ETP	P	PM	it,l,st	0–46	cr,rb,sb	[43, 81]
<i>Notolopas lamellatus</i> Stimpson, 1860	ETP	ES,G,N,P	PM	it,st	0–36	mb,sb	[43, 44, 81, 117]
<i>Paradasygius depressus</i> (Bell, 1835)	ETP	P	PM	l	9–146	mb,sb	[43, 44, 81]
<i>Pelia pacifica</i> A. Milne Edwards, 1857	ETP	N,P	PM	it	0–4	cr,rb	[43, 81]

<i>Pelia tuberculata</i> (Wicksten, 1987)	ETP	P	PM	eb	48	mb,rb	[3, 144b]
<i>Pitho picteri</i> (de Saussure, 1853)	ETP	N,P	PM	l	0-82	cr,mb,rb,sb	[43, 81]
<i>Pitho quinqueidentata</i> Bell, 1835	ETP	P	PM	it,st	0-37	cr,rb,sb,algae	[44]
<i>Pitho sexdentata</i> Bell, 1835	ETP	n.a.	PM	it,st	0-36	cr,mb,rb,sb	[43, 81]
<i>Podochela angulata</i> Finnegan, 1931	ETP	P	PM	l	9-64	mb,sb,sh	[44, 108]
<i>Podochela hemphilli</i> (Lockington, 1877)	EA,ETP,NEP	P	IC	l	0-166	mb,rb,sb	[43, 81]
<i>Podochela veleronis</i> Garth, 1948	ETP	P	PM	st	2-27	mb, associated with algae <i>Ulva</i>	[43, 81]
<i>Podochela ziesenhenni</i> Garth, 1940	ETP	P	PM	st	7-18	mb,rb,sb	[43, 81]
<i>Pyromaita tuberculata</i> (Lockington, 1877)	ETP,NEP	G,P	PM	l	0-412	mb,rb,sb	[43, 81]
<i>Sphenocarcinus agassizi</i> Rathbun, 1893	ETP	P	PM,IC	l	55-175	mb,rb,sb	[43, 81, 132]
<i>Stenocionops ovata</i> (Bell, 1835)	ETP	P	PM,IC	l	15-275	sb	[81]
<i>Stenorhynchus debilis</i> (Smith, 1871)	ETP,SEP	N,P	PM,IC	l	0-145	mb,rb,sb,sh	[43, 81]
<i>Teleophrys cristulipes</i> Stimpson, 1860	ETP	P	PM,IC	l	0-128	cr,rb	[43, 81]
<i>Thoe sulcata panamensis</i> Nobili, 1901	ETP	N,P	PM	it	0-45	cr,rb	[30, 43]
<i>Tyche lamellifrons</i> Bell, 1835	ETP	P	PM	it,st	0-100	cr,rb,sb,algae	[43, 81]
Family AETHRIDAE							
<i>Aethra scutata</i> Smith, 1869	ETP	P	PM,IC	it,st	0-34	rb,rb,sb	[157]
Family PARTHENOPIDAE							
<i>Celatespia hassleri</i> (Rathbun, 1925)	ETP	P	PM,IC	st	3.6-78	mb,rb,sb	[37, 43, 81]
<i>Heterocrypta colombiana</i> Garth, 1940	ETP	n.a.	PM	st	3-27.5	cr,rb,sb	[43]
<i>Heterocrypta macrobrachia</i> Stimpson, 1871	ETP	ES,G,P	PM	st	3.6-75	mb,rb,sb	[43, 81]
<i>Leiolambrus punctatissimus</i> (Owen, 1839)	ETP	P	PM	l	22-112	mb,sb	[43, 44, 81]

(continued)

Species List 16.6 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Parthenope depressuscula</i> (Stimpson, 1871)	ETP	P	PM	st	3.5–54	cr,mb,sh	[43, 44, 81]
<i>Parthenope exilipes</i> (Raithbun, 1893)	ETP	P	PM,IC	l	22–160	cr,mb,sh,sh	[43, 44, 81]
<i>Parthenope hyponca</i> (Stimpson, 1871)	ETP	N,P	PM	st	4–80	mb,sh	[43, 44, 81]
<i>Parthenope stimpsoni</i> Garth, 1958	ETP	P	PM	st	3–58	cr,mb,rb,sh,sh	[43, 81]
<i>Solenolambus arcuatus</i> Stimpson, 1871	ETP	G,P	PM,IC	st,l	2.5–110	cr,mb,rb,sh,sh	[43, 44, 81, 157]
<i>Thyrolambus glasselli</i> Garth, 1958	ETP	P	PM,IC	b	3.5–70	cr,rb,rub,sh	[43, 81]
<i>Thyrolambus verrucibrachium</i> Zimmerman & Martin, 1999	ETP	P	PM,IC	st	3.5–70	cr,sh,sh	[43, 81, 117, 157]
Family DALDORFIIDAE							
<i>Daldorfia garthi</i> Glassell, 1940	ETP	N, P	PM,IC	it,st	0–22	cr,rb	[43, 44, 81, 157]
<i>Mesorhoa belli</i> (Milne Edwards, 1878)	ETP	n.a.	PM	l	11–110	mb,sh	[43, 44, 81]
Family DAIRIDIDAE							
<i>Daira americana</i> Stimpson, 1860	ETP	P	PM	it,st	0	cr,rb	[30, 118]
Family CANCRIDAE							
<i>Cancer johngarthi</i> (Carvacho, 1989)	ETP	p	PM	b	90–523	mb	[132]
Family PORTUNIDAE							
<i>Arenaeus mexicanus</i> (Gerstaecker, 1856)	ETP	ES,N,P	PM,IC	it,st	0–80	rb,sh,sg	[51, 79b]
<i>Callinectes arcuatus</i> Ordway, 1863	ETP	CA	PM	it,st	0–40	variety of habitats	[51, 79b, 150]
<i>Callinectes toxotes</i> Ordway, 1863	ETP	ES,N,P	PM	it,st	0–30	cl,estuary	[51, 79b, 150]
<i>Cronius rubber</i> (Lamarck, 1818)	EA,ETP,WA	ES,H,G,P	PM	l	0–105	cr,rb,sh	[51, 151]
<i>Euphyllax dovii</i> Stimpson, 1860	ETP	P	PM,IC	b, pelagic	0–64	n.a.	[51, 79b]
<i>Euphyllax robustus</i> Milne Edwards, 1874	ETP	P	PM	b	10–66	mb,sh	[51, 79b]
<i>Portunus acuminatus</i> (Stimpson, 1871)	ETP	G,N,P	PM	n.a.	9–55	cr,mb,sh,sh	[51]
<i>Portunus asper</i> (Milne Edwards, 1861)	ETP	ES,G,N,P	PM	b	to 110	cr,mb,rb,sh,sh	[51]
<i>Portunus brevimanus</i> (Faxon, 1895)	ETP	n.a.	IC	b	to 110	rb,sh	[51]

<i>Portunus iridescens</i> (Rathbun, 1893)	ETP	P	PM	b	13-274	mb, sb	[51]
<i>Portunus tuberculatus</i> (Stimpson, 1860)	ETP	G,P	PM	b	0-82	cr, mb, rb, sb, sh	[51]
<i>Portunus xantussi affinis</i> (Faxon, 1893)	ETP	ES, G, P	PM, IC	b, eb	10-270	cr, mb, rb, sb, sh	[51]
Family XANTHIDAE							
<i>Catleptodius taboganus</i> (Rathbun, 1912)	ETP	P	PM	it	0	rb	[30, 79b, 118]
<i>Cycloxanthops vittatus</i> (Stimpson, 1860)	ETP	P	PM	it	0	cr, rb	[30, 118]
<i>Domecia hispida</i> Eydoux & Souleyet, 1842	ETP, IP, Med	P	PM	st	5-8	cr, rb	[30, 115, 118]
<i>Edwardisium lobipes</i> (Rathbun, 1898)	ETP	P	PM	eb	7-273	mb, rub, sb, sh	[45, 60]
<i>Epixanthus tenuidactylus</i> (Lockington, 1877)	ETP	N, P	PM	it	0	rb	[30, 118]
<i>Eriphia squamata</i> Stimpson, 1859	ETP, SEP	N, P	PM, IC	it	0	rb	[30, 118]
<i>Eriphides hispida</i> (Stimpson, 1860)	ETP	N, P	PM	it	0	rb	[30, 118]
<i>Eurypanopeus planus</i> (Smith, 1869)	ETP	N, P	PM	it	0	rb, sb	[30, 118]
<i>Eurypanopeus transversus</i> (Stimpson, 1860)	ETP	ES, N, P	PM	it	0	m, mb, sb	[30, 118]
<i>Eurytium tristanti</i> Rathbun, 1906	ETP	ES, P	PM	it	0	m, mb	[3, 30, 45, 118]
<i>Globopilumnus xantusii</i> (Stimpson, 1860)	ETP	n.a.	PM	st	n.a.	cr	[30, 47]
<i>Glyptoplax pugnax</i> Smith, 1870	ETP	P	PM	n.a.	n.a.	n.a.	[79b, 116]
<i>Heteractaea lunata</i> (Milne Edwards & Lucas, 1843)	EA, ETP, NEP, SEP	P	PM	it, st	0-18	cr, rb	[30, 118]
<i>Hexapanopeus costaricensis</i> Garth, 1940	ETP	P	PM	st	5-20	mb, rub, sb, sh	[45]
<i>Hexapanopeus orcutti</i> Rathbun, 1930	ETP	ES, N	PM	st	4-27	cr, mb, rub, sb, sh	[45, 118]
<i>Hexapanopeus sindoensis</i> Rathbun, 1930	ETP	N, P	PM	st	3.5-29	mb, rub, sb	[45, 118]
<i>Jonesius triunguiculatus</i> (Borradaile, 1903)	ETP, IP	n.a.	PM	st	3.5-6	cr	[49, 50]

(continued)

Species List 16.6 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Lionera cincinmanus</i> (White, 1847)	ETP,IP	n.a.	PM	st,eb	5–8	cr	[30, 108, 118]
<i>Lophopanopeus maculatus</i> Rathbun, 1898	ETP	n.a.	PM	eb	2–128	cr	[45, 118]
<i>Lophoxanthus lamellipes</i> (Stimpson, 1860)	ETP	P	PM	it,st	n.a.	cr,rb	[30, 118]
" <i>Medaeus</i> " <i>spinulifer</i> (Rathbun, 1898)	ETP	n.a.	PM	eb	to 133.5	sb	[30, 60, 62, 118]
<i>Menippe obtusa</i> Stimpson, 1859	ETP	N,P	PM	it	0	rb,sb	[30, 118]
<i>Metoparcinus concavatus</i> Crane, 1947	ETP	ES	PM	it	0	rb	[30]
<i>Microcassiope xantusii</i> (Stimpson, 1871)	ETP	n.a.	PM	st	2–8	cr,rb	[30, 62, 118]
<i>Nanocassiope polita</i> (Rathbun, 1893)	ETP	P	IC	eb	55–274	mb,rb,rb,sb	[37, 45, 60, 118]
<i>Ozius perlatus</i> Stimpson, 1860	ETP	P	PM	it	0	rb	[30, 118]
<i>Ozius verreauxii</i> Saussure, 1853	ETP	P	PM	it	0	rb,sb	[30, 118]
<i>Panopeus chilensis</i> Milne Edwards & Lucas, 1844	ETP	N,P	PM	it	0	sb	[3, 118]
<i>Panopeus mirafloresensis</i> Abele & Kim, 1989	ETP	P	PM	it	0	m	[3, present study]
<i>Panopeus purpureus</i> Lockington, 1877	ETP	n.a.	PM	it	0	m,mb,rb	[45]
<i>Paractaea sulcata</i> (Stimpson, 1860)	ETP	P	PM	eb	5–27	cr,rb	[30, 108, 118]
<i>Pilumnus fernandezii</i> Garth, 1973	ETP	n.a.	PM	n.a.	80–180	n.a.	[48]
<i>Pilumnus gonzalensis</i> Rathbun, 1893	ETP	n.a.	PM	n.a.	n.a.	n.a.	[79b]
<i>Pilumnus pygmaeus</i> Boone, 1927	ETP	n.a.	PM	it	0	rb	[30, 45, 118]
<i>Pilumnus stimpsonii</i> Miers, 1871	ETP	n.a.	PM	st	4–11	rb	[45, 118]
<i>Pilumnus townsendi</i> (Rathbun, 1923)	ETP	n.a.	PM	n.a.	24–288	mb,sb,sh	[108, 118]
<i>Platyactaea dovii</i> (Stimpson, 1871)	ETP	ES,P	PM	it	0–55	cr	[30, 108, 118]
<i>Platypodiella rotundata</i> (Stimpson, 1860)	ETP	n.a.	PM	it	0	rb	[108, 118]

<i>Quadrella nitida</i> Smith, 1869	ETP	P	PM,IC	b	10–137	sb, gorgonians	[45, 108, 118]
<i>Trapezia corallina</i> Gerstaecker, 1857	ETP	P	PM	it,st		cr	[22]
<i>Trapezia digitalis</i> Latreille, 1828	ETP,IP,Med,RS	P	PM	it,st	1–6	cr	[22, 30]
<i>Trapezia ferruginea</i> Latreille, 1825	ETP,IO,IP,RS,	P	PM	it,st	1–6	cr	[22, 30]
<i>Trapezia formosa</i> Smith, 1869	ETP	P	PM	it,st	n.a.	cr	[22]
<i>Xanthodius sternberghii</i> Stimpson, 1859	ETP	N,P	PM	it	0	rb	[30, 108, 118]
<i>Xanthodius stimpsoni</i> (Milne Edwards, 1879)	ETP	N,P	PM	it	0	rb	[30, 45]
Family GONEPLACIDAE							
<i>Chasmocarcinus latipes</i> Rathbun, 1898	ETP	ES,P	PM	b	24–93	mb, sb, sh	[45]
<i>Malacoplax californiensis</i> (Lockington, 1877)	ETP	n.a.	PM	b	11–27	mb, sb, sh,	[45, 62]
<i>Pseudorhombila xanthiformis</i> Garth, 1940	ETP	n.a.	PM	b	74–110	mb, sh	[45, 61]
<i>Oediplax granulata</i> Rathbun, 1893	ETP	n.a.	PM	b	60	mb	[102, 108]
<i>Prionoplax ciliata</i> Smith, 1870	ETP	ES,N,P	PM	b	7–9	mb	[45, 61]
<i>Speocarcinus granulimanus</i> Rathbun, 1893	ETP	ES	PM	b	7–60	mb, sb, sh	[45, 102, 116]
Family GECARCINIDAE							
<i>Cardisoma crassum</i> Smith, 1870	ETP	ES,P	PM	c	0-land	m,t	[12, 13, 125]
<i>Gecarcinus lateralis quadratus</i> de Saussure, 1853	ETP	ES,N,P	PM	c	0-land	m,t	[12, 13, 125]
<i>Gecarcinus (Johngarthia) planatus</i> Stimpson, 1898	ETP	n.a.	IC	c	0-land	rb,t	[13, 125, present study]
Family GRAPSIDAE							
<i>Aratus pisonii</i> (Milne Edwards, 1837)	Car,ETP,WA	N	PM	it	0	m	[30, 116]
<i>Armases angustatum</i> (Smith, 1870)	ETP	P	IC	c	n.a.	t	[1]
<i>Armases occidentale</i> (Smith, 1870)	ETP	ES,P	PM	c	n.a.	t	[1]

(continued)

Species List 16.6 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Geograpsus lividus</i> (Milne Edwards, 1837)	Car,ETP,NEP,SEP, WA,WP	ES	PM	it	0	ct,rb,sb	[30, 116]
<i>Glyptograpsus impressus</i> Smith 1870	ETP	ES,P	PM	n.a.	n.a.	n.a.	[3, 108, 116]
<i>Goniopsis pulchra</i> (Lockington, 1876)	ETP	N,P	PM	it	0	m	[30, 116]
<i>Grapsus grapsus</i> (Linnaeus, 1758)	Car,EA,ETP,NEP, SEP,WA	ES,N,P	PM	it	0	rb	[30, 116]
<i>Pachygrapsus transversus</i> (Gibbes, 1850)	ct	ES,N,P	PM	it	0	m,mb,rb,sb	[30, 94]
<i>Percnon gibbesi</i> Milne Edwards, 1853	Car,EA,ETP,NEP, SEP,WA	P	PM	it,st	0–12	ct,rb	[94, 115,present study]
<i>Plagusia immaculata</i> Lamarek, 1818	IP,ETP	P	PM,IC	n.a.	n.a.	n.a.	[79b, 116]
<i>Sesarma aequatoriale</i> Ortman, 1894	ETP	P	PM type locality	n.a.	n.a.	m	[1]
<i>Sesarma rhizophorae</i> Rathbun, 1906	ETP	P	PM	n.a.	n.a.	m	[1, 30]
<i>Sesarma rubinofforum</i> Abele, 1972	ETP	P	PM	n.a.	n.a.	m	[1]
<i>Sesarma sulcatum</i> Smith, 1870	ETP	N,P	PM	n.a.	n.a.	m,rb,sb	[1, 30]
Family PINNOTHERIDAE							
<i>Glassella costaricana</i> (Wicksten, 1982)	ETP	n.a.	PM	it	0	rb,sb	[19, 20, 141, 142]
<i>Chlypeasterophilus ususfractus</i> Griffith, 1987	ETP	P	PM type locality	n.a.	80–120	commensal	[17, 59]
<i>Parapinnixa corresi</i> Thoma, Heard & Vargas, 2005	ETP	n.a.	IC	it	0	commensal	[124b]
<i>Pinnixia valerii</i> Rathbun, 1931	ETP	n.a.	PM	it	n.a.	estuary	[119, 142]
<i>Juxtafabia mulinarianum</i> (Rathbun, 1918)	ETP	n.a.	PM	n.a.	n.a.	commensal	[16, 21, 58]
Family OCYPODIDAE							
<i>Ocyopode gaudichaudii</i> Milne Edwards & Lucas, 1843	ETP,SEP	ES,N,P	PM	it	0	sb	[13, 14, 116]

<i>Ocyropsis occidentalis</i> Stimpson, 1860	ETP	n.a.	PM	it	0	sb	[13, 14, 116]
<i>Uca argillicola</i> Crane, 1941	ETP	P	PM	it	0	m,mb	[31]
<i>Uca battuena</i> Crane, 1941	ETP	ES,P	PM	it	0	m,mb	[31]
<i>Uca beebii</i> Crane, 1941	ETP	ES,N,P	PM	it	0	mb, sb	[31]
<i>Uca brevifrons</i> (Stimpson, 1860)	ETP	ES,N,P	PM, IC	it	0	mb	[31, 114]
<i>Uca deichmanni</i> Rathbun, 1935	ETP	P	PM	it	0	mb, rb, sb	[31]
<i>Uca galapagensis herradurensis</i> Bott, 1954	ETP	ES,N,P	PM	it	0	m	[31]
<i>Uca heteropleura</i> (Smith, 1870)	ETP	ES,P	PM	it	0	mb	[31]
<i>Uca inaequalis</i> Rathbun, 1935	ETP	ES,N,P	PM	it	0	m,mb	[31]
<i>Uca latimanus</i> (Rathbun, 1893)	ETP	ES,N,P	PM	it	0	m,mb, sb	[31]
<i>Uca limicola</i> Crane, 1941	ETP	ES,P	PM	it	0	mb	[31]
<i>Uca maracoani insignis</i> (Milne Edwards, 1852)	ETP	ES,N,P	PM	it	0	mb, sb	[31, 116]
<i>Uca musica tersichores</i> Crane, 1941	ETP	N,P	PM	it	0	mb, sb	[31]
<i>Uca oerstedii</i> (Rathbun, 1904)	ETP	ES,N	PM	it	0	mb, sb	[31]
<i>Uca ornata</i> (Smith, 1870)	ETP	P	PM	it	0	mb	[31]
<i>Uca panamensis</i> (Stimpson, 1859)	ETP	ES,N,P	PM, IC	it	0	rb, sb	[31]
<i>Uca princeps princeps</i> (Smith, 1870)	ETP	ES,N,P	PM	it	0	m,mb, sb	[31]
<i>Uca pygmaea</i> Crane, 1941	ETP	n.a.	PM	it	0	mb	[31]
<i>Uca saltitanta</i> Crane, 1941	ETP	ES,P	PM	it	0	mb	[31]
<i>Uca stenodaetylus</i> (Milne Edwards & Lucas, 1847)	ETP	ES,N,P	PM	it	0	mb, sb	[31]
<i>Uca styliifera</i> (Milne Edwards, 1852)	ETP	ES,N,P	PM	it	0	mb	[31]
<i>Uca tenuipedis</i> Crane, 1941	ETP	n.a.	PM	it	0	m,mb	[31]
<i>Uca thayeri umbratila</i> Crane, 1941	ETP	ES,P	PM	it	0	mb	[31]
<i>Uca tomentosa</i> Crane, 1941	ETP	ES	PM	it	0	mb, sb	[31]
<i>Uca vocator ecuadoriensis</i> Maccagno, 1928	ETP	N,P	PM	it	0	mb	[31]

(continued)

Species List 16.6 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
<i>Uca zoeae</i> Crane, 1941	ETP	ES,N	PM	it	0	m,mb,sb	[31]
<i>Ucidis cordatus occidentalis</i> (Ortmann, 1897)	ETP,SEP	ES	PM	it	0	m,mb	[13, 14, 116]
Family PALICIDAE							
<i>Palicus fragilis</i> Rathbun, 1893	ETP	n.a.	IC	b	106–130	rb, calcareous algae	[37, 116]
<i>Palicus tuberculatus</i> (Faxon, 1893)	ETP	P	PM	b	192–280	rb,sh	[37, 108]
Family CRYTOCHIRIDAE							
<i>Opearcinus crescentus</i> (Edmondson, 1925)	ETP,WP	n.a.	PM	st	0–14	cr	[49, 92]
<i>Haplocarcinus marsupialis</i> Stimpson, 1859	ETP,IP,RS,WP	n.a.	PM	st	1–27	cr	[93, present study]

^aCar = Caribbean; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; ETP = eastern tropical Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; NEP = northeastern Pacific; RS = Red Sea; SEP = southern eastern Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cIC = Isla del Coco; PM = Pacific mainland

^db = benthic; c = coastal; eb = epibenthic; fl = floating; it = intertidal; l = litoral; sp = supralittoral; st = subtidal; t = terrestrial

^eUppermost and lowermost occurrences (in meters)

^fcl = coastal lagoons; cr = coral reefs; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; sh = shells fragments; t = terrestrial

^gReferences are indicated by numbers according to the references list

Species List 17.1 Mysida reported from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class MALACOSTRACA,						
Order MYSIDA						
Family MYSIDAE						
<i>Bowmaniella dissimilis</i> (Coifmann, 1937)	Car,WA	P	b,eb,it,st,	1-4	sb	[2, 4]

^a Car = Caribbean; WA = western Atlantic

^b P = Panama

^c b = benthic; eb = epibenthic; it = intertidal; st = subtidal

^d Uppermost and lowermost occurrences (in meters)

^e sb = sandy bottom

^f References are indicated by numbers according to the reference list

Species List 17.2 Mysida reported from the Pacific coast of Costa Rica

Species	World Distribution ^a	Costa Rica		Oceanic Distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
		Central America ^b	Endemic Pacific ^c				
Class MALACOSTRACA,							
Order MYSIDA							
Family MYSIDAE							
<i>Antromysis anophelinae</i> W.M. Tattersall, 1951	EP		X	PM	water line	c**	[7]
* <i>Bowmanella banneri</i> Băcescu, 1968	EP			PM	surf	sb	[1, 3, 5]
<i>Heteromysis panamaensis</i> O.S.Tattersall, 1967	EP	P		PM	7-12	sb,c***	[6]
<i>Metamysidopsis</i> sp.	Car,EP,WA			PM	surf	sb	[3]

* Dexter (1974) reported *Bowmanella* spp. A, B, and C. Examination of specimens deposited in the United States National Museum revealed that all three forms are *B. banneri*

** This species was collected from burrows of the land crab *Cardisoma crassum*

*** Some specimens were collected from gastropod shells occupied by hermit crabs

^a Car = Caribbean; EP = eastern Pacific; WA = western Atlantic

^b P = Panama

^c PM = Pacific mainland

^d b = benthic; eb = epibenthic; it = intertidal; st = subtidal; sut = supratidal

^e Uppermost and lowermost occurrences (in meters)

^f c = commensal; sb = sandy bottom

^g References are indicated by numbers according to the reference list

Species List 18.1 Cumaceans from the Caribbean waters of Costa Rica

Species	World distribu- tion ^a	Central America ^b	Oceanic distribu- tion ^c	Depth (m) ^d	Habitat/ Communi- ty ^e	References ^f
Subphylum CRUSTACEA						
Class MALACOSTRACA						
Order CUMACEA						
Family BODOTRIIDAE						
Subfamily BODOTRIINAE						
<i>Cyclaspis jonesi</i> (*) Roccatagliata, 1985	EP,WA		b,ep,hpl	1–2	sb	[13]**
<i>Cyclaspis pustulata</i> (*) Zimmer, 1943a	EP,WA		b,ep,hpl	1–2	sb	[14, 2]**
Subfamily VAUNTHOMSONIINAE						
<i>Vaunthompsonia cf. cristata</i> Bate, 1856	Car,WA	B	b,ep,hpl	2–50	sb	[9]**
Family NANNASTACIDAE						
<i>Cumella biserrata</i> (*) Petrescu, 2002	Car	B	b,ep,hpl	1–2	cr	[9]**
<i>Cumella clavicauda</i> Calman, 1911	Car,WA		b,ep,hpl	2–50	cr	[9]
<i>Cumella garrityi</i> (*) Băcescu & Muradian, 1977	Car,EP,WA	B	b,ep,hpl	1–2	cr	[5, 9]**
<i>Cumella gomoiui</i> (*) & Muradian, 1977	Car,EP,WA	B	b,ep,hpl	1–2	cr	[5, 9]**
<i>Cumella medeae</i> Petrescu, Iliffe, and Sarbu, 1994	Car		b,ep,hpl	1–2	cr	[11]
<i>Cumella ocellata</i> (*) Băcescu, 1992b	Car,EP,WA	B	b,ep,hpl	1–2	cr	[4, 9]**
<i>Cumella ruetzleri</i> (*) Petrescu, 2002	Car,WA	B	b,ep,hpl	1–2	cr	[9]**
<i>Cumella somersi</i> (*) Petrescu & Sterrer, 2001	Car,WA	B	b,ep,hpl	1–2	cr	[9, 10]**
<i>Cumella spinifera</i> Petrescu & Heard, 2004	Car		b,ep,hpl	1–2	cr	[12]**
<i>Elassocumella micruropus</i> (Calman, 1911)	Car,WA		b,ep,hpl	1–2	cr	[5, 15]*
<i>Schizotrema agglutinanta</i> (Băcescu, 1971)	Car,WA	B	b,ep,hpl	1–5	cr	[3]**

*Both coasts, Pacific and Caribbean

**Present study

^aCar = Caribbean; EP = eastern Pacific; WA = western Atlantic

^bB = Belize

^cb = benthic, eb = epibenthic, hpl = hypoplanktonic

^dUppermost/lowermost occurrences (in meters)

^ecr = coral reef/coral rubble; sb = sandy bottom

^fReferences are indicated by numbers according to the reference list.

Species List 18.2 Cumaceans from the Pacific waters of Costa Rica

Species	World distribution ^a	Central America ^b	Endemic	Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Phylum ARTHROPODA								
Subphylum CRUSTACEA								
Class MALACOSTRACA								
Order CUMACEA								
Family DIASTYLIDAE								
<i>Diastylis californica</i> Zimmer, 1936	EP			PM	b.ep.hpl	25–100	ssl	[18]**
? <i>Diastylis tenebricosa</i> Jones, 1969	EP			PM	b.ep.hpl	3,570	sft	[8]
<i>Makrokylindrus menziesi</i> Băcescu, 1962	EP			PM	b.ep.hpl	3,400–3,500	sft	[1]
<i>Vemakylindrus costaricanus</i> (Băcescu, 1961)	EP			PM	b.ep.hpl	3,718	sft	[2]
Family BODOTRIIDAE								
Subfamily BODOTRIINAE								
<i>Cyclaspis conceptionensis</i> Donath-Hernández, 1988	EP			PM	b.ep.hpl	1–2	sb	[7]**
<i>Cyclaspis dolera</i> Zimmer, 1936	EP			PM	b.ep.hpl	1–2	sb	[19]**
<i>Cyclaspis jonesi</i> (*) Roccatagliata, 1985	Car,EP,WA			PM	b.ep.hpl	1–2	sb	[13]**
<i>Cyclaspis pustulata</i> (*) Zimmer, 1943	Car,EP,WA			PM	b.ep.hpl	1–2	sb	[14, 21]**
<i>Cyclaspis breedyae</i> Petrescu & Heard, 2004	EP		X?	PM	b.ep.hpl	1–2	sb	[12]**
<i>Cyclaspis vargasae</i> Petrescu & Heard, 2004	EP		X?	PM	b.ep.hpl	n.a.	n.a.	[12]**
<i>Cyclaspis</i> sp. C (***)	EP			PM	b.ep.hpl	1–2	sb	**
Subfamily VAUTHOMPSONIINAE								
<i>Coricuma nicoyensis</i> Watling & Breedy, 1988	EP		X	PM	b.ep.hpl	0.5–4	sb,ssl	[16, 17]**
<i>Leptocuma forsmanni</i> Zimmer, 1943	EP			PM	b.ep.hpl	1–2	sb	[6, 20]**
Family NANNASTACIDAE								
<i>Cumella biserrata</i> (*) Petrescu, 2002	Car,EP,WA	B		PM	b.ep.hpl	1–2	cr	[9]**

<i>Cumella garrityi</i> (*) Băcescu & Muradian, 1977	Car,EP,WA	B	PM	b,ep,hpl	1-2	ssl	[5, 9]**
<i>Cumella gomoii</i> (*) Băcescu & Muradian, 1977	Car,EP,WA	B	PM	b,ep,hpl	1-2	cr	[5, 9]**
<i>Cumella ocellata</i> (*) Băcescu, 1992	Car,EP,WA	B	PM	b,ep,hpl	1-2	cr	[4, 9]**
<i>Cumella ruetzleri</i> (*) Petrescu, 2002	Car,EP	B	PM	b,ep,hpl	1-2	cr	[9]**
<i>Cumella somersi</i> (*) Petrescu & Sterrer, 2001	Car,EP	B	PM	b,ep,hpl	1-2	cr	[9, 10]**

n.a. = information not available

*Previously known from Northwest Atlantic, tentatively recognized from the Pacific coast of Costa Rica

**Present study

***Currently being described by Donath- Hernández based upon material from the Mexican Pacific coast

^aCar = Caribbean; EP = eastern Pacific; WA = western Atlantic

^bB = Belize

^cPM = Pacific mainland

^db = benthic, eb = epibenthic, hpl = hypoplanktonic

^eUppermost/lowermost occurrences (in meters)

^fcr = coral reef/coral rubble; sb = sandy bottom; ssl = fine sand/silt; sft = soft bottom

^gReferences are indicated by numbers according to the reference list

Species List 19.1 Tanaidaceans from the Caribbean waters of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d (m)	Habitat/Community ^e	References ^f
Order TANAIDACEA						
Suborder						
APSEUDOMORPHA						
Family APSEUDIDAE						
<i>Aapseudes</i> sp. A	Car		b,st	1–2	cr	[3, pers. obs.]
<i>Aapseudes</i> cf. <i>garthi</i> Menzies, 1953	Cp		n.a.	2–6	cr	[1,3]
<i>Aapseudes intermedius</i> Hansen, 1895	WA		st	1–2	cr	[pers. obs.]
Family						
METAPSEUDIDAE						
Subfamily						
METAPSEUDINAE						
<i>Aapseudomorpha</i> cf. <i>glebosus</i> (Menzies, 1953)	Car		b,st	1–3	cr	[8, pers. obs.]
Family						
PAGURAPSEUDIDAE						
Subfamily						
PAGURAPSEUDINAE						
<i>Pagurotanais bouryi</i> Bouvier, 1918	WA		b,st	1–50	cr	[2,5, pers. obs.]
Family SPHYRAPIDAE						
<i>Sphrapoides</i> sp. A	EP		b,st	1–2	cr	[6, pers. obs.]
Suborder						
TANAIDOMORPHA						
Superfamily TANAIOIDEA						
Family LEPTOCHELIIDAE						
<i>Leptocheilia dubia</i> (= <i>L. savignyi</i>) (Krøyer, 1842)	Cp	ES	b,st	0–50	cr	[3 (<i>L. sp.</i> in part), pers. obs]
<i>Leptocheilia foresti</i> (Stebbing, 1896)	Car,WA		b,st	1–50	cr	[3 (<i>L. sp.</i> in part), pers. obs]
<i>Pseudoleptocheilia</i> sp. A	Car		b,st	1–2	cr	[pers. obs]

n.a. = information not available

^aCar = Caribbean; cp = cosmopolitan; EP = eastern Pacific; WA = western Atlantic

^bES = El Salvador

^cb = benthic; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecr = coral reefs

^fReferences are indicated by numbers according to the reference list

Species List 19.2 Tanaidaceans from the Pacific waters of Costa Rica

Species	World distribution ^a	Central America ^b	COSTA RICA Pacific ^c	Oceanic distribution ^d	Depth ^e (m)	Habitat/Community ^f	References ^g
Order TANAIDACEA							
Suborder APSEUDOMORPHA							
Family PARAPSEUDIDAE							
<i>Disapseudes colombiensis</i> Gutu and Ramos, 1995	EP		PM	b,it,st	0–1	m.mb	[7, pers. obs.]
<i>Parapseudes pedispinis</i> (Boone, 1923)	EP		PM	b,st	1	rb	[1, 8, pers. obs.]
Suborder NEOTANAIIDOMORPHA							
Family NEOTANAIIDAE							
<i>Neotanais armiger</i> Wolf, 1956	EP	P	PM	b,bp	2000–6100	mb	[4,10]
<i>Neotanais pflaffi</i> Wolf, 1956	EP	ES,H	PM	b,bp	2599–3950	mb	[4,10]
Suborder TANAIDOMORPHA							
Superfamily TANAIDOIDEA							
Family LEPTOCHELIIDAE							
<i>Anatanais?</i>	EP		IC	b,st	n.a.	n.a.	[9]
<i>Pseudoleptochelia</i> sp. B	EP		PM	b,st	35	rb	[pers. obs.]

n.a. = information not available

? = doubtful identification

^aEP = eastern Pacific^bES = El Salvador; H = Honduras, P = Panama^cPM = Pacific mainland; IC = Isla del Coco^db = benthic; bp = bathypelagic; it = intertidal; st = subtidal^eUppermost and lowermost occurrences (in meters)^fm = mangroves; mb = muddy bottom; rb = rocky bottom^gReferences are indicated by numbers according to the reference list.

Species List 20.1 Isopods reported from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/community ^e	References ^f
Superorder PERCARIDA						
Order ISOPODA						
Suborder ANTHURIDEA						
Family ANTHURIDAE						
<i>Amekusanthura geminsula</i> (Kensley, 1982)	Car	B	eb,it	0	cr,rb,rub	[Brusca, pers. obs.]
<i>Apanthura cracenta</i> (Kensley, 1984)	Car	B	eb,it,st	0–2	cr,rb,rub	[Brusca, pers. obs.]
<i>Apanthura</i> sp. A	Car		eb	1–3	cr,rb,rub	[Brusca, pers. obs.]
<i>Apanthura</i> sp. B	Car		eb	1–3	cr,rb,rub	[Brusca, pers. obs.]
<i>Apanthuroides millae</i> Menzies & Glynn, 1968	Car		eb,it,st	0–3	cr,rb,rub	[Brusca, pers. obs.]
<i>Colanthura</i> sp. A	Car		eb,it	1–3	cr,rb,rub	[Brusca, pers. obs.]
<i>Cyathura cubana</i> Negoescu, 1979	Car		eb,it	1–3	cl,cr,rb,rub	[Brusca, pers. obs.]
<i>Cyathura</i> sp. A	Car		eb,it	1–3	cr,rb,rub	[Brusca, pers. obs.]
<i>Mesanthura paucidens</i> Menzies & Glynn, 1968	Car		eb,it,st	1–5	cr,rb,rub	[Brusca, pers. obs.]
<i>Mesanthura fasciata</i> Kensley, 1982	Car	B	eb,it,st	0–24	cr,rb,rub	[Brusca, pers. obs.]
<i>Mesanthura reticulata</i> Kensley, 1982	Car	B	eb,st	10–24	cr,rb,rub	[Brusca, pers. obs.]
<i>Mesanthura spongicola</i> Kensley & Heard, 1991	Car		eb,st	12–28	cr,rb,rub	[Brusca, pers. obs.]
<i>Mesanthura</i> sp. A	Car		eb,it,st	1–3	cr,rb,rub	[Brusca, pers. obs.]
Family EXPANATHURIDAE						
<i>Heptanthura lewisi</i> (Kensley & Snelgrove, 1987)	Car		eb,it,st	9–15	cr,rb,rub	[Brusca, pers. obs.]
Family LEPTANTHURIDAE						
<i>Accalathura crenulata</i> (Richardson, 1901)	Car		eb,it,st	0–55	cr,rb,rub	[Brusca, pers. obs.]
Family PARANTHURIDAE						
<i>Colanthura tenuis</i> Richardson, 1902	Car,IP		eb,it	0–1	cr,rb,rub	[Brusca, pers. obs.]
<i>Paranthura antillensis</i> Barnard, 1925	Car		eb,st	10–30	cr,rb,rub	[Brusca, pers. obs.]
Suborder ASELLOTA						
Family JANIRIDAE						
<i>Carpicus algicola</i> Richardson, 1902	Car,ct		eb,it,st	0–2	cr,rb,rub	[Brusca, pers. obs.]

Family JOEROPSIDAE									
<i>Joeropsis bifasciatus</i> Kensley, 1984	Car	B	eb, st	1-6	cr, rb, rub	[Brusca, pers. obs.]			
<i>Joeropsis</i> sp. A	Car		eb	1-3	cr, rb, rub	[Brusca, pers. obs.]			
Family MUNNIDAE									
<i>Munna petronastes</i> Kensley, 1984	Car	B	eb, it, st	0-2	cr, rb, rub	[Brusca, pers. obs.]			
Family SANTIIDAE									
<i>Sanitia milleri</i> (Menzies & Glynn, 1968)	Car	B	eb, st	1-6	cr, rb, rub	[Brusca, pers. obs.]			
Family STENETRIIDAE									
<i>Hansenium stebbingi</i> (Richardson, 1902)	Car		eb, it, st	0-50	cr, rb, rub	[Brusca, pers. obs.]			
<i>Stenetrium serratum</i> Hansen, 1905	Car		eb, it, st	0-15	cr, rb, rub	[Brusca, pers. obs.]			
Family ACANTHASPIDIIDAE									
<i>Mexicope kensleyi</i> Hooker, 1985	Car		eb, st	1-30	cr, rb, rub	[Brusca, pers. obs.]			
Suborder FLABELLIFERA									
Family AEGIDAE									
<i>Rocinela signata</i> Schioedte & Meinert, 1879	Car, EP		eb, it, st	0-21	cr, rb, rub	[Brusca, pers. obs.]			
Family ANCINIDAE									
<i>Ancinus braziliensis</i> Lemos de Castro, 1959	Car		eb, st	2-5	cr, rb, rub	[Brusca, pers. obs.]			
Family SPHAEROMATIDAE									
<i>Beatricephaera ruhiae</i> Wetzer & Bruce, 1999	Car	B	eb, st	2-5	cr, rb, rub	[8]			
<i>Cassidinidea mosatica</i> Kensley & Schotte, 1987	Car	B	eb, st	2-5	cr, rb, rub	[Brusca, pers. obs.]			
<i>Cymodoce ruetzleri</i> Kensley, 1984	Car	B	eb, st	0.5-13	cr, rb, rub	[Brusca, pers. obs.]			
<i>Dynamenella perforata</i> (Moore, 1902)	Car		eb, it, st	0-2	cr, rb, rub	[Brusca, pers. obs.]			
<i>Dynamenella</i> sp. A	Car		eb, it, st	0-3	cr, rb, rub	[Brusca, pers. obs.]			
<i>Exosphaeroma</i> sp. A	Car		it	0	sb	[Brusca, pers. obs.]			
<i>Geocerceis barbara</i> Menzies & Glynn, 1968	Car		eb, it, st	0-3	cr, rb, rub	[Brusca, pers. obs.]			
<i>Paracerceis caudata</i> (Say, 1818)	Car		eb, it, st	0.2-127	cr, rb, rub	[Brusca, pers. obs.]			
<i>Paracerceis nuttingi</i> (Boone, 1921)	Car		eb, it, st	1-2	cr, rb, rub	[Brusca, pers. obs.]			
Family CIROLANIDAE									
<i>Cirolana albidoida</i> Kensley & Schotte, 1987	Car		eb, it, st	1-2	cr, rb, rub	[Brusca, pers. obs.]			
<i>Cirolana parva</i> Hansen, 1890	Car, EP	CA	eb, it, st	0-20	cr, rb, rub	[Brusca, pers. obs.]			
<i>Excirokana braziliensis</i> Richardson, 1912	Car, EP	CA	eb, it, st	0-20	cr, rb, rub	[Brusca, pers. obs.]			

(continued)

Species List 20.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/community ^e	References ^f
<i>Metaciroilana agariticolica</i> Kensley, 1984	Car	B	eb,it,st	3–10	cr,rb,rub	[Brusca, pers. obs.]
<i>Metaciroilana halia</i> Kensley, 1984	Car	B	eb,it,st	3–10	cr,rb,rub	[Brusca, pers. obs.]
Family CORALLANIDAE						
<i>Excorallana quadricornis</i> (Hansen, 1890)	Car,WA		eb,it,st	3–30	cr,rb,rub	[Brusca, pers. obs.]
Family LIMNORHIIDAE						
<i>Limnoria indica</i> Becker & Kämpf, 1958	Car,ct		eb,it,st	0–4	cr,rb,rub	[Brusca, pers. obs.]
Suborder GNATHIIDEA						
Family GNATHIIDAE						
<i>Gnathia virginialis</i> Monod, 1926	Car		eb,it,st	1–10	cr,rb,rub	[Brusca, pers. obs.]
Suborder VALVIFERA						
Family IDOTEIDAE						
<i>Erichsonella floridana</i> Richardson, 1901	Car		eb,it,st	0–2	cr,rb,rub	[Brusca, pers. obs.]
Family HOLOGNATHIDAE						
<i>Cleantiooides planicauda</i> (Benedict, 1899)	Car		eb,it,st	0–44	cr,rb,rub	[Brusca, pers. obs.]

^aCar = Caribbean; ct = circumtropical; EP = eastern Pacific; IP = Indo-Pacific; WA = western Atlantic

^bCA = all Central American countries; B = Belize

^ceb = epibenthic; it = intertidal; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecl = coastal lagoons; cr = coral reefs; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom

^fReferences are indicated by numbers according to the reference list

Species List 20.2 Isopods reported from the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/Community ^e	References ^f
Superorder PERCARIDA						
Order ISOPODA						
Suborder ANTHURIDEA						
Family ANTHURIDAE						
<i>Cyathura guaroensis</i> Brusca & Iverson, 1985	EP		it	0	rb	[1]
Suborder ASELLOTA						
Family ISCHNOMESIDAE						
<i>Ischnomesus planus</i> Wolff, 1962	EP		bp	3,570	n.a.	[9]
<i>Ischnomesus roseus</i> Wolff, 1962	EP		bp	3,270–3,670	n.a.	[9]
Family MESOSIGNIDAE						
<i>Mesosignum admirandum</i> Menzies & Frankenberg, 1967	EP		b,st	1,016–1,892	mb	[4]
<i>Mesosignum asperum</i> Menzies & Frankenberg, 1967	EP		b,st	3,517–3,950	mb	[4]
<i>Mesosignum macrum</i> Menzies & Frankenberg, 1967	EP		b,st	3,254–3,260	mb	[4]
Family MUNNOPSISIDAE						
<i>Munnopsis longiremis</i> Richardson, 1912	EP		b,st	1,485–3,570	mb	[6]
<i>Paropsurus giganteus</i> Wolff, 1962	EP		b,st	3,570–4,400	mb	[9]
<i>Storhyngura pulchra</i> (Hansen, 1897)	EP	P	b,st	2,487–3,570	mb	[1]
Suborder EPICARIDEA						
Family BOPYRIDAE						
<i>Bopyrissa magellanica</i> Nierstrasz & Brender a Brandis, 1931	EP		it,st	n.a.	p	[5]
<i>Orthione mesoamericana</i> Markham, 2004	EP		it,st	n.a.	p	[3]
<i>Probopyrus pandalicola</i> (Packard, 1879)	EP,WA		it,st	n.a.	p	[2]
<i>Stegias angusta</i> Nierstrasz & Brender a Brandis, 1931	EP		it,st	n.a.	p	[5]

(continued)

Species List 20.2 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/Community ^e	References ^f
Suborder FLABELLIFERA						
Family ANCINIDAE						
<i>Ancinus panamensis</i> Glynn & Glynn1, 974	EP	CA	it,st	0-3	sb,cl	[1]
<i>Ancinus</i> sp. A	EP		it,st	0-3	sb	[1]
Family SPHAEROMATIDAE						
<i>Dynamenella josephi</i> Glynn, 1968	EP	P	it	0	rb	[1]
<i>Exosphaeroma</i> sp. B	EP	P	it	0	sb	[1]
<i>Paraleptosphaeroma glynni</i> Buss & Iverson, 1981	EP	B	it,st	0-15	rb	[1]
<i>Sphaeroma peruvianum</i> Richardson, 1910	EP	CA	st	0-1	m,cl	[1]
Family CIROLANIDAE						
<i>Aphantolana costaricensis</i> Brusca & Iverson, 1985	EP	P	eb,it,st	0	rb,sb	[1]
<i>Cirolana parva</i> Hansen, 1890	Car,EP	CA	eb,it,st	0-20	cr,rb,rub	[1]
<i>Eurydice caudata</i> Richardson, 1899	EP	ES,G,N,P	eb,it,st	0-50	rb,rub,sb	[1]
<i>Excitrolana braziliensis</i> Richardson, 1912	Car,EP	CA	eb,it,st	0-30	cr,rb,rub	[1]
Family CORALLANIDAE						
<i>Excortallana tricornis occidentalis</i> Richardson, 1905	EP	ES,G,N,P	st	1-30	rb,rub	[1]
Family AEGIDAE						
<i>Aega acuminata</i> Hansen, 1897	EP		ep,mp	900-1,353	p	[1]
<i>Aega plebia</i> Hansen 1897	EP,WP		bp,ep,mp	688-2,534	p	[1]
<i>Rocinela murilloi</i> Brusca & Iverson, 1985	EP	ES,G,N,P	bp,ep,mp	768-1,866	p	[1]
Family CYMOTHOIDAE						
<i>Amilocra plebeia</i> Schioedte & Meinert, 1881	EP		?	?	p	[6]
<i>Cymothoa exigua</i> Schioedte & Meinert, 1884	EP	ES,G,N,P	st,ep	0-60	p	[1]
<i>Elithusa vulgaris</i> (Stimpson, 1857)	EP	ES,G,N,P	ep,mp,st	0-300	p	[1]
<i>Nerocila acuminata</i> Schioedte & Meinert, 1881	Car,EP,WA	CA	st,ep	0-100	p	[1]

<i>Nerocila excisa</i> (Richardson, 1901)	EP, IP, WP	ep, mp, st	p	[1]
Suborder GNATHIDEA				
Family GNATHIIDAE				
<i>Gnathia</i> sp. A	EP	it, st	rb	[1]
Suborder VALVIFERA				
Family HOLOGNATHIDAE				
<i>Cleantioides occidentalis</i> (Richardson, 1899)	ct	ES, G, N, P eb, it, st	cl, mb, sb	[1]

n.a. = information not available

^aCar = Caribbean; ct = circumtropical; EP = eastern Pacific; IP = Indo-Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; ES = El Salvador; G = Guatemala; N = Nicaragua; P = Panama

^cb = benthic; bp = bathypelagic; eb = epibenthic; ep = epipelagic; it = intertidal; mp = mesopelagic; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecl = coastal lagoons; cr = coral reefs; m = mangroves; mb = muddy bottom; p = parasitic; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom

^fReferences are indicated by numbers according to the reference list

Species List 21.1 Distribution of estuarine and marine gammaridean amphipod species occurring on the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic Distribution ^c	Depth ^d	Habitat/Community ^e	References ^f
Order AMPHIPODA						
Suborder GAMMARIDEA						
Family AMPELISCIDAE						
<i>Annelisca agassizi</i> (Judd, 1896) (= <i>A. vera</i> Barnard, 1954)	Car,EP,WA	G,P	b,st	0–450	mb,sh,shb	[1, 2, 18]
Family AMPHILOCHIDAE						
<i>Apolochus</i> sp.	n.a.		eb,st	1	rub,sh,sg	[42]
Family AMPITHOIDAE						
<i>Ampithoe marcuzzii</i> Ruffo, 1954	Car,WA		eb,st	0.5–6	cl,ep,rub,sg	[23, 28, 42]
<i>Cynadusa</i> spp.	n.a.		eb,st	0.5–5	cl,ep,rub,sg	[42]
<i>Pseudoampithoides incurvaria</i> (Just, 1977)	Car,WA		eb,st	0–7	ep,sg	[20, 42]
Family AORIDAE						
<i>Globosolenbos</i> sp.	n.a.		eb,st	1–2	rub,sh	[42]
Family BATEIDAE						
<i>Batea</i> sp.	n.a.		eb,st	1–2	cl,sh,sg	[42]
Family COLOMASTIGIDAE						
<i>Colomastix halichondriae</i> Bousfield, 1973	Car,WA		eb,st	1–73	c	[12, 21, 42]
Family CYPROIDEIDAE						
<i>Hoplotheonoides obesa</i> Shoemaker, 1956	Car,WA	B	b,st	1–6	rub,sg	[34, 38, 42]
Family HAUSTORIIDAE						
<i>Haustorius</i> sp.	n.a.		it	0	sb	[16]
Family HYALIDAE						
<i>Hyale</i> sp.	n.a.		eb,st	1–2	ep,rub	[42]
Family ISAEIDAE						
<i>Photis</i> sp.	n.a.		eb,st	1–2	rub,sh	[42]
Family LEUCOTHOIDAE						
<i>Leucothoe</i> sp. (<i>spincarpa</i> complex)	n.a.		eb,st	1–2	c	[42]
Family MELITIDAE						
<i>Ceradocus sheardi</i> Shoemaker, 1948	Car,WA	B	eb,st	1–52	rub,sh	[22, 32, 42]
<i>Dulichtiella</i> sp.	n.a.		eb,st	1–2	ep,rub,sg	[42]

<i>Elasmopus</i> sp.	n.a.		eb,st	1-2	ep,rub	[42]
<i>Melita</i> sp.	n.a.		eb,st	1-2	cl,rub, sb	[42]
<i>Quadrinemaera</i> spp. (<i>quadrimana</i> complex)	n.a.		eb,st	1-2	rub	[42]
Family OEDICEROTIDAE						
<i>Periccolodes cerasinus</i> Thomas and Barnard, 1985	Car,WA	B	b,st	1-8	rub,sg	[40, 42]
Family PHLIANTIDAE						
<i>Paraphinotus seclusus</i> (Shoemaker, 1933)	Car,WA	B	b,st	1-20	rub	[29, 38, 42]
Family PLATYISCHNOPIIDAE						
<i>Eudevenopus hondurancus</i> Thomas and Barnard, 1983	Car,WA	B	b,st	1-40	mb,rub, sb	[39, 42]
Family PHOXOCEPHALIDAE						
<i>Metharpinia cf. floridana</i> (Shoemaker, 1933)	Car,WA	P	b,st	0-6	rub, sb	[9, 17, 42]
Family SYNOPIIDAE						
<i>Synopia</i> sp.	n.a.		eb,st	1-2	sb	[42]
Family TALITRIDAE						
<i>Pseudorchestoidea biolleyi</i> (Stebbing, 1908)	Car,EP	P	sp	0	wk	[13, 17, 37]

n.a. = information not available

^aCar = Caribbean; EP = eastern Pacific; WA = western Atlantic

^bCA = all Central American countries; B = Belize; G = Guatemala; P = Panama

^cb = benthic; eb = epibenthic; it = intertidal; sp = supralittoral; st = subtidal

^dUppermost/ lowermost occurrences (in meters)

^ec = commensal; cl = coastal lagoons; ep = epiphytic; mb = muddy bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; shb = shelly bottom; wk = wrack, leaf litter

^fReferences are indicated by numbers according to the reference list

Species List 21.2 Distribution of estuarine and marine gammaridean amphipod species occurring on the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica Endemic	Pacific ^c	Oceanic distribution ^d	Depth ^e	Habitat/Community ^f	References ^g
Order AMPHIPODA								
Suborder GAMMARIDEA								
Family AMPELISCIDAE								
<i>Ampelisca agassizi</i> (Judd, 1896) (= <i>A. vera</i> Barnard, 1954)	Car,EP,WA	G,P		PM	b,st	0–450	mb, sb, shb	[1, 2, 18]
<i>Ampelisca brevisimulata</i> Barnard, 1954	Car,EP	G,P		PM	b,st	4–456	mb, sb	[1, 2, 18]
<i>Ampelisca cristata</i> Holmes, 1908	Car,EP			PM	b,st	0–310	mb, sb, shb	[1, 2, 18]
<i>Ampelisca cristata</i> forma <i>microdentata</i> Barnard, 1954	Car,EP	G,P		PM	b,st	0–137	mb, sb, shb	[1, 2, 7]
<i>Ampelisca cristoides</i> Barnard, 1954	Car,EP	P		PM	b,st	0–73	sb, shb	[1, 2]
<i>Ampelisca hancocki</i> Barnard, 1954	EP			PM	b,st	9–210	mb, sb, shb	[1, 18]
<i>Ampelisca lobata</i> Holmes, 1908	Car,EP	P		PM	b,st	0–234	cr, mb, rb, sb, shb	[1, 2, 18]
<i>Ampelisca mexicana</i> Barnard, 1954	Car,EP	P		PM	b,st	4–73	mb, sb, shb	[1, 2]
<i>Ampelisca milleri</i> Barnard, 1954	EP	P		PM	b,st	0–188	mb, rb, sb, shb	[1, 18]
<i>Ampelisca pugetica</i> forma <i>macrodentata</i> Barnard, 1954	EP			PM	b,st	0–119	mb, sb, shb	[1]
<i>Ampelisca romigi</i> Barnard, 1954	Car,EP	P		PM	b,st	3–503	cr, mb, sb, shb	[1, 2, 6]
<i>Ampelisca schellenbergi</i> Shoemaker, 1933	Car,EP,WA	P		PM	b,st	0–128	rb, sb, shb	[1, 2, 6]
<i>Ampelisca shoemakeri</i> Barnard, 1954	EP	G		PM	b,st	7–76	mb	[1, 6]
<i>Ampelisca venetiensis</i> Shoemaker, 1916	Car,EP			PM	b,st	0–274	rb, sb, shb	[1, 2]
Family AORIDAE								
<i>Acuminodeutopus periculosus</i> Barnard, 1969 (= <i>A. heteruropus</i> records of Myers, 1968a)	EP			PM	b, eb, st	0–38	mb, sb, sg, shb	[7, 26]
<i>Amphideutopus ocellatus</i> Barnard, 1959	EP			PM	b, eb, st	4–37	mb, sb, shb	[3, 26]
<i>Leptocheirus</i> sp.	n.a.			PM	eb, st	1–2	cl, m, mb	[42]
<i>Paramicrodeutopus hancocki</i> (Myers 1968)	EP	P		PM	b, eb, st	0–18	sb	[8, 26]

<i>Paranicrodeutopus schmitti</i> (Shoemaker, 1942)	EP	PM	b,st	0-221	mb,rub, sb,shb	[8, 26, 31]
Family COROPHIIDAE						
<i>Americorophium panamense</i> (Shoemaker, 1949)	EP	PM	eb,st	1-2	m,mb	[33, 42]
<i>Laticorophium baconi</i> (Shoemaker, 1934)	EP,WA,W P	PM	eb,st	0-9	rb, sb,sg,shb	[15, 30, 33]
Family HAUSTORIIDAE						
<i>Acanthohaustorius</i> sp.		PM	it	0	sb	[16]
Family ISAEIDAE						
<i>Gammaropsis dubia</i> (Shoemaker, 1942)	EP	IC	b,st	n.a.	sb	[31]
Family ISCHYROCERIDAE						
<i>Cerapus</i> sp.		PM	eb,st	35	mb, sb	[42]
Family MEGALUROPIDAE						
<i>Gibberosus myersi</i> (McKinney, 1980)	Car,EP,WA	PM	eb,st	0-29	sb	[24, 41]
<i>Resupinus coloni</i> Thomas and Barnard, 1986	EP	PM	eb,st	0-9	sb	[41]
Family NEOMEGAMPHOPIIDAE						
<i>Neomegamphopus roosevelti</i> Shoemaker, 1942	EP	PM	b,st	0-42	rub, sb,shb	[11, 26, 31]
<i>Pseudomegamphopus barmardi</i> Myers, 1968	EP	PM	b,st	3	sb	[27]
Family OEDICEROTIDAE						
<i>Anerichelidium rectipalatum</i> (Mills, 1962)	EP	PM	b,it,st	0-100	mb,rb, sb,sg	[7, 14, 25]
Family PHLIANTIIDAE						
<i>Pariphinotus</i> sp.		PM	eb,st	1-2	rub	[42]
Family PHOXOCEPHALIDAE						
<i>Foxiphalus golfensis</i> Barnard and Barnard, 1982	EP	PM	b,st	0-91	sb,shb	[10]
<i>Foxiphalus obtusidens</i> (Alderman, 1936) (sur phenotype)	EP	PM	b,st	0-55	sb	[4, 10, 17]
<i>Heterophoxus nitellus</i> Barnard, 1960	EP	PM	b,st	18-1280	mb,shb	[4, 19]
<i>Metharpinia oripacifica</i> Barnard, 1980	EP	PM	b,st	4-18	mb, sb,shb	[9]

(continued)

Species List 21.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Endemic	Pacific ^c	Oceanic distribution ^d	Depth ^e	Habitat/Community ^f	References ^g
<i>Microphoxus minimus</i> Barnard, 1960	EP	X?	X?	PM	b,st	6-9	sb,shb	[4, 9]
Family PLATYISCHNOPIDAE								
<i>Eudevenopus metagracilis</i> (Barnard, 1964)	EP	P		PM	b,st	0-73	mb,sb,shb	[5, 39]
<i>Tiburonnella viscana</i> (Barnard, 1964)	Car,EP	B,I,P		PM	b,st	3-27	sb	[5, 39]
Family TALITRIDAE								
<i>Chelorchestia costaricana</i> (Stebbing, 1906)	EP		X?	PM	sp	0	mb,wk	[36]
<i>Pseudorchestoidea biolleyi</i> (Stebbing, 1908)	Car,EP	P		PM	sp	0	wk	[13, 16, 37]
<i>Talorchestia fritzi</i> Stebbing, 1903	EP		X?	IC	sp	0	wk	[35]

n.a. = information not available

^aCar = Caribbean; EP = eastern Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; B = Belize; G = Guatemala; P = Panama

^cPM = Pacific Mainland; IC = Isla del Coco

^db = benthic; eb = epibenthic; it = intertidal; sp = supralittoral; st = subtidal

^eUppermost/ lowermost occurrences (in meters)

^fcl = coastal lagoons; cr = coral reefs; m = mangroves; mb = muddy bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; shb = shelly bottom; wk = wrack, leaf litter

^gReferences are indicated by numbers according to the reference list

Species List 22.1 Hyperiid amphipods recorded from the Pacific waters of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Order AMPHIPODA						
Infraorder PHYSOCEPHALATA						
Superfamily VIBILIOIDEA						
Family VIBILIIDAE						
<i>Vibilia armata</i> Bovallius, 1887	cp		ep,mp	0-1,756	wc	[6]
<i>Vibilia australis</i> Stebbing, 1888	cp		ep,mp	0-1,300	wc	[6]
Family PARAPHRONIMIDAE						
<i>Paraphronima gracilis</i> Claus, 1879	ct		ep,mp	0-500	wc	[4]
Superfamily PHRONIMOIDEA						
Family HYPERIIDAE						
<i>Bougisia ornata</i> Laval, 1966	Med		bp?		wc	[4, 7]
<i>Hyperietta vosseleri</i> (Stebbing, 1904)	ct		ep	0-200	wc	[2, 7]
<i>Hyperioides sibaginis</i> (Stebbing, 1888)	IP	P	ep	0-200	wc	[2, 5]
<i>Hyperoche cryptodactylus</i> Stebbing, 1888			ep	Surface	wc	[2, 7]
<i>Lestrigonus bengalensis</i> Giles, 1887	ct		ep	Surface	wc	[2, 7]
<i>Lestrigonus latissimus</i> (Bovallius, 1889)	ct		ep	0-100	wc	[2, 5, 7,]
<i>Lestrigonus schizogeneios</i> (Stebbing, 1888)	ct		ep	0-200	wc	[2]
<i>Lestrigonus shoemakeri</i> Bowman, 1973	EP,W/P		ep	0-200	wc	[2, 5, 7]
<i>Phronimopsis spinifera</i> Claus, 1879	ct		ep,mp	0-500	wc	[2, 7]
<i>Themistella fusca?</i> (Dana, 1852)	ct	G, N	ep	Surface	wc	[4]
Family PHRONIMIDAE						
<i>Phronima sedentaria?</i> (Forskål, 1775)	cp		ep,mp	50-400	wc	[3, 4]
<i>Phronimella elongata</i> (Claus, 1862)	ct		ep	0-500	wc	[3, 4]
Family PHROSINIDAE						
<i>Anchylomera blossevilleti</i> Milne-Edwards, 1830	co		ep	50-200	wc	[3, 4]
<i>Phrosina semitunata</i> Risso, 1822	cp	P	bp,ep,mp	0-1,000	wc	[4, 5, 7]
<i>Prinno brevidens</i> Bowman, 1978	EP,W/P		ep	0-200	wc	[1, 4]

(continued)

Species List 22.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Superfamily PLATYSCELOIDEA						
Family PRONOIDAE						
<i>Parapronoe parva</i> Claus, 1879	ct		ep	0–200	wc	[2, 7]
Family LYCAEIDAE						
<i>Lycaea vincentii</i> Stebbing, 1888			?	?	wc	[2, 7]
<i>Simorhynchotus antennarius</i> Claus, 1871	ct	P	ep, mp	0–500	wc	[2, 5, 7]
Family BRACHYSCELOIDAE						
<i>Brachyscelus rapacoides</i> Stephensen, 1925	n.a.		ep?	?	wc	[2, 8]
Family OXYCEPHALIDAE						
<i>Cranoecephalus scleroticus</i> (Streets, 1878)	ct		ep	0–100	wc	[2, 3, 7]
<i>Glossocephalus milneedwardsi</i> Bovallius, 1887	ct		ep	50–200	wc	[2, 3, 5]
<i>Leptocotis tenuirostris</i> (Claus, 1871)	46° N–41° S		ep	50–200	wc	[2, 3, 7]
<i>Oxycephalus clausi</i> Bovallius, 1887	ct		ep	0–100	wc	[2, 7]
<i>Oxycephalus piscator</i> ? Milne-Edwards, 1830	ct		ep	65–120	wc	[2, 3, 7]
<i>Rhabdosoma armatum</i> (Milne-Edwards, 1840)	ct		ep	25–50	wc	[2, 7]
Family PLATYSCELOIDAE						
<i>Amphithyrus sculpturatus</i> Claus, 1879	EA, IP		ep	0–100	wc	[2]
Family PARASCELOIDAE						
<i>Parascelus edwardsi</i> Claus, 1879	ct		ep	0–200	wc	[2, 7]

n.a. = information not available

^aep = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; WP = western Pacific^bG = Guatemala, N = Nicaragua; P = Panama^cbp = bathypelagic; ep = epipelagic; mp = mesopelagic^dUppermost and lowermost occurrences (in meters)^ewc = water column^fReferences are indicated by numbers according to the reference list

Species List 23.1 Barnacles from the Caribbean of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Order LEPADOMORPHA						
Family LEPADIDAE						
<i>Lepas anatifera</i> Linnaeus, 1758	cp	CA	ep	st	f	[14*]
<i>Lepas anserifera</i> Linnaeus, 1767	cp	CA	ep	st	f	[14*]
Order BALANOMORPHA						
Family CHTHAMALIDAE						
<i>Chthamalus proteus</i> Dando and Southward, 1980	Car,WA		b	it	rb	[2]
Family CORONULIDAE						
<i>Chelonibia caretta</i> (Spengler, 1790)	cp		n	st	c,symbiont of Chelonidae	[7*, CAS]
<i>Chelonibia manati crenatibasis</i> Pilsbry, 1916	WA		n	st	c,symbiont of Chelonidae	[CAS]
<i>Chelonibia patula</i> (Ranzani, 1818)	EA,WA,WP		n	st	c,symbiont of Brachyura	[7*, CAS]
<i>Chelonibia testudinaria</i> (Linnaeus, 1757)	cp		n	st	c,symbiont of Chelonidae	[7*, 8*, CAS]
<i>Cylindrolepas darwiniana</i> Pilsbry, 1916	Car		n	st	c,symbiont of Chelonidae	[CAS]
<i>Platylepas decorata</i> Darwin, 1854	EP,IP		n	st	c,symbiont of Chelonidae	[CAS]
<i>Platylepas hexastylus</i> (Fabricius, 1798)	ct		n	st	c,symbiont of Chelonidae	[CAS]
<i>Stephanolepas muricata</i> Fischer, 1886	WP		n	st	c,symbiont of Chelonidae	[CAS]
<i>Stomatolepas elegans</i> (Costa, 1838)	cp		n	st	c,symbiont of Chelonidae	[CAS]
<i>Stomatolepas transversa</i> Nilsson-Cantell, 1930	Car		n	st	c,symbiont of Chelonidae	[CAS]
Family ARCHAEOBALANIDAE						
<i>Acasta cyathus</i> Darwin, 1854	Car,EA,IP?,RS	P	b	st	c,symbiont of Porifera	[USNM]
<i>Conopea galeata</i> (Linnaeus, 1771)	Car,EP,WA	CA	b	2–540	c,symbiont of Aleyonacea	[7*]
<i>Conopea merrilli</i> Zuilko, 1966	Car,WA		b	2–46	c,symbiont of Aleyonacea	[CAS]
Family PYRGOMATIDAE						

(continued)

Species List 23.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
<i>Ceratoconcha paucicostata</i> Young, 1989	Car,WA		b	st	cr,c,symbiont of Scleractinia	[12]
Family BALANIDAE						
<i>Amphibalanus amphitrite</i> Darwin, 1854	cp	CA	b	it	rb,m	[1*, 7*]
<i>Amphibalanus improvisus</i> Darwin, 1854	cp	CA	b	it to 46	rb,m,cl,ep	[4]
<i>Amphibalanus reticulatus</i> Utinomi, 1964	ct	CA	b	it	rb	[7*]
<i>Fistulobalanus pallidus</i> (Darwin, 1854)	Car,EA,IP,WA	P	b	st	rb	[7*, 15*]
<i>Megabalanus tintinnabulum</i> (Linnaeus, 1758)	IP,WA	P	b	st	rb	[5]

* = Species with an inferred range within Costa Rica: ranges that span Costa Rica, or "cosmopolitan" species

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; P = Panama

^cb = benthic; ep = epipelagic; n = neritic

^dit = intertidal; st = subtidal; uppermost and lowermost occurrences (in meters)

^ec = commensal; cl = coastal lagoons; cr = coral reefs; ep = epizoic; f = flotsam; m = mangroves; rb = rocky bottom

^fReferences are indicated by numbers according to the reference list. Unpublished Museum records are noted with the acronym of the museum. CAS = California Academy of Sciences, USNM = United States National Museum.

Species List 23.2 Barnacles from Pacific Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Order LEPADOMORPHA							
Family OXYNASPIDIDAE							
<i>Oxyaspis</i> sp. cf. <i>rossi</i> Newman, 1972	EP		PM	b	st	ep,symbiont of Antipatharia	[CAS]
Family LEPADIDAE							
<i>Conchoderma virgata</i> (Spengler, 1790)	cp	CA	PM,IC	f,n	st	ep,symbiont of Cetacea	[14*]
<i>Lepas anatifera</i> Linnaeus, 1758	cp	CA	PM,IC	ep,f	st	ep,f	[14*]
<i>Lepas anserifera</i> Linnaeus, 1767	cp	CA	PM,IC	ep,f	st	f	[14*]
Order SCALPELLOMORPHA							
Family SCALPELLIDAE							
<i>Pollicipes elegans</i> (Lesson, 1831)	EP		PM	b	it	rb	[USNM]
Order BALANOMORPHA							
Family CATOPHRAGMIDAE							
<i>Catolasmus pilsbryi</i> (Broch, 1922)	EP	P	PM	b	it	rb	[CAS, 1, 7, 10]
Family CHTHAMALIDAE							
<i>Chthamalus</i> sp. cf. <i>anisopoma</i> (Pilsbry, 1916)	EP		IC	b	it	rb	[CAS]
<i>Chthamalus panamensis</i> Pilsbry, 1916	EP	P	PM	b	it	rb	[9]
<i>Microeuraphia eastropacensis</i> (Laguna, 1987)	EP	CA	PM	b	it	m	[CAS, 6]
<i>Microeuraphia imperatrix</i> (Pilsbry, 1916)	EP	CA	PM	b	it	rb	[9*]
Family CORONULIDAE							
<i>Chelonibia testudinaria</i> (Linnaeus, 1757)	cp	CA	PM,IC	n	st	c,symbiont of Cheloniidae	[7*, 9*]
<i>Platylepas hexastylus</i> (Fabricius, 1798)	ct		PM	n	st	c,symbiont of Hydrophthiridae, Cheloniidae	[7*, 9*]

(continued)

Species List 23.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
			Pacific ^c					
<i>Coronula diadema</i> Darwin, 1854	Ct	CA	PM,IC		n	st	c,symbiont of Cetacea	[7*, 9*]
<i>Coronula reginae</i> Darwin, 1854	EP	CA	PM,IC		n	st	c,symbiont of Cetacea	[9*]
<i>Xenobalanus globicipitis</i> Steenstrup, 1851	cp	CA	PM,IC		n	n.a.	c,symbiont of Cetacea	[9*]
Family TETRACLITIDAE								
<i>Tetracita milleporosa</i> Pilsbry, 1916	EP		IC		b	it	rb	[CAS]
<i>Tetracita panamensis</i> Pilsbry, 1916	EP	P	PM		b	it	rb	[CAS, 11]
<i>Tetracita stalactifera</i> (Lamarck, 1818)	Car,EP,WA	P	PM,IC		b	it	rb	[CAS, 13]
Family ARCHAEOBALANIDAE								
<i>Conopea galeata</i> (Linnaeus, 1771)	Car,EP,WA	CA	PM		b	2-540	c,on Alcyonacea	[7*, 9*]
<i>Solidobalanus (Solidobalanus) masignotus</i> (Henry & McLaughlin, 1967)	EP	P	PM		b	st	rb	[3]
Family BALANIDAE								
<i>Amphibalanus amphitrite</i> Darwin 1854	cp	CA	PM		b	it	ep,rb	[4*, 9*]
<i>Amphibalanus calidus nonstriatus</i> Kolosváry, 1941	EP	P	PM		b	st	rb	[CAS]
<i>Amphibalanus crenatus</i> Brugiere, 1789	EP		PM		b	st	ep,rb	[CAS]
<i>Amphibalanus eburneus</i> Gould, 1841	ct	CA	PM		b	it	ep,rb	[4*, 7*]
<i>Amphibalanus improvisus</i> Darwin, 1854	cp	CA	PM		b	0-46	cl,ep,m,rb	[4*]
<i>Amphibalanus inexpectatus</i> Pilsbry, 1916	EP	CA	PM		b	it	cl,ep,m,rb	[CAS]
<i>Amphibalanus peruvianus</i> Pilsbry, 1909	EP	P	PM		b	it	cl,ep,m,rb	[4, 7]
<i>Amphibalanus poecilus</i> Darwin, 1854	EP	P	PM		b	st	rb	[CAS]
<i>Amphibalanus reticulatus</i> Utinomi, 1964	ct	CA	PM		b	0-18	ep,rb	[7*, 9*]
<i>Amphibalanus trigonus</i> Darwin, 1854	cp	P			b	st	ep,rb	[CAS]
<i>Fistulobalanus dentivarians</i> (Henry, 1973)	EP	CA	PM		b	it	ep,rb	[CAS, 4*, 9*]
<i>Fistulobalanus suturaltus</i> (Henry, 1973)	EP	CA	PM		b	it	rb	[4, 7*, 9*]

<i>Megabalanus coccopoma</i> (Darwin, 1854)	EP	G,ES,P	PM	b	st	rb	[CAS, 5, 9 [*]]
<i>Megabalanus galapaganus</i> Pilsbry, 1916	EP	P	IC	b	st	rb	CAS
<i>Megabalanus peninsularis</i> (Pilsbry, 1916)	EP	P	PM,IC	b	st	rb	[5, 9 [*]]
<i>Paraconcaeus mexicanus</i> (Henry, 1941)	EP	CA	PM	b	0-73	ep,on Mollusca and Echinoidea	[USNM, 4, 9 [*]]
<i>Paraconcaeus pacificus</i> (Pilsbry, 1916)	EP	P	PM	b	0-91	ep,rb	[USNM]
<i>Tetrabalanus polygenus</i> Cornwall, 1941	EP	P	PM	b	it	rb	[CAS, 9]

n.a. = Information not available

Unpublished museum records are noted with the acronym of the museum. CAS= California Academy of Sciences, USNM= US National Museum

^{*} = Species with ranges that span Costa Rica, or "cosmopolitan" species. The asterisk (*) indicates an inferred range within Costa Rica

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; EP = eastern Pacific; WA = western Atlantic

^bCA = all Central American countries; ES = El Salvador; G = Guatemala; P = Panama

^cPM= Pacific mainland; IC = Isla del Coco

^db = benthic; ep = epipelagic; f = flotsam; n = neritic

^eit = intertidal; st = subtidal; uppermost and lowermost occurrences (in meters)

^fc = commensal; cl = coastal lagoons; ep = epizoic; f = flotsam; m = mangroves; p= parasitic; rb = rocky bottom

^gReferences are indicated by numbers according to the reference list

Species List 24.1 Copepod species of the Caribbean coast of Costa Rica

Species	World distribution ^a	Endemic	Oceanic distribution ^b	Depth (m) ^c	Habitat/ Community ^d	References ^e
Superorder GYMNOPLA						
Order CALANOIDA						
Family ACARTIIDAE						
<i>Acartia lilljeborgii</i> Giesbrecht, 1889	Car,EP,WA		ep	0–200	wc	[13]
Family AETIDEIDAE						
<i>Euchirella rostrata</i> (Claus, 1866)	Car,EA,EP, Med,WA		ep,mp	0–600	wc	[13]
Family AUGAPTILIDAE						
<i>Hatophtilus longicornis</i> (Claus, 1863)	EA,EP,IP,Med,WA,WP		mp	200–600	wc	[4]
Family CALANIDAE						
<i>Nannocalanus minor</i> (Claus, 1863)	IO,Med,WA,WP		n,ep	0–200	wc	[13]
<i>Undinula vulgaris</i> (Dana, 1849)	EA,EP,IO		n,ep,mp	100–1,000	wc	[4, 13]
Family CLAUDOCALANIDAE						
<i>Clausocalanus furcatus</i> (Brady, 1883)	ep		n,ep	0–200	wc	[4, 13]
Family CENTROPAGIDAE						
<i>Centropages velificatus</i> (de Oliveira, 1946)	ct,RS		n	0–130	wc	[13]
Family EUCALANIDAE						
<i>Eucalanus monachus</i> Giesbrecht, 1888	Car,EA,IO		n,ep,mp	0–600	wc	[13]
<i>Eucalanus subcrassus</i> Giesbrecht, 1888	Car,EP,IO,WA,		n,ep	0–200	wc	[13]
<i>Rhincalanus cornutus</i> (Dana, 1849)	Car,EA,EP,IO, WA,WP		n,ep	0–200	cl	[4, 13]
Family EUCHAETIDAE						
<i>Euchaeta marina</i> (Prestandrea, 1833)	Car,EA,EP,IO, WA,WP		n,ep	0–200	wc	[4, 13]
Family LUCICUTIIDAE						
<i>Lucicutia flavicornis</i> (Claus, 1863)	EA,EP,IO,Med, WA,WP		n,ep	0–200	wc	[4]

Family PARACALANIDAE								
<i>Paracalanus aculeatus</i> Giesbrecht, 1888	ct,EP,IO,Med, WA,R,St	n,ep	0-200	wc	[4, 13]			
Family PONTELLIDAE								
<i>Acrocalanus longicornis</i> Giesbrecht, 1888	EP,IO,RS,WA	n	0-130	wc	[13]			
<i>Calanoptia americana</i> F. Dahl, 1894	Car,EA,WA	n	0-130	wc	[13]			
<i>Labidocera aestiva</i> Wheeler, 1901	Car,WA	n	0-130	wc	[13]			
<i>Labidocera scottii</i> Giesbrecht, 1897	Car,WA	n	0-130	wc	[13]			
<i>Pontella minocerami</i> Fleminger, 1957	Car,WA	n	0-130	wc	[13]			
<i>Pontellopsis villosa</i> Brady, 1883	Car,Med,WA	n	0-130	wc	[13]			
Family PSEUDODIAPTOMIDAE								
<i>Pseudodiaptomus acutus</i> (Dahl, 1894)	Car,EA	n	0-130	wc	[13]			
<i>Pseudodiaptomus marshi</i> Wright, 1936	Car,EA	n	0-130	wc	[4, 13]			
Family SCOLECITHRICIDAE								
<i>Scolecithrix danae</i> Lubbock, 1856	ct,EP,WP	ep	0-200	wc	[4]			
Family TEMORIDAE								
<i>Temora turbinata</i> (Dana, 1849)	Car,IO,WA	n	0-10	wc	[13]			
Superorder PODOPLEA								
Order CYCLOPOIDA								
Family OITHONIDAE								
<i>Oithona hebes</i> Giesbrecht, 1891	Car,EP,Med,WP	n	0-130	wc	[4, 13]			
<i>Oithona nana</i> Giesbrecht, 1892	EA,EP,IO,Med,RS,WA,WP	n	0-130	wc	[4, 13]			
<i>Oithona plumifera</i> Baird, 1843	Car,EP,IO,Med,RS,WA	n,ep	0-200	wc	[4, 13]			
Order MORMONILLOIDA								
Family MORMONILLIDAE								
<i>Mormonilla minor</i> Giesbrecht, 1891	EA,EP,IP,WA,WP	ep,mp	0-600	wc	[4]			
<i>Mormonilla phasma</i> Giesbrecht, 1891	EA,EP,IP,WA,WP	ep,mp	0-600	wc	[4]			

(continued)

Species List 24.1 (continued)

Species	World distribution ^a	Endemic	Oceanic distribution ^b	Depth (m) ^c	Habitat/Community ^d	References ^e
Order HARPACTICOIDA						
Family AEGISTHIDAE						
<i>Aegisthus aculeatus</i> Giesbrecht, 1891	ct,EA,EP,WA,WP,		ep	0–200	wc	[3]
Family AMEIRIDAE						
<i>Nitocra bisetosa</i> Mielke, 1993	ct		b	n.a	sb	[6, 8]
<i>Karllangia obscura</i> Mielke, 1994	n.a	X	b	n.a	mb	[9]
<i>Karllangia pulchra</i> Mielke, 1994	n.a	X	b	n.a	mb	[9]
Family ECTINOSOMIDAE						
<i>Microsetella rosea</i> (Dana, 1848)	EA,EP,Med,RS,WA,WP		b	n.a	sb	[4]
Family LONGIPEDIIDAE						
<i>Longipedia helgolandica</i> Klie, 1949	Car,EA,WA		b	n.a	sb	[13]
Family MIRACIIDAE						
<i>Macrosetella gracilis</i> (Dana 1852)	Car,ct,EA,EP,IO,Med,WA,WP		n,ep	0–200	wc	[4, 13]
Family TETRAGONOCIPITIDAE						
<i>Phyllopopusyllus carinatus</i> Mielke, 1992	n.a	X	b	n.a	sb	[5]
<i>Phyllopopusyllus gertrudi costaricensis</i> Mielke, 1992	n.a	X	b	n.a	sb	[5]
<i>Phyllopopusyllus setouchiensis</i> Kitazima, 1981	EP,WA		b	n.a	sb	[5]
Order POECILOSTOMATOIDA						
Family CORYCAEIDAE						
<i>Corycaeus fureifer</i> Claus, 1863	Car,EP,Med,WA,WP		n	0–130	wc	[13]
<i>Farranula carinata</i> (Giesbrecht, 1891)	EA,EP,WA,WP		n,ep	0–700	wc	[4]
<i>Farranula gracilis</i> (Dana, 1853)	EA,EP,WA,WP		ep	0–200	wc	[4]

Family ONCAEIDAE

Oncaea gracilis (Dana, 1853)*Oncaea mediterranea* Claus, 1883*Oncaea venusta* Phillippi, 1843

ct,EA,WA

Car,EA,EP,IO,Med,WA,WP

Car,EA,EP,WA,WP

0-200

0-200

0-200

wc

wc

wc

[4]

[13]

[4, 13]

ep

n,ep

n, ep

n.a. = information not available

^aCar = Caribbean; ep = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bb = benthic; ep = epipelagic; mp = mesopelagic; n = neritic

^cUppermost and lowermost occurrences (in meters)

^dcl = coastal lagoons; mb = muddy bottom; sb = sandy bottom; wc = water column

^eReferences are indicated by numbers according to the reference list

Species List 24.2 List of copepod species of the Pacific coast of Costa Rica

Species	World distribution ^a	Endemic	Pacific ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Superorder GYMNOPLA							
Order CALANOIDA							
Family ACARTIIDAE							
<i>Acartia clausi</i> Giesbrecht, 1889	EA,EP,Med,WA,WP		PM	n	0–130	wc	[12, 13]
<i>Acartia danae</i> Giesbrecht, 1889	Car,EP,IO,Med,RS,WA,WP		PM	ep,n	0–200	wc	[12, 13, 16]
<i>Acartia liljeborgii</i> Giesbrecht, 1889	Car,EP,WA		PM	ep	0–200	wc	[1, 12, 13]
<i>Acartia negligens</i> Dana, 1849	EA,EP,IO,Med,RS		PM	n	0–130	wc	[17]
Family AETIDEIDAE							
<i>Aetideopsis rostrata</i> G.O. Sars, 1903	EA,EP		PM	mp	200–600	wc	[16]
<i>Aetideus armatus</i> (Boeck, 1872)	EA,EP,IP,Ant,WP		PM	mp	200–600	wc	[15]
<i>Euaetideus giesbrechti</i> Cleve, 1904	ct,EA,EP,WA,WP		PM	ep	0–200	n.a.	[15]
<i>Chiridius</i> sp.	n.a.		PM	mp	200–600	wc	[15]
<i>Euchirella amoena</i> Giesbrecht, 1888	EA,WP		PM	mp	200–600	wc	[16]
<i>Gaetanus brevispinus</i> (Sars, 1900)	IO		PM	ep,mp	0–600	wc	[15]
<i>Gaetanus miles</i> Giesbrecht, 1888	EP,EA,IO,WA,WP		PM	ep,mp	0–600	wc	[15, 16]
<i>Gaetanus minor</i> Farran, 1905	ct		PM	ep	0–200	wc	[16]
<i>Gaidius tenuispinus</i> (Sars, 1900)	Ant,Arc,ct		PM	ep,mp	0–600	wc	[15]
<i>Valdiviella brevicornis</i> Sars, 1905	EA,EP,IO		PM	ep,mp,n	100–1,000	wc	[15, 16]
Family ARIETELLIDAE							
<i>Arietellus</i> sp.	ct		PM	mp	200–600	wc	[15]
Family AUGAPTILIDAE							
<i>Augaptilus longicaudatus</i> (Claus, 1863)	ct		PM	mp	200–600	wc	[15, 16]
<i>Haloptilus acutifrons</i> (Giesbrecht, 1892)	EA,EP,Med,WA,WP		PM	mp	200–600	wc	[15, 16]
<i>Haloptilus longicornis</i> (Claus, 1863)	EA,EP,IP,Med,WA,WP		PM	mp	200–600	wc	[15]
<i>Haloptilus mucronatus</i> (Claus, 1863)	EA,Med,WA		PM	mp	200–600	wc	[15]
<i>Haloptilus ornatus</i> (Giesbrecht, 1892)	EA,EP,WA,WP,Med,Car		PM	mp	200–600	wc	[13, 16]

<i>Hatopitilus oxycephalus</i> (Giesbrecht, 1889)	ct,Med	PM	mp	200–600	wc	[15]
Family CALANIDAE						
<i>Canthocalanus pauper</i> (Giesbrecht 1888)	WP	PM	n	0–130	wc	[1, 12–14, 16]
<i>Cosmocalanus darwini</i> (Dana 1852)	Car,EP	PM	ep,n	0–100	wc	[15]
<i>Mesocalanus tenuicornis</i> (Dana, 1849)	EP	PM	ep	0–200	wc	[16]
<i>Nannocalanus minor</i> (Claus, 1863)	Med,WA,IO,WP	PM	ep,n	0–200	wc	[12, 13]
<i>Neocalanus cristatus</i> (Krøyer,1848)	EA,EP,WA,WP	PM	n.a.	n.a.	wc	[15]
<i>Neocalanus gracilis</i> (Dana, 1849)	EA,Med,WA,WP	PM	ep,n	0–200	wc	[1, 12, 13, 16]
<i>Neocalanus robustior</i> (Giesbrecht, 1888)	EA,EP,IP,WA,WP	PM	ep,n	0–200	wc	[15]
<i>Undinula vulgaris</i> (Dana, 1849)	Car,IO,WA	PM	ep	0–200	wc	[1, 12, 13, 16]
Family CALOCALANIDAE						
<i>Calocalanus contractus</i> Farran, 1926	Car,ct,EA,WP	PM	ep	0–200	wc	[15]
<i>Calocalanus pavo</i> (Dana, 1849)	EA,EP,Med,RS,WA,WP	PM	ep	0–200	wc	[15, 16]
<i>Calocalanus pavoninus</i> Farran, 1936	Car,ct,EA,WP	PM	ep	0–200	wc	[15]
<i>Calocalanus sylviremis</i> Giesbrecht, 1888	cp	PM	ep	0–200	wc	[12, 13]
<i>Ishnocalanus plumulosus</i> (Claus, 1863)	ct	PM	mp	400–600	wc	[15]
Family CANDACIIDAE						
<i>Candacia catula</i> (Giesbrecht, 1889)	EP,RS	PM	ep,n	0–200	wc	[12, 13]
<i>Candacia pachydactyla</i> (Dana, 1849)	EA,EP,WA,WP	PM	n	0–130	wc	[1, 16]
<i>Candacia varicans</i> (Giesbrecht, 1892)	Car,EA,EP	PM	n	0–200	wc	[16]
Family CENTROPAGIDAE						
<i>Centropages calaninus</i> (Dana, 1849)	EP,WP	PM	n	0–200	wc	[16]
<i>Centropages furcatus</i> (Dana, 1852)	ct,RS	PM	n	0–130	wc	[1, 12–14, 16]
<i>Centropages longicornis</i> (Mori, 1937)	Car,EA,WA	PM	n	0–130	wc	[1]

(continued)

Species List 24.2 (continued)

Species	World distribution ^a	Endemic	Pacific ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Family CLAUDOCALANIDAE							
<i>Clausocalanus arcuicornis</i> (Dana, 1849)	EA,EP,IO,Med,RS,WA,WP		PM	ep.n	0–200	wc	[1]
<i>Clausocalanus furcatus</i> (Brady, 1883)	cp,ct,EA,EP,IO,Med,RS,W A,WP		PM	ep.n	0–200	wc	[12, 13]
<i>Clausocalanus pergens</i> Farran, 1926	cp,ct		PM	ep.n	0–200	wc	[12, 13]
Family EUCALANIDAE							
<i>Eucalanus attenuatus</i> (Dana, 1849)	EA,EP,IO		PM	ep	0–200	wc	[1, 12, 13, 15, 16]
<i>Eucalanus bungii</i> Giesbrecht, 1892	Arc,EA,EP		PM	ep	0–200	wc	[15]
<i>Eucalanus elongatus</i> (Dana, 1849)	ct,EA,EP,IO,WP		PM	bp,ep,mp,n	0–1,300	wc	[1, 12, 13, 15]
<i>Eucalanus inermis</i> Giesbrecht, 1892	Arc,EA,EP		PM	n.a.	n.a.	wc	[19]
<i>Eucalanus monachus</i> Giesbrecht, 1888	EA,Car,IO		PM	ep,mp,n	0–600	wc	[12–, 16]
<i>Eucalanus mucronatus</i> Giesbrecht, 1888	ct,EP,IO,WP		PM	n	0–200	wc	[16]
<i>Eucalanus pileatus</i> Giesbrecht, 1888	ct,EA,EP,WA,WP,IP		PM	n	0–200	wc	[15]
<i>Eucalanus sewelli</i> Fleminger, 1973	cp,ct		PM	n	0–200	wc	[16]
<i>Eucalanus subcrassus</i> Giesbrecht, 1888	IP		PM	ep.n	0–200	wc	[1, 15]
<i>Eucalanus subtenuus</i> (Giesbrecht, 1888)	EA,EP,IP,WA,WP		PM	ep.n	0–200	wc	[1, 15, 16]
<i>Rhincalanus nasutus</i> Giesbrecht, 1888	Ant,Arc,EP,IO,WA,WP		PM	ep	0–200	wc	[12, 13, 15, 16]
Family EUCHAETIDAE							
<i>Euchaeta acuta</i> Giesbrecht, 1892	EA,EP,WA,WP		PM	ep,mp	0–600	wc	[15]
<i>Euchaeta indica</i> Wolfenden, 1905	EP,WP,IO		PM	ep,mp	0–600	wc	[15]
<i>Euchaeta longicornis</i> Giesbrecht, 1888	EP,WP		PM	n	0–130	wc	[14, 16]
<i>Euchaeta rimana</i> Bradford, 1974	EP,WP,IO		PM	ep.n	0–200	wc	[14b]
<i>Euchaeta media</i> Giesbrecht, 1888	EA,WP		PM	bp	600–2,000	wc	[16]

<i>Euchaeta tenuis</i> Esterly, 1906	EP,WP	PM	ep.mp	0-600	wc	[15]
<i>Paraeuchaeta barbata</i> Brady, 1883	IP,EA	PM	ep.mp	0-600	wc	[15]
<i>Paraeuchaeta hanssenii</i> (With, 1915)	EP,IO,WP	PM	ep.mp	0-600	wc	[15]
<i>Paraeuchaeta norvegica</i> (Boeck, 1872)	EA,WA	PM	ep.n	0-600	wc	[15]
<i>Paraeuchaeta tonsa</i> (Giesbrecht, 1895)	EA	PM	ep.mp	0-600	wc	[15, 16]
Family HETERORHABDIDAE						
<i>Heterorhabdus papilliger</i> (Claus, 1863)	EA,IO,Med,WA	PM	mp	200-600	wc	[15]
Family LUCICUTIIDAE						
<i>Lucicutia bicornuta</i> Wolfenden, 1911	EA,EP,WA,WP,IP	PM	ep	500-400	wc	[15]
<i>Lucicutia flavicornis</i> (Claus, 1863)	EA,EP,IO,Med,WA,WP	PM	ep.n	0-200	wc	[1, 15, 16]
<i>Lucicutia gemina</i> Farran, 1926	EA	PM	ep	0-200	wc	[16]
<i>Lucicutia grandis</i> (Giesbrecht, 1895)	EA,EP,IP,WA,	PM	ep	300-500	wc	[15]
<i>Lucicutia ovalis</i> (Giesbrecht, 1889)	EA,EP,WA,WP,IO	PM	ep.n	0-200	wc	[12-14]
Family MECYNOCERIDAE						
<i>Mecynocera clausi</i> (Thompson, 1888)	EP,WP,IP	PM	ep	0-600	wc	[15]
Family METRIDINIDAE						
<i>Metridia</i> sp.	EA,WA,EP,WP	PM	ep.mp	0-600	wc	[15]
<i>Pleuromamma abdominalis f. edentata</i> Steuer, 1931	ct	PM	ep.mp	0-600	wc	[15]
<i>Pleuromamma abdominalis f. abyssalis</i> Steuer, 1931	EA,WA,EP,WP	PM	ep.mp	0-600	wc	[15]
<i>Pleuromamma abdominalis</i> (Lubbock, 1856)	ct	PM	ep.mp	0-600	wc	[5, 15, 16]
<i>Pleuromamma gracilis</i> (Claus, 1863)	Car,EA,EP,IO,Med	PM	ep.mp	0-600	wc	[12, 13, 16]
<i>Pleuromamma piseki</i> Farran, 1929	EA,EP	PM	ep.mp	0-600	wc	[16]
<i>Pleuromamma quadrangulata</i> (Dahl, 1893)	EA,EP,IO,WA,WP	PM	mp	200-600	wc	[15]
<i>Pleuromamma robusta</i> (Dahl, 1893)	EA,IO,RS	PM	mp	200-600	wc	[12, 13]
<i>Pleuromamma scutellata</i> Brodsky, 1950	n.a.	PM	ep.mp	0-600	wc	[15]

(continued)

Species List 24.2 (continued)

Species	World distribution ^a	Endemic	Pacific ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
<i>Pleuromamma xiphias</i> (Giesbrecht, 1889)	EA,EP,IO,WA,WP		PM	ep,mp	0–600	wc	[15]
Family PARACALANIDAE							
<i>Acrocalanus gibber</i> Giesbrecht, 1888	EP,IO,RS,WP		PM	n	0–130	wc	[12, 13]
<i>Acrocalanus gracilis</i> Giesbrecht, 1888	EA,EP,RS,WA,WP		PM	ep	0–200	wc	[15]
<i>Acrocalanus longicornis</i> Giesbrecht, 1888	EP,IO,RS,WA		PM	n	0–130	wc	[1, 12, 13]
<i>Paracalanus aculeatus</i> Giesbrecht, 1888	ct,EP,IO,Med,RS,WA		PM	ep,n	0–200	wc	[12, 13]
<i>Paracalanus parvus</i> (Claus, 1863)	cp		PM	ep,n	0–200	wc	[1, 12–14]
<i>Parvocalanus crassirostris</i> (Dahl, 1894)	IO,WA		PM	n	0–200	wc	[12–14]
Family PHAENIDAE							
<i>Cephalophanes</i> sp.	Ant,ct		PM	ep	0–200	mb	[15]
<i>Comucalanus</i> sp.	Car		PM	ep	0–200	wc	[15]
<i>Phaenna spinifera</i> (Claus, 1863)	Ant,ct,EA,EP,IP,WA,WP		PM	ep	0–200	wc	[15, 16]
Family PONTELLIDAE							
<i>Labidocera acuta</i> (Dana, 1849)	EA,EP,IO,WA,WP		PM	n	0–130	wc	[1, 12, 13]
<i>Labidocera lubbockii</i> Giesbrecht, 1889	EP		PM	n	0–130	wc	[13, 14]
<i>Pontella agassizii</i> Giesbrecht, 1895	EA,EP		PM	mp	200–600	wc	[16]
<i>Pontellina plumata</i> (Dana, 1849)	EA,EP,WA,WP		PM	n	0–130	wc	[1]
Family PSEUDODIAPTOMIDAE							
<i>Pseudodiaptomus cristobalensis</i> Marsh, 1913	EA,EP,WA		PM	n	0–130	wc	[12, 13, 20]
<i>Pseudodiaptomus wrighti</i> Johnson, 1964	EP		PM	n	0–130	wc	[1, 2, 3, 12, 13, 14, 20]
Family SCOLECITHRICIDAE							
<i>Amalothrix gracilis</i> (Sars, 1905)	ct		PM	mp	200–600	wc	[15, 16]
<i>Lophothrix</i> sp.	ct,EA,EP,IP,WA,WP		PM	mp	200–600	wc	[15]
<i>Scaphocalanus</i> sp.	EA,EP,IO,Med,WA,WP		PM	ep,n	200–2,000	wc	[15]
<i>Scolecithricella dentata</i> (Giesbrecht, 1892)	ct		PM	mp	200–600	wc	[15]

<i>Scolecithricella marginata</i> (Giesbrecht, 1888)	n.a.									[12, 13]
<i>Scolecithricella tenuiserrata</i> (Giesbrecht, 1892)	ct									[15]
<i>Scolecithricella vittata</i> (Giesbrecht, [1892])	EP									[15]
<i>Scolecithrix bradyi</i> Giesbrecht, 1888	EA, EP, IP, Med, WA, WP									[1, 12, 13, 16]
<i>Scolecithrix danae</i> (Lubbock, 1856)	EA, EP, IO, Med, WA, WP									[15, 16]
<i>Scottocalanus</i> sp.	ct, EP, WP									[15]
Family TEMORIDAE										
<i>Eurytemora</i> sp.	cp									[15]
<i>Temora discaudata</i> Giesbrecht, 1889	Car, EP, IO, WA									[1, 12, 13, 16]
<i>Temoropia mayumbaensis</i> T. Scott, 1894	EP, IO, RS, WP									[12, 13]
Superorder PODOPLEA										
Order CYCLOPOIDA										
Family OITHONIDAE										
<i>Oithona plumifera</i> Baird, 1843	Car, EP, IO, Med, RS, WA									[1, 12, 13]
<i>Oithona setigera</i> Dana, 1852	EA, EP, IO, Med, RS, WA									[1]
<i>Oithona similis</i> (Claus, 1866)	EA, EP, IO, Med, RS, WA, WP									[1, 12, 13]
<i>Oithona spinostris</i> (Claus, 1863)	Car, EP, IO, Med, RS, WA									[15]
Order MONSTRILLOIDA										
Family MONSTRILLIDAE										
<i>Cymbasoma conceptionae</i> Suárez & Morales, 2003	n.a.	X								[18]
Order MORMONILLOIDA										
Family MORMONILLIDAE										
<i>Mormonilla minor</i> Giesbrecht, 1891	EA, EP, IP, WA, WP									[15]
<i>Mormonilla phasma</i> Giesbrecht, 1891	EA, EP, IP, WA, WP									[15]

(continued)

Species List 24.2 (continued)

Species	World distribution ^a	Endemic	Pacific ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Order HARPACTICOIDA							
Family AMEIRIDAE							
<i>Nitocr a bisetosa</i> Mielke, 1993	ct		PM	b	n.a.	sb	[6, 7]
Family CANTHOCAMPTIDAE							
<i>Orthopsyllus linearis curvaspina</i> (Claus, 1886) cp		X	PM	b	n.a.	sb	[5, 6]
Family CANUELLIDAE							
<i>Microcanueta bisetosa</i> Mielke, 1994	n.a.	X	PM	b	n.a.	sb	[8]
Family CLYTEMNESTRIDAE							
<i>Clytemnestra rostrata</i> (Brady, 1883)	ct,EA,EP,Med,WA,WP		PM	ep	0–200	wc	[15]
<i>Clytemnestra scutellata</i> Dana, 1848	Car,EA,EP,IO,Med,RS,WA,WP		PM	ep,n	0–200	wc	[12–14]
Family ECTINOSOMATIDAE							
<i>Microsetella rosea</i> (Dana, 1848)	ct,EA,EP,Med,WA,WP		PM	ep	0–200	wc	[15]
Family DIOSACCIDAE							
<i>Balucopsylla triariculata</i> Wells & Rao, 1987	IO		PM	b	n.a.	sb	[7]
<i>Schizopera nicoyana</i> Mielke, 1995	n.a.	X?	PM	b	n.a.	sb	[10]
<i>Schizopera osana</i> Mielke, 1995	n.a.	X?	PM	b	n.a.	sb	[10]
<i>Schizopera</i> sp.	n.a.	X?	PM	b	n.a.	sb	[10]
<i>Schizopera</i> sp.	n.a.	X?	PM	b	n.a.	sb	[10]
Family HARPACTICIDAE							
<i>Zausodes septimus</i> Lang, 1965	n.a.		PM	b	n.a.	sb	[11]
Family LAOPHONTIDAE							
<i>Afrolaophonte schmidti</i> Mielke, 1981	n.a.		PM	b	n.a.	sb	[11]
<i>Klienyochocamptoides itoi</i> Mielke, 1981	n.a.		PM	b	n.a.	sb	[11]
<i>Laophontella horrida dentata</i> (Por, 1964)	Car,Med	X	PM	b	n.a.	sb	[5]
<i>Mexicolaophonte arganoi</i> Cottarelli, 1977	n.a.		PM	b	n.a.	sb	[11]

Family MIRACIIDAE								
<i>Macrosetella gracilis</i> (Dana, 1848)	Car,ct,EA,EP,IO,Med,WA,WP	PM	ep.n	0-200	wc			[12, 13]
Family TACHIDIIDAE								
<i>Euterpina acutifrons</i> (Dana, 1848)	cp	PM	n	0-130	wc			[12, 13, 14]
Family TETRAGONICIPITIDAE								
<i>Oniscopsis robinsoni</i> Chappuis & Delamare, 1956	Car,EP	PM	b	n.a.	sb			[5]
<i>Phillopopodopsyllus ancylus</i> Mielke, 1992	n.a.	PM	b	n.a.	sb	X		[5]
<i>Phillopopodopsyllus gertrudi costaricensis</i> Kunz, 1984	n.a.	PM	b	n.a.	sb	X		[5]
<i>Phillopopodopsyllus setouchiensis</i> Kitazima, 1981	EP,WA	PM	b	n.a.	sb			[5]
Order POECILOSTOMATOIDA								
Family CLAUDIIDAE								
<i>Hemicyclops thalassius</i> Vervoort & Ramirez, 1966	EP,WA,WP	PM	n	0-130	wc			[12, 13, 14]
<i>Saphirella tropica</i> Wolfenden, 1906	EA,EP,IP,WA,WP	PM	ep	0-200	wc			[A. Morales pers. obs.]
Family CORYCAEIDAE								
<i>Corycaeus bremsi</i> Dana, 1849	EP,Med,WP	PM	n	0-130	wc			[1, 12, 13]
<i>Corycaeus flaccus</i> (Giesbrecht, 1891)	EP,WP,IO,EA,WA,Med,Car	PM	n	0-130	wc			[12, 13]
<i>Corycaeus spectosus</i> Dana, 1849	ct,EA,EP,Med,WA,WP,IO,	PM	n	0-130	wc			[12, 13]
<i>Corycaeus ovalis</i> Claus, 1863	EA,EP,IO,Med,WA,WP	PM	n	0-130	wc			[1, 15]
<i>Farranella carinata</i> (Giesbrecht, 1891)	EA,EP,WA,WP	PM	ep.n	0-700	wc			[Suárez-Morales & Morales, pers. obs.]

(continued)

Species List 24.2 (continued)

Species	World distribution ^a	Endemic Pacific ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
<i>Farranula gibbula</i> (Giesbrecht, 1891)	EP, IO, IP, RS, WP	PM	ep.n	n.a.	wc	[15]
<i>Farranula gracilis</i> (Dana, 1853)	EA, EP, WA, WP	PM	ep	0–200	wc	[15]
Family ONCAEIIDAE						
<i>Conaea gracilis</i> (Dana, 1853)	ct, EA, WA	PM	ep	0–200	wc	[2]
<i>Lubbockia aculeata</i> Giesbrecht, 1891	Car, EA, EP, IO, RS, WA, WP	PM	ep	0–200	wc	[15]
<i>Oncaea conifera</i> Giesbrecht, 1891	Arc, Car, EA, EP, IO, Med, RS, WA, WP	PM	ep.n	0–200	wc	[12, 13, 15]
<i>Oncaea mediterranea</i> Claus, 1863	Car, EA, EP, Med, IO, WA, WP	PM	ep.n	0–200	wc	[12, 13]
<i>Oncaea ornata</i> Giesbrecht, 1891	EA, EP, IP, WA, WP	PM	ep.n	0–200	wc	[15]
<i>Oncaea venusta</i> Phillippi, 1843	Car, EA, EP, WA, WP	PM	ep.n	0–200	wc	[12, 13]
Family SAPPHIRINIDAE						
<i>Copilia vitrea</i> (Haeckel, 1864)	Ant, EP, WA, WP	PM	ep	0–200	wc	[15]
<i>Corissa</i> sp.	Car, EP	PM	ep	0–200	wc	[15]
<i>Sapphirina nigromaculata</i> Claus, 1863	ct, EA, EP, IO, WA, WP	PM	ep.n	0–200	wc	[12, 13]
<i>Sapphirina opalina</i> Dana, 1852	Car, EA, EP, IO, Med, RS, WA, WP	PM	ep.n	0–200	wc	[1]
<i>Sapphirina ovatolanceolata</i> Dana, 1852	Ant, ct	PM	ep.n	0–200	wc	[1]
<i>Sapphirina scarlata</i> Giesbrecht, 1891	EA, EP, WA, WP	PM	ep.n	0–200	wc	[12, 13]
Order SIPHONOSTOMATOIDA						
Family RATANIIDAE						
<i>Ratania</i> sp.	EA, WA, IP	PM	ep	0–200	wc	[15]

n.a. = information not available

^aAnt = Antarctic; Arc = Arctic; Car = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = Eastern Atlantic; EP = Eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bPM = Pacific mainland

^cb = benthic; bp = bathypelagic; ep = epipelagic; mp = mesopelagic; n = neritic

^dUppermost and lowermost occurrences (in meters)

^emb = muddy bottom; sb = sandy bottom; wc = water column

^fReferences are indicated by numbers according to the reference list

Species List 25.1 Pycnogonids recorded from Caribbean waters of Costa Rica. Higher taxonomy below is as in Arnaud and Bamber (1987)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/ Community	References ^e
Class PYCNOGONIDA						
Order PANTOPODA						
Family PHOXICHLIDIIDAE						
<i>Anoplodactylus batangensis</i> (Helfer, 1938) [*]	ct	B,P	b,it,st	0–40	n.a.	[7]
<i>Anoplodactylus insigniformis</i> Stock, 1974 [*]	Car	P	b,it,st	0–2	n.a.	[10]

n.a. = information not available

^{*} = Specimens lodged by Child in the ZMUCR, but not specifically recorded *in litt.* from Costa Rica

^aCar = Caribbean; ct = circumtropical

^bB = Belize; P = Panama

^cb = benthic; it = intertidal; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^eReferences are indicated by numbers according to the reference list

Species List 25.2 Pycnogonids recorded from Pacific Costa Rica. Higher taxonomy below is as in Arnaud and Bamber (1987)

Species	World distribution ^a	Central America ^b	Costa Rica Endemic Pacific ^c	Oceanic distribution ^b	Depth ^e (m)	Habitat/ Community ^f	References ^g
Class PYCNOGONIDA							
Order PANTOPODA							
Family AMMOTHEIDAE							
<i>Ammothella symbius</i> Child, 1979	EP	P	IC	b,it,st	0-2	n.a.	[2]
<i>Ascorhynchus paxillatum</i> Child, 1992	EP	x	D	b,st	1892	mb	[3]
<i>Tanystylum ishmiaicum</i> Stock, 1955	EP	P	IC	b,it,st	0-6	n.a.	[8]
Family CALLIPALLENIDAE							
<i>Anoropallene palpida</i> (Hilton, 1939) [*]	EP	G,P	PM	b,it,st	0-2	mb	[2]
<i>Callipallene californiensis</i> (Hall, 1913) [*]	EP	P	PM	b,it,st	0-27	n.a.	[6]
Family PHOXICHILIDIIDAE							
<i>Anoplodactylus californicus</i> Hall, 1912	ct	B,N,P	PM	b,it,st	0-29	n.a.	[5]
<i>Anoplodactylus erectus</i> Cole, 1904 [*]	EP,IP,WP	P	PM	b,it,st	0-90	rb	[4]
<i>Anoplodactylus reimerae</i> Child, 1979 [*]	EP	P	PM	b,it,st	0-9	n.a.	[2]
<i>Anoplodactylus typhlops</i> Sars, 1888	EA,EP,WA		D	b,st	183-3600	mb	[1]
Family NYMPHONIDAE							
<i>Heteronymphon abyssale</i> (Stock, 1968)	EP	x	D	b,st	3570	mb	[9]

n.a. = information not available

^{*}Specimens lodged by Child in the ZMUCR, but not specifically recorded *in litt.* from Costa Rica

^aCar = Caribbean; ct = circumtropical; EP = eastern Pacific; IP = Indo Pacific; WA = Western Atlantic

^bB = Belize; G = Guatemala; N = Nicaragua; P = Panamá

^cD = deep water off Costa Rica; IC = Isla del Coco; PM = Pacific mainland

^db = benthic; it = intertidal; st = subtidal

^eUppermost and lowermost occurrences (in meters)

^fmb = muddy bottom; rb = rocky bottom

^gReferences are indicated by numbers according to the reference list

Species List 26.1 Marine Collembola and Hemiptera (Class Insecta) from the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Habitat/Community ^e	References ^f
			Endemic	Pacific ^c			
Order COLLEMBOLA							
Family HYPOGASTURIDAE							
<i>Anurida mara</i> Christiansen & Bellinger, 1988	n.a.	n.a.	Yes?	PM	it	rb	[2]
Order HEMIPTERA							
Family GERRIDAE							
<i>Halobates sobritinus</i> White 1883	EP	CA		IC?, PM	p	ws	[1]
<i>Rheumatobates ornatus</i> Polhemus & Cheng, 1976	n.a.	n.a.	Yes?	PM	it	m, ws	[4, 6]
<i>Rheumatobates prostates</i> Polhemus, 1975	n.a.	P		PM	it	m, ws	[3, 6]
Family MESOVELIIDAE							
<i>Mesovelia halirrhya</i> Polhemus, 1975	EP	n.a.		PM	it	cl, ws	[3, 6]
Family SALDIDAE							
<i>Paratosalda innova</i> Polhemus & Evans, 1969	EP	P		PM	it	rb	[6]
<i>Pentacora signoreti</i> (Guerin-Meneville, 1969)	EP, WA	CA		PM	it	sb	[6, 7]
<i>Pentacora sphaelata</i> (Uhler, 1877)	Car, EP, Med, WA	CA		PM	it	m, mb, rb	[6, 7]
Family VELIIDAE							
<i>Microvelia inquilina</i> Polhemus & Hogue 1972	n.a.	n.a.	Yes?	PM	it	crab holes of <i>Ucides occidentalis</i>	[5, 6]

n.a.= information not available

^aCar = Caribbean; EP = eastern Pacific; Med = Mediterranean; WA = western Atlantic^bCA = all Central American countries; P = Panama^cPM = Pacific mainland; IC = Isla del Coco^dit = intertidal; p = pelagic^ecl = coastal lagoons; m = mangroves; mb = muddy bottom; rb = rocky bottom; sb = sandy bottom; ws = water surface^fReferences indicated by numbers according to the reference list

Species List 27.1 Chitons known to occur along the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d (m)	Habitat/Community ^e	References ^f
Class POLYPLACOPHORA						
Order CHITONIDA						
Family ISCHINOCHEMIDAE						
<i>Ischnochiton erythronotus</i> (C.B. Adams, 1845)	Car, WA		eb, it, st	0–5	cr, rb, rub	[18]
<i>Ischnoplax pectinata</i> (Sowerby 1840)	Car, WA	CA	eb, it, st	0–3	rb, rub, sb	[15]
<i>Stenoplax boogii</i> (Haddon, 1886)	Car, EP, WA	CA	eb, it, st	0–64	rb, rub	[13, 17]
<i>Stenoplax purpurascens</i> (C.B. Adams, 1845)	Car, WA	P	eb, it, st	0–90	rb, sb	[2]
Family CHITONIDAE						
<i>Acanthopleura granulata</i> (Gmelin, 1791)	Car	CA	eb, it	0–1	rb	[12, 15]
<i>Chiton marmoratus</i> Gmelin, 1791	Car	CA	eb, it, st	0–3	Rb	[15]
<i>Chiton tuberculatus</i> Linnaeus, 1758	Car, WA	CA	eb, it, st	0–5	Rb	[15]
Family ACANTHOCHEMIDAE						
<i>Acanthochitona rhodea</i> (Pilsbry, 1893)	Car	P	eb, it, st	0–53	Rb	[15, 22]

^aCar = Caribbean; EP = eastern Pacific; WA = western Atlantic^bCA = all Central American countries; P = Panama^ceb = epibenthic; it = intertidal; st = subtidal^dUppermost and lowermost occurrences (in meters)^ecr = coral reefs; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom^fReferences are indicated by numbers according to the reference list

Species List 27.2 Chitons known to occur along the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
Class POLYPLACOPHORA								
Order CHITONIDA								
Family ISCHNOCHITONIDAE								
<i>Callistochiton colimensis</i> (A.G. Smith, 1961)	EP	CA		PM	eb,it,st	0–340	cr,rub	[7]
<i>Callistochiton expressus</i> (Carpenter, 1865)	EP	CA		PM	eb,it,st	0–90	n.a	[7 (as <i>elenensis</i>), 19]
<i>Callistochiton pulchrior</i> Carpenter MS, Pilsbry, 1893	EP	N,P		PM	eb,it,st	0–55	cr	[7 (as <i>periconis</i>), 19]
<i>Callistoplax retusa</i> (Sowerby in Broderip & Sowerby 1832)	EP	CA		PM	eb,it,st	n.a.	n.a.	[19]
<i>Ceratozona angusta</i> Thiele, 1909	EP	ES,N		PM	eb,it	0–1	rb	[19]
<i>Chaetopleura lurida</i> (Sowerby in Broderip & Sowerby 1832)	EP	CA		PM	eb,it,st	0–30	rb,rub,	[10 (as <i>scabricula</i>)]
<i>Chaetopleura roddai</i> Ferreira, 1983	EP	P		PM	eb,it,st	0–90	n.a.	present study
<i>Chaetopleura unilineata</i> Leloup, 1954	EP	CA		PM	eb,it,st	0–90	n.a.	[10]
<i>Ischmochiton dispar</i> (Sowerby, 1832)	EP	ES,N,P		PM	eb,it	n.a.	n.a.	[18]
<i>Ischmochiton guatemalensis</i> Thiele, 1910	EP	CA		PM	eb,it,st	n.a.	n.a.	[18, 24]
<i>Ischmochiton victoriae</i> Ferreira, 1987	EP		X	IC	eb,st	18–95	cr,sb	[13]
<i>Lepidozona allynsmithi</i> Ferreira, 1974	EP	CA		PM	eb,it,st	2–20	n.a.	[6]
<i>Lepidozona rothi</i> Ferreira, 1983	EP			IC	ep,eb,st	46–110	n.a.	[11, 13]
<i>Stenoplax boogii</i> (Haddon, 1886)	Car,EA,EP	CA		PM,IC	eb,it,st	0–64	rb,rub	[13, 17]
<i>Stenoplax limaciformis</i> (Sowerby, 1832)	EP	CA		PM	eb,it,st	n.a	rb,rub	[2, 17]
? <i>Stenoplax petaloides</i> (Gould, 1846)	EP	CA		PM	eb,it,st	0–100	rb,rub	[25]
Family MOPALIIDAE								

(continued)

Species List 27.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth ^e	Habitat/Community ^f	References ^g
			Endemic	Pacific ^c				
Family CHITONIDAE								
<i>Chiton goodallii</i> Broderip in Broderip & Sowerby 1832	EP	ES		IC	eb,it	n.a.	rb	[3, 21]
<i>Chiton stokesii</i> Broderip, 1832	EP	CA		PM, IC	eb,it	n.a.	rb	[1, 3, 14]
<i>Tonicia forbesi</i> Carpenter, 1857	EP	CA		PM	eb,it,st	0–10	rb	[20]
Family ACANTHOCHITONIDAE								
<i>Acanthochitona angelica</i> Dall, 1919	EP	P		IC	eb,st	40–69	cr,rub	[26]
<i>Acanthochitona exquisita</i> (Pilsbry, 1893)	EP	CA		PM	eb,it,st	n.a.	sb	[26]
<i>Acanthochitona ferreirai</i> Lyons, 1988	EP	CA		PM	eb,it,st	n.a.	n.a.	[22]
<i>Acanthochitona hirudiniformis</i> (Sowerby, 1832)	EP	CA		PM, IC	eb,it	0–2	rb,rub,sb	[22]

n.a. = information not available

^aCar = Caribbean; EA = eastern Atlantic; EP = eastern Pacific

^bCA = all Central American countries; ES = El Salvador; N = Nicaragua; P = Panama

^cIC = Isla del Coco; PM = Pacific mainland

^deb = epibenthic; ep = epipelagic; it = intertidal; st = subtidal

^eUppermost and lowermost occurrences (in meters)

^fcr = coral reefs; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom

^gReferences are indicated by numbers according to the reference list

Species List 28.1 Benthic, shelled gastropods of the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Class GASTROPODA							
Subclass EOGASTROPODA							
Order PATELLOGASTROPODA							
Suborder NACELLINA							
Superfamily ACMAEOIDEA							
Family LOTTIIDAE							
<i>Lottia jamaicensis</i> (Gmelin, 1791)	F, G, C	B, P		c, cr, ma, of	s	n.a.	[267, 307, 307a, 377, 383]
<i>Lottia leucopleura</i> (Gmelin, 1791)	F, G, C, Br	B		cr, it, of, sb	r, sh	n.a.	[1, 2, 84, 89, 130, 306, 307, 307a, 377, 383, 384, 387]
<i>Patelloida pustulata</i> (Helbling, 1779)	Ber, F, G, C	B, P		cr, it, of	r	n.a.	[1, 84, 89, 130, 267, 307, 307a, 377, 383]
<i>Tectura antillarum</i> (Sowerby, 1834)	F, G, C	P		it, sb	co, r	n.a.	[84, 89, 187, 267, 307, 307a, 377, 383]
Subclass ORTHOGASTROPODA							
Superorder VETIGASTROPODA							
Superfamily FISSURELLOIDEA							
Family FISSURELLIDAE							
<i>Diodora arcuata</i> (Sowerby, 1862)	F, C, Br	P		cr, it, of	a, co, r, ru, s, sg	-/80	[1, 84, 130, 187, 267, 295, 302, 307, 307a, 383]
<i>Diodora cayenensis</i> (Lamarck, 1822)	NWA, Ber, F, G, C, Gu, Br	B, P		c, cr, it, ma, of, rl	a, as, co, o, r, ru, s, sh, so	-/42	[1, 2, 6, 84, 88, 89, 130, 244, 267, 295, 302, 307, 307a, 316, 377, 383, 387]
<i>Diodora jaumei</i> Aguayo & Rehder, 1936	F, G, C, Br	B		sb	r, ru, sh	-/400	[1, 84, 89, 130, 302, 377]
<i>Diodora listeri</i> (d'Orbigny, 1842)	Ber, F, G, C, Gu, Br	B, P		c, cr, it, of	a, as, co, r, ru, s, w	-/42	[84, 89, 130, 187, 244, 267, 295, 302, 307, 307a, 316, 377, 383, 384]
<i>Diodora minuta</i> (Lamarck, 1822)	F, G, C, Br	B		cr, it, of, sb	r	1/30	[1, 2, 84, 89, 307, 307a, 377, 383]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Emarginula phrixodes</i> Dall, 1927	NWA, F, C, Br	P		n.a.	co, g, ru	10/1,936	[84, 89, 267, 302, 307, 307a, 383]
<i>Fissurella angusta</i> (Gmelin, 1791)	F, G, C, Gu	B, P		cr, it, of	co, r		[1, 84, 89, 187, 267, 307, 307a, 377, 383]
<i>Fissurella barbadensis</i> (Gmelin, 1791)	Ber, F, G, C	B, P		cr, it, oc, of, sb	co, r		[1, 2, 84, 89, 130, 187, 267, 307, 307a, 377, 383, 384, 387]
<i>Fissurella fascicularis</i> Lamarck, 1822	F, G, C	B, P		cr, it, of	r		[1, 84, 130, 267, 377]
<i>Fissurella nodosa</i> (Born, 1778)	F, G, C, Br	B, P		cr, it, of	a, co, r		[1, 84, 89, 130, 187, 267, 306, 307, 307a, 377, 383, 384]
<i>Fissurella rosea</i> (Gmelin, 1791)	F, C, Br	B, P		it	a, r		[1, 84, 89, 130, 267, 302, 306, 307, 307a, 377]
<i>Hemitoma octoradiata</i> (Gmelin, 1791)	Ber, F, G, C, Gu, Br	B, P		c, cr, it, of	a, co, r, s, sh		[1, 84, 89, 130, 187, 267, 302, 307, 307a, 377, 383]
<i>Lucapina aegis</i> (Reeve, 1850)	F, C, Br, SCA			it	co, r	-18	[1, 89, 130, 302]
<i>Lucapina sowerbii</i> (Sowerby, 1835)	F, G, C, Br			c, cr, it, of, sb	r, s	-45	[1, 84, 89, 130, 223, 302, 377]
<i>Lucapina suffusa</i> (Reeve, 1850)	NWA, Ber, F, G, C, Br	B, P		cr, it, of, rl, sb	a, bo, co, r, s	-21	[1, 2, 88, 89, 130, 267, 302, 307a, 377]
<i>Lucapinella limatula</i> (Reeve, 1850)	NWA, F, G, C, Br	B, P		c, cr, it, of	as, r, s, sh	-150	[1, 6, 89, 130, 267, 302, 377]
<i>Rimula frenulata</i> (Dall, 1889)	NWA, F, C, Br			n.a.	r, ru	-400	[1, 84, 130, 302]
Superfamily TROCHOIDEA							
Family TURBINIDAE							
<i>Arene cruentata</i> (Mithfield, 1829)	F, G, C	B		cr, of	g, r, s	-180	[1, 84, 89, 130, 307a, 377, 383]
<i>Arene laguairana</i> Weisbord, 1962	C			n.a.	g, s		[89, 130, 307a]
<i>Arene riset</i> Rehder, 1943	C, Br	P		it	co, r, s	-36	[1, 84, 130, 267, 302]

<i>Arene tricarinata</i> (Stearns, 1872)	NWA, F, G, C, B Gu, Br		cr, it, of, rl	a, co, g, ru, s, -/180 sg, sh, so	[84, 88, 89, 130, 187, 302, 306, 307, 307a, 377, 383]
<i>Astraliium brevispina</i> (Lamarck, 1822)	NWA, F, C		n.a	r	[18, 89, 307, 307a, 384]
<i>Astraliium phoebium</i> (Röding, 1798)	NWA, Ber, B , G, C, Br		c, cr, it, of	a, bo, co, m, 4/10 r, s, sg	[1, 84, 88, 89, 130, 244, 302, 307a, 377, 383]
<i>Cyclostrema cancellatum</i> Marryat, 1818	F, G, C, Br	B, P	c, cr, of	r, s	[1, 84, 130, 267, 302, 307, 307a, 377, 383]
<i>Cyclostrema tortuganum</i> (Dall, 1927)	F, C, Br		cr	co, m, s	[1, 89, 223, 307a,]
<i>Eulithidium adamsi</i> (Philippi, 1853)	G, C, Br	B, P	c, cr, it, ma	co, m, r, s, 4/8 sg	[84, 89, 130, 267, 307, 307a, 377, 383]
<i>Eulithidium affine cruentum</i> (Robertson, 1958)	F, G, C, Br	B, P	b, c, cr, it, ma, of	a, bo, co, g, -/10 r, s, sg	[1, 6, 84, 89, 130, 187, 267, 302, 307, 307a, 377, 383]
<i>Eulithidium bellum</i> (M. Smith, 1937)	F, G, C, Br	B, P	c, it, ma, of, cr	a, co, m, r, 1/10 ru, s, sg	[84, 89, 130, 267, 302, 306, 307, 307a, 377, 383]
<i>Eulithidium tessellatum</i> (Potiez & Michaud, 1838)	G, C	B, P	c, cr, of	co, g, s, sg n.a.	[1, 89, 130, 267, 307, 307a, 377, 383]
<i>Eulithidium thalassicola</i> (Robertson, 1958)	NWA, F, G, C, B Br		c, cr, ma, of	r, s, sg -/64	[1, 84, 89, 130, 302, 377]
<i>Lithopoma caelatum</i> (Gmelin, 1791)	F, G, C	B, P	cr, it, of, rl, sb	bo, co, r, ru, s -/10	[1, 2, 84, 88, 89, 130, 187, 267, 307, 307a, 377, 383, 384]
<i>Lithopoma tectum</i> (Lightfoot, 1786)	G, C, Br	P	cr, of, rl	co, r, ru, s 1/20	[2, 84, 88, 89, 130, 223, 306, 307, 307a, 377, 387]
<i>Lithopoma tuber</i> (Linnaeus, 1758)	F, C		it, sb	co, r -/10	[2, 84, 89, 187, 307, 307a, 383]
<i>Turbo caillietii</i> P. Fischer & Bernardi, 1856	F, G, C, Br		cr, of	co 3/37	[1, 89, 130, 223, 377]
<i>Turbo castanea</i> Gmelin, 1791	NWA, F, G, C, B Gu, Br		c, cr, of, sb	a, as, co, r, -/42 s, sg	[1, 2, 84, 89, 130, 132, 244, 295, 302, 307a, 377, 383]
Family TROCHIDAE					
<i>Calliostoma javanicum</i> (Lamarck, 1822)	F, G, C, Br	B	c, cr, of	co, r, s 1/35	[1, 2, 84, 89, 130, 223, 307, 307a, 377, 383]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Calliostoma jujubinum</i> (Gmelin, 1791)	NWA, F, G, C, Gu, Br	B, P		cr, it, of	a, co, g, r, s, sh, so	1/145	[1, 2, 84, 88, 89, 130, 267, 295, 302, 307, 307a, 316, 377, 383, 387]
<i>Calliostoma sarcodum</i> Dall, 1927	C			cr	co	n.a.	[1, 84, 130]
<i>Cittarium pica</i> (Linnaeus, 1758)	NWA, F, G, C	B, P		cr, it, of, sb, sp	a, bo, co, r	-/2	[1, 2, 12, 18, 84, 89, 130, 183, 187, 267, 307, 307a, 377, 383, 384]
<i>Tegula excavata</i> (Lamarck, 1822)	F, G, C	B		cr, it, of, sb	bo, co, r	-/1	[2, 84, 89, 130, 183, 187, 307, 307a, 377, 383, 384]
<i>Tegula fasciata</i> (Born, 1778)	NWA, F, G, C, Gu, Br, P	B, P	Pac	c, cr, it, ma, of, rl, sb	a, bo, co, r, s, sg	1/15	[1, 6, 18, 84, 88, 89, 130, 187, 216, 247, 250, 267, 279, 302, 307, 307a, 377, 383, 387]
<i>Tegula gruneri</i> (Philippi, 1849)	C			n.a.	n.a.		[130]
<i>Tegula lividomaculata</i> (C.B. Adams, 1845)	F, G, C	B		c, cr, it, of	r, s		[1, 84, 89, 130, 307, 307a, 377, 383, 384]
<i>Tegula viridula</i> (Gmelin, 1791)	C, Gu, Br	P		it	a, di, r, s, sg		[89, 130, 187, 267, 302, 307, 307a]
Family SKENEIDAE							
<i>Haplocochlias costaricensis</i> Robinson, 1991	C			n.a.	n.a.	15	[306, 307, 307a]
<i>Haplocochlias swifti</i> Vanatta, 1913	C, Br	P		cr	co, g, m, s	4/45	[1, 84, 89, 130, 302, 307a]
<i>Perviturbo calidimarit</i> Pilsbry & McGinty, 1945	F			n.a.	n.a.	20	[1, 307, 307a]
Superorder NERITOPSINA							
Superfamily NERITOIDEA							
Family NERITIDAE							
<i>Nerita fulgurans</i> Gmelin, 1791	Ber, F, G, C, Br	B, P		bw, fw, it, ma, sp	as, co, r, s, sg		[1, 2, 6, 12, 84, 89, 130, 187, 244, 267, 302, 307, 307a, 377, 383, 384, 387]

<i>Nerita peloronta</i> Linnaeus, 1758	Ber, F, G, C, Br	B, P	cr, it, of, sp	co, r	[1, 84, 89, 130, 184, 187, 267, 307, 307a, 377, 384]
<i>Nerita tessellata</i> Gmelin, 1791	Ber, F, G, C, Gu, Br	B, P	c, cr, it, of, sb, sp	as, co, r, s	[1, 12, 84, 89, 130, 184, 244, 267, 302, 306, 307, 307a, 377, 383, 384, 387]
<i>Nerita versicolor</i> Gmelin, 1791	Ber, F, G, C, Br	B, P	fw, cr, it, of, sp	as, co, l, m, r, s, w	[1, 84, 89, 130, 132, 184, 187, 244, 267, 307, 307a, 377, 384, 387]
<i>Neritina meleagris</i> Lamarck, 1822	C, Br	B	n.a	r, ru, s, sg, sh	[84, 89, 130, 187, 307, 307a, 383]
<i>Neritina piratica</i> Russell, 1940	C, Br	B, P	cl, fw, ma	l, m, s, w	[187, 307, 307a, 307a, 383, 384]
<i>Neritina usnea</i> (Röding, 1798)	F, G, C		bw, cl, fw, ma, sb	n.a.	[1, 244, 307a, 383, 384]
<i>Neritina virginea</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Gu, Br	B, P	b, bw, c, cl, es, fw, cr, it, ma, of, sp	as, m, r, s, sg, sh	[1, 6, 12, 84, 89, 130, 187, 244, 267, 302, 306, 307, 307a, 377, 383, 387]
<i>Puperita pupa</i> (Linnaeus, 1767)	C		cl, it	bo, co, r, ru, s, sg	[1, 84, 89, 130, 187, 307, 307a]
<i>Smaragdia viridis viridemaris</i> Maury, 1917	Ber, F, G, C, Br	B, P	b, c, cr, it, ma, of	r, s, sg	[1, 6, 84, 89, 130, 187, 244, 267, 307, 307a, 377]
Superorder CAENOGASTROPODA					
Order SORBEOCONCHA					
Superfamily CERITHIOIDEA					
Family CERITHIIDAE					
<i>Bititolum varium</i> (Pfeiffer, 1840)	NWA, F, G, C, Br	B, P	b, c, d, cr, it, ma, of, rl, sb	a, as, co, di, m, r, ru, s, sg, sh	[1, 6, 84, 88, 89, 130, 151, 187, 192, 244, 267, 302, 306, 307a, 367, 377]
<i>Cerithium atratum</i> (Born, 1778)	NWA, F, G, C, Br, NEA, SEA	B	c, cr, it, ma, of, sb	co, m, r, s, sg	[1, 2, 6, 84, 89, 132, 244, 302, 307, 307a, 377]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Cerithium eburneum</i> Bruguière, 1792	NWA, Ber, F, G, C, Br	B, P		c, cr, it, ma, of, rl, sb	a, bo, co, r, ru, s, sg	-/15	[1, 2, 12, 18, 84, 88, 89, 130, 187, 267, 302, 306, 307, 307a, 377, 383, 384]
<i>Cerithium guinaicum</i> Philippi, 1849	F, C, NEA, SEA			cr, it, sb	g, r, s	-/20	[1, 2, 84, 89, 187, 306, 307, 307a]
<i>Cerithium litteratum</i> (Born, 1778)	NWA, Ber, F, G, C, Br	B, P		c, cr, it, of, rl, sb, sp	a, bo, co, m, r, s, sg, sh	0.5/40	[1, 2, 12, 18, 84, 88, 89, 130, 223, 244, 267, 302, 306, 307, 307a, 316, 377]
<i>Cerithium lutosum</i> Menke, 1828	NWA, Ber, F, G, C	B		b, c, it, ls, ma, cr, of	a, co, r, s, sg	n.a.	[1, 6, 12, 84, 89, 130, 132, 187, 244, 307, 307a, 377, 387]
Family LITIOPIDAE							
<i>Alaba incerta</i> (d'Orbigny, 1842)	NWA, Ber, F, G, C, Br, SWA	B, P		b, c, ma, oc, cr, of	g, r, ru, s, sg	2/15	[1, 12, 18, 84, 89, 130, 187, 244, 267, 302, 306, 307, 307a, 377, 387]
Family SILIQUARIIDAE							
<i>Stephopoma myrakeenae</i> Olsson & McGinty, 1958	C	P		cr, sb	co, m, s	2/8	[1, 136, 187, 256, 267, 306, 307, 307a]
<i>Tenagodus squamatus</i> (de Blainville, 1827)	NWA, Ber, F, C, Br			cr, of	a, co, sh, so	25/732	[1, 2, 84, 89, 130, 252, 302, 307a, 383]
Family PLANAXIDAE							
<i>Fossarus orbigny</i> P. Fischer, 1864	Ber, F, G, C, Br, NEA	B, P		cr, it, sb	a, bo, co, m, p, r, s	-/8	[1, 89, 132, 187, 191, 223, 267, 302, 307, 307a, 377, 387]
<i>Hinea lineata</i> (E.M. da Costa, 1778)	Ber, F, G, C, Br, SCA, NEA	B, P		b, cr, cl, it, of	a, bo, co, g, r, ru, s, sh	1/5	[1, 84, 89, 130, 187, 190, 223, 267, 302, 307, 307a, 377, 383, 387]

<i>Supplanaxis nucleus</i> (Bruguière, 1789)	Ber, F, G, C	B, P	it, sp	a, bo, co, r	n.a.	[84, 89, 130, 187, 190, 267, 307, 307a, 377, 383, 384, 387]
Family MODULIDAE						
<i>Modulus carchedonius</i> (Lamarck, 1822)	C, Br	P	it	a, m, r, s, sg	n.a.	[89, 187, 267, 302, 307, 307a]
<i>Modulus modulus</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Br, SCA	B, P	c, cr, d, it, ma, of, rl, sp	as, bo, co, g, m, r, s, sg	0.5/15	[1, 6, 12, 18, 84, 88, 89, 130, 187, 244, 267, 302, 306, 307, 307a, 377, 384]
Family SCALIOLIDAE						
<i>Finella adamsi</i> (Dall, 1889)	Ber, F, G, C	B	c, cr, it, of	r, s	2/8	[84, 89, 307, 307a, 377]
<i>Finella dubia</i> (d'Orbigny, 1842)	NWA, F, G, C, Br	B	c, cr, ma, of	a, r, s, sg	-72	[84, 89, 130, 132, 244, 302, 306, 307, 307a, 377]
Suborder HYPSOGASTROPODA						
Infraorder LITTORINIMORPHA						
Superfamily LITTORINOIDEA						
Family LITTORINIDAE						
<i>Cenchritis muricatus</i> (Linnaeus, 1758)	Ber, F, G, C, Co	B, P	cr, d, it, of, sp	r, w	n.a.	[12, 28, 84, 89, 130, 187, 267, 307, 307a, 377, 383, 384]
<i>Littoraria angulifera</i> (Lamarck, 1822)	Ber, F, G, C, Gu, Br, NEA, P	B, P	bw, c, cr, ma, of, sp, sw	as, r, s, sg, w	n.a.	[1, 6, 84, 89, 130, 244, 267, 302, 307, 307a, 377, 383, 384]
<i>Littoraria nebulosa</i> (Lamarck, 1822)	Ber, F, G, C, Br, P	B	bw, it, sp	as, co, r, ru, w	n.a.	[1, 6, 12, 89, 130, 187, 307, 307a, 377, 383, 384, 387]
<i>Littoraria tessellata</i> (Philippi, 1847)	C	P	n.a.	r	n.a.	[84, 130, 267]
<i>Nodilittorina angustior</i> (Mörch, 1876)	Ber, F, G, C, Br	B	cr, it, of, sp	as, r	n.a.	[1, 84, 89, 130, 244, 377]
<i>Nodilittorina interrupta</i> (Philippi, 1847)	C	N	sp	r	n.a.	[84, 89]
<i>Nodilittorina lineolata</i> (d'Orbigny, 1840)	Ber, F, G, C, Br	B	it, ma, sp	as, r, sg	n.a.	[1, 6, 187, 244, 302, 307, 307a, 377, 387]
<i>Nodilittorina meleagris</i> (Potiez & Michaud, 1838)	Ber, F, G, C, NEA	B, P	it, sp	a, as, r	n.a.	[1, 6, 12, 84, 89, 130, 244, 267, 306, 307, 307a, 377, 387]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Nodilittorina tuberculata</i> (Menke, 1828)	Ber, F, G, C	B, P		cr, of, sp	co, r	n.a.	[1, 84, 89, 187, 267, 307, 307a, 377]
<i>Nodilittorina ziczac</i> (Gmelin, 1791)	Ber, F, G, C, Br, SWA, P, TP	B, P		cr, it, of, sp	co, as, r	n.a.	[1, 12, 75, 84, 89, 130, 187, 244, 267, 302, 307, 307a, 377, 384, 387]
Family PICKWORTHIIDAE							
<i>Sansonia tuberculata</i> (Watson, 1886)	F, C			of	ru	5/713	[1, 84, 306, 307, 307a, 312]
Superfamily RISSOIDAE							
Family RISSOIDAE							
<i>Ahvania auberiana</i> (d'Orbigny, 1842)	Ber, F, G, C, Br	B, P		c, cr, it, ma, of	a, co, m, r, ru, s, sh	2/80	[1, 84, 89, 130, 134, 187, 223, 267, 295, 302, 306, 307, 307a, 377]
<i>Rissoina cancellata</i> Philippi, 1847	Ber, F, G, C, Br, P	B, P		c, cr, it, ma, of	a, r, s	n.a.	[1, 75, 84, 89, 130, 187, 216, 267, 302, 307, 307a, 377, 383]
<i>Rissoina decussata</i> (Montagu, 1803)	NWA, G, C, Br	B, P		it, ma	r, s	n.a.	[1, 84, 89, 130, 187, 267, 302, 307, 307a, 377]
<i>Rissoina elegantissima</i> (d'Orbigny, 1842)	F, C, Br	P		n.a	a	n.a.	[130, 267, 302]
<i>Rissoina</i> cf. <i>fenestrata</i> Schwartz, 1860	C, Br			n.a	n.a.	1/5	[84, 223]
<i>Rissoina labrosa</i> Schwartz, 1860	C	P		n.a	n.a.	n.a.	[1, 84, 307,]
<i>Rissoina princeps</i> (C.B. Adams, 1850)	C, Br			n.a	s	n.a.	[84, 89, 302, 306, 307]
<i>Rissoina sagraiana</i> (d'Orbigny, 1842)	Ber, G, C			n.a	s	n.a.	[1, 84, 89, 130]
<i>Rissoina striosa</i> (C.B. Adams, 1850)	F, G, C, Br			it	a, s	n.a.	[84, 89, 302, 307, 377, 383]
<i>Schwartziella bryerea</i> (Montagu, 1803)	NWA, Ber, F, G, B, P C, Br, SCA	B, P		c, cr, ma, of	a, r, s, sg	n.a.	[1, 84, 89, 130, 133, 267, 302, 307, 307a, 377, 383]
<i>Schwartziella catesbyana</i> (d'Orbigny, 1842)	NWA, Ber, F, G, C, Br	B		bw, c, cr, ma, of	as, m, r, s, sg	n.a.	[6, 84, 89, 130, 244, 302, 306, 307, 307a, 377]
<i>Schwartziella chesnelii</i> (Michaud, 1830)	C	P		n.a	n.a.	n.a.	[1, 267]

<i>Schwartziella fischeri</i> (Desjardin, 1949)	Ber, G, C, Br	B, P	cr, of	co, m, r, s	4/8	[1, 84, 89, 130, 223, 267, 302, 377, 383]
<i>Stosicia aberrans</i> (C.B. Adams, 1850)	G, C, Br	B, P	c, cr, ma	co, m, s, sg	1/8	[84, 89, 130, 187, 267, 302, 307, 307a, 377]
<i>Zebina browniana</i> (d'Orbigny, 1842)	NWA, Ber, F, G, C, Br	B, P	c, cr, ma, of	a, as, r, ru, s, sg, sh	-/5.5	[1, 6, 84, 89, 130, 187, 244, 267, 302, 306, 307, 307a, 377]
<i>Zebina laevigata</i> (C.B. Adams, 1850)	C		n.a	n.a.	n.a.	[84, 130]
Family BARLEEIDAE						
<i>Barleeia creutzbergi</i> (de Jong & Coomans, 1988)	G, C		n.a	a	4/12	[84, 130, 308]
<i>Litobarleeia chiriquiensis</i> (Olsson & McGinty, 1958)	C	P	n.a	n.a.	n.a.	[1, 136, 187, 267, 307]
Family TRUNCATELLIDAE						
<i>Truncatella pulchella</i> Pfeiffer, 1839	NWA, Ber, F, G, C, Br	B, P	c, ma, sp, sw	as, co, l, m, r, r, ru, s, sg, sh	n.a.	[1, 84, 89, 187, 244, 267, 302, 377]
Family CAECIDAE						
<i>Caecum clava</i> Folin, 1867	G, C		of	m, s	n.a.	[1, 84, 89, 187, 306, 307]
<i>Caecum condylum</i> Moore, 1969	G, C, Br		of	n.a.	30/250	[1, 84, 302, 307]
<i>Caecum cycloferum</i> Folin, 1867	NWA, F, C, Br	P	n.a	a, sg	-/25	[1, 84, 89, 187, 223, 267, 302, 307]
<i>Caecum floridanum</i> Stimpson, 1851	NWA, F, G, C, Br	B, P	c, cr, ma, of	co, g, m, ru, s, so	-/40	[84, 88, 89, 267, 302, 306, 307, 307a, 377, 383]
<i>Caecum imbricatum</i> Carpenter, 1858	NWA, Ber, F, G, C, Br	B, P	b, cr, c, ma, of, rl	co, g, r, ru, s, sg, sh, so	-/50	[1, 6, 88, 84, 89, 267, 302, 307, 307a, 377, 383]
<i>Caecum jucundum</i> Folin, 1867	C		n.a	n.a.		[187, 307]
<i>Caecum nitidum</i> Stimpson, 1851	F, G, C, Br, SWA	B, P	c, it, ma, of, cr	a, as, co, o, r, s, sg, so	6	[6, 84, 89, 244, 267, 295, 302, 307, 307a, 377]
<i>Caecum pulchellum</i> Stimpson, 1851	NWA, F, G, C, Br, SWA	B, P	b, c, cl, cr, d, it, ma, of	a, as, co, m, o, r, s, sg, sh, so	-/10	[1, 6, 84, 89, 187, 223, 244, 267, 295, 302, 306, 307, 307a, 377, 383, 387]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Caecum ryssotitium</i> Folin, 1867	F, G, C, Br			cr, it, of	a, g, m, p, r, sg, sh	10/100	[1, 84, 89, 187, 302, 307, 307a, 377, 387]
<i>Caecum</i> aff. <i>tomatum</i> Verrill & Bush, 1900	Ber, C			n.a	g, m, r	0/7	[1, 253, 307]
Family VITRINELLIDAE							
<i>Circulus multistriatus</i> (A.E. Verrill, 1884)	NWA, F, G, C	B, P		n.a	n.a.	90/180	[1, 267, 306, 307, 307a, 377, 383]
<i>Circulus semisculptus</i> (Olsson & McGinty, 1958)	F, C	P		n.a	n.a.	n.a.	[1, 84, 187, 267, 307]
<i>Cyclostremiscus beaulti</i> (P. Fischer, 1857)	NWA, F, G, C, Br	B		c	a, b, m, r, s, sg, st	n.a.	[26, 84, 89, 244, 302, 306, 307, 307a, 377, 383]
<i>Cyclostremiscus jeannae</i> Pilsbry & McGinty, 1946	F, G, C	P		of	n.a.	-/45	[6, 89, 187, 267, 307]
<i>Cyclostremiscus pentagonus</i> (Gabb, 1873)	NWA, F, G, C	B		it, of	m, s	13/31	[1, 6, 89, 130, 306, 307, 307a, 377]
<i>Cyclostremiscus schrammii</i> (P. Fischer, 1857)	G, C	B, P		cr, of	n.a.	n.a.	[89, 187, 267, 306, 307, 307a, 377]
<i>Pachystremiscus ornatus</i> (Olsson & McGinty, 1958)	F, C, Br, I	P		n.a	n.a.	n.a.	[187, 223, 251, 267, 302, 307]
<i>Parviturbooides interraptus</i> (C.B. Adams, 1850)	NWA, F, G, C, Br, SWA	B, P		c, of, re	a, as, co, o, p, r, ru, s, sg, so	6/90	[1, 6, 84, 89, 130, 187, 244, 267, 295, 302, 307, 307a, 377, 383]
<i>Solariorbis bartschi</i> (Vanatta, 1913)	C, Br	G, P		n.a	s	n.a.	[84, 89, 267, 302, 307]
<i>Solariorbis blakei</i> (Rehder, 1944)	NWA, F, G, C	P		b	n.a.	n.a.	[1, 6, 118, 187, 267, 307]
<i>Solariorbis corylus</i> Olsson & McGinty, 1958	C	P		n.a	s	n.a.	[89, 267, 307]
<i>Solariorbis infraccarinatus</i> (Gabb, 1881)	NWA, F, G, C			b	s	n.a.	[6, 89, 187, 306, 307, 307a, 377]
<i>Teinostoma megastoma</i> (C.B. Adams, 1850)	NWA, G, C	P		c, ma	r, s	n.a.	[84, 89, 187, 267, 307, 307a, 377]

<i>Teinostoma schumoi</i> Vanatta, 1913	C, Gu, Br		n.a	n.a.	n.a.	[84, 302, 307]
<i>Virrinella elegans</i> Olsson & McGinty, 1958	C	P	n.a	s	n.a.	[89, 187, 267, 307]
<i>Virrinella helicoidea</i> C.B. Adams, 1850	NWA, Ber, F, G, C	P	n.a	r	n.a.	[6, 84, 89, 187, 267, 306, 307, 307a, 377, 383]
<i>Virrinorbis elegans</i> Olsson & McGinty, 1958	C	P	n.a	n.a.	n.a.	[1, 187, 267, 307]
Superfamily STROMBOIDEA						
Family STROMBIDAE						
<i>Strombus gigas</i> Linnaeus, 1758	NWA, Ber, F, G, C	B, P	cr, it, of	a, co, s, sg	2/73	[1, 2, 18, 84, 89, 130, 187, 244, 267, 306, 307, 307a, 377, 383, 384]
<i>Strombus pugilis</i> Linnaeus, 1758	NWA, F, G, C, Gu, Br	P	c, cr, ma	co, m, r, s, sg	2/15	[32, 84, 89, 130, 187, 267, 302, 306, 307, 307a, 383, 384, 387]
<i>Strombus raninus</i> Gmelin, 1791	NWA, Ber, F, G, C, Gu, Br	B, P	cr, of, sb	r, s, sg	n.a.	[1, 12, 84, 89, 130, 187, 244, 267, 302, 306, 307, 307a, 383, 384, 387]
Superfamily VANIKOROIDEA						
Family HIPPONICIDAE						
<i>Hipponix antiquatus</i> (Linnaeus, 1767)	NWA, F, G, C, Br, SCA, NEA, NEP, P	B, P	c, cr, it, of, rl	a, bo, co, o, r, ru, s, sh, so	-/4	[1, 18, 75, 84, 88, 89, 130, 187, 223, 267, 302, 306, 307, 307a, 377, 384]
<i>Hipponix subrufus subrufus</i> (Lamarek, 1822)	NWA, F, G, C, Br, SCA, NEA, IP, P, PC	B, P	hs, it	co, r	n.a.	[75, 84, 89, 187, 223, 267, 302, 307, 307a, 377]
Family VANIKORIDAE						
<i>Macromphalina garcesi</i> Rolán & Rubio, 1998	C	P	n.a	n.a.	n.a.	[130]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Megalomphalus pilsbryi</i> (Olsson & McGinty, 1958)	C	P	n.a	n.a	n.a.	n.a.	[130, 267]
<i>Vanikoro oxychone</i> Mörch, 1877	Ber, F, G, C	P	cr	cr	co, m, s	-/8	[1, 84, 267, 377]
Superfamily CALYPTRAEOIDEA							
Family CALYPTRAEIDAE							
<i>Cheilea equestris</i> (Linnaeus, 1758)	F, C, Br, SCA, NEA, IP, NWP, Ctr, Me, P, PC, Ga	B, P	cr, of, rl, sb	cr, of, rl, sb	co, r, ru, s, so	-/20	[1, 75, 84, 85, 88, 89, 132, 187, 223, 267, 276, 302, 307, 307a, 316, 377, 383]
<i>Crepidula convexa</i> Say, 1822	NWA, Ber, F, G, C, Ca	P	cr, d, it, ma, of, rl	cr, d, it, ma, of, rl	a, as, co, m, r, s, sg, sh, w	-/210	[1, 6, 84, 88, 89, 130, 244, 267, 307, 307a, 383, 384]
<i>Crepidula plana</i> Say, 1822	NWA, Ber, F, G, C, Gu, Br	B	c, d, cr, it, ma, of, rl	c, d, cr, it, ma, of, rl	a, as, bo, co, m, o, r, s, sg, sh, so, w	-/27	[1, 6, 84, 88, 89, 130, 244, 295, 302, 377]
Superfamily CAPULOIDEA							
Family CAPULIDAE							
<i>Capulus incurvus</i> (Gmelin, 1791)	NWA, F, C, Br		cr, it, of, sb	cr, it, of, sb	co, r, ru	-/80	[1, 84, 89, 223, 295, 302, 307, 307a, 383]
Superfamily VERMETOIDEA							
Family VERMETIDAE							
<i>Dendropoma irregulare</i> (d'Orbigny, 1842)	Ber, F, C, Br	B	cr, it, of	cr, it, of	co, r, sh	n.a.	[1, 187, 254, 302, 307, 307a, 377, 383, 384]
<i>Petalconchus varians</i> (d'Orbigny, 1839)	Ber, F, G, C, Br	B, H	it, ma, sp	it, ma, sp	as, r, sg	-/5	[1, 89, 244, 254, 302, 307, 307a, 377, 387]

Superfamily CYPRAEOIDEA									
Family CYPRAEIDAE									
<i>Erosaria spurca acicularis</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Gu, Br, SCA	B, P	cr, of, rl, sb	co, g, o, r, ru, s, so	2/175	[1, 11, 12, 84, 88, 89, 130, 148, 223, 267, 302, 306, 307, 307a, 316, 377, 387]			
<i>Macrocypraea zebra</i> (Linnaeus, 1758)	NWA, F, G, C, Gu, Br	B, P	cr, it, of, rl	a, bo, co, o, r, ru, s, so	-/140	[2, 11, 84, 88, 89, 130, 187, 223, 267, 302, 306, 307, 307a, 377]			
<i>Talparia cinerea</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Br, SCA	B, P	c, cr, of, rl	co, o, r, ru, s, so	1/175	[11, 84, 88, 89, 130, 187, 223, 267, 302, 306, 307, 307a, 316, 377, 384]			
Family OVULIDAE									
<i>Cyphoma gibbosum</i> (Linnaeus, 1758)	NWA, Ber, G, C	P	cr, rl, sb	a, bo, co, o, r, ru, s, so	-/25	[84, 88, 89, 130, 267, 306, 307, 307a, 316, 383, 384, 387]			
<i>Cyphoma signatum</i> Pilsbry & McGinty, 1939	Ber, F, G, C, Gu, Br	B	cr	co, o, so	2/12	[1, 71, 84, 88, 89, 302, 377]			
Superfamily VELUTINOIDEA									
Family TRIVIIDAE									
<i>Hespererato maugeriae</i> (J.E. Gray, 1832)	NWA, F, G, C, Br, Ga	P	c, cr, of	a, co, s	4/115	[1, 84, 89, 130, 216, 267, 279, 295, 302, 306, 307, 307a, 377, 383]			
<i>Niveria antillarum</i> (Schilder, 1922)	NWA, F, C, Br		cr, rl	co, g, s, sh	20/180	[84, 88, 89, 301, 307, 307a]			
<i>Niveria leucosphaera</i> Schilder, 1931	F, G, C		n.a.	n.a.		[54, 84, 130, 187, 307, 307a, 383]			
<i>Niveria nix</i> (Schilder, 1922)	F, G, C, Gu, Br		cr	co, o, r	30/90	[84, 88, 89, 130, 302, 307]			
<i>Niveria pediculus</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Br	B, P	c, cr, it, of, rl, sb	ad, as, co, o, r, s, so	0.5/100	[1, 2, 84, 88, 89, 130, 244, 267, 302, 307, 307a, 377, 384]			
<i>Niveria quadripunctata</i> (J.E. Gray, 1827)	Ber, F, G, C	B, P	c, cr, of, rl, sb	co, o, r, s, so	0.5/50	[2, 84, 88, 89, 130, 267, 306, 307, 307a, 377]			
<i>Niveria suffusa</i> (J.E. Gray, 1827)	F, G, C, Gu, Br	B	c, cr, ma, of	a, co, o, r, s, tu	12/91	[1, 6, 84, 88, 89, 223, 302, 306, 307, 307a, 377]			

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Family LAMELLARIIDAE							
<i>Lamellaria perspicua</i> (Linnaeus, 1758)	F, G, C, Br, SWA, EA, M, IP, Co, PC			cr, it, of	a, as, co, r, s, tu	-1,287	[1, 130, 244, 295, 307a, 383]
Superfamily NATICOIDEA							
Family NATICIDAE							
<i>Natica marochiensis</i> (Gmelin, 1791)	F, G, C, Gu, Br, NEA, SEA			it	s, sh	n.a.	[1, 84, 89, 130, 223, 302, 377]
<i>Naticarius canrena</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Gu, Br	B, P		b, c, cr, ma, of, sb	r, s, sh	n.a.	[1, 6, 84, 89, 130, 223, 267, 302, 377]
<i>Polinices hepaticus</i> (Röding, 1798)	F, G, C, Gu, Br	B, P		of	r, s	-15	[1, 6, 84, 89, 130, 267, 302, 306, 307, 307a, 377, 384, 387]
<i>Polinices lacteus</i> (Guilding, 1834)	NWA, Ber, F, G, C, Br, SCA, NEA, SEA	B, P		c, cr, it, of	r, s	-175	[1, 84, 89, 130, 187, 223, 244, 267, 302, 306, 307, 307a, 316, 377, 384, 387]
<i>Sinum perspectivum</i> (Say, 1831)	NWA, Ber, F, G, C, Gu, Br	B		c, cr, it, ma, of	s, sh	-55	[1, 6, 84, 89, 130, 302, 377]
Superfamily TONNOIDEA							
Family BURSIDAE							
<i>Bursa granularis cubaniana</i> (d'Orbigny, 1842)	NWA, F, G, C, Gu, Br, IP	B, P		cr, it, of, rl	a, bo, co, o, r, ru, so	-30	[84, 88, 89, 130, 187, 223, 267, 302, 306, 307, 307a, 377, 384, 387]
<i>Bursa rhodostoma thomae</i> (d'Orbigny, 1842)	NWA, F, C, Br, SCA, NEA			cr, of, rl	a, co, o, r, ru, sh, so	5/80	[1, 2, 84, 88, 89, 130, 223, 302, 307a]

Family CASSIDAE							
<i>Cassis tuberosa</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Gu, Br, NEA	B, P	cr, of	a, s, sg	1/10	[84, 89, 130, 267, 302, 307, 307a, 377, 384]	
<i>Cypraeccassis testiculius</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Br, SCA, NEA	B, P	cr, it, of	s, sg	-/10	[6, 84, 89, 130, 187, 223, 267, 302, 307, 307a, 316, 377, 383, 384]	
<i>Phalium granulatum</i> (Born, 1778)	NWA, Ber, F, G, C, Gu, Br, SWA, SCA, NEA	B, P	of	r, s	n.a.	[1, 6, 84, 89, 130, 223, 244, 267, 302, 306, 307, 307a, 316, 377, 384, 387]	
<i>Semicassis cicatricosus</i> (Gmelin, 1791)	G, C	B	n.a	n.a.	n.a.	[84, 377]	
Family RANELLIDAE							
<i>Charonia variegata</i> (Lamarck, 1816)	NWA, Ber, F, G, C, Br, SCA, NEA, M	B, P	c, cr, of	a, bo, co, r, s, sh	1/384	[1, 2, 12, 84, 88, 89, 110, 130, 187, 243, 267, 289, 302, 306, 307, 307a, 316, 377, 383, 384]	
<i>Cymatium aquatile</i> (Reeve, 1844)	NWA, Ber, F, G, C, Gu, Br, SCA	B	Pac c, cr, ma, of	as, ci, co, m, r, s, sg, sh	-/60	[1, 6, 84, 89, 130, 187, 244, 302, 307a, 377, 384]	
<i>Cymatium cynocephalum</i> (Lamarck, 1816)	NWA, Ber, F, G, C, Br	P	c, cr, of	a, co, s, sg	10/30	[1, 89, 267, 302, 307, 307a, 377]	
<i>Cymatium labiosum</i> (W. Wood, 1828)	NWA, F, G, C, Br, NEA, I, IP, CtP	B	cr, it, of	r	-/2	[1, 2, 84, 89, 130, 223, 244, 302, 307a, 377, 383]	
<i>Cymatium martinianum</i> (d'Orbigny, 1846)	NWA, Ber, F, C, Br, SCA, NEA, SEA, CtP	P	n.a	n.a.	n.a.	[84, 223, 244, 267, 306, 307, 307a]	
<i>Cymatium nicobaricum</i> (Röding, 1798)	Ber, F, G, C, Br, SCA, EA, I, IP, NWP, CtP, P, Cl, Ga	B	Pac c, cl, cr, it, of, rl, sb	a, bo, co, r, s, sh	-/100	[1, 2, 6, 21, 84, 85, 88, 89, 109, 130, 204, 214, 215, 244, 250, 302, 307a, 326, 377, 384, 387]	

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Cymatium vespacuum</i> (Lamarck, 1822)	NWA, Ber, C, Br			sb	n.a.		[1, 84, 130]
Family TONNIDAE							
<i>Tonna galea</i> (Linnaeus, 1758)	NWA, F, G, C, Gu, Br, SWA, SCA, EA, M, I, IP, NWP, CIP	B		b, c, cr, of	h, r, s, sh	5/80	[1, 6, 84, 89, 130, 302, 306, 307a, 377, 383]
<i>Tonna pennata</i> (Mörch, 1852)	Ber, F, G, C, Br, NEA	B, P		c, cr, of	co, r, s	n.a.	[1, 84, 89, 130, 187, 223, 244, 267, 302, 307, 307a, 377, 383, 384]
Infraorder PTENOGLOSSA							
Superfamily TRIPHOROIDEA							
Family TRIPHORIDAE							
<i>Cosmotriphora decorata</i> (C.B. Adams, 1850)	NWA, Ber, F, G, C, Br, NEA	B, P		c, cr, of, rl	a, bo, co, m, r, ru, s, sg, so	-/200	[1, 84, 88, 89, 130, 223, 267, 302, 377]
<i>Cosmotriphora melanura</i> (C.B. Adams, 1850)	NWA, F, G, C, Br, SCA, NEA	B		c, cr, ma, rl	co, ru, s, sh, so	-/91	[1, 84, 88, 89, 130, 223, 302, 377]
<i>Cosmotriphora olivacea</i> (Dall, 1889)	C			n.a.	n.a.	n.a.	[130]
<i>Iniforis turristhoniae</i> (Holten, 1802)	NWA, Ber, F, G, C, Br	F, G		c, cr, ma, of, rl	co, ru, s, sg, so	2/27	[84, 88, 89, 130, 132, 187, 302, 306, 307, 307a, 377, 383]
<i>Marshallora modesta</i> (C.B. Adams, 1850)	C	P		n.a.	s	n.a.	[84, 89, 130, 267]
<i>Marshallora nigrocincta</i> (C.B. Adams, 1839)	NWA, Ber, F, G, C, Br	B		c, cr, d, es, hs, ma, of, rl	a, as, co, m, o, r, ru, s, sg, sh, so	-/6	[1, 6, 88, 89, 187, 244, 295, 302, 307, 307a, 377]
<i>Simuliphora intermedia</i> (C.B. Adams, 1850)	NWA, F, G, C, Br, SWA	B		c, ma	g, r, s, sh	-/102	[1, 84, 89, 130, 187, 302, 306, 307, 307a, 377, 383]

<i>Triphora ornata</i> (Deshayes, 1832)	NWA, F, G, C, P Br	c, cr, of	s, sg	10/90	[84, 89, 187, 223, 267, 302, 307, 307a, 377]
<i>Triphora orteani</i> Espinosa, 2001	C	n.a	n.a.	n.a.	130
Family CERITHIOPSIDAE					
<i>Cerithiopsis caribbaeus</i> (Gabb, 1881)	C	n.a	n.a.	15	[306, 307, 307a]
<i>Cerithiopsis fusiformis</i> (C.B. Adams, 1850)	F, G, C, B	c, ma	m, s	-/164	[1, 84, 89, 130, 307, 307a, 309, 377]
<i>Cerithiopsis gemmulosa</i> (C.B. Adams, 1850)	C, Br	n.a	m, s	n.a.	[1, 84, 130, 302]
<i>Cerithiopsis greenii</i> (C.B. Adams, 1839)	NWA, Ber, F, G, C, Br, SWA	b, c, cr, es, of, rl	a, as, co, g, m, r, ru, s, sg, sh	4/40	[6, 88, 89, 187, 244, 267, 302, 307, 307a, 309, 377]
<i>Cerithiopsis lata</i> (C.B. Adams, 1850)	Ber, C	n.a	a	n.a.	[84, 89, 130, 187, 306, 307, 307a, 383]
<i>Horologica pupa</i> (Dall & Stimpson, 1901)	Ber, C	n.a	n.a.	n.a.	[1, 187, 307, 307a, 383]
<i>Metaxia exceksa</i> Faber & Moolenbeek, 1991	C, Br	n.a	m, s	6/50	[84, 130, 135, 302, 307, 307a, 311]
<i>Metaxia rugulosa</i> (C.B. Adams, 1850)	Ber, F, G, C	c, cr, of	a, co, o, ru, s, so	4/128	[1, 84, 89, 187, 267, 295, 306, 307, 307a, 311, 377]
<i>Retilaskeya bicolor</i> (C.B. Adams, 1845)	F, G, C, Br	b, c, cr, of	a, as, co, m, P, r, s, sg, sh, so	2/65	[1, 6, 84, 89, 130, 187, 244, 267, 295, 302, 307, 307a, 377, 387]
<i>Seila adamsii</i> (H.C. Lea, 1845)	NWA, Ber, F, G, C, Br, SWA	b, c, cr, hs, it, ma, of, rl	a, as, co, m, o, r, ru, s, sg, sh	-/80	[1, 6, 84, 88, 89, 130, 187, 244, 267, 295, 302, 306, 307, 307a, 377]
Superfamily JANTHINOIDEA					
Family EPITONIIDAE					
<i>Depressiscala nautilae</i> (Mörch, 1875)	NWA, Ber, F, G, C, Br	of	s	20/118	[6, 84, 89, 302, 307, 307a, 383]
<i>Epitonium albidum</i> (d'Orbigny, 1842)	NWA, Ber, F, G, B, P, C, Gu, Br, SWA, NEA	c, cr, it, ma, of	an, r, s	-/360	[6, 84, 89, 187, 267, 302, 307, 307a, 377]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Epitonium candeanum</i> (d'Orbigny, 1842)	Ber, F, G, C, Br, SWA	P		c, sb	s	-/548	[1, 84, 89, 130, 187, 267, 302, 307, 307a, 377]
<i>Epitonium cf. denticulatum</i> (Sowerby, 1844)	F, C, Br			cr, sb	co, m, s	4/1,473	[1, 84, 89, 302, 383]
<i>Epitonium echinaticosta</i> (d'Orbigny, 1842)	Ber, F, G, C, Br	P		c, cr, of	s	2/400	[84, 89, 267, 302, 306, 307, 307a, 377]
<i>Epitonium foliaceicosta</i> (d'Orbigny, 1842)	F, G, C, Br	P		n.a	n.a.	-/219	[1, 84, 89, 130, 267, 377]
<i>Epitonium krebsii</i> (Mörch, 1874)	NWA, Ber, F, G, C, Br	B, P		c, ma	co, r, s, sg	-/292	[1, 84, 89, 187, 267, 302, 307, 307a, 377, 383]
<i>Epitonium lamellosum</i> (Lamarck, 1822)	Ber, F, G, C, NEA	B, P		c, cr, it, of, rl, sb	co, r, s	-/60	[1, 84, 88, 89, 130, 187, 223, 267, 307, 307a, 377, 383, 384, 387]
<i>Epitonium novangliae</i> (Couthouy, 1838)	NWA, Ber, F, G, C, Br			c, cr, ma, of	r, s, sh	-/400	[1, 6, 84, 89, 302, 306, 307, 307a, 377]
<i>Epitonium occidentale</i> (Nyst, 1871)	Ber, F, C, Br			n.a	n.a.	-/270	[84, 130, 302, 307, 307a]
<i>Epitonium unifasciatum</i> (Sowerby, 1844)	F, G, C, Br, SWA	P		n.a	r, s	n.a.	[84, 89, 267, 302, 307, 307a, 377]
<i>Opalia crenata</i> (Linnaeus, 1758)	Ber, F, C, Br, EA	P		n.a	an, r, s	n.a.	[1, 31, 84, 130, 267, 301, 302, 307, 307a, 383]
<i>Opalia pumilio</i> (Mörch, 1874)	NWA, Ber, F, C, Br	P		of	co, r	5/183	[1, 84, 89, 130, 223, 267, 302]
Superfamily EULIMOIDEA							
Family EULIMIDAE							
<i>Eulima auricincta</i> (Abbott, 1958)	NWA, F, G, C, Br, SWA	B		c	e, s	2/183	[1, 84, 89, 130, 187, 223, 302, 307, 307a, 377, 383]
<i>Eulima bifasciata</i> d'Orbigny, 1842	F, G, C, Br, SWA			c, cr	h, or, s, sg	n.a.	[1, 84, 88, 89, 302, 306, 307, 307a, 377, 384]
<i>Melanella arcuata</i> (C.B. Adams, 1850)	NWA, F, G, C, Br	P		c, cr, ma, of	a, co, h, o, ru, s, so	6/80	[1, 6, 84, 89, 130, 267, 295, 302, 306, 307, 307a, 377]

<i>Melanella conoidea</i> (Kurtz & Stimpson, 1851)	Ber, F, G, C, Br, SWA		c, cr, ma, rl	cr, h, r, s, sg	n.a.	[1, 88, 89, 187, 302, 307, 307a, 377, 383, 387]
<i>Melanella jamaicensis</i> (C.B. Adams, 1845)	NWA, Ber, G, C, Br, SWA	B, P	c, cr, ma, of, rl	h, or, r, s, sg	2/366	[1, 84, 88, 89, 130, 187, 267, 302, 306, 307, 307a, 377, 387]
<i>Oceanida graduata</i> de Folin, 1870	F, G, C	P	cr, of	n.a.	120	[1, 84, 187, 267, 307, 307a, 377]
<i>Scalenostoma subulatum</i> (Broderip, 1832)	G, C		n.a	n.a.	n.a.	[187, 255, 307, 307a, 377]
<i>Vitreolina zugnigae</i> (Espinosa, Ortea & Magaña, 2001)	C		n.a	n.a.	n.a.	[130]
Infraorder NEOGASTROPODA						
Superfamily MURICOIDEA						
Family MURICIDAE						
<i>Chicoreus florifer</i> (Reeve, 1846)	F, C	B	n.a	n.a.	n.a.	[1, 66, 130, 244, 307, 307a, 377]
<i>Chicoreus mergus</i> E.H. Vokes, 1974	F, C, Gu		n.a	n.a.	73/91	[2, 307, 307a, 370]
<i>Chicoreus pomum</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Gu, Br	B, P	c, cr, ma, of	co, r, ru, s, sg, sh	2/30	[1, 6, 18, 84, 89, 130, 244, 267, 302, 306, 307, 307a, 377, 384]
<i>Dermomurex pauperulus</i> (C.B. Adams, 1850)	NWA, F, G, C, Br	B, P	cr, of, rl	a, bo, co, g, r, s, sg, sh	n.a.	[1, 84, 88, 89, 130, 187, 267, 302, 307, 307a, 377]
<i>Favaria alveata</i> (Kiener, 1842)	Ber, F, G, C, Br		cr, of, rl	a, bo, co, r	n.a.	[1, 84, 88, 89, 130, 223, 302, 377]
<i>Favaria cellulosa</i> (Conrad, 1846)	NWA, Ber, F, G, C, Br	B	c, cr, it, ma, rl	a, bo, co, r, ru, s, sh, so	n.a.	[1, 84, 88, 89, 130, 223, 302, 377]
<i>Murex alabastrum</i> A. Adams, 1864	C		n.a	n.a.	n.a.	[137, 307]
<i>Murex olssonii</i> E.H. Vokes, 1967	C	H, P	n.a	m, s	9/97	[89, 306, 307]
<i>Muricopsis caribbaea</i> (Bartsch & Rehder, 1939)	NWA, F, C	P	cr, it	r		[1, 18, 84, 89, 130, 187, 307]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Muricopsis oxytata</i> (M. Smith, 1938)	F, G, C	B		cr, of	r	-55	[1, 84, 89, 130, 377]
<i>Plicopurpura patula</i> (Linnaeus, 1758)	Ber, F, G, C	B, P		cr, it, of, sb, sp	co, r	n.a.	[1, 12, 89, 130, 187, 267, 307, 307a, 377, 383, 384, 387]
<i>Pterotyphis pinnatus</i> (Broderip, 1833)	F, G, C, NEA	P		n.a.	g, s	-40	[1, 89, 130, 306, 307, 307a, 377]
<i>Pterotyphis triangularis</i> (A. Adams, 1855)	F, G, C	B		cr, of			[1, 2, 130, 307, 307a, 377]
<i>Risomurex deformis</i> (Reeve, 1846)	G, C	H, P		n.a.	co, ru	-15	[1, 89, 130, 306, 307, 307a, 376]
<i>Risomurex roseus</i> (Reeve, 1846)	G, C	P		it	co, r	2/10	[1, 187, 267, 307, 307a, 383]
<i>Stramonita haemastoma floridana</i> (Conrad, 1837)	NWA, F, G, C, Br, SWA, NEA, SEA, M	B, P		b, c, cr, it, of, sp	a, as, ci, co, r, s, sg, sh	-42	[1, 6, 12, 84, 89, 198, 223, 244, 267, 295, 302, 307, 307a, 377, 384, 387]
<i>Stramonita rustica</i> (Lamarek, 1822)	Ber, F, G, C, Br, SCA	B, P		b, cr, it, of, sp	a, co, r	n.a.	[84, 89, 130, 187, 198, 223, 244, 267, 302, 307, 307a, 377, 383]
<i>Thais deltoidea</i> (Lamarek, 1822)	NWA, Ber, F, G, C, Br	B, P		cr, it, of, sb	a, co, r	-5	[1, 18, 84, 89, 130, 187, 198, 267, 302, 306, 307, 307a, 377, 383, 384]
<i>Trachypollia nodulosa</i> (C.B. Adams, 1845)	NWA, Ber, F, G, C, Br, NEA	B, P		cr, it, of, rl, sb	a, as, bo, ci, co, r, s, sg, so	n.a.	[1, 84, 88, 89, 130, 187, 198, 223, 244, 267, 302, 307, 307a, 377, 383, 384, 387]
<i>Trachypollia sclera</i> Woodring, 1928	F, G, C			n.a.	n.a.	n.a.	[374]
Family CORALLIOPHILIDAE							
<i>Coralliphila caribaea</i> Abbott, 1958	NWA, Ber, F, G, C, Br, NEA	B		cr, of, rl	co, o, r, s, sg, so	3.5/4.5	[1, 84, 89, 130, 132, 187, 223, 302, 306, 307, 307a, 377]
<i>Coralliphila galea</i> (Reeve, 1846)	NWA, Ber, F, G, C, Br			cr, rl, sb	a, bo, co, o, r, ru, s, so	4/30	[84, 88, 89, 130, 302, 306, 307, 307a, 377]

Family TURBINELLIDAE									
<i>Turbinella angulata</i> (Lightfoot, 1786)	F, G, C	B, P	c, cr, ma, of, sb	m, r, s, sg	-/50				[1, 89, 130, 306, 307, 307a, 377, 384]
<i>Vasum muricatum</i> (Bom, 1778)	F, G, C	B, P	c, cr, it, rl, sb, sp	co, o, r, ru, s, sg, so	-/20				[1, 12, 84, 88, 89, 130, 187, 267, 306, 307, 307a, 377, 384]
Family BUCCINIDAE									
<i>Antillophos candeanus</i> (d'Orbigny, 1842)	NWA, F, G, C, Br		n.a	a, co, s, sg	2/183				[1, 84, 89, 187, 302, 307, 307a, 377]
<i>Bailya intricata</i> (Dall, 1884)	F, G, C	P	c, cr, ma, of	g, r, s, sg	2/90				[1, 84, 130, 187, 267, 307, 307a, 377, 383, 387]
<i>Bailya parva</i> (C.B. Adams, 1850)	F, G, C	B	cr, of	co, r, s, sg	n.a.				[1, 89, 130, 187, 306, 307, 307a, 377]
<i>Colubraria antillana</i> Sarasúa, 1978	C		n.a	n.a.	n.a.				[130]
<i>Engina turbinella</i> (Kiener, 1835)	F, G, C, Br	B, P	cr, of	a, bo, co, o, r, s, sg, so	2/10				[84, 88, 89, 130, 132, 187, 267, 295, 302, 307, 307a, 377, 383]
<i>Metula limtea</i> Guppy, 1882	C, Gu	P	cr, sb	n.a.	10/86				[306, 307, 307a]
<i>Pisania pusio</i> (Linnaeus, 1758)	Ber, F, G, C, Gu, Br, SCA	B, P	cr, it, of, rl, s	ci, co, r, ru, s	n.a.				[1, 84, 88, 89, 130, 187, 223, 267, 302, 307, 307a, 377, 383, 384]
<i>Pollia auritula</i> (Link, 1807)	Ber, F, G, C, Br	P	cr, it, of	co, r	n.a.				[1, 84, 89, 187, 267, 302, 306, 307, 307a, 377]
<i>Pollia karinae</i> (Nowell-Usticke, 1959)	C		cr, rl	co, o, ru, s, so	10/50				[88, 89, 130]
Family COLUMBELLIDAE									
<i>Anachis lyrata</i> (Sowerby, 1832)	C, Br, P	Pac	it	a, m, r, sg	n.a.				[1, 89, 185, 216, 249, 276, 290, 291, 302, 307, 307a]
<i>Asyris lunata</i> (Say, 1826)	NWA, Ber, F, G, C, Gu, Br	P	b, c, cr, d, hs, ma, of, sb	a, as, co, g, m, o, r, ru, s, sg, sh, so	-/80				[1, 6, 84, 89, 130, 244, 267, 295, 302, 306, 307, 307a, 377, 383]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Columbella mercatoria</i> (Linnaeus, 1758)	NWA, Ber, F, G, C, Br	B, P		b, c, cl, cr, it, ma, of	co, r, ru, s, sg	0/15	[1, 12, 15, 18, 84, 89, 130, 132, 187, 267, 302, 306, 307, 307a, 377, 384, 387]
<i>Columbellopsis nycteis</i> (Duclos, 1846)	F, C			cr	co, ru, s, sg, so	-/50	[1, 88, 89, 130]
<i>Conella ovulata</i> (Lamarck, 1822)	F, G, C	B, P		cr, of	co, r	5/10	[1, 84, 267, 307, 377, 383]
<i>Conella ovuloides</i> (C.B. Adams, 1850)	C			n.a	n.a.		[1, 84, 130]
<i>Cosmioconcha nitens</i> (C.B. Adams, 1850)	G, C, Br	B, P		n.a	a, g, r, s, sg	15/50	[1, 89, 302, 306, 307, 307a, 377]
<i>Costoanachis catenata</i> (Sowerby, 1844)	Ber, F, C, Br	P		it	co, r	n.a.	[1, 187, 267, 291, 302, 306, 307, 307a, 383]
<i>Costoanachis sparsa</i> (Reeve, 1859)	Ber, F, G, C, Br	B		c, cr, ma, of	a, as, bo, co, s, o, r, ru, s, sg, so	0/80	[1, 15, 84, 88, 89, 130, 244, 291, 295, 302, 307, 307a, 377, 383]
<i>Costoanachis varia</i> (Sowerby, 1832)	C, Co, Me, P, Ga	P	Pac	it	r	n.a.	[14, 87, 138, 204, 216, 267, 276, 307, 307a]
<i>Mazatlanian cosentini</i> (Philippi, 1836)	F, C, Ca, Mg, Me, P, TP			it	s	n.a.	[130, 292, 306, 307, 307a]
<i>Mitrella dichroa</i> (Sowerby I, 1844)	F, G, C, Br	B, P		c, sb	r, s, sg	n.a.	[1, 84, 89, 130, 267, 302, 307a, 377]
<i>Mitrella ocellata</i> (Gmelin, 1791)	Ber, F, G, C, Br, SCA, NEA, IP, Mg, Co, Me, P, Ga	B, P	Pac	c, cr, it, ma, of, sb	bo, m, r, s, sg	0/34	[1, 15, 18, 75, 84, 89, 113, 130, 185, 187, 223, 244, 247, 250, 267, 276, 279, 292, 302, 307, 307a, 324, 360, 377, 379, 387]
<i>Nitidella nitida</i> (Lamarck, 1822)	Ber, F, G, C, Br	B		cr, of, sb	co, p, r, ru, sg	0/2	[15, 84, 89, 130, 244, 302, 306, 307, 307a, 377, 387]

<i>Parvanachis obesa</i> (C.B. Adams, 1845)	NWA, Ber, F, G, C, Gu, Br, SWA	P	c, cr, it, ma	a, co, m, r, s, sg, sh	-/20	[1, 6, 15, 84, 89, 130, 187, 244, 267, 291, 302, 306, 307, 307a, 377, 383]
<i>Rhombinella laevigata</i> (Linnaeus, 1758)	Ber, F, G, C	B, P	cr, it, of, sb	a, bo, r, sg		[1, 15, 84, 89, 130, 267, 307, 307a, 377, 384, 387]
<i>Steironepion minor</i> (C.B. Adams, 1845)	NWA, F, G, C, Br		cr, of, rl, sb	a, co, ru, s, sg, so	-/220	[1, 84, 88, 130, 223, 295, 302, 307, 307a]
<i>Steironepion moniliferum</i> (Sowerby, 1844)	Ber, F, G, C	B, P	cr, of	a, co, o, s, so	6/70	[84, 89, 130, 187, 267, 291, 295, 307, 307a, 377, 383] [130, 302]
<i>Zafrona idalina</i> (Duclos, 1840)	C, Br		n.a	r		[1, 15, 18, 84, 89, 130, 187, 307, 307a, 377, 383]
<i>Zafrona pulchella</i> (de Blainville, 1829)	NWA, Ber, F, G, C, Br		c, cl, cr, it, of	co, r, ru, s, sg		
Family NASSARIIDAE						
<i>Nassarius albus</i> (Say, 1826)	NWA, Ber, F, G, C, Br	P	cr	m, r, ru, s	2/10	[1, 84, 130, 187, 244, 267, 302, 307, 307a, 384, 387]
<i>Nassarius antillarum</i> (d'Orbigny, 1842)	Ber, F, C, Br		cr	s	-/10	[84, 89, 130, 302]
<i>Nassarius consensus</i> (Ravenel, 1861)	G, C	P	cr	co, ru, s, so		[84, 88, 89, 130, 267, 377]
<i>Nassarius karinae</i> Nowell-Usticke, 1971	NWA, F, C, Gu, Br		n.a	c, s, sg		[132, 187, 302, 307, 307a]
<i>Nassarius polygonatus</i> (Lamarek, 1822)	C		n.a	m, sg	-/3	[2, 84, 307, 307a]
<i>Nassarius vibex</i> (Say, 1822)	NWA, F, G, C, Br	P	b, bw, c, d, ma	as, c, m, r, s, sg		[1, 6, 89, 187, 244, 267, 302, 307, 307a, 377]
Family MELONGENIDAE						
<i>Melongena melongena</i> (Linnaeus, 1758)	G, C, Gu	B, P	c, ma	r, s		[1, 84, 89, 130, 267, 306, 307, 307a, 377, 384]
Family FASCIOLARIIDAE						
<i>Fasciolaria tulipa</i> (Linnaeus, 1758)	NWA, F, G, C, Gu, Br	B, P	c, it, ma, of, cr, rl	a, co, r, ru, s, sg, sh, so	3/50	[1, 6, 84, 88, 89, 130, 244, 267, 295, 302, 307, 307a, 377, 383, 384]
<i>Latirus angulatus</i> (Röding, 1798)	F, G, C, Br	B	c, cr, of, sb	a, bo, co, r, ru, s, sh, so	20/72	[1, 84, 88, 89, 130, 223, 302, 377]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Latirus carinifer</i> Lamarek, 1822	F, G, C, Br			cr, of	a, co, r, s	-/42	[1, 41, 84, 89, 130, 295, 302, 306, 307, 307a, 377]
<i>Latirus infundibulum</i> (Gmelin, 1791)	F, C, Gu, Br			cr, of, rl	co, g, r, ru, s, sh, so	2/60	[1, 2, 84, 88, 89, 302, 383, 307, 307a]
<i>Leucozonia nassa</i> (Gmelin, 1791)	F, G, C, Br	B, P		c, cr, it, of, sb, sp	a, bo, co, o, p, r, s, sh, so		[1, 12, 84, 88, 89, 130, 187, 198, 223, 244, 267, 302, 306, 307, 307a, 377, 384, 387]
<i>Leucozonia ocellata</i> (Gmelin, 1791)	F, G, C, Br	B, P		it	r	1	[1, 84, 89, 130, 132, 187, 267, 302, 307, 307a, 377, 383]
<i>Terlatirus cayohuesonicus</i> (Sowerby, 1878)	F, C	P		cr, rl	a, bo, co, r, s	n.a.	[1, 84, 88, 89, 130, 267]
Family VOLUTIDAE							
<i>Volata virescens</i> Lightfoot, 1786	C	H, N		sb	m, s, sh	6/99	[89, 306, 307, 307a]
Family OLIVIDAE							
<i>Agaronia testacea</i> Lamarek, 1811	C, Co, Me, P, PC	P	Pac	es, it	m, r, s, sg	0/1	[1, 2, 74, 75, 86, 130, 187, 216, 230, 267, 276, 307, 307a, 384]
<i>Oliva reticularis</i> Lamarek, 1811	Ber, F, G, C, Br	B, P		ma, cr, of, rl	c, co, s, sh	-/125	[1, 84, 89, 130, 187, 267, 275, 302, 306, 307, 307a, 316, 377, 384]
<i>Oliva scripta</i> Lamarek, 1811	G, C, Br			c, of	m, r, s	20/80	[1, 89, 302, 306, 307, 307a, 377]
<i>Olivella dealbata</i> (Reeve, 1850)	NWA, F, G, C	B		b, c, cr, ma, of	r, s		[1, 6, 84, 130, 307a, 377, 383]
<i>Olivella minuta</i> (Link, 1807)	G, C, Gu, Br	B		c, cr, b, ma	co, m, r, s	-/8	[1, 6, 84, 89, 187, 302, 307, 307a, 377, 387]
<i>Olivella mymecon</i> Dall, 1912	C	H, P		n.a	m, s	-/34	[89, 267, 306, 307]
<i>Olivella nivea</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Gu, Br	B		c, cr, ma, of	r, s	-/46	[1, 84, 89, 130, 223, 302, 377]

Family HARPIDAE									
<i>Morum oniscus</i> (Linnaeus, 1767)	Ber, F, G, C, Br	B, P	cr, of, rl, sb	a, bo, co, g, r, s, sh	1.5/12	[84, 88, 89, 130, 267, 302, 306, 307, 307a, 377]			
Family MARGINELLIDAE									
<i>Denimargo cruzmoraltai</i> Espinosa & Ortea, 2000	C		cr	co	12/15	[129, 130, 307a]			
<i>Denimargo eburneolus</i> (Conrad, 1834)	NWA, F, G, C		c, cr, of, sb	s	-/1.095	[1, 187, 307, 307a, 377, 383]			
<i>Denimargo zaidettae</i> Espinosa & Ortea, 2000	C		n.a	n.a.	12/15	[129, 130, 307a]			
<i>Hyalina chicoi</i> Espinosa & Ortea, 1999	C		cr	co	5/12	[128, 130, 307a]			
<i>Hyalina pallida</i> (Linnaeus, 1758)	F, G, C	B	cr	a, bo, co, r		[1, 84, 88, 89, 187, 307, 307a, 377, 383]			
<i>Prunum apicinum</i> (Menke, 1828)	NWA, F, G, C, Br	B	b, c, cr, d, ma, of	a, as, c, m, r, s, sg	-/25	[1, 6, 84, 89, 244, 302, 307, 307a, 377, 383]			
<i>Prunum chumi</i> Espinosa & Ortea, 2000	C		n.a	n.a.	n.a.	[130]			
<i>Prunum holandae</i> Espinosa & Ortea, 1999	C	P	n.a	n.a.	n.a.	[127, 130, 307a]			
<i>Volvarina avena</i> (Kiener, 1834)	NWA, Ber, F, G, C, Br	B	c, cr, it, of, rl	a, bo, co, r, ru, s, so	-/80	[1, 18, 84, 88, 89, 187, 295, 302, 307, 307a, 377]			
<i>Volvarina socoae</i> Espinosa & Ortea, 1999	C		rl	n.a.	1/1.5	[127, 130, 307a]			
<i>Volvarina yolandae</i> Espinosa & Ortea, 2000	C		n.a	n.a.	10/25	[129, 130, 307a]			
Family CYSTISCIDAE									
<i>Furcillita</i> Espinosa & Ortea, 2000	C		cr	co	30	[129, 130, 307a]			
<i>Gibberula bribri</i> Espinosa & Ortea, 2000	C		n.a	n.a.	10/15	[129, 130, 307a]			
<i>Gibberula lavalleana</i> (d'Orbigny, 1842)	NWA, Ber, F, G, C, Br, SCA, NEA	B	c, cr, ma, of, rl	a, as, co, m, o, r, cr, s, so	4/72	[1, 84, 88, 89, 187, 244, 295, 302, 306, 307, 307a, 377]			
<i>Gibberula marloti</i> Espinosa & Ortea, 2000	C		cr	co	30	[129, 130, 307a]			
<i>Gibberula sierrai</i> Espinosa & Ortea, 2000	C		n.a	n.a.	10/15	[129, 130, 307a]			

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Gibberula ubitaiensis</i> Espinosa & Ortea, 2000	C			n.a	n.a.	12/15	[129, 130, 307a]
<i>Granulina minae</i> Espinosa & Ortea, 2000	C			n.a	n.a.	12/15	[129, 130, 307a]
<i>Granulina ovuliformis</i> (d'Orbigny, 1841)	NWA, F, G, C, Br, SWA	B		c, cr, of	a, as, m, r, s, sg	5/90	[1, 84, 89, 187, 244, 302, 306, 307, 307a, 377]
<i>Persicula fluctuata</i> (C.B. Adams, 1850)	G, C	B		cr, of, rl	co, g, ru, s, so	2/15	[1, 88, 89, 130, 307, 307a, 377]
<i>Persicula weberi</i> Olsson & McGinty, 1958	C, Gu, NEA	P		sb	m, s	-/15	[187, 267, 306, 307, 307a]
<i>Plexiocystiscus genecoani</i> Espinosa & Ortea, 2000	C			n.a	n.a.	25	[129, 130]
Family MITRIDAE							
<i>Mitra barbadensis</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Gu, Br, SCA	B, P		n.a	co, r, s	-/80	[1, 84, 89, 187, 267, 302, 307, 307a, 377]
<i>Mitra nodulosa</i> (Gmelin, 1791)	NWA, Ber, F, G, C, Br	B, P		c, cr, it, ma, of, rl	co, o, r, ru, s, so	5/50	[1, 84, 88, 89, 130, 132, 187, 267, 302, 307, 307a, 377, 383, 384, 387]
Family COSTELLARIIDAE							
<i>Vexillum dermestinum</i> (Lamarck, 1811)	G, C			ma	co, g	n.a.	[84, 89, 307, 307a, 377]
<i>Vexillum epiphaneum</i> (Rehder, 1943)	Ber, F, C			sb	co	-/2	[1, 307, 307a]
<i>Vexillum exiguum</i> (C.B. Adams, 1845)	F, C, Br			cr, rl	co, m, ru, sg, so	30/80	[1, 84, 88, 89, 130, 132, 302, 307a]
<i>Vexillum gemmatum</i> (Sowerby, 1874)	F, G, C	P		cr, it, of	a, co, r	n.a.	[1, 84, 89, 187, 267, 307, 307a, 377]
<i>Vexillum laterculatum</i> (Sowerby, 1874)	F, C			n.a	a, g	25/60	[1, 84, 89, 187, 306, 307, 316]

<i>Vexillum pulchellum</i> (Reeve, 1844)	F, C, Br	n.a	co, r	45/60	[130, 223, 302]
<i>Vexillum sykesi</i> (Melvill, 1925)	F, C	cr, of	a, co, s	42	[84, 130, 295, 307, 307a, 316]
<i>Vexillum variatum</i> (Reeve, 1845)	Br, C, Br	cr	co, s	10/30	[1, 84, 130, 306, 307, 307a, 316]
Superfamily CANCELLARIOIDEA					
Family CANCELLARIOIDAE					
<i>Cancellaria reticulata</i> (Linnaeus, 1767)	NWA, F, G, C, Gu, Br	c, ma, of	m, s, sg	-/38	[1, 6, 89, 150, 244, 302, 307, 307a, 377, 383]
<i>Tritonoharpa lanceolata</i> (Menke, 1828)	NWA, Br, F, G, C, Br	cr, of, rl	co, g, o, r, ru, s, so	-/80	[1, 84, 89, 130, 187, 295, 302, 306, 307, 307a, 377]
Superfamily CONOIDEA					
Family TEREBRIDAE					
<i>Hastula cinerea</i> (Born, 1778)	F, G, C, Br, EA, Co, Me, P	Pac	m, p, r, s, sh	0/27	[1, 36, 45, 55, 84, 86, 130, 216, 276, 302, 307, 307a, 377, 384]
<i>Hastula hastata</i> (Gmelin, 1791)	Br, F, G, C, B, P	it	s	5/75	[1, 84, 89, 130, 267, 302, 377, 383]
<i>Hastula salleana</i> Deshayes, 1859	NWA, F, G, C, Br	cr, it	p, s		[1, 6, 89, 244, 267, 302, 307a, 377]
<i>Terebra dislocata</i> (Say, 1822)	NWA, F, G, C, Br, Ca, P	b, c, it, ma	m, r, s	-/52	[1, 6, 216, 244, 302, 307, 307a, 377, 383]
<i>Terebra protexta</i> (Conrad, 1846)	NWA, F, G, C, Br	c, ma, of	s	2/90	[1, 6, 89, 130, 267, 302, 377]
Family TURRIDAE					
<i>Crassispira adamsi</i> de Jong & Coomans, 1988	C	n.a	n.a.	n.a.	[84, 267, 307, 307a]
<i>Crassispira fuscescens</i> (Reeve, 1845)	NWA, F, G, C, Br	c, it, ma	co, r, s	-/70	[84, 89, 130, 187, 223, 302, 307, 307a, 377]
<i>Leptadrillia cookei</i> (E.A. Smith, 1888)	F, G, C, Br	n.a	m, s	30/420	[1, 84, 89, 187, 302, 306, 307, 307a, 316]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Pilsbryspira albomaculata</i> (d'Orbigny, 1842)	F, G, C, Br	B		cr, it, of, rl	a, bo, co, r, s	-/42	[1, 84, 88, 89, 130, 295, 301, 302, 307, 307a, 377]
<i>Pilsbryspira harfordiana</i> (Reeve, 1843)	G, C	B, P		c, cr, ma	a, bo, co, r, s		[88, 130, 267, 307, 307a, 377]
<i>Pilsbryspira jayana</i> (C.B. Adams, 1850)	F, C	B, P		cr, of	a, co, s	42	[130, 267, 295, 307a, 377]
<i>Pilsbryspira leucocyma</i> (Dall, 1884)	F, G, C, Br	P		c, cr, ma, of	a, bo, co, r, ru, s, sg, so	n.a.	[1, 84, 88, 89, 130, 267, 302, 306, 307, 307a, 377]
<i>Strictispira pasillus</i> (Reeve, 1845)	C, Br			n.a	n.a.	n.a.	[84, 307]
Family CONIDAE							
<i>Brachyctybara biconica</i> (C.B. Adams, 1850)	NWA, G, C, Br	B, P		c, cr, it, ma, of, cr	co, r, ru, s, so	-/90	[1, 84, 88, 89, 130, 267, 302, 307, 307a, 310, 377]
<i>Conus cardinalis</i> Hwass, 1792	C	P		n.a	n.a.	n.a.	[1, 130, 267]
<i>Conus daucus</i> Hwass, 1792	NWA, F, G, C, Gu, Br			cr, rl	co, o, r, ru, s, so	5/175	[1, 84, 88, 89, 130, 132, 223, 302, 307, 307a, 316, 384]
<i>Conus</i> aff. <i>delessertii</i> Recluz, 1843	NWA, F, G, C	P		cr, of	n.a.	n.a.	[267, 307, 307a380]
<i>Conus ermineus</i> Born, 1778	F, G, C, Br, NEA	B		cr, of, rl	co, r, ru, s, so	20/99	[1, 84, 88, 89, 307, 307a, 377, 384]
<i>Conus granulatus</i> Linnaeus, 1758	F, G, C			cr, of	co, r, s	1.5	[1, 84, 89, 307, 307a, 377, 383, 384]
<i>Conus jaspideus</i> Gmelin, 1791	NWA, F, G, C, Gu, Br	B, P		c, cr, it, ma, of	co, g, m, r, s	-/70	[1, 84, 89, 130, 267, 302, 307, 307a, 377]
<i>Conus mindanus</i> Hwass, 1792	NWA, Ber, F, C, Br			cr	co	50/100	[84, 89, 130, 302]
<i>Conus mus</i> Hwass, 1792	Ber, F, G, C, Gu, P	B, P		cr, it, of, sb, sp	a, bo, co, r, so	n.a.	[1, 12, 84, 88, 89, 130, 187, 267, 306, 307, 307a, 307a, 377, 383, 384, 387]
<i>Conus puncticulatus</i> Hwass, 1792	C, Br, Me, P			n.a	s	-/10	[2, 84, 89, 130, 307]

<i>Conus regius</i> Gmelin, 1791	F, G, C, Br	B, P	cr, of, rl, sb ru	a, bo, co, r, ru	-/5	[1, 84, 88, 89, 130, 187, 223, 267, 302, 307, 307a, 377, 383, 384]
<i>Cryoturris quadrilineata</i> (C.B. Adams, 1850)	F, G, C	B, P	c, cr, ma, of	co, r, ru, s, so	n.a.	[1, 84, 88, 89, 130, 267, 377]
<i>Daphnella lymneiformis</i> (Kiener, 1840)	NWA, F, C, Br	B	it	ru	5/46	[1, 84, 89, 132, 302, 307, 307a, 316, 377]
<i>Glyphoturris quadrata</i> (Reeve, 1845)	NWA, Ber, G, C, Br	P	cr, it, of, rl	co, g, ru, s, so	5/52	[1, 84, 88, 89, 130, 267, 302, 306, 307, 307a, 377]
<i>Glyphoturris rugirima</i> (Dall, 1889)	NWA, F, G, C, Br		cr	co, sg	2/366	[1, 302, 306, 307, 307a383]
<i>Kurtziella serga</i> (Dall, 1881)	Ber, F, G, C, Br		c, cr, of	co, g, m, s	20/100	[1, 89, 302, 307, 307a, 377]
<i>Nannodiella vespuciana</i> (d'Orbigny, 1842)	NWA, F, G, C, Br		c, cr, it, ma, of	a, co, m, s	-/103	[1, 6, 84, 89, 130, 295, 302, 307, 307a, 377, 383]
<i>Pyrgocythara candidissima</i> (C.B. Adams, 1845)	Ber, F, G, C, Br	B, P	c, cr, ma, of, rl	co, m, r, s	2/103	[1, 84, 88, 187, 223, 267, 302, 307, 307a, 377, 383]
<i>Pyrgocythara caribaea</i> (d'Orbigny, 1842)	G, C	B	c, ma	r, s, sg	n.a.	[84, 187, 307, 307a377, 383]
<i>Tenaturris cf. inepta</i> (E.A. Smith, 1882)	NWA, Ber, F, G, C, Br	B	c, cr, ma, of	s	1/823	[1, 84, 89, 302, 377]
<i>Thelecythara floridana</i> Fargo, 1953	F, C, P		n.a	m, s	n.a.	[84, 89, 130]
Superorder HETEROBRANCHIA						
Superfamily ARCHITECTONICOIDEA						
Family ARCHITECTONICIDAE						
<i>Architectonica nobilis</i> Röding, 1798	NWA, F, G, C, Gu, Br, NEA, SEA, Me, P	P	cr, sb	an, co, r, s, sh	1/250	[1, 2, 6, 25, 45, 72, 75, 84, 89, 244, 250, 267, 276, 302, 307, 307a, 342, 377, 387]
<i>Heliacus bisulcatus</i> (d'Orbigny, 1842)	NWA, Ber, F, G, C, Gu, Br, EA	B, P	cr, it, of	as, co, r, ru, tu	20/366	[1, 6, 84, 187, 267, 295, 302, 307, 307a, 316, 377, 383, 387]
<i>Heliacus cylindricus</i> (Gmelin, 1791)	Ber, F, G, C, Br	P	sb	an, r	-/46	[1, 84, 89, 267, 302, 307, 307a, 383, 384, 387]

(continued)

Species List 28.1 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Helicac perrieri</i> (Rochebrune, 1881)	F, C, Br, EA, Me, P	B		n.a.	an, r	n.a.	[1, 187, 216, 302, 307, 307a, 377]
<i>Psilaxis krebsii</i> (Mörch, 1875)	NWA, Ber, F, C, Br			cr	co, s	25/115	[1, 84, 89, 130, 302, 307, 307a]
Superfamily RISSOELLOIDEA							
Family RISSOELLIDAE							
<i>Rissoella gandacaensis</i> Ortea & Espinosa, 2001	C			n.a.	n.a.	n.a.	[130]
Superfamily PYRAMIDELLOIDEA							
Family PYRAMIDELLIDAE							
<i>Chrysalida jadisi</i> (Olsson & McGinty, 1958)	F, C, Gu, Br, SWA	B, P		n.a.	sg	n.a.	[84, 89, 267, 302, 307, 307a, 368, 377]
<i>Chrysalida toroensis</i> (Olsson & McGinty, 1958)	F, C, Br	P		cr	co, m, s	4/234	[1, 84, 136, 187, 267, 302, 307]
<i>Iselica globosa</i> (H.C. Lea, 1843)	F, C, Br, SWA	P		it, of	a	5/550	[1, 89, 267, 302, 307]
<i>Ividia abbotti</i> (Olsson & McGinty, 1958)	G, C	P		c	r, s	n.a.	[84, 89, 130, 187, 267, 307, 307a, 377]
<i>Ividia havanensis</i> (Pilsbry & Aguayo, 1933)	F, G, C, Br	B, P		cr, of	n.a.	n.a.	[84, 89, 187, 267, 302, 307, 307a, 377]
<i>Odosstomia babylonica</i> (C.B. Adams, 1845)	Ber, G, C, Br			c, of	s	n.a.	[1, 84, 132, 187, 302, 307, 307a, 377]
<i>Pyramidella suturalis</i> H.C. Lea, 1843	C			n.a.	n.a.	n.a.	[130]
<i>Triptychus niveus</i> Mörch, 1875	F, G, C	B, P		c, cr, ma, of	s	n.a.	[1, 84, 89, 130, 267, 377]
<i>Turbonilla coomansi</i> van Aartsen, 1994	C			n.a.	n.a.	n.a.	[130]
<i>Turbonilla levis</i> (C.B. Adams, 1850)	C			n.a.	n.a.	n.a.	[84, 89, 130]
<i>Turbonilla rixtae</i> de Jong & Coomans, 1988	C			n.a.	n.a.	n.a.	[84, 130]
<i>Turbonilla stimpsoni</i> Bush, 1899	NWA, C			n.a.	n.a.	n.a.	[1, 84, 130]
<i>Turbonilla textilis</i> (Kurtz, 1860)	NWA, C			n.a.	n.a.	n.a.	[1, 84, 89, 130]

PULMONATA					
Order BASOMMATOPHORA					
Superfamily SIPHONARIOIDEA					
Family SIPHONARIOIDAE					
<i>Williamia krebsii</i> (Mörch, 1877)	NWA, Ber, F, G, P C, Br	it	f, r, sh	-/37	[1, 84, 89, 130, 267, 302, 307, 307a, 377, 383]
Order EUPULMONATA					
Suborder ACTOPHILA					
Superfamily ELLOBIOIDEA					
Family ELLOBIIDAE					
<i>Melampus coffeae</i> (Linnaeus, 1758)	Ber, F, G, C, Gu, B Br, SWA	c, cr, es, hs, ma, of, sp, sw	co, m, r, rt, ru, s	n.a.	[1, 84, 89, 130, 146, 187, 244, 302, 307, 307a, 377, 384]
<i>Melampus monile</i> (Bruguière, 1789)	Ber, F, G, C, Br B	c, es, hs, it, ma, sb, sp	m, r	n.a.	[1, 84, 89, 130, 302, 377]
<i>Pedipes mirabilis</i> (Mühlfeld, 1816)	Ber, F, G, C, Br, B, P SCA	bw, c, es, it, ma, sp	as, co, p, r, s	n.a.	[1, 6, 84, 89, 130, 187, 244, 267, 302, 307, 307a, 377, 383, 387]
<i>Tralia ovula</i> (Bruguière, 1789)	Ber, F, G, C B, P	c, sp	co, r, rt, s, sg	n.a.	[1, 84, 89, 130, 132, 146, 187, 267, 307, 307a, 377]

(continued)

Species List 28.1 (continued)

n.a. = information not available

^aA = Atlantic; Ber = Bermuda; Br = Brazil (including Fernando de Noronha and Trinidad islands); C = Caribbean; Ca = California; Cl = Clipperton Island; Co = Gulf of California; CIP = Central Pacific; EA = East Atlantic; F = Florida; G = Gulf of Mexico; Ga = Galapagos Islands; Gu = Guyana, Suriname, and French Guiana; I = Indian; IP = Indo-Pacific; M = Mediterranean; Me = Mexican; Mg = Magdalena Bay; NEA = Northeast Atlantic; NEP = Northeast Pacific; (transition area from the Californian province to the Mexican province); NWA = North-West Atlantic; NWP = North-West Pacific; P = Panamic; PC = Peruvian-Chilean; SCA = South-Central Atlantic (Ascension and Saint Helena islands); SEA = Southeast Atlantic; SWA = Southwest Atlantic; TP = (transition area from the Panamic province to the Peruvian Chilean province); *Note*: the classification of the western Atlantic and eastern Pacific provinces are based on Díaz Merlano and Puyana Hegedus (1994), and Reid (2002), respectively; but with modifications as indicated above

^bB = Belize; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cPac = also present on the Pacific coast

^db = bays and coves; bw = brackish water; c = cienaga facies; cl = coastal lagoons, d = Drift; es = estuaries; fw = freshwater seepage; hs = high salinity; it = intertidal; ls = low salinity; ma = mangroves; oc = oceanic; of = offshore; cr = reefs; rl = reef lagoons; sb = subtidal (on continental shelf); sp = supratidal; sw = stagnant water

^ea = algae; ad = ascidians; an = anemones; as = artificial substrates (jetties, pilings); b = bacteria; bo = boulders; c = carrion; ci = cirripeds; co = corals; di = diatoms; e = equinoderms; g = gravel; h = holothurians; l = leaves; m = mud, o = octocorals; or = ophiurids; p = polychaetes; r = rocks; rt = rotten vegetation; ru = rubble; s = sand; sg = sea grasses; sh = shells; so = sponges; st = stomatopods; tu = tunicates; w = wood

^fLowermost occurrence (m)/uppermost occurrence (m)

^gReferences are indicated by numbers according to the reference list

Species List 28.2 Benthic, shelled gastropods of the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Class GASTROPODA						
Subclass EOGASTROPODA						
Order PATELLOGASTROPODA						
Suborder NACELLINA						
Superfamily ACMAEOIDEA						
Family LOTTIIDAE						
<i>Lottia mesoleuca</i> (Menke, 1851)	Me, P	N PM, IC	it, sb	bo, m, r, ru, s	n.a.	[1, 2, 13, 45, 75, 216, 247, 250, 276, 279, 280, 349, 360]
<i>Lottia pediculus</i> (Philippi, 1846)	Me, P	PM	sb	r	n.a.	[1, 45, 113, 216, 276, 360]
<i>Lottia rothi</i> (Lindberg & McLean, 1981)	P, Ga	IC	it	n.a.	-/33	[204, 226, 250]
<i>Lottia stipulata</i> (Reeve, 1855)	P	ES, N, P PM	cr, it	r	n.a.	[216, 276, 324, 360, 361]
<i>Lottia strigatella</i> (Carpenter, 1864)	NWP, Ca, Co, Me, P	IC	it, sp	bo, r, s	n.a.	[1, 30, 90, 216, 247, 250, 276, 279, 317, 341, 386]
<i>Patelloida semirubida</i> (Dall, 1914)	Co, Me, P	P PM, IC	of, sb	r	-/95	[185, 216, 250]
<i>Tectura biradiata</i> (Reeve, 1855)	P	ES, P PM	cr, it, ma	bo, m, r	n.a.	[74, 216, 276, 345, 360, 361]
<i>Tectura fascicularis</i> (Menke, 1851)	Co, Me, P	PM	it	bo, r	n.a.	[1, 216, 276, 285, 349, 360]
<i>Tectura filosa</i> (Carpenter, 1865)	P, Ga	ES, N, P PM	sb	bo, r	n.a.	[204, 216, 276, 360]
<i>Tectura subrotundata</i> (Carpenter, 1865)	P	ES, P PM	it	r	n.a.	[185, 216]
<i>Tectura ubiquita</i> (Lindberg & McLean, 1981)	Mg, Co, Me, P	IC	it	n.a.	-/10	[226, 250]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Subclass ORTHOGASTROPODA							
Superorder VETIGASTROPODA							
Superfamily							
PLEUROTOMARIOIDEA							
Family HALIOTIDAE							
<i>Haliotis roberti</i> McLean, 1970	P		IC	of	a, co, g, r, ru, s	30/174	[63, 195, 216, 237, 247, 250]
Superfamily FISSURELLOIDEA							
Family FISSURELLIDAE							
<i>Diodora cf. digueti</i> (Mabille, 1895)	Co, Me, P		PM	n.a.	n.a.	n.a.	[185, 216]
<i>Diodora inaequalis</i> (Sowerby, 1835)	Ca, Co, Me, P, Ma, Ga	ES, N, P	PM, IC	it, sb	bo, r	-27	[1, 2, 75, 113, 185, 204, 212, 216, 276, 279, 349, 360]
<i>Diodora punctifissa</i> McLean, 1970	Me, P, Ma, Ga		IC	of	r	9/275	[113, 204, 212, 238, 250]
<i>Diodora cf. pusilla</i> Berry, 1959	Co, Me, P	P	PM	it	g	9/27	[185, 216, 284, 324]
<i>Diodora saturnalis</i> (Carpenter, 1864)	Ca, Co, Me, P, Ma, Ga, PC		PM, IC	n.a.	r	12/36	[1, 75, 113, 140, 204, 212, 216, 250, 273, 284]
<i>Fissurella deroyae</i> McLean, 1970	P, Ga		IC	sb	r	21/27	[204, 216, 237]
<i>Fissurella longifissa</i> Sowerby, 1863	P	N	PM	cr, it	m, r		[216, 360, 361]
<i>Fissurella microrema</i> Sowerby, 1835	Me, P, TP	P	PM, IC	it	a, co, m, r	-12	[1, 45, 113, 176, 185, 216, 250, 360]
<i>Fissurella rugosa</i> Sowerby, 1835	Co, Me, P, TP, Ga	N	PM	it	a, r	-18	[18, 75, 276, 285]
<i>Fissurella virescens</i> Sowerby, 1835	Me, P, TP, PC	N, P	PM, IC	cr, it, sb	bo, m, r, ru, s	n.a.	[2, 12, 75, 185, 216, 247, 250, 268, 269, 270, 276, 279, 280, 360, 361, 364, 365, 379]
<i>Lucapinella aequalis</i> Sowerby, 1835	Me, P	P	PM	it	r	n.a.	[75, 216, 276]
<i>Lucapinella crenifera</i> Sowerby, 1835	P, PC		PM	n.a.	n.a.	n.a.	[216, 349]
<i>Lucapinella milleri</i> Berry, 1959	Co, Me, P	P	IC	it, of	n.a.	-18	[216, 250]
<i>Stromboli beebei</i> (Hertlein & Strong, 1951)	Co, Me, P		PM	of	s	65/183	[72, 158, 216, 285, 349]

Superfamily SCISSURELLOIDEA									
Family SCISSURELLIDAE									
<i>Sinezona rimuloides</i> (Carpenter, 1865)	Co, P, Ma		n.a.	n.a.	n.a.	[212, 349]			
Superfamily TROCHOIDEA									
Family TURBINIDAE									
<i>Arene ferruginosa</i> McLean, 1970	Co, Me, P	P	IC	of	n.a.	46/120			[1, 216, 247, 250, 349]
<i>Arene guttata</i> McLean, 1970	P, Ga		IC	sb	r	12/183			[204, 216, 239, 250, 334]
<i>Astraea buschii</i> (Philippi, 1844)	Me, P, TP	ES, N, P	PM	it, sb	r, s	n.a.			[2, 75, 153, 185, 109, 276]
<i>Astraea spirata</i> (Dall, 1911)	Me, P		PM	n.a.	n.a.	n.a.			216
<i>Eulithidium diantha</i> (McLean, 1970)	P, Ma, Ga		IC	it	n.a.	7/275			[204, 212, 216, 237, 250, 334]
<i>Eulithidium perforatum</i> (Philippi, 1848)	Me, P, TP		PM	it, of	r	n.a.			[185, 216, 379]
<i>Eulithidium phasianellum</i> (Philippi, 1849)	Me, P	N	PM	it, of	r	n.a.			[185, 216, 276, 360, 379]
<i>Tricolia variabilis</i> (Pease, 1861)	EA, I, IP, NWP, Ctp, P		IC	cr, it	a	-100			[214, 331]
<i>Turbo saxosus</i> Wood, 1828	Me, P, TP	ES, N, P	PM, IC	it, of, sb	bo, r, s	-60			[2, 45, 75, 153, 185, 216, 247, 276, 349, 360]
<i>Turbo squamiger</i> Reeve, 1843	Co, Me, P, TP	P	IC	of	r	15/70			[75, 113, 216, 250, 276, 284, 379]
Family TROCHIDAE									
<i>Bathybembix bairdii</i> (Dall, 1889)	NEP, Ca, Me, P, PC		PM	of	n.a.	10/1, 200			[1, 2, 216]
<i>Calliotropis equatorialis</i> (Dall, 1896)	Ca, Me, P	P	IC	of	n.a.	1, 830/2, 190			[1, 216, 247, 250]
<i>Mirachelus galapagensis</i> McLean, 1970	P, Ga		IC	n.a.	n.a.	91/183			[204, 216, 247, 250]
<i>Solarietta diomedea</i> Dall, 1919	P, Ga		IC	n.a.	n.a.	37/128			[216, 247, 250]
<i>Tegula bergeroni</i> McLean, 1970	P		PM	it, of	n.a.	-18			216
<i>Tegula cooksoni</i> (E.A. Smith, 1877)	P, Ga		IC	it	r				[18, 45, 204, 216, 247, 279]
<i>Tegula fasciata</i> (Born, 1778)	NWA, F, G, C, Gu, Br, P		Car, IC	c, cr, it, ma, of, rl, sb	a, bo, co, r, s, sg	1/15			[1, 6, 18, 84, 88, 89, 130, 187, 216, 247, 250, 267, 279, 302, 307, 377, 383, 387]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b Rica ^c	Costa Rica ^c	Oceanic distribution ^d	Habitat/ Community ^e	Depth (m) ^f	References ^g
<i>Tegula panamensis</i> (Philippi, 1849)	P, TP	ES, N, P	PM	it, sb	bo, m, r, s	n.a.	[12, 45, 75, 185, 216, 276, 360]
<i>Tegula pelissierpentis</i> (Wood, 1828)	P	ES, N, P	PM	it, ma, sb	bo, r, s	n.a.	[2, 12, 153, 216, 245, 276, 349, 360]
<i>Tegula picta</i> McLean, 1970, ex Dall, MS	P, TP		PM	it	n.a.	n.a.	[216]
<i>Tegula verrucosa</i> McLean, 1970	Me, P, PC	ES, N, P	PM	it, sb	m, r, ru, s	n.a.	[185, 216, 237, 276, 280, 379]
<i>Turcica admirabilis</i> Berry, 1969	Ca, Co, Me, P	P	PM	of	n.a.	20/180	[1, 72, 216, 265]
Family SKENEIDAE							
<i>Haplocochlias lucasensis</i> (Strong, 1934)	Co, Me, P		PM	it	n.a.	-/25	[216, 349]
<i>Pachystremiscus solitarius</i> (Hertlein & Allison, 1968)	P, Cl, Ma		IC	n.a.	n.a.	n.a.	[212]
<i>Parviturbo erici</i> (Strong & Hertlein, 1939)	Co, Me, P		PM	n.a.	n.a.	10/50	[185, 216]
<i>Parviturbo stearnsii</i> (Dall, 1918)	Mg, Co, Me, P		PM, IC	n.a.	g	3/122	[185, 216, 250, 284, 324, 337]
Family CALLIOSTOMATIDAE							
<i>Calliostoma aequisculptum</i> Carpenter, 1865	Me, P		PM	sb	r	n.a.	[29, 216]
<i>Calliostoma antonii</i> Koch (in Philippi, 1843)	Me, P, TP	ES, N, P	PM	it	r	n.a.	[1, 216, 276]
<i>Calliostoma bonita</i> Strong, Hanna & Hertlein, 1933	Co, Me, P		PM	of	n.a.	37/100	[216, 285]
<i>Calliostoma nepheloide</i> Dall, 1913	Me, P	P	PM	of	n.a.	64/256	[1, 2, 216, 240, 265]
<i>Calliostoma santacrucianum</i> McLean, 1970	P, Ga		PM	n.a.	n.a.	45/134	[202, 216]
<i>Calliostoma veterae</i> McLean, 1970	P	P	PM	n.a.	n.a.	59/100	[72, 73, 216, 218, 240, 265]
Family PELYCIDIIDAE							
<i>Pelycidion kelseyi</i> (Bartsch, 1911)	P, Ma	P	IC	it	n.a.	-/38	[212, 337]

Superorder NERITOPSINA											
Superfamily NERITOIDEA											
Family NERITIDAE											
<i>Nerita funiculata</i> Menke, 1851	Me, P, Ga, TP	ES, N, P	PM, IC	cr, es, it, ma	bo, r	n.a.					[1, 45, 74, 75, 113, 185, 204, 216, 245, 247, 250, 268, 270, 276, 279, 360, 361, 364, 365]
<i>Nerita scabricosta</i> Lamarck, 1822	Me, P, Ma, Ga	ES, N, P	PM, IC	it, ma, sb, sp	bo, r, s, sh, w	0/4					[1, 12, 13, 45, 74, 75, 113, 138, 185, 204, 212, 216, 222, 245, 247, 250, 269, 270, 276, 360]
<i>Neritina latissima</i> Broderip, 1833	Me, P	ES, P	PM, IC	es, fw, ls, ma, sp	r	n.a.					[2, 38, 74, 216, 247, 276, 379]
<i>Theodoxus lateofasciatus</i> (Miller, 1879)	Co, Me, P, TP	ES, P	PM	bw, fw, it, ma	m, r	n.a.					[1, 74, 185, 216, 276, 354, 379]
Family PHENACOLEPADIDAE											
<i>Plesiothyreus osculans</i> (C.B. Adams, 1852)	RS, NWP, CHP, Co, P Me, P, Ma	Co, P	IC	n.a.	n.a.	17					[65, 212, 216, 250, 324]
<i>Plesiothyreus punitarene</i> (Mösch, 1860)	P		PM	n.a.	n.a.	n.a.					[216]
Superorder CAENOGASTROPODA											
Order SORBEOCONCHA											
Superfamily CERITHIOIDEA											
Family CERITHIIDAE											
<i>Bitium</i> cf. <i>cerralvoense</i> (Bartsch, 1911)	Me, P		PM	n.a.	n.a.	n.a.					[185, 216]
<i>Cerithium adustum</i> Kiener, 1841	Me, P, Ga, TP	P	PM, IC	fw, it, sb, sp	bo, m, r, s	0/15					[2, 18, 45, 75, 185, 204, 216, 218, 247, 250, 272, 276, 285, 360]
<i>Cerithium browni</i> (Bartsch, 1928)	P	P	PM	n.a.	n.a.	n.a.					[185, 216]
<i>Cerithium gallapaginis</i> Sowerby, 1855, ex A. Adams, MS	P, Ga	ES, P	PM	it	n.a.	n.a.					[185, 204, 216]
<i>Cerithium maculosum</i> Kiener, 1841	Mg, Me, P, Ga	ES, P	IC	cr	n.a.	9/12					[1, 75, 113, 138, 153, 216, 247, 250, 276, 279]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Cerithium cf. nicaraguense</i> Pilsbry & Lowe, 1932	P, Ga	N, P	PM	it, of	n.a.	-/37	[45, 185, 204, 216]
<i>Cerithium stercusmuscarum</i> Valenciennes, 1833	Co, Me, P, Ga, TP	N, P	PM	cl, es, it, ma	bo, m, r, s	n.a.	[1, 74, 75, 138, 185, 204, 216, 276, 360]
<i>Cerithium uncinatum</i> (Gmelin, 1791)	Co, Me, P, Ga	P	PM, IC	it, of	a, r, s	2/37	[1, 18, 45, 138, 185, 204, 216, 250, 276, 279]
<i>Rhinoclavis gemmata</i> (Hinds, 1844)	Mg, Co, Me, P, Ga		PM, IC	of, sb	m, s, sg	2/130	[2, 18, 45, 113, 189, 204, 216, 250, 276]
Family LITIOPIIDAE							
<i>Alaba cf. interruptilineata</i> Pilsbry & Lowe, 1932	Co, P, Ga, PC	N, P	PM	n.a.	n.a.	n.a.	[105, 169, 185, 204, 216, 272, 341, 379]
<i>Alaba supralirata</i> Carpenter, 1857	Me, P, Ga	P	PM, IC	n.a.	m, s, sg	2/25	[138, 204, 216, 250]
Family TURRITELLIDAE							
<i>Turritella banksi</i> Reeve, 1849	Co, Me, P	P	PM	cr	r, s	n.a.	[216, 276]
<i>Turritella clarionensis</i> (Hertlein & Strong, 1951)	Co, Me, P	P	PM, IC	of	co, m, r	40/105	[72, 158, 216, 250]
<i>Turritella gonostoma</i> Valenciennes, 1832	Co, Me, P, PC		PM	n.a.	n.a.	0/2	[4, 5, 185, 216, 272]
<i>Turritella lentiginosa</i> Reeve, 1849	Me, P		PM	n.a.	n.a.		[216]
<i>Turritella leucostoma</i> Valenciennes, 1832	Co, Me, P	N, P	PM	it	m	1/200	[214, 72, 160, 216, 276, 379]
<i>Turritella nodulosa</i> King & Broderip, 1832	Mg, Co, Me, P, Ga	P	PM	of	m, s	4/170	[1, 72, 103, 204, 216, 276, 284, 285]
<i>Turritella rubescens</i> Reeve, 1849	Co, Me, P	P	PM	of	n.a.	27/55	[75, 113, 216, 284]
<i>Vermicularia cf. frisbeyae</i> McLean, 1970	P, Ma		IC		n.a.	n.a.	[212]
<i>Vermicularia pellucida eburnea</i> (Reeve, 1842)	Ca, Me, P, Ma, Ga	ES	PM, IC	it	co, g, r, ru	-/110	[1, 45, 138, 185, 204, 212, 216, 254]

Family SILIQUARIIDAE									
<i>Stephopoma pennatum</i> Mörch, 1860	P		N	PM	n.a.	n.a.	n.a.	[216, 254]	
Family BATLLARIIDAE									
<i>Rhinocoryne humboldti</i> (Valenciennes, 1832)	Co, Me, P, PC	ES, P	ES, P	PM	es, it, ma, of	m, s	-/27	[1, 74, 75, 185, 216, 276]	
Family PLANAXIDAE									
<i>Fossarus angulatus</i> Carpenter, 1857	Me, P, Ma, Ga			PM, IC	it	r, ru	-/30	[204, 212, 216, 250, 333]	
<i>Fossarus tuberosus</i> Carpenter, 1857	Me, P			IC	n.a.	n.a.	n.a.	[216, 250, 324]	
<i>Planaxis planicostatus</i> Sowerby, 1825	Me, P, Ga	N, P		PM, IC	it, sb, sp	bo, m, r, sh	n.a.	[12, 13, 45, 75, 138, 185, 204, 216, 222, 247, 250, 276, 279, 360]	
Family POTAMIDIDAE									
<i>Cerithidea californica mazatlanica</i> Carpenter, 1857	Co, Me, P, TP	P	P	PM	it		n.a.	[185, 216, 272]	
<i>Cerithidea montagnei</i> (d'Orbigny, 1839)	Co, Me, P, TP, PC	P	P	PM	it, ma	m, w	n.a.	[1, 74, 75, 216, 272, 276]	
<i>Cerithidea pulchra</i> (C.B. Adams, 1852)	P, TP	ES, N, P	ES, N, P	PM	ma, sp	m, s	n.a.	[74, 153, 185, 216, 272, 276]	
<i>Cerithidea valida</i> (C.B. Adams, 1852)	P	ES, N, P	ES, N, P	PM	ma	m	n.a.	[74, 185, 216, 276]	
Family MODULIDAE									
<i>Modulus catenulatus</i> (Philippi, 1849)	Co, Me, P, TP	ES, P	ES, P	PM	es	m	n.a.	[74, 185, 216, 272, 276]	
<i>Modulus cerodes</i> (A. Adams, 1851)	Co, Me, P, Ma, Ga	P	P	PM, IC	n.a.	bo, co, m, r, ru	12/61	[45, 113, 138, 185, 204, 212, 216, 276, 279, 324, 360]	
<i>Modulus disculus</i> (Philippi, 1846)	Co, Me, P	P	P	PM	es, ma	m	n.a.	[45, 74, 113, 185, 216, 276, 324]	
Family SCALLOLIDAE									
<i>Finella</i> cf. <i>veraguaensis</i> Strong & Hertlein, 1939	P	P	P	PM	n.a.	n.a.	n.a.	[185, 216, 324]	

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Suborder HYPSOGASTROPODA							
Infraorder LITTORINIMORPHA							
Superfamily LITTORINOIDEA							
Family LITTORINIDAE							
<i>Littoraria aberrans</i> (Philippi, 1846)	Co, Me, P	P	PM	it, ma, sp	l, w	n.a.	[74, 185, 216, 284, 298]
<i>Littoraria coccinea</i> (Gmelin, 1791)	I, IP, CtrP, P, Cl		IC	d	as, r, w	n.a.	[214, 300]
<i>Littoraria pintado pullata</i> (Carpenter, 1864)	Me, P, Cl, Ma	P	IC	sp	a, as, r	n.a.	[212, 250, 298]
<i>Littoraria rosewateri</i> Reid, 1999	Co, Me, P, TP	P	PM	bw, cl, fw, ma, sm, sp	bo, l, m, sd, w	n.a.	[298]
<i>Littoraria undulata</i> (Gray, 1839)	SEA, I, IP, NWP, SWP, CtrP, P		IC	d, ma	as, r, w	n.a.	[214, 300]
<i>Littoraria varia</i> (G.B. Sowerby, 1832)	P, TP	ES, P	PM	ma, sp	l, m, r, w	n.a.	[298]
<i>Littoraria variegata</i> (Souleyet in Eydoux & Souleyet, 1852)	Co, Me, P, TP	ES, P	PM	bw, cl, it, ma, sp	m, r, s, w	n.a.	[207, 298]
<i>Littoraria zebra</i> (Donovan, 1825)	P	P	PM	it, ma, sp	r, w	n.a.	[2, 14, 74, 75, 185, 216, 276, 298]
<i>Littorina keenae</i> Rosewater, 1978	NEP, Ca, Mg, Me, P		IC	cr, it, sp	r	n.a.	[2, 18, 30, 149, 216, 233, 247, 250]
<i>Nodilittorina apicina</i> (Menke, 1851)	Ca, Me, P	ES, H, N, P	PM	b, sp	as, ba, r, sh	n.a.	[299]
<i>Nodilittorina atrata</i> (C.B. Adams, 1852)	P, Ga, TP	ES, H, N, P	PM, IC	it, ma, sp	as, ba, m, r, sh	0/60	[250, 299]
<i>Nodilittorina conspersa</i> (Philippi, 1847)	Me, P, Ga, TP	ES, N, P	IC	it, sp	as, ba, r, sh	n.a.	[250, 299]
<i>Nodilittorina dubiosa</i> (C.B. Adams, 1852)	P, Ga	ES, N	PM, IC	fw, sp	ba, r	n.a.	[299]
<i>Nodilittorina fuscolineata</i> Reid, 2002	P	ES, P	PM	sp	ba, r	n.a.	[299]

<i>Nodilittorina modesta</i> (Philippi, 1846)	Co, Me, P, CI		PM	sp	ba, r, sh	n.a.	[299]
<i>Nodilittorina paytensis</i> (Philippi, 1847)	P, TP, PC		PM	ma, sp	as, ba, m, r, s, w	n.a.	[299]
<i>Nodilittorina tenuistriata</i> Reid, 2002	P, TP	N, P	PM	fw, sp	as, m, r	n.a.	[299]
<i>Peasiella conoidalis</i> (Pease, 1868)	I, IP, NWP, SWP, CtP, P		PM	cr, it	ba, co, r, ru	37	[300]
Superfamily RISSOOIDEA							
Family RISSOIDAE							
<i>Alvania inconspicua</i> C.B. Adams, 1852	Co, P, Ma, Ga	P	PM, IC	n.a.	n.a.	10/95	[10, 91, 138, 185, 204, 212, 216, 250, 324, 341]
<i>Folinia ericana</i> (Hertlein & Strong, 1951)	Co, Me, P, Ma, Ga		PM, IC	of	g, m, s, sh	10/183	[158, 185, 204, 212, 216, 250, 285, 324, 333, 350]
<i>Lapsigyryx mutans</i> (Carpenter, 1857)	Me, P	P	PM	n.a.	n.a.	n.a.	[158, 216]
<i>Rissoina alarconi</i> Hertlein & Strong, 1951	Co, P	N	PM	ma, of	l, m, sh	-/35	[158, 285]
<i>Rissoina allemani</i> Bartsch, 1931	P	P	PM	it	n.a.	n.a.	[216, 350]
<i>Rissoina burragei</i> Bartsch, 1915	Co, P		IC	it	n.a.	9/32	[92, 216, 250, 337, 350]
<i>Rissoina clandestina</i> (C.B. Adams, 1852)	Co, P, Ma	P	PM	it, of	n.a.	-/20	[92, 178, 185, 212, 216, 324, 350]
<i>Rissoina effusa</i> Mörch, 1860	P, Ma		IC	n.a.	ru	9/25	[212, 216, 250, 324]
<i>Rissoina firmata</i> (C.B. Adams, 1852)	Co, Me, P	N, P	PM	it, sb	r	n.a.	[1, 10, 17, 105, 185, 216, 324, 350]
<i>Rissoina peninsularis</i> Bartsch, 1915	Co, Me, P		PM	n.a.	r	n.a.	[1, 92, 216]
<i>Rissoina stricta</i> Menke, 1850	Co, Me, P, Ma, Ga	N, P	PM, IC	it, sb	r, ru	9/25	[1, 17, 92, 113, 138, 204, 212, 216, 250, 276, 279]
<i>Zebina preposterum</i> (Berry, 1958)	Co, P		PM	n.a.	n.a.	n.a.	[216, 282]
Family BARLEEIDAE							
<i>Barleia cf. bifasciata</i> (Carpenter, 1857)	P, Ma		IC	n.a.	n.a.	n.a.	[212]
<i>Barleia orcutti</i> Bartsch, 1920	Mg, Co, P		IC	n.a.	n.a.	22	[216, 250]
<i>Barleia paupercula</i> (C.B. Adams, 1852)	Co, P	P	PM, IC	it	n.a.	6/33	[91, 185, 216, 250, 350]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Barbatia polychrona</i> (de Folin, 1870)	P	P	IC	n.a.	n.a.	n.a.	[216, 250]
<i>Lirobatteia</i> cf. <i>granti</i> (Strong, 1938)	P	P	PM	n.a.	n.a.	n.a.	[216]
Family ANABATHRIDAE							
<i>Amphithalamus inclusus</i> Carpenter, 1864	CtP, Ca, Mg, Me, P, Cl, Ga	P	IC	n.a.	co, ru	6/33	[1, 156, 204, 216, 324, 329, 333]
Family TRUNCATELLIDAE							
<i>Truncatella bairdiana</i> C.B. Adams, 1852	P	P	IC	n.a.	rt, w	n.a.	[216, 250]
Family ELACHISINIDAE							
<i>Elachisina johnstoni</i> (Baker, Hanna & Strong, 1930)	Co, Me, P, Ga		IC	it, of	n.a.	18/70	[204, 216, 250, 283, 350]
Family CAECIDAE							
<i>Caecum</i> cf. <i>bahiahondaense</i> Strong & Hertlein, 1939	Co, P	P	PM	it, of	n.a.	-/35	[105, 185, 216, 285, 350]
<i>Caecum clathratum</i> Carpenter, 1857	Co, Me, P		IC	it, sp	n.a.	-/25	[105, 167, 178, 216, 224, 250, 324, 350]
<i>Caecum</i> cf. <i>corrugulatum</i> Carpenter, 1857	P, Ma		IC	n.a.	n.a.	n.a.	[212]
<i>Caecum elongatum</i> Carpenter, 1857	Co, Me, P		PM	n.a.	n.a.	n.a.	[185, 216, 224]
<i>Caecum</i> cf. <i>farcinum</i> (Carpenter, 1857)	Co, Me, P		PM	of, sp	n.a.	0/40	[185, 216, 225, 324, 350]
<i>Caecum firmatum</i> C.B. Adams, 1852	Co, Me, P	P	PM	n.a.	n.a.	n.a.	[185, 216, 224, 324, 341]
<i>Caecum laqueatum</i> C.B. Adams, 1852	P	P	PM, IC	of	n.a.	60	[185, 216, 250, 324]
<i>Caecum lohri</i> (Strong & Hertlein, 1939)	Co, P	P	PM, IC	sp	n.a.	0/183	[185, 204, 216, 250, 350]
<i>Caecum paradoxum</i> de Folin, 1867	P	P	IC	of	n.a.	9/60	[216, 250]
<i>Caecum parvum</i> C.B. Adams, 1852	Co, Me, P	P	PM, IC	of, sp	n.a.	0/95	[175, 185, 216, 225, 250, 324, 350]
<i>Caecum quadratum</i> Carpenter, 1857	Ca, Co, Me, P, Ga	P	PM	of, sb	g, s	-/35	[30, 138, 174, 185, 204, 216, 224, 285, 324, 350]

<i>Caecum richthofeni</i> Strong & Hertlein, 1939	P, Ga	P	PM	n.a.	n.a.	16/17	[138, 216, 324, 350]
<i>Caecum cf. semilaeve</i> Carpenter, 1857	Co, Me, P, Ga	Co, Me, P, Ga	PM	of	n.a.	-/35	[175, 185, 204, 216, 225, 285, 324, 333, 350]
<i>Elephantulum cf. abnormale</i> (Carpenter, 1857)	Me, P	Me, P	PM	n.a.	n.a.	n.a.	[185, 216, 225]
<i>Elephantulum heptagonum</i> (Carpenter, 1857)	Mg, Co, Me, P	Mg, Co, Me, P	PM, IC	of, sp	n.a.	0/95	[167, 185, 216, 224, 250, 324, 350]
<i>Elephantulum iratocinctum</i> (Carpenter, 1857)	Mg, Co, Me, P	Mg, Co, Me, P	IC	it, of	n.a.	-/70	[144, 167, 216, 250, 350]
<i>Elephantulum mirificum</i> (de Folin, 1867)	Co, P, Ga	Co, P, Ga	PM	n.a.	n.a.	6/183	[138, 216, 324, 350]
<i>Elephantulum subobsoletum</i> (Carpenter, 1857)	Co, Me, P	Co, Me, P	PM	of	n.a.	-/35	[185, 216, 285]
<i>Elephantulum cf. subspirale</i> (Carpenter, 1857)	Mg, Me, P	Mg, Me, P	PM	of	n.a.	2/10	[143, 185, 216, 225, 350]
<i>Fartulum cf. dextroversum</i> (Carpenter, 1857)	Ca, Mg, Co, Me, P, Ga	Ca, Mg, Co, Me, P, Ga	PM	of, sb	g, s	2/16	[30, 149, 167, 175, 185, 204, 216, 225, 324, 333, 350]
<i>Fartulum glabrifforme</i> (Carpenter, 1857)	Mg, Co, Me, P, Ma	Mg, Co, Me, P, Ma	IC	it, of	n.a.	-/95	[167, 175, 212, 216, 225, 250, 350]
<i>Fartulum cf. laeve</i> (C.B. Adams, 1852)	Co, Me, P	Co, Me, P	PM	it	n.a.	n.a.	[143, 185, 216, 225, 324, 345, 350]
<i>Fartulum teres</i> (Carpenter, 1857)	Mg, Co, Me, P, Ga	Mg, Co, Me, P, Ga	PM	of	n.a.	6/16	[185, 204, 216, 225, 350]
Family VITRINELLIDAE							
<i>Alleonus deprellus</i> Strong, 1938	Co, Me, P	Co, Me, P	PM	n.a.	n.a.	n.a.	[1, 94, 166, 216]
<i>Anticlimax willetti</i> Hertlein & Strong, 1951	Co, P	Co, P	PM	it	m, s, sh	-/27	[91, 95, 158, 216]
<i>Aorotrema humboldtii</i> (Hertlein & Strong, 1951)	Mg, Co, Me, P	Mg, Co, Me, P	PM	it, of	m, sh	-/60	[1, 93, 158, 216, 350]
<i>Cyclostremiscus pauli</i> Pilsbry & Olsson, 1952	P	P	PM	n.a.	n.a.	6/15	[216, 350]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Cyclostremiscus salvatierrensis</i> Hertz, Myers & Gemmell, 1992	Co, Me, P		PM	of	n.a.	1/55	[165, 350]
<i>Cyclostremiscus trigonatus</i> (Carpenter, 1857)	Co, Me, P, PC	P	PM, IC	n.a.	n.a.	25	[94, 185, 216, 235, 250, 259]
<i>Panastoma azulense</i> Pilsbry & Olsson, 1945	P	P	PM	n.a.	n.a.	2/7	[95, 216]
<i>Parviturbooides monilifer</i> (Carpenter, 1857)	Me, P		IC	n.a.	n.a.	9/18	[216, 250]
<i>Solariorbis allomphalus</i> Pilsbry & Olsson, 1952	P		IC	n.a.	n.a.	12/21	[216, 250, 324]
<i>Solariorbis carinatus</i> (Carpenter, 1857)	Co, Me, P	P	PM	n.a.	n.a.	2/7	[95, 216, 259, 324, 350]
<i>Solariorbis hannai</i> (Strong & Hertlein, 1939)	Co, P	P	PM	of	n.a.	12/35	[95, 185, 216, 285]
<i>Solariorbis</i> cf. <i>minutus</i> (C.B. Adams, 1852)	Co, P	P	PM	n.a.	n.a.	n.a.	[95, 185, 216, 341]
<i>Solariorbis regularis</i> (C.B. Adams, 1852)	Co, Me, P	P	IC	n.a.	n.a.	18/25	[95, 105, 216, 250]
<i>Teinostoma concavaxis</i> Pilsbry & Olsson, 1945	Co, P	P	PM	of	n.a.	35	[185, 216, 285]
<i>Teinostoma herbertianum</i> Hertlein & Strong, 1951	Mg, Co, P		PM	of	m, s, sh	3/35	[95, 158, 166, 185, 216, 278, 285, 350]
<i>Teinostoma imperfectum</i> Pilsbry & Olsson, 1945	Co, P, TP	P	PM	it	n.a.	n.a.	[95, 185, 216, 259, 278]
<i>Teinostoma millepunctatum</i> Pilsbry & Olsson, 1945	Me, P		PM	sp	n.a.	n.a.	[185, 216, 350]
<i>Teinostoma</i> cf. <i>ochsneri</i> Strong & Hertlein, 1939	P	P	PM	n.a.	n.a.	n.a.	[185, 216]

<i>Teinostoma</i> cf. <i>politum</i> A. Adams, 1853	Co, P		PM	it	n.a.	n.a.	[1, 172, 185, 284]
<i>Teinostoma</i> aff. <i>soror</i> Pilsbry & Olsson, 1945	Co, Me, P	P	PM	of	n.a.	6/18	[95, 185, 216, 278, 350]
<i>Teinostoma zacae</i> Hertlein & Strong, 1951	Co, P		PM	of	m, sh	6/22	[158, 216, 350]
<i>Vitridomus fragilis</i> Pilsbry & Olsson, 1945	P		PM	n.a.	n.a.	6/15	[216, 350]
<i>Vitrinella</i> cf. <i>modesta</i> C.B. Adams, 1852	P	P	PM	n.a.	n.a.	n.a.	[206, 216]
<i>Vitrinella</i> cf. <i>ponceliana</i> de Folin, 1867	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Vitrinella</i> aff. <i>proxima</i> Pilsbry & Olsson, 1952	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
Superfamily STROMBOIDEA							
Family STROMBIDAE							
<i>Strombus galeatus</i> Swainson, 1823	Co, Me, P, Ga		PM	sb	n.a.	n.a.	[1, 45, 138, 204, 216, 276]
<i>Strombus gractior</i> Sowerby, 1825	Co, Me, P, TP	N	PM	it, of	m, s, sg	2/45	[1, 2, 45, 75, 113, 185, 216, 276]
<i>Strombus granulatus</i> Swainson, 1822	Co, Me, P, Ga	N, P	PM, IC	of, sb	bo, co, g, m, r, ru, s	2/100	[45, 75, 138, 185, 201, 204, 216, 276]
<i>Strombus peruvianus</i> Swainson, 1823	Co, Me, P, TP		PM	it, sb	r, s	n.a.	[1, 12, 45, 75, 216, 276]
Superfamily VANIKOROIDEA							
Family HIPPONICIDAE							
<i>Hipponix antiquatus panamensis</i> C.B. Adams, 1852	Ca, Me, P, Cl, Ma, Ga		PM, IC	it	r	5/27	[18, 45, 75, 113, 138, 204, 212, 216, 218, 250, 276]
<i>Hipponix grayanus</i> Menke, 1853	Br, SCA, Me, P, Ma, Ga, TP	N, P	PM, IC	it	r, sh	-/24	[45, 75, 113, 138, 185, 204, 212, 216, 247, 272, 276, 302]
<i>Pilosabia pilosa</i> (Deshayes, 1832)	IP, Ctp, Me, P, Cl, Ga, TP	N	PM, IC	b, cr, it	a, bo, r	n.a.	[1, 18, 75, 112, 113, 138, 185, 204, 214, 216, 247, 250, 272, 276, 360, 379]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Family VANIKORIDAE							
<i>Macromphalina</i> cf. <i>carinata</i> (Pilsbry & Olsson, 1945)	Co, P		PM	sp	n.a.	0/10	[185, 277, 350]
<i>Macromphalina</i> cf. <i>recticeps</i> (Pilsbry & Olsson, 1945)	Mg, Co, P		PM	of	n.a.	2/16	[185, 216, 350]
<i>Macromphalina</i> cf. <i>symmetrica</i> (Pilsbry & Olsson, 1945)	Co, P		PM	it, of	n.a.	-52	[185, 216, 285, 350]
<i>Vanikoro acuta</i> Récluz, 1844	IP, CtP, P		IC	n.a.	r	100/133	[214, 329]
<i>Vanikoro aperta</i> (Carpenter, 1864)	Co, Me, P, Ma, Ga		IC	of	n.a.	100	[141, 204, 212, 216, 250, 324]
Superfamily CALYPTRAEOIDEA							
Family CALYPTRAEIDAE							
<i>Calyptraea conica</i> Broderip, 1834	Mg, Co, Me, P	N	PM	of	bo	-183	[216, 276, 342, 360]
<i>Calyptraea</i> cf. <i>tichen</i> Broderip, 1834	P		PM	n.a.	n.a.		[185, 216]
<i>Calyptraea mamillaris</i> Broderip, 1834	Co, Me, P, TP	ES, P	PM	ma, of	m, r, s, sg, sh	2/39	[74, 75, 103, 185, 216, 276, 379]
<i>Cheilea cepacea</i> (Broderip, 1834)	Co, Me, P, Ma, Ga, PC		PM, IC	it, sb	r, sh	-20	[45, 138, 204, 212, 216, 250]
<i>Cheilea corrugata</i> (Broderip, 1834)	Me, P, Ma, Ga, PC		PM, IC	it, of	r	-30	[1, 18, 75, 138, 204, 212, 216, 250, 279, 336, 339]
<i>Crepidula aculeata</i> (Gmelin, 1791)	NWA, Br, F, G, C, Br, SWA, NWP, SWP, CtP, Ca, Me, P, Ma, Ga, PC	N, P	PM	c, or, it, ma, of, sb	a, as, bo, co, m, o, r, ru, s, sh, so	-42	[1, 30, 84, 89, 113, 138, 181, 204, 212, 214, 216, 276, 279, 295, 302, 360, 377, 387]
<i>Crepidula excavata</i> (Broderip, 1834)	Ca, Mg, Co, Me, P, Ga, PC		PM	of	a, m, r, s, sh	5/100	[1, 18, 75, 103, 138, 181, 204, 216, 272, 276]
<i>Crepidula incurva</i> (Broderip, 1834)	Ca, Co, Me, P, TP	ES, N, P	PM	it, of, sb	e, m, r, sh	-33	[30, 75, 103, 181, 185, 216, 276]
<i>Crepidula lessonii</i> (Broderip, 1834)	Ca, Co, Me, P, Ga, TP		PM	es, it, ma	r	n.a.	[74, 216, 276, 284]

<i>Crepidula naticarium</i> Williamson, 1905	Ca, Me, P	G	PM	n.a.	n.a.	n.a.	[181]
<i>Crepidula nummaria</i> Gould, 1846	NEP, Ca, Mg, Me, P	ES, P	PM	sb	a, r, s, sh	18/27	[1, 18, 181, 276, 386]
<i>Crepidula onyx</i> Sowerby, 1824	Ca, Co, Me, P, Ga, PC	P	PM	es, it, ma, of	m, r, s, sh	-/91	[1, 30, 75, 103, 138, 181, 204, 216, 276, 279, 379]
<i>Crepidula striolata</i> Menke, 1851	Ca, Co, Me, P, Ga, PC	N, P	PM	it, ma	m, r, s, sh	0/20	[75, 103, 138, 181, 204, 216, 276, 324]
<i>Crucibulum concameratum</i> Reeve, 1859	Co, Me, P	P	PM	n.a.	m, ru, sh	7/90	[210, 216, 284, 285]
<i>Crucibulum cyclopium</i> Berry, 1969	Mg, Me, P		PM	it	bo	-/6	[1, 216]
<i>Crucibulum lignarium</i> (Broderip, 1834)	Co, Me, P	N	PM	it	m, r, sh		[216, 276, 284]
<i>Crucibulum monticulus</i> Berry, 1969	Co, Me, P		PM	of	n.a.	64/183	[1, 216, 285, 342]
<i>Crucibulum</i> cf. <i>pectinatum</i> Carpenter, 1856	Co, Me, P		PM	of	n.a.	-/27	[143, 185, 216]
<i>Crucibulum personatum</i> Keen, 1958	Co, Me, P	ES, N, P	PM	of	m, r, s, sh	n.a.	[1, 103, 182, 216, 218, 276, 296]
<i>Crucibulum scutellatum</i> (Wood, 1928)	Ca, Co, Me, P, Ga, PC	ES, N, P	PM, IC	it, of, sb	m, r, ru, s, sh	-/75	[2, 45, 72, 75, 103, 138, 185, 204, 216, 250, 272, 276]
<i>Crucibulum serratum</i> (Broderip, 1834)	P	N	PM	n.a.	n.a.	n.a.	[216]
<i>Crucibulum spinosum</i> (Sowerby, 1824)	CtP, Ca, Mg, Co, Me, P, Ga, PC	ES, N, P	PM	b, it, of, sb	a, co, m, r, ru, s, sh, sg	2/60	[1, 2, 18, 30, 45, 75, 103, 185, 214, 216, 276]
<i>Crucibulum umbrella</i> (Deshayes, 1830)	Me, P	N, P	PM	it	bo, r	-/10	[216, 276, 360]
Superfamily XENOPHOROIDEA							
Family XENOPHORIDAE							
<i>Xenophora conchyliphora</i> (Born, 1780)	NWA, Ber, F, G, C, Br, Co, Me, P	P	PM	c, of	a, co, g, ru, p, s, sh	2/635	[1, 2, 84, 89, 197, 216, 281, 302, 306, 345, 377]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Superfamily VERMETOIDEA							
Family VERMETIDAE							
<i>Eualetes centiquadra</i> (Valenciennes, 1846)	Co, Me, P	ES	PM	n.a.	as, r	n.a.	[216, 217, 254, 276]
<i>Eualetes tulipa</i> (Chenu, 1843, ex Rousseau, MS)	Me, P	P	PM, IC	n.a.	ru, sh	-/100	[1, 72, 216, 254]
<i>Petalocochnus complicatus</i> Dall, 1908	Co, Me, P, Ga		IC	of	co, ru, s	35/275	[204, 216, 217, 247, 250, 285]
<i>Petalocochnus innumerabilis</i> Pilsbry & Olsson, 1935	Co, Me, P, TP		PM	of	n.a.	35	[216, 285]
<i>Petalocochnus macrophragma</i> (Carpenter, 1856)	Me, P, Ga	P	PM, IC	it	r	n.a.	[1, 185, 204, 216, 254]
<i>Serpulorbis margaritaceus</i> (Chenu, 1844, ex Rousseau, MS)	Me, P, Ma, Ga		PM	sb	r, sh	n.a.	[1, 138, 204, 212, 216, 217, 324]
Superfamily CYPRAEOIDEA							
Family CYPRAEIDAE							
<i>Blasticrura alisonae</i> Burgess, 1983	SWP, CtP, P, Cl, Ma, Ga		IC	sb	co, ru	0/100	[43, 148, 204, 212, 250, 322]
<i>Blasticrura rashleighana</i> (Melvill, 1888)	CtP, P		IC	of	co, r	0/37	[2, 43, 50, 214, 216, 247]
<i>Blasticrura teres</i> Gmelin, 1791	I, IP, NWP, CtP, P, Cl, Ga	P	IC	cr, of	co, r, s, so	2/30	[2, 11, 43, 49, 108, 110, 116, 122, 123, 148, 204, 214, 215, 216, 379]
<i>Erosaria albuginosa</i> Gray, 1825	Co, Me, P, Cl, Ma, Ga	P	PM, IC	n.a.	co, r	5/27	[1, 2, 11, 27, 43, 45, 50, 75, 113, 204, 212, 216, 250, 279, 276]
<i>Erosaria caputserpentis</i> Linnaeus, 1758	I, IP, NWP, SWP, CtP, P, Cl, Ga	P	IC	cr, it, of, rl, sb, sp	bo, co, r	0/15	[2, 43, 44, 49, 85, 148, 204, 214, 215, 216, 250, 271, 323]
<i>Luria isabellamexicana</i> Stearns, 1893	RS, I, NWP, SWP, CtP, Co, Me, P, Cl, Ma, Ga	P	PM, IC	cr, it, rl, sb	co, r, ru, s	1/27	[1, 2, 11, 43, 45, 50, 85, 157, 199, 204, 212, 216, 247, 250, 274, 276]

<i>Macrocypraea cervinetta</i> (Kiener, 1843)	Co, Me, P, Ma, Ga, TP, PC	N, P	PM, IC	it, sb	a, bo, co, r, s	2/20	[1, 2, 11, 12, 43, 45, 50, 148, 185, 204, 212, 216, 250, 272, 276, 279, 360]
<i>Mauritia depressa</i> (Gray, 1824)	I, CtP, P, Cl, Ga		IC	cr	r	n.a.	[49, 85, 157, 199, 216]
<i>Monetaria moneta</i> Linnaeus, 1758	I, IP, NWP, SWP, CtP, P, Cl, Ga	P	IC	b, cr, it, rl, sb	a, co, m, r, ru, s	1/4	[2, 43, 49, 50, 85, 111, 157, 199, 204, 214, 216, 247, 250]
<i>Talparia talpa</i> Linnaeus, 1758	I, IP, NWP, SWP, CtP, P, Ma	P	PM, IC	cr, it, rl, sb	co, r, ru, s	1/36	[2, 43, 49, 85, 108, 205, 212, 214, 250, 323]
<i>Zonaria aequinoctialis</i> (Schilder, 1933)	P	N, P	PM	n.a.	ru, s	9	[2, 43, 216, 228]
<i>Zonaria arabicula</i> (Lamarck, 1811)	Co, Me, P, Ma, Ga, TP	N, P	PM	it, sb	m, r, s	0/10	[1, 2, 11, 12, 43, 45, 50, 75, 113, 204, 212, 216, 276]
<i>Zonaria robertsi</i> (Hidalgo, 1906)	Co, Me, P, Ga, TP, PC	N, P	PM, IC	it, of, sb	r, s	-60	[1, 2, 11, 12, 43, 45, 50, 75, 148, 204, 216, 250, 272, 276]
Family OVULIDAE							
<i>Cyphoma emarginatum</i> (Sowerby, 1830)	Co, Me, P	P	PM	it	co, o	n.a.	[1, 2, 48, 75, 216]
<i>Jenneria pustulata</i> (Lightfoot, 1786), ex Solander, MS	Co, Me, P, Ga, TP	P	PM, IC	sb	co, r, s	1/45	[1, 45, 48, 72, 138, 148, 204, 216, 250, 272]
<i>Neosimnia aequalis</i> (Sowerby, 1832)	Ca, Co, Me, P, Ma, Ga	P	PM, IC	sb	co	1/40	[1, 30, 48, 51, 141, 148, 204, 212, 216, 234, 250, 354]
<i>Neosimnia avena</i> (Sowerby, 1832)	Co, Me, P, Ga, TP	P	IC	n.a.	co	18/27	[1, 48, 141, 148, 204, 216, 250, 272]
<i>Neosimnia macleani</i> Cate, 1976	P, Ga		PM	n.a.	n.a.	n.a.	[52, 204]
<i>Pseudocypraea adamsonii</i> (Sowerby, 1832)	I, NWP, P, Ma, Ga		IC	sb	co, r	9/24	[204, 212, 216, 250, 323]
<i>Simmilatena inflexa</i> (Sowerby, 1832)	P	P	PM	n.a.	n.a.	n.a.	[216, 354]
<i>Simmilatena rufa</i> (Sowerby, 1832)	P, Ma		IC	n.a.	co	n.a.	[212]
<i>Turbovula lenoreae</i> (Cardin & Walls, 1980)	P	P	IC	sb	n.a.	18/33	[46, 148, 250]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
Superfamily VELUTINOIDEA							
Family TRIVIIDAE							
<i>Hesperato oligostata</i> (Dall, 1902)	P	P	PM, IC	n.a.	r	3/60	[53, 148, 216, 250]
<i>Hesperato scabriuscula</i> (Sowerby, 1832)	Me, P, Ma, Ga, TP	N	PM	it	bo, m, r, s, sh	0/3	[75, 204, 212, 216, 272, 276, 360, 379]
<i>Trivia atomaria</i> Dall, 1902	P, Ga	P	IC	of	n.a.	33	[54, 148, 204, 216, 250]
<i>Trivia pacifica</i> (Sowerby, 1832, ex Gray, MS)	Me, P, Ga, TP	P	IC	sb	r	n.a.	[1, 45, 75, 204, 216, 247, 250, 276, 279]
<i>Trivia panamensis</i> Dall, 1902	P	N, P	IC	n.a.	n.a.	33	[54, 247, 276]
<i>Trivia radians</i> (Lamarek, 1811)	Mg, Me, P, PC, PC	P	PM	it, sb	r	n.a.	[45, 54, 75, 216, 272, 276]
<i>Trivia sanguinea</i> (Sowerby, 1832, ex Gray, MS)	Co, Me, P, Ga, TP		PM	it, of	r	n.a.	[1, 45, 54, 138, 204, 216, 272]
<i>Trivia solandri</i> (Sowerby, 1832, ex Gray, MS)	Ca, Co, Me, P, Gã	N, P	PM	it, sb	r	n.a.	[1, 30, 75, 138, 204, 216, 276]
Superfamily NATICOIDEA							
Family NATICIDAE							
<i>Eumaticina insculpta</i> (Carpenter, 1865)	Mg, Co, Me, P, Gã, TP	N	IC	of	ru	17/75	[204, 216, 236, 250, 272]
<i>Natica broderipiana</i> Récluz, 1844	Ca, Co, Me, P, TP	N, P	PM	it, of	m	2/70	[72, 75, 103, 216, 236, 276, 320, 379]
<i>Natica caneloensis</i> Hertlein & Strong, 1955	Me, P		PM	n.a.	s	-184	[2, 72, 216, 236]
<i>Natica chemnitzii</i> Pfeiffer, 1840	RS, I, CtP, Mg, Co, Me, P, Gã, TP	N	PM	b, cr, es, it, ma, of, rl, sb	m, s	-18	[45, 74, 75, 85, 86, 139, 185, 204, 216, 236, 276]
<i>Natica colina</i> Strong & Hertlein, 1937	Ca, Me, P, TP		PM	of	n.a.	20/200	[72, 216, 236, 303]
<i>Natica elenae</i> Récluz, 1844	Mg, Co, Me, P, Gã, TP	P	PM, IC	it, of	n.a.	15/200	[72, 204, 216, 236, 250, 272, 285, 304, 320]

<i>Natica grayi</i> Philippi, 1852	Mg, Co, Me, P, Ga, TP	N, P	PM, IC	it, of	m, s	2/70	[72, 204, 216, 236, 250, 272, 276, 285, 320, 379]
<i>Natica idiopoma</i> Pilsbry & Lowe, 1932	Ca, Co, Me, P, Ga	N, P	IC	es, ma, of	s	-/61	[2, 74, 103, 113, 204, 216, 236, 250, 276, 336, 379]
<i>Natica</i> cf. <i>inexpectans</i> Olsson, 1971	P	P	PM	n.a.	n.a.	117/119	[185, 216, 265, 304]
<i>Natica unifasciata</i> Lamarek, 1822	Me, P, TP	ES, N, P	PM	es, it, ma, of, sb	m, s	n.a.	[2, 74, 75, 86, 216, 236, 276]
<i>Polinices</i> cf. <i>amiculatus</i> (Philippi, 1849)	P, TP	P	PM	n.a.	n.a.	n.a.	[185, 216, 236]
<i>Polinices helicoides</i> (Gray, 1825)	Mg, Me, P, TP, PC	ES, N	PM, IC	it, of, sb	n.a.	-/46	[1, 2, 45, 75, 216, 236, 247, 250, 276]
<i>Polinices intemeratus</i> (Philippi, 1851)	Ca, Co, Me, P, Ga, TP	P	PM	n.a.	s	9/333	[103, 204, 216, 236, 272]
<i>Polinices otis</i> (Broderip & Sowerby, 1829)	Me, P, TP	N, P	PM, IC	it, of	m, r, s	-/297	[45, 75, 216, 236, 250, 276]
<i>Polinices pardoanus</i> Dall, 1908	P, Ga	P	IC	of	n.a.	1, 620/2, 690	[204, 216, 236, 247, 250]
<i>Polinices simiae</i> (Deshayes <i>in</i> Deshayes & Edwards, 1838)	IP, P, Cl	P	IC	n.a.	n.a.	10/100	[64, 186]
<i>Polinices uber</i> (Valenciennes, 1832)	Ca, Me, P, Ga, TP, PC	ES, N, P	PM	es, it, ma, of, sb	m, r, s	2/100	[1, 72, 74, 75, 103, 113, 185, 204, 216, 236, 250, 276, 279, 379]
<i>Sinun debile</i> (Gould, 1853)	Co, Me, P, TP	P	PM	it, of, sb	n.a.	-/73	[1, 91, 216, 236, 272, 276]
<i>Sinun grayi</i> (Deshayes, 1843)	Co, Me, P	P	PM	n.a.	n.a.	25/160	[1, 72, 216, 236, 341]
Superfamily TONNOIDEA Family BURSIDAE							
<i>Bursa calcipicta</i> Dall, 1908	Me, P, Ga	P	PM, IC	it, of	n.a.	-/121	[1, 21, 138, 204, 216, 247, 250]
<i>Bursa corrugata corrugata</i> (Perry, 1811)	Ber, F, G, C, Br, SCA, RS, Co, Me, P, Ma, Ga, TP	N, P	PM, IC	ct; it, of, sb	bo, co, m, p, r, s	0/45	[1, 2, 45, 72, 75, 84, 89, 185, 204, 212, 216, 247, 250, 276, 302, 360, 377]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Bursa granularis</i> (Röding, 1798)	F, C, EA, I, IP, NWP, SWP, CtP, Me, P, Cl, Ma		PM, IC	cr, it, sb	co, r	-30	[2, 21, 85, 110, 113, 157, 212, 214, 216, 250, 323]
<i>Marsupina nana</i> (Broderip & Sowerby, 1829)	Co, Me, P	N, P	PM, IC	it, of	n.a.	-80	[2, 72, 113, 216, 276, 321]
Family CASSIDAE							
<i>Casmaria vibexmexicana</i> (Stearns, 1894)	Co, Me, P, Ga	P	IC	cr, it, of	co, m, r, s	-24	[98, 113, 120, 121, 138, 193, 204, 216, 218, 250, 379]
<i>Cypraecassis coarctata</i> (Sowerby, 1825)	Co, Me, P, Ga	N	PM, IC	it, of	n.a.	-18	[1, 45, 138, 204, 216, 250, 276]
<i>Cypraecassis tenuis</i> (Wood, 1928)	Me, P, Cl, Ma, Ga	P	IC	of	n.a.	n.a.	[1, 108, 112, 113, 138, 204, 212, 216, 250, 276, 279, 336]
<i>Semicassis centiquadrata</i> (Valenciennes, 1832)	Co, Me, P, Ga, TP	ES	PM, IC	it, of	s	-15	[2, 45, 72, 113, 204, 216, 247, 250, 276]
Family FICIDAE							
<i>Ficus ventricosa</i> (Sowerby, 1825)	Mg, Co, Me, P, TP	N, P	PM	it, of	m, s	-67	[45, 72, 103, 216, 276, 320]
Family PERSONIDAE							
<i>Distorsio constricta constricta</i> (Broderip, 1833)	Co, Me, P, TP	P	PM, IC	it, of	n.a.	-200	[1, 72, 75, 110, 124, 216, 321, 379]
<i>Distorsio decussata</i> (Valenciennes, 1832)	Co, Me, P, TP	P	PM, IC	it, of	m, r, s	0/100	[1, 2, 72, 113, 216, 250, 272, 276, 306, 320]
<i>Distorsio jenniernestae</i> Emerson & Piech, 1992	Me, P, Ga	P	IC	it	n.a.	-137	[63, 124]
Family RANELLIDAE							
<i>Charonia tritonis</i> Linnaeus, 1758	I, IP, NWP, SWP, CtP, P, Ga		IC	b, cl, cr, of	co, s	3/42	[2, 85, 109, 204, 214, 246, 250, 322]
<i>Cymatium amictium</i> (Reeve, 1844)	A, M, Ca, Me, P, Ga	P	PM, IC	of	n.a.	27/100	[1, 23, 72, 110, 138, 185, 204, 216]

<i>Cymatium aquatile</i> (Reeve, 1844)	A, IP, CrP, Me, P	IC, Car	n.a.	co	10	[2, 21, 23, 63, 110, 214, 250]
<i>Cymatium gibbosum</i> (Broderip, 1833)	Ca, Co, Me, P, Ga	PM	it, sb	r, s	-50	[1, 24, 39, 47, 75, 204, 216, 276]
<i>Cymatium lignarium</i> (Broderip, 1833)	Me, P, TP	PM	n.a.	m, s	13/22	[39, 75, 185, 216, 276]
<i>Cymatium macrodon</i> (Valenciennes, 1832)	IP, Ca, Me, P, Cl, Ma, Ga	PM, IC	it, sb	r	-27	[23, 45, 75, 110, 204, 212, 216, 247]
<i>Cymatium muricinum</i> (Röding, 1798)	Ber, F, C, Br, IP, CrP, P, Ga	IC	cr, it	ru, s, sg	-15	[1, 108, 204, 205, 214]
<i>Cymatium nicobaricum</i> (Röding, 1798)	Ber, F, G, C, Br, SCA, EA, I, IP, NWP, CrP, P, Cl, Ga	IC, Car	c, cl, cr, it, of, rl, sb	a, bo, co, r, s, sh	-100	[1, 2, 6, 21, 84, 85, 88, 89, 109, 130, 204, 214, 215, 244, 250, 302, 326, 377, 384, 387]
<i>Cymatium cf. keenae</i> (Beu, 1970)	NWP, Co, Me, P, Ga	PM, IC	it, of	n.a.	-100	[1, 23, 110, 185, 204, 216, 250, 285]
<i>Cymatium succincta</i> (Linnaeus, 1771)	IP, P, Ga	IC	n.a.	n.a.	n.a.	[22, 331, 337]
<i>Cymatium tigrinum</i> (Broderip, 1833)	Me, P	PM	of, sb	m, r, s	-20	[1, 2, 39, 216, 276]
<i>Cymatium vestitum</i> (Hinds, 1844)	Me, P, Cl, Ga, TP, PC	PM, IC	it, sb	bo, r, s	-2	[1, 23, 45, 75, 112, 185, 204, 216, 247, 250, 272, 276, 360]
<i>Cymatium wiegmanni</i> (Anton, 1839)	Co, Me, P, TP	PM	it, ma	m, r	20	[72, 74, 75, 216, 276]
Family TONNIDAE						
<i>Malea ringens</i> (Swainson, 1822)	Co, Me, P, Cl, Ma, Ga, TP, PC	PM, IC	es, it, ma, sb	r, s	-40	[45, 72, 74, 75, 112, 138, 204, 212, 216, 250, 272, 276]
Infraorder PTENOGLOSSA						
Superfamily TRIPHOROIDEA						
Family TRIPHORIDAE						
<i>Metaxia brunnicephata</i> (Kay, 1979)	CrP, P	IC	it, of	co	20/100	[214, 250, 326]
<i>Metaxia convexa</i> (Carpenter, 1857)	Ca, Me, P, Ma, Ga	PM, IC	n.a.	n.a.	n.a.	[30, 138, 185, 204, 212, 216, 241]
<i>Triphora alternata</i> C.B. Adams, 1852	Co, P, Ga	PM, IC	of	co, ru	20/100	[91, 168, 185, 204, 216, 250, 276, 285, 324]
<i>Triphora chamberlini</i> Baker, 1926	Co, P	IC	n.a.	n.a.	4/35	[8, 216, 250, 285]
<i>Triphora dalli</i> Bartsch, 1907	Co, Me, P, Ma, Ga	PM, IC	n.a.	r, ru	9/30	[91, 138, 185, 204, 212, 216, 250]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Triphora cf. inconspicua</i> C.B. Adams, 1852	Me, P, Ga	P	PM	n.a.	n.a.	n.a.	[185, 204, 216, 324]
<i>Triphora oweni</i> Baker, 1926	Co, P, Ga		PM, IC	of	co, ru	5/40	[8, 185, 204, 216, 250, 285, 333]
<i>Triphora stephensi</i> Baker & Spicer, 1935	Co, P		IC	n.a.	n.a.	n.a.	[216, 250]
<i>Triphora triticea</i> Pease, 1861	I, NWP, CtP, P, Ga		IC	b, cr, it	r	10/33	[204, 214, 250, 327, 333]
<i>Viriola samoana</i> Cernohorsky, 1977	CtP, P		IC	n.a.	n.a.	-/50	[214, 250, 323]
Family CERITHIOPSIDAE							
<i>Cerithiopsis adamsi</i> Bartsch, 1911	P	P	IC	n.a.	n.a.	9/18	[216, 250, 324]
<i>Cerithiopsis cf. eiseni</i> Strong & Hertlein, 1939	P, Ga	P	PM	n.a.	n.a.	n.a.	[138, 185, 204, 216]
<i>Cerithiopsis cf. gissleri</i> Strong & Hertlein, 1939	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Cerithiopsis guanacastensis</i> Hertlein & Strong, 1951	P, Ga		PM	n.a.	n.a.	n.a.	[158, 204, 333]
<i>Cerithiopsis cf. infrequens</i> (C.B. Adams, 1852)	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Cerithiopsis aff. io</i> Dall & Bartsch, 1911	Ber, P		PM	n.a.	n.a.	n.a.	[1, 185]
<i>Cerithiopsis cf. neglecta</i> (C.B. Adams, 1852)	P, Ga	P	PM	n.a.	n.a.	n.a.	[185, 204, 216]
<i>Seila assimilita</i> (C.B. Adams, 1852)	Ca, Co, Me, P, Ma, Ga, TP, PC	P	PM, IC	it	m, r, s	2/70	[75, 103, 104, 204, 212, 216, 250, 272, 379]
<i>Seila kanoni</i> (de Folin, 1867)	Co, P, Ma	P	PM, IC	sb	n.a.	-/28	[104, 185, 212]
<i>Seila cf. montereyensis</i> Bartsch, 1907	Ca, Co, Me, P		PM	it, sb	r	-/67	[1, 30, 91, 104]
<i>Seila pulmoensis</i> DuShane & Draper, 1975	Co, P, Ma	P	PM, IC	it	ru	-/75	[104, 185, 212, 324]

Family TRIFORIDAE									
<i>Eumetula bimarginata</i> (C.B. Adams, 1852)	Co, P	P	PM	n.a.	n.a.	n.a.	[16, 91, 216, 324]		
Superfamily JANTHINOIDEA									
Family EPITONIIDAE									
<i>Amaea brunneopicta</i> (Dall, 1908)	Ca, Me, P	P	PM	n.a.	n.a.	9/72	[19, 97, 216]		
<i>Amaea deroyae</i> DuShane, 1970	Me, P, Ga		IC	n.a.	n.a.	36/162	[97, 204, 216, 250]		
<i>Amaea fermianiana</i> (Dall, 1908)	Me, P		PM	of	n.a.	20/1,333	[1, 2, 72, 97, 216]		
<i>Amaea tehuacanarum</i> DuShane & McLean, 1968	Me, P	P	PM	n.a.	n.a.	-7/3	[101, 216]		
<i>Cirsotrema togatum</i> (Hertlein & Strong, 1951)	Co, Me, P, Ga	P	PM	n.a.	g, m, r, s,	32/113	[97, 102, 158, 204, 216, 265, 284]		
<i>Epitonium acapulcanum</i> Dall, 1917	Mg, Me, P, Ma, Ga		IC	it	n.a.	-3/0	[97, 204, 212, 216, 250]		
<i>Epitonium aciculinum</i> (Hinds, 1844)	Me, P		IC	n.a.	n.a.	9/54	[97, 216, 336]		
<i>Epitonium billeeanum</i> (DuShane & Bratcher, 1965)	I, NWP, SWP, Me, P, Ma, Ga	P	PM, IC	n.a.	co, r, ru, s	2/30	[1, 97, 100, 204, 212, 216, 250]		
<i>Epitonium eutaenium</i> (Dall, 1917)	Me, P, Ga		PM	it, of	s	-2/4	[97, 158, 185, 204, 216]		
<i>Epitonium hancocki</i> DuShane, 1970	P, Ga		IC	n.a.	n.a.	26/200	[97, 204, 216, 250, 324]		
<i>Epitonium indistinctum</i> (Sowerby, 1844)	Co, P, Ga	P	IC	it	n.a.	-2/0	[63, 101, 143, 204, 216]		
<i>Epitonium cf. mitraeforme</i> (Sowerby, 1844)	Me, P	P	PM	it	n.a.	-2/7	[97, 101, 185, 216]		
<i>Epitonium obtusum</i> (Sowerby, 1844)	Co, Me, P	N, P	PM	it	m, r, s	-1/11	[1, 75, 97, 145, 216, 276]		
<i>Epitonium replicata</i> (Sowerby, 1844)	Co, Me, P, Ga	P	PM, IC	it, of	s	-6/0	[97, 145, 158, 185, 204, 216, 250, 336, 379]		
<i>Epitonium cf. suprastriatum</i> (Carpenter, 1857)	Me, P	P	PM	it	n.a.	-1/2	[97, 185, 338]		
<i>Opalia crystallina</i> (Carpenter, 1864)	Co, Me, P		IC	it	n.a.	-1/00	[97, 145, 216, 250]		
<i>Opalia infrequens</i> (C.B. Adams, 1852)	P		IC	it	n.a.	-1/26	[97, 338]		
<i>Opalia paulula</i> DuShane, 1974	Me, P, Ma		IC	n.a.	n.a.	9/17	[97, 212, 250, 324]		

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Opalia sanjuanensis</i> (Lowe, 1932)	Co, P	N, P	IC	n.a.	n.a.	n.a.	[97, 216, 338]
<i>Sthenorytis diana</i> (Hinds, 1844)	Me, P	P	PM	it	n.a.	-200	[1, 72, 97, 101, 216]
Superfamily EULIMOIDEA							
Family EULIMIDAE							
<i>Eulima</i> aff. <i>barthelowi</i> (Bartsch, 1917)	Me, P		PM	n.a.	n.a.	n.a.	[185, 216]
<i>Eulima elegantissima</i> de Folin, 18867	P, Ga	P	IC	n.a.	n.a.	6/25	[139, 204, 216, 250, 324]
<i>Eulimetta pagoda</i> Warén, 1992	Co, Me, P	G	PM	n.a.	n.a.	3/44	[382]
<i>Eulimostraca macleani</i> Warén, 1992	P		PM	n.a.	n.a.	23	[382]
<i>Melanella ogasawarana</i> (Pilsbry, 1905)	NWP, P		IC	n.a.	co	1/20	[330]
<i>Melanella</i> cf. <i>solitaria</i> (C.B. Adams, 1852)	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Melanella townsendi</i> Bartsch, 1917	Co, P		IC	n.a.	n.a.	9/30	[216, 250]
<i>Microeulima terebralis</i> (Carpenter, 1857)	Co, Me, P	P	PM	it	n.a.	0/30	[382]
<i>Niso aeglees</i> Bush, 1885	WA, P, Ga		IC	of	n.a.	33/200	[204, 216, 250]
<i>Niso interrupta</i> (Sowerby, 1834)	Co, P		PM, IC	of	s	20/105	[216, 250, 356]
<i>Sabinella shaskyi</i> Warén, 1992	Co, Me, P, Ma, Ga		IC	n.a.	e, r	2/105	[204, 212, 216, 324, 382]
<i>Scalenostoma subulata</i> (Broderip, 1832)	P, ct		IC	sb	co, ru	9/27	[180, 250, 323, 381, 382]
<i>Stilapex cookeana</i> (Bartsch, 1917)	P		PM	n.a.	n.a.	n.a.	[185]
<i>Subniso hipolitensis</i> (Bartsch, 1917)	Ca, Co, P		PM	of	n.a.	35	[163, 216, 285, 324]
<i>Subniso rangii</i> (de Folin, 1867)	Me, P	ES, P	PM, IC	n.a.	n.a.	2/30	[216, 324, 382]

Infraorder NEOGASTROPODA

Superfamily MURICOIDEA

Family MURICIDAE

<i>Acanthais brevidentata</i> (Wood, 1828)	Me, P, Ma, Ga, TP, PC	P	PM, IC	cr, it, sb	bo, m, r, ru, s, sh	n.a.	[2, 12, 45, 75, 138, 185, 204, 212, 216, 222, 245, 247, 250, 268, 269, 270, 280, 360, 361, 364, 365]
<i>Acanthotrophon sentus</i> Berry, 1969	Me, P, Ga		IC	of	n.a.	30/110	[204, 216, 250, 324, 371]
<i>Aspella hastula</i> (Reeve, 1844)	P, Ma, Ga	P	IC	it	co, ru, s	-/100	[204, 212, 216, 250, 336, 351]
<i>Aspella pollux</i> Radwin & d'Attilio, 1976	Co, Me, P, Ga		IC	of	co, g, ru	2/110	[204, 247, 250, 285, 294, 324, 333]
<i>Aspella pyramidalis</i> (Broderip, 1833)	Me, P, Ma, Ga	N, P	PM, IC	cr, it, sb	bo, r	n.a.	[38, 204, 212, 216, 276, 285, 294, 360, 379]
<i>Bizenella micaela</i> Radwin & d'Attilio, 1972	Me, P, Ma		IC	n.a.	n.a.	n.a.	[212, 293, 324, 336]
<i>Chicoreus eversoni</i> d'Attilio, Myers & Shasky, 1987	P, Ma		IC	of	ru, s	15/97	[82, 209, 212]
<i>Chicoreus perattus</i> (Keen, 1960)	Me, P	P	PM	n.a.	n.a.	27/100	[1, 72, 203, 216]
<i>Chicoreus regius</i> (Swainson, 1821)	Co, Me, P	N	PM	it, sb	m, r, s	0/65	[1, 72, 75, 143, 216, 276]
<i>Cymia tecta</i> (Wood, 1828)	P	N, P	PM	it, sb	r		[75, 185, 216, 249, 276]
<i>Dermomurex</i> cf. <i>cunninghamae</i> (Berry, 1964)	Co, P	P	PM	n.a.	n.a.	27/100	[185, 216, 284, 372]
<i>Dermomurex obeliscus</i> (A. Adams, 1853)	Me, P	N, P	PM	it, sb	r	n.a.	[216, 276, 294, 372]
<i>Eupleura muriciformis</i> (Broderip, 1833)	Ca, Co, Me, P, TP	N, P	PM	cr, it, ma, of, sb	g, m, s, sh	9/80	[1, 38, 45, 74, 75, 103, 216, 232, 272, 276]
<i>Favaria cocosensis</i> Myers & d'Attilio, 1990	P, Ma		IC	n.a.	co, r	7/27	[209, 212, 258]
<i>Favaria diomedaea</i> (Dall, 1908)	Ca, Co, P	P	IC	of	n.a.	-/155	[63, 162, 216, 288, 369]
<i>Favaria erosa</i> (Broderip, 1833)	Me, P	P	PM	of, sb	r	n.a.	[185, 216, 324, 379]
<i>Favaria humilis</i> (Broderip, 1833)	Co, Me, P, Ga	N, P	PM, IC	it, of	g, r	-/33	[1, 2, 75, 138, 204, 216, 247, 250, 284, 369, 379]
<i>Favaria incisa</i> (Broderip, 1833)	Mg, Me, P, Ma, Ga		PM, IC	of	sg, sh	2/100	[75, 204, 209, 212, 216, 250]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Favaria cf. lappa</i> (Broderip, 1833)	Mg, Co, Me, P, Ga		PM	of	r	-37	[38, 113, 185, 204, 216, 285]
<i>Favaria lauræ</i> (Vokes, 1970)	Me, P		IC	n.a.	n.a.	30/45	[216, 250]
<i>Favaria mildredæ</i> (Poorman, 1980)	Co, P		IC	n.a.	n.a.	70/200	[257]
<i>Favaria purdyæ</i> (Vokes & d'Attilio, 1980)	P, Ga		IC	it	co, r	-26	[204, 250, 336, 375]
<i>Favaria radwini</i> (Emerson & d'Attilio, 1970)	P, Ga		IC	n.a.	n.a.	100	[115, 204, 336]
<i>Favaria shaskyi</i> (d'Attilio & Myers, 1988)			IC	n.a.	co, s	11/24	[81]
<i>Favaria vittata</i> (Broderip, 1833)	Me, P, Ga, TP		PM	it	m, s	-20	[38, 185, 204, 216, 272]
<i>Hexaplex brassica</i> (Lamarck, 1822)	Co, Me, P	N	PM	it, ma, of	n.a.	-100	[1, 72, 74, 75, 216, 276, 379]
<i>Hexaplex princeps</i> (Broderip, 1833)	Co, Me, P, Cl, Ma, Ga, TP	N, P	PM, IC	cr, it, of, sb	bo, co, m, r	1/30	[38, 45, 105, 138, 204, 209, 212, 216, 250, 276, 279, 341, 360]
<i>Homalocantha oxyacantha</i> (Broderip, 1833)	Me, P	N	PM	n.a.	m, r, s	1/15	[1, 38, 45, 75, 185, 216, 276]
<i>Mancinella speciosa</i> (Valenciennes, 1832)	Mg, Me, P, Cl, Ma, Ga	N, P	PM, IC	cr, it, sb	bo, r, s	-2	[45, 112, 113, 138, 185, 204, 212, 216, 247, 250, 276, 360, 361]
<i>Mancinella triangularis</i> (Blainville, 1832)	Me, P, Ma, Ga, TP	N, P	PM, IC	it	co, m, r	-29	[45, 75, 139, 185, 204, 206, 212, 216, 247, 250, 276]
<i>Morula uva</i> (Röding, 1798)	I, IP, SWP, CrP, Ca, P, Cl		IC	cr, it, rl	co, r	-18	[2, 56, 85, 214, 216, 250, 336]
<i>Muricanthus ambiguus</i> (Reeve, 1845)	Me, P	G, P	PM	n.a.	m, r, s	1/2	[185, 216]
<i>Muricanthus radix</i> (Gmelin, 1791)	Me, P, TP	N, P	PM	cr, es, it, ma, sb	m, r, s	1/15	[1, 2, 38, 74, 75, 113, 216, 227, 272, 276, 373]
<i>Muricopsis westonensis</i> (Myers & d'Attilio, 1990)	P, Ma		IC	n.a.	ba, co, r	9/40	[209, 212, 258]
<i>Muricopsis zeteki</i> (Hertlein & Strong, 1951)	Co, Me, P, Ga	N, P	PM, IC	it, ma	a, bo, co, g, l, m, r, s, sh	2/21	[45, 144, 158, 185, 204, 216, 276, 294, 360]
<i>Neorapana muricata</i> (Broderip, 1832)	Co, Me, P, Ma, Ga, TP		PM, IC	it	m, r, s	0/65	[45, 63, 72, 75, 103, 204, 212, 216, 272, 276, 333]

<i>Ocenebra lugubris</i> (Broderip, 1833)	P, TP		n.a.		PM			co, r	n.a.	[2, 38, 75, 216, 294]
<i>Pascua rufonotata</i> (Carpenter, 1864)	Co, Me, P, Cl, Ma, Ga		it, of	r	IC			r	-/60	[204, 209, 212, 216, 250, 285, 293, 324]
<i>Phyllocoma scalariformis</i> (Broderip, 1833)	Co, Me, P, Ga	P	it	co, r	PM, IC			co, r	-/15	[2, 45, 204, 216, 250, 336]
<i>Plicopurpura columellaris</i> (Lamarck, 1822)	Me, P, Ga, PC	N, P	it, sb	r	PM, IC			r	n.a.	[2, 12, 18, 45, 75, 138, 204, 216, 247, 250, 276, 279]
<i>Plicopurpura patula pansa</i> (Gould, 1853)	Mg, Co, Me, P, Cl, Ma, Ga, TP	N, P	cr, it, sb	bo, r, s, sh	PM, IC			bo, r, s, sh	n.a.	[1, 12, 13, 18, 45, 112, 113, 204, 212, 216, 222, 245, 247, 250, 272, 276, 271]9, 285, 360, 361]
<i>Pteropurpura centrifuga centrifuga</i> (Hinds, 1844)	Mg, Me, P, Ga	P	n.a.	a, m, s, sh	PM			a, m, s, sh	64/280	[1, 72, 158, 216, 294]
<i>Pterotyphis fimbriatus</i> (A. Adams, 1854)	Me, P	P	sb	n.a.	PM			n.a.	n.a.	[1, 2, 7, 152, 216, 286]
<i>Pterotyphis lowei lowei</i> (Pilsbry, 1931)	SWP, Co, Me, P, Ma, Ga	P	cr, it, of, sb	r, ru, s	IC			r, ru, s	1/60	[1, 77, 171, 204, 212, 216, 250, 276, 284, 336]
<i>Stramonita biserialis</i> (Blainville, 1832)	Ca, Co, Me, P, Cl, Ma, Ga, PC	ES, N	cr, it, ma	as, ba, bo, m, r, sh, w	PM, IC			as, ba, bo, m, r, sh, w	n.a.	[2, 45, 74, 75, 185, 204, 209, 212, 216, 235, 247, 250, 276, 302, 360, 361]
<i>Thaisella kiosquiformis</i> (Duclos, 1832)	Ca, Mg, Me, P, TP, PC	ES, N, P	es, it, ma	m, r, sh, w	PM			m, r, sh, w	n.a.	[74, 75, 216, 276]
<i>Trachypollia lugubris</i> (C.B. Adams, 1852)	Ca, Co, Me, P, Ga	P	it, of	bo, r	PM, IC			bo, r	-/40	[27, 185, 204, 209, 216, 284, 293, 324, 360, 379]
<i>Tribulus planospira</i> (Lamarck, 1822)	Me, P, Cl, Ma, Ga		sb	r, ru	IC			r, ru	0/25	[2, 45, 75, 112, 131, 138, 204, 206, 212, 216, 247, 250, 279]
<i>Typhis coronatus</i> Broderip, 1833	Mg, Co, Me, P		of	m	PM			m	-/37	[79, 216]
<i>Typhis cumingii</i> (Broderip, 1833)	C, Me, P		it	m, s	PM			m, s	-/70	[38, 72, 216, 294]
<i>Typhis grandis</i> (A. Adams, 1855)	Co, P	P	of	m	PM			m	-/37	[79, 216, 294]
<i>Typhis wendita</i> (C. Hertz, 1995)	P		of	n.a.	PM			n.a.	[161]	
<i>Vasula melones</i> (Duclos, 1832)	Me, P, Ga, PC	N, P	cr, it, sb, sp	bo, m, r, ru, s, sh	PM, IC			bo, m, r, ru, s, sh	0/1	[2, 12, 13, 18, 75, 177, 185, 204, 206, 216, 222, 247, 250, 268, 270, 276, 279, 280, 360, 361, 379]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Vitularia salebroxa</i> (King & Broderip, 1832)	Ca, Co, Me, P, Ma, Ga	N, P	PM, IC	it, sb	m, r, s, sh	-/90	[2, 103, 204, 209, 212, 216, 276, 294, 324, 373]
<i>Vokesimurex elenensis</i> (Dall, 1909)	Co, Me, P, TP		PM	n.a.	s	20	[2, 75, 103, 216, 272, 276, 373]
<i>Vokesimurex recurvirostris</i> (Broderip, 1833)	WA, Co, Me, P	N, P	PM	it, sb	m, s	-/200	[1, 2, 38, 72, 75, 80, 185, 216, 276]
<i>Vokesimurex tricornis</i> Berry, 1960	Ca, Co, Me, P		PM	of	n.a.	-/75	[72, 80, 216, 285]
Family CORALLIOPHILIDAE							
<i>Babelomurex hindsi</i> (Carpenter, 1857)	Co, Me, P, Ga	P	IC	of	r	12/37	[1, 2, 113, 138, 204, 209, 216, 250, 324, 345]
<i>Babelomurex santacruzensis</i> (Emerson & d'Attilio, 1970)	P, Ga		IC	of	n.a.	100/150	[2, 63, 115, 204]
<i>Coralliophila macleani</i> Shasky, 1970	Co, Me, P, Ma	ES	IC	n.a.	co, o, r	2/60	[1, 154, 209, 212, 216, 250, 313, 319]
<i>Coralliophila neritoidea</i> (Lamarek, 1816)	I, IP, NWP, SWP, CtP, Me, P, Cl, Ma, Ga	P	PM, IC	cr, rl, sb	co, s	10/160	[2, 61, 85, 112, 141, 204, 211, 212, 214, 216, 250, 323]
<i>Coralliophila parva</i> (E.A. Smith, 1877)	IP, Me, P, Cl, Ma, Ga		IC	it, sb	co, r	-/32	[2, 18, 61, 113, 204, 209, 212, 216, 250]
<i>Coralliophila rocasuatae</i> Myers & d'Attilio, 1990	P, Ma		IC	n.a.	co, r	7/36	[209, 212, 258]
<i>Quoyula madrepotarium</i> (Sowerby, 1834)	EA, RS, I, IP, NWP, SWP, CtP, Me, P, Cl, Ma, Ga	N, P	PM, IC	cr, it, rl, sb	co	-/20	[1, 2, 45, 85, 108, 110, 138, 204, 209, 212, 214, 216, 250, 276]
<i>Reliquiaecava robillardii</i> (Liénard, 1870)	I, P, Cl, Ga		PM, IC	n.a.	co, r	12	[18, 45, 204, 216, 220, 250, 336]
<i>Rhizochilus antipathum</i> Steenstrup, 1850	RS, I, IP, CtP, Co, P, Cl		IC	n.a.	co	20/60	[213, 250]

Family TURBINELLIDAE									
<i>Surculina blanda</i> (Dall, 1908)	P	C, Ca, Co, Me, P, TP	N, P	IC, E PM	n.a. m, r, s	1, 953 2/65	[216, 247, 250] [39, 45, 72, 75, 216, 272, 276]		
Family BUCCINIDAE									
<i>Anitilophos veraguensis</i> (Hinds, 1843)	Co, Me, P			PM	r, s	37/402	[1, 2, 72, 216]		
<i>Bailya anomala</i> (Hinds, 1844)	Co, Me, P		N, P	PM, IC	bo	n.a.	[185, 216, 336, 351, 360]		
<i>Caducifer cinis</i> (Reeve, 1846)	Me, P, Ma, Ga			IC	co, r	2/27	[204, 212, 216, 247, 250, 279]		
<i>Cantharus gateis</i> (Berry, 1963)	Co, Me, P		ES	PM	n.a.	27/200	[1, 72, 153, 216, 345]		
<i>Cantharus gemmatus</i> (Reeve, 1846)	Me, P, TP		N, P	PM, IC	bo, m, r, ru, s	1/2	[75, 185, 216, 247, 250, 272, 276, 280, 360]		
<i>Cantharus lautus</i> (Reeve, 1846)	Me, P			PM	n.a.	n.a.	216		
<i>Cantharus macrospira</i> (Berry, 1957)	Co, P		ES	PM	s	11/33	[72, 103, 143, 153, 216]		
<i>Cantharus panamicus</i> (Hertlein & Strong, 1951)	Co, Me, P, Ga		P	PM	a, co, m, r, s, sh	60/91	[72, 158, 204, 216, 265]		
<i>Cantharus rehderi</i> Berry, 1962	Ca, Me, P, TP		P	PM, IC	n.a.	46/333	[63, 72, 75, 216]		
<i>Cantharus ringens</i> (Reeve, 1846)	Me, P, Ga, TP		N, P	PM	m, r, s	0/1	[18, 45, 75, 138, 185, 204, 216, 272, 276]		
<i>Cantharus sanguinolentus</i> (Duclos, 1833)	Co, Me, P, Cl, Ma, Ga		N, P	PM, IC	bo, co, r, s	-/2	[2, 18, 45, 75, 112, 138, 185, 204, 212, 216, 247, 250, 276, 279, 360]		
<i>Cantharus shaskyi</i> Berry, 1959	Co, Me, P			PM	n.a.	70/100	[1, 216, 285]		
<i>Cantharus vibex</i> (Broderip, 1833)	Mg, P, TP		N, P	PM	n.a.	-/22	[75, 185, 216, 272, 276]		
<i>Clivipollia fragarius</i> (Wood, 1828)	I, IP, CTP, P, Cl			IC	n.a.	15/30	[2, 112, 214, 328]		
<i>Colubraria lucasensis</i> Strong & Hertlein, 1937	Co, Me, P, Ga		P	PM, IC	bo, r, s	9/100	[179, 204, 216, 250, 332, 379]		
<i>Colubraria ochsneri</i> Hertlein & Allison, 1968	P, Cl, Ma, Ga			IC	co, r, s	9/100	[27, 138, 179, 204, 212, 216, 250]		
<i>Engina jugosa</i> (C.B. Adams, 1852)	Co, Me, P		P	PM, IC	n.a.	37/133	[2, 185, 216, 250, 276]		
<i>Engina maura</i> (Sowerby, 1832)	Me, P, Ga		N, P	PM	bo, m, r, s	0/1	[18, 45, 75, 138, 185, 204, 216, 276, 360]		
<i>Engina pulchra</i> (Reeve, 1846)	Me, P, Ga		ES, N, P	PM	r	n.a.	[45, 58, 154, 204, 216, 276]		

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Engina tabogaensis</i> Bartsch, 1931	Co, Me, P, Ma, TP	N, P	PM	it	bo, m, r, s	0/1	[1, 138, 185, 204, 212, 216, 272, 276, 360, 379]
<i>Metula amosii</i> Vanatta, 1913	Co, Me, P	P	PM	of	n.a.	-/50	[2, 72, 216]
<i>Metula ellena</i> Olsson & Bayer, 1972	Me, P		PM	of	n.a.	9/24	[266, 344]
<i>Neoteron ariel</i> (Pilsbry & Lowe, 1932)	P	N	PM	n.a.	n.a.	n.a.	[78, 276]
<i>Nicema subrostrata</i> (Wood, 1828)	Me, P		PM	n.a.	m	n.a.	[216]
<i>Northia northiae</i> (Griffith & Pidgeon, 1834, ex Gray, MS)	Me, P, TP	ES, N, P	PM	n.a.	n.a.	65	[72, 75, 153, 216, 272, 276]
<i>Northia pristinis</i> (Deshayes in Lamarck, 1844)	Me, P		PM	n.a.	n.a.	13	[2, 216]
<i>Phos articulatus</i> Hinds, 1844	Co, P, PC		PM, IC	of	a, co, r, ru, s	20/232	[2, 72, 216, 247, 250, 285]
<i>Phos erassus</i> Hinds, 1843	Me, P	P	PM, IC	n.a.	n.a.	7/100	[72, 216]
<i>Phos gaudens</i> Hinds, 1844	Co, Me, P	P	PM	it, of	m, s	-/110	[2, 72, 103, 216, 276, 285, 379]
<i>Trajana perideris</i> (Dall, 1910)	Co, Me, P	P	PM	n.a.	m, ru, s, sh	17/91	[72, 210, 216, 276]
<i>Truncaria filosa</i> (Adams & Reeve, 1846)	P	P	PM	n.a.	n.a.	65/75	[72, 73]
Family PSEUDOLIVIDAE							
<i>Triumphis distorta</i> (Wood, 1828)	P, TP	ES, P	PM	it, ma	m, r	n.a.	[74, 75, 216, 276, 272]
Family COLUMBELLIDAE							
<i>Aesopus chrysalloides</i> (Carpenter, 1864)	Ca, Co, P		IC	it	n.a.	-/60	[103, 241, 285, 337]
<i>Aesopus osborni</i> Hertlein & Strong, 1951	Me, P		PM	n.a.	n.a.	6/15	[216, 337]
<i>Aesopus sanctus</i> Dall, 1919	Ca, Co, Me, P		IC	n.a.	n.a.	18/25	[173, 216, 250, 324]
<i>Anachis lilliana</i> Whitney, 1978	Co, Me, P		PM	it, sb	r	-/23	[385]
<i>Anachis lyrata</i> (Sowerby, 1832)	C, Br, P	N, P	PM, Car	it	a, m, r, sg	n.a.	[1, 89, 185, 216, 249, 276, 290, 291, 302, 307]
<i>Anachis scalarina</i> (Sowerby, 1832)	Me, P	N, P	PM	it	m, r, s	1/2	[216, 276]

<i>Bifurcium bicanaliferum</i> (Sowerby, 1832)	Me, P, Ga	G, ES, P	PM	es, it, of, sb	m, s	-/55	[74, 142, 164, 200, 204, 216]
<i>Clavistrombina clavulus</i> (Sowerby, 1834)	Me, P, TP	ES, P	PM	it, of, sb	m, r, s	-/46	[200, 216]
<i>Columbella fuscata</i> Sowerby, 1832	Mg, Co, Me, P, Ga, TP	N, P	PM	it	bo, r, s	-/2	[2, 18, 45, 75, 113, 138, 204, 216, 276, 279, 285, 360]
<i>Columbella labiosa</i> Sowerby, 1822	P	N, P	PM, IC	it, sb	bo, m, r, s	0/24	[12, 45, 75, 216, 247, 250, 276, 279, 360]
<i>Columbella major</i> Sowerby, 1832	Me, P, TP	N, P	PM	it	bo, m, r, s	-/4	[45, 75, 216, 276, 360]
<i>Columbella sonsonatensis</i> (Mörch, 1860)	Co, Me, P, Ga	N, P	PM, IC	sb	bo, r	n.a.	[138, 204, 216, 221, 260, 276, 360, 379]
<i>Columbella strombiformis</i> Lamarck, 1822	Co, Me, P, TP, PC		PM	it	r	n.a.	[75, 185, 216, 276]
<i>Cosmioconcha modesta</i> (Powys, 1835)	P	ES, N, P	PM	it, sb	m, r	-/30	[72, 164, 216, 276]
<i>Cosmioconcha palmeri</i> (Dall, 1913)	Co, Me, P	ES	PM	m, s		7/52	[103, 164, 216, 276, 324]
<i>Cosmioconcha rehderi</i> (Hertlein & Strong, 1951)	Me, P		PM	of	m, sh	22/48	[158, 185, 216]
<i>Costoanachis boivini</i> (Kiener, 1841)	P	N, P	PM	it, sb	r	n.a.	[185, 216, 270, 276]
<i>Costoanachis cf. coronata</i> (Sowerby, 1832)	Me, P	P	PM	n.a.	n.a.	n.a.	[113, 185, 216, 324]
<i>Costoanachis costellata</i> (Broderip & Sowerby, 1829)	Me, P, TP		PM	cr	r	n.a.	[216, 360, 361]
<i>Costoanachis fluctuata</i> (Sowerby, 1832)	P, TP	ES, N, P	PM	es, it, sb	bo, m, r, ru, s	0/1	[2, 74, 75, 154, 185, 216, 276, 280, 353, 360]
<i>Costoanachis cf. gracilis</i> (C.B. Adams, 1852)	P	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Costoanachis hannana</i> (Hertlein & Strong, 1951)	Ca, Me, P		PM	n.a.	n.a.	n.a.	[185, 216]
<i>Costoanachis hilli</i> (Pilsbry & Lowe, 1932)	Co, Me, P	N	PM	it, sb	r	n.a.	[216, 276]
<i>Costoanachis lentiginosa</i> (Hinds, 1844)	Me, P, TP	G, N, P	PM	cr, it, sb	bo, m, r, s	0/1	[75, 185, 216, 276, 360, 361]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Costoanachis moesta</i> (C.B. Adams, 1852)	P, TP	ES, P	PM	es, it, ma	m, r, w	n.a.	[74, 185, 216, 272, 276]
<i>Costoanachis nigricans</i> (Sowerby, 1844)	Me, P, Ga, TP	ES, N, P	PM	it, ma	bo, m, r, s	0/11	[74, 103, 185, 204, 216, 272, 276, 360]
<i>Costoanachis oerstedii</i> (von Martens, 1897)	P		PM	n.a.	n.a.	n.a.	[216]
<i>Costoanachis rugosa</i> (Sowerby, 1832)	Me, P, TP	ES, N, P	PM	es, it, ma	m, r, sh, w	n.a.	[74, 75, 153, 185, 272, 276, 379]
<i>Costoanachis rugulosa</i> (Sowerby, 1844)	P, Ga, TP	P	PM	cr	r	n.a.	[75, 204, 216, 272, 360, 361]
<i>Costoanachis varia</i> (Sowerby, 1832)	C, Co, Me, P, Ga	ES, N, P	PM, Car	it	r	n.a.	[14, 87, 138, 204, 216, 267, 276, 307]
<i>Costoanachis</i> cf. <i>vexillum</i> (Reeve, 1858)	Co, Me, P		PM	it	r	n.a.	[185, 216]
<i>Cotonopsis deroyae</i> (Emerson & d'Attilio, 1969)	P, Ga, TP		IC	n.a.	co, g, ru, s	95/200	[2, 63, 114, 200, 204, 216]
<i>Cotonopsis hirundo</i> (Gaskoin, 1852)	Co, Me, P, Ga	G, N, P	PM	of	g, m, s, sh	2/236	[200, 216, 218]
<i>Cotonopsis mendozana</i> (Shasky, 1970)	Me, P	ES	PM	n.a.	r	27/110	[72, 185, 200, 216, 319]
<i>Cotonopsis panacostaricensis</i> (Olsson, 1942)	P	P	PM	n.a.	m, r	40/183	[200]
<i>Cotonopsis suteri</i> Jung, 1989	Co, Me, P		PM	n.a.	n.a.	25/110	[200]
<i>Cotonopsis turrita</i> (Sowerby, 1832)	Me, P	G, ES, N, P	PM	it, of	g, m, r, s	-/25	[72, 75, 200, 216, 276, 296, 320]
<i>Mazatlaniana fulgurata</i> (Philippi, 1846)	G, C, Me, P, TP	N, P	PM	it, sb	r, s	n.a.	[164, 216, 272, 276, 290, 292]
<i>Microcithara uncinata</i> (Sowerby, 1832)	Me, P, Ga		IC	of	ru, s	12/70	[75, 138, 204, 216, 250, 276, 336, 379]
<i>Mitrella loisae</i> Pitt & Kohl, 1979	P, TP		PM	sb	m, r, ru, s	n.a.	[280]

<i>Mitrella ocellata</i> (Gmelin, 1791)	Ber, F, G, C, Br, SCA, NEA, IP, Mg, Co, Me, P, Ga	N, P	PM, IC, Car	c, cr, it, ma, of, sb	bo, m, r, s, sg	0/34	[1, 15, 18, 75, 84, 89, 113, 130, 185, 187, 223, 244, 247, 250, 267, 276, 279, 292, 302, 307, 324, 360, 377, 379, 387] [216, 324]
<i>Nassarina vespera</i> Keen, 1971	Me, P		PM	n.a.	n.a.	27/55	
<i>Parvanachis cf. dalli</i> (Bartsch, 1931)	P, Ma, TP	P	PM	n.a.	n.a.	n.a.	[185, 212, 216, 272]
<i>Parvanachis cf. milium</i> (Dall, 1916)	P	P	PM	n.a.	m, r, s	5/11	[103, 185, 216]
<i>Parvanachis pardalis</i> (Hinds, 1843)	P	N, P	PM	it	bo, r	n.a.	[216, 276, 324, 360]
<i>Parvanachis pygmaea</i> (Sowerby, 1832)	Me, P, TP	N, P	PM	cr, it	bo, m, r, s	0/1	[75, 185, 216, 272, 276, 360, 361, 379]
<i>Sincola dorsata</i> (Sowerby, 1832)	Ca, Co, Me, P, TP	G, ES, N, P	PM	it, of	co, m, r, ru, s, sh	-/88	[72, 103, 200, 216, 320]
<i>Sincola gibberula</i> (Sowerby, 1832)	Ca, Mg, Co, Me, P, TP, PC	G, ES, N, P	PM	it	a, bo, g, m, r, ru, s, sg, sh	-/165	[18, 75, 103, 200, 216, 218, 276, 284, 353, 379]
<i>Steironepion melanosticta</i> (Pilsbry & Lowe, 1932)	Co, Me, P, Ma, Ga	N	PM, IC	n.a.	bo	9/25	[91, 138, 204, 212, 216, 250, 276, 324, 360]
<i>Strombina angularis</i> (Sowerby, 1832)	Co, Me, P	P	PM	of	m, r, s, sh	37/300	[200, 216]
<i>Strombina carmenicita</i> Lowe, 1935	Co, Me, P	P	PM	of	m, r, s, sh	9/165	[200, 216]
<i>Strombina elegans</i> (Sowerby, 1832)	Me, P	P	PM	b, of	m, r, s, sg, sh	0/90	[200, 216, 218, 353]
<i>Strombina fusinoidea</i> Dall, 1916	Co, Me, P, TP	ES, N, P	PM	of	m, s, sh	4/278	[2, 72, 200, 216]
<i>Strombina maculosa</i> (Sowerby, 1832)	Ca, Co, Me, P, Ga	P	PM	it, of	co, g, m, r, s, sh	-/110	[200, 204, 216, 324]
<i>Strombina pulcherrima</i> (Sowerby, 1832)	Me, P	G, P	PM	it, of	m, s, sh	-/91	[200, 216, 353]
<i>Strombina recurva</i> (Sowerby, 1832)	Co, Me, P, Ga, TP	G, N, P	PM	it, of	bo, g, m, r, s, sg, sh	-/128	[72, 75, 138, 200, 204, 216, 276]
<i>Zafrona incerta</i> (Stearns, 1892)	Co, Me, P, Ma, Ga		IC	of	r	13	[204, 212, 216, 250]
<i>Zanassarina cf. anitae</i> (Campbell, 1961)	Co, P		PM	of	s	33/55	[91, 103, 185, 216]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Zanassarina poecila</i> (Pilsbry & Lowe, 1932)	Me, P	N	PM	n.a.	n.a.	n.a.	[216, 337]
Family NASSARIIDAE							
<i>Nassarius catalus</i> (Dall, 1908)	Co, Me, P, Ga		PM	of	n.a.	37/333	[72, 112, 113, 185, 204, 216, 285]
<i>Nassarius complanatus</i> (Powys, 1835)	Co, Me, P, TP, PC	ES, N, P	PM	it, ma, sb	a, m, s	-/11	[57, 74, 75, 103, 216, 272, 276]
<i>Nassarius gallegosi</i> Strong & Hertlein, 1937	Co, Me, P		PM	n.a.	m	18/110	[72, 216]
<i>Nassarius lateostomus</i> (Broderip & Sowerby, 1829)	Co, Me, P, TP	ES, N, P	PM	it, ma, sb, sp	m, s	n.a.	[74, 75, 185, 216, 276, 379]
<i>Nassarius myristicatus</i> (Hinds, 1844)	P	ES, N, P	PM	it, of	n.a.	-/37	[154, 185, 216]
<i>Nassarius nassiformis</i> Leson, 1842	Co, Me, P, Ga	N, P	PM, IC	it, sb	m, ru, s	-/61	[45, 113, 185, 204, 216, 250, 276, 324]
<i>Nassarius nodicinctus</i> (A. Adams, 1852)	Co, Me, P	N, P	PM, IC	it, of	a, ru, s, sg, sh	-/50	[72, 216, 276, 324, 337, 379]
<i>Nassarius pagodus</i> (Reeve, 1844)	Mg, Co, Me, P	P	PM	sb	m, s	5/37	[103, 185, 216, 276]
<i>Nassarius shaskyi</i> McLean, 1970	Co, Me, P, Ma, Ga		PM	of	n.a.	65/100	[72, 204, 212, 216, 261, 285]
<i>Nassarius cf. stimpsonianus</i> (C.B. Adams, 1852)	P		PM	n.a.	n.a.	n.a.	[185]
<i>Nassarius versicolor</i> (C.B. Adams, 1852)	Mg, Co, Me, P, Ga, TP	N	PM	es, it, ma, of, sb	m, r, ru, s, sg, sh	-/50	[45, 57, 74, 75, 103, 113, 185, 204, 216, 276]
<i>Nassarius wilsoni</i> (C.B. Adams, 1852)	P, TP	ES, P	PM	ma	n.a.	n.a.	[74, 216, 218]
Family MELONGENIDAE							
<i>Melongena patula</i> (Broderip & Sowerby, 1829)	Co, Me, P, TP	N, P	PM	es, it	m, s	n.a.	[1, 2, 74, 75, 216, 272, 276]
Family FASCIOLARIIDAE							
<i>Fusinus albini</i> McLean, 1970	P, Ga		IC	of	co, ru, s	46/146	[63, 204, 216, 239, 247, 250]

<i>Fusinus colpoicus</i> Dall, 1915	Co, Me, P	PM	of	m, s	110/165	[216, 296]
<i>Fusinus dupetitthouarsi</i> (Kiener, 1840)	Co, Me, P, Ga, TP	PM, IC	it, of		-/200	[1, 2, 18, 103, 138, 204, 216, 250, 287]
<i>Fusinus felipensis</i> Lowe, 1935	Co, P	PM	n.a.	n.a.	n.a.	[216]
<i>Fusinus spectrum</i> (A. Adams & Reeve, 1848)	Co, Me, P, TP	PM	of	n.a.	7/275	[72, 216, 272, 285]
<i>Fusinus turris</i> (Valenciennes, 1832)	P, Ma	IC	n.a.	n.a.	n.a.	[212]
<i>Latirus concentricus</i> (Reeve, 1847)	Co, Me, P, Ga	PM	it	n.a.	n.a.	[45, 138, 204, 216, 320]
<i>Latirus hemphilli</i> Hertlein & Strong, 1951	Mg, Co, Me, P	PM	of	m, s, sg, sh	2/45	[72, 158, 216, 285]
<i>Latirus mediamericanus</i> Hertlein & Strong, 1951	Me, P	PM	it	r	8	[45, 158, 185, 216, 276, 320]
<i>Latirus cf. praestantior</i> Melvill, 1892	Co, P	PM	n.a.	n.a.	10/20	[185, 216]
<i>Leucozonia cerata</i> (Wood, 1828)	Co, Me, P, Ga	PM, IC	it, sb	bo, r	0/2	[45, 75, 185, 204, 216, 231, 250, 279, 360]
<i>Leucozonia tuberculata</i> (Broderip, 1833)	P, Ma, Ga	IC	it, sb	bo, r	2/24	[18, 39, 204, 212, 216, 247, 250]
<i>Opeatostoma pseudodon</i> (Burrow, 1815)	Me, P, Ma	PM	ct, it, sb	bo, m, r, s	0/2	[12, 45, 185, 212, 216, 360, 361]
<i>Pleuroploca granosa</i> (Broderip, 1832)	Me, P	PM	es, it, ma, sb	m	-/9	[2, 37, 74, 75, 216, 276]
<i>Pleuroploca princeps</i> (Sowerby, 1825)	P, Ma, Ga	PM, IC	of	r, s	9/27	[204, 212, 250]
<i>Pleuroploca salmo</i> (Woods, 1828)	Me, P	PM	it, of	m	-/7	[1, 216, 276]
Family VOLUTIDAE						
<i>Enaeta barnesii</i> (Gray, 1825)	Me, P	PM	it, of	m, s	-/80	[2, 216, 276, 320, 379]
Family OLIVIDAE						
<i>Agaronia griseocalba</i> (von Martens, 1897)	P	PM	n.a.	n.a.	n.a.	[216, 229, 230]
<i>Agaronia nica</i> A. López, Montoya & J. López, 1988	Me, P	PM	n.a.	n.a.	n.a.	[230]
<i>Agaronia propatula</i> (Conrad, 1849)	Me, P	PM	n.a.	n.a.	36	[216, 230, 343]

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Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Agaronia testacea</i> Lamarck, 1811	C, Co, Me, P, PC	N, P	PM, Car	es, it	m, r, s, sg	0/1	[1, 2, 74, 75, 86, 130, 187, 216, 230, 267, 276, 307, 384]
<i>Oliva foxi</i> Stingley, 1984	P	P	IC	of	co, ru, s	10/60	[208, 250, 362]
<i>Oliva incrassata</i> (Lightfoot, 1786)	Mg, Co, Me, P	N	PM	b, sb	s	6	[1, 75, 216, 276, 379]
<i>Oliva julieta</i> Duclos, 1835	Me, P	N	PM	of	n.a.	n.a.	[2, 216]
<i>Oliva polpaeta</i> Duclos, 1833	Mg, Co, Me, P, TP	N, P	PM	it, sb	m, s	-73	[1, 72, 216, 272, 276, 284, 379]
<i>Oliva porphyria</i> (Linnaeus, 1758)	Me, P	P	PM	it	s	-20	[1, 2, 216, 276, 379]
<i>Oliva spicata</i> (Röding, 1798)	Co, Me, P, TP	P	PM, IC	of	s	11/60	[1, 12, 103, 216, 247, 250, 379]
<i>Oliva spicata deynzeriae</i> Petuch & Sargent, 1986	P		IC	n.a.	n.a.	15/46	[275]
<i>Oliva splendidula</i> Sowerby, 1825	Me, P	P	PM	it, of	s	-34	[1, 2, 45, 216, 345]
<i>Oliva truncata</i> Marrat, 1867	P	P	PM	of	n.a.	n.a.	[275]
<i>Oliva undatella</i> Lamarck, 1811	Mg, Co, Me, P, TP	N, P	PM	it	m, s	-11 n.a.	[103, 216, 272, 276]
<i>Olivella cocosensis</i> Olsson, 1956	P	N	IC	of	s	10/105	[216, 247, 250, 324, 325]
<i>Olivella columellaris</i> (Sowerby, 1825)	P	N	PM	it	m, r	n.a.	[216]
<i>Olivella</i> cf. <i>inconspicua</i> (C.B. Adams, 1852)	Me, P	P	PM	n.a.	n.a.	60/70	[185, 216, 318]
<i>Olivella cf. riverae</i> Olsson, 1956	P		PM	n.a.	n.a.	7/11	[185, 216]
<i>Olivella semistriata</i> (Gray, 1839)	Me, P, TP		PM	it, sb	s	-9	[75, 86, 216]
<i>Olivella tergina</i> (Duclos, 1835)	Mg, Me, P, TP		PM	n.a.	n.a.	n.a.	[75, 216]
<i>Olivella volutella</i> (Lamarck, 1811)	Me, P, TP	ES, N, P	PM	es	m, s	n.a.	[74, 75, 216, 273, 276]
<i>Olivella zanoeta</i> (Duclos, 1835)	Co, Me, P		PM	of	m, s	3/7	[216]
Family HARPIDAE							
<i>Harpa crenata</i> Swainson, 1822	Mg, Co, Me, P, TP	N	PM, IC	of	n.a.	-100	[2, 72, 216, 247, 250, 272, 276, 297]

<i>Morum tuberculosum</i> (Reeve, 1842, ex Sowerby, MS)	Me, P, TP, Ga	N, P	PM	it, sb	r	8	[1, 45, 138, 204, 216, 276]
<i>Morum veleroae</i> Emerson, 1968	P, Ga		IC	of	co, g, ru, s	50/110	[2, 63, 106, 204, 216, 247, 250]
Family MARGINELLIDAE							
<i>Dentimargo zetetes</i> Roth, 1978	P		PM	it, of	m, s, sh	-/55	[314]
<i>Prunum aletes</i> Roth, 1978	P	P	PM	of	r, sh	3/82	[314]
<i>Prunum curtum</i> (Sowerby, 1832)	Me, P, TP, PC	ES, P	PM	n.a.	s	2/65	[72, 75, 154, 216]
<i>Volvarina taeniolata taeniolata</i> Mörch, 1860	Ca, Me, P, Ga		IC	it, of	n.a.	-/100	[113, 170, 204, 216, 250]
Family CYSTISCIDAE							
<i>Gibberula achenea</i> Roth & Coan, 1971	P		IC, E	n.a.	co, ru, s	24/100	[247, 250, 315]
<i>Gibberula minor</i> (C.B. Adams, 1852)	P, Ga	N	PM, IC	it	n.a.	-/120	[18, 185, 204, 216, 247, 250, 276]
<i>Gibberula polita</i> (Carpenter, 1857)	Ca, Me, P, Ga	P	IC	it	co, r, ru	-/100	[1, 138, 204, 216, 250, 324]
<i>Gibberula subtrigona</i> (Carpenter, 1864)	Ca, Me, P		IC	it, sb	a, s	-/100	[30, 113, 216]
<i>Granulina</i> cf. <i>margaritula</i> (Carpenter, 1857)	NEP, Ca, Me, P, Ga	P	PM	it	sg	-/110	[30, 113, 185, 204, 216]
<i>Persicula imbricata</i> (Hinds, 1844)	Me, P, Ga	P	PM	n.a.	ru, s, sg, sh	2/60	[45, 204, 216, 276]
<i>Persicula phrygia</i> (Sowerby, 1846)	Mg, Co, Me, P, Ga	N, P	PM	it	n.a.	-/20	[18, 204, 216, 276]
<i>Persicula pulchella</i> (Kiener, 1834)	I, IP, P, Ma		IC	n.a.	ru, s	9/70	[83, 196, 212, 250, 322]
Family MITRIDAE							
<i>Mitra belcheri</i> Hinds, 1843	Mg, Co, Me, P	P	PM	of	n.a.	37/100	[2, 59, 216, 285]
<i>Mitra crenata</i> Broderip, 1836	Co, Me, P, Ma, Ga		PM, IC	n.a.	bo, g, r, ru	5/55	[91, 204, 212, 216, 250, 359, 360, 379]
<i>Mitra effusa</i> Broderip, 1836	Me, P, Cl, Ma, Ga	P	PM, IC	it	m, r, s	-/30	[40, 45, 59, 75, 112, 204, 212, 216, 250]
<i>Mitra ferruginea</i> Lamarek, 1811	RS, IP, NWP, CrP, P, Cl, Ma		IC	cr, it	co	-/100	[2, 59, 212, 214, 250, 326]
<i>Mitra fultoni</i> E.A. Smith, 1892	Ca, Co, P		IC	it, of, sb	n.a.	-/90	[1, 216, 218, 247, 250, 285, 357]
<i>Mitra inca</i> d'Orbigny, 1841	Co, Me, P, TP		PM, IC	n.a.	g, r	9/18	[185, 216, 250]

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Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Mitra lens</i> Wood, 1828	Co, Me, P, Ga, TP	N, P	PM, IC	it, of, sb	bo, g, m, r, s	-/28	[2, 45, 75, 185, 204, 216, 247, 250, 276, 279, 359, 360]
<i>Mitra mitra</i> (Linnaeus, 1758)	I, IP, NWP, SWP, CtP, P, Ga	P	PM, IC	cl, cr, it	a, co, m, r, s	-/130	[2, 59, 85, 108, 110, 204, 214, 250, 359, 378]
<i>Mitra papalis</i> (Linnaeus, 1758)	I, IP, NWP, CtP, P, CI		IC	n.a.	co, m, ru, s	1/50	[2, 214, 216, 250, 336]
<i>Mitra rupicola</i> Reeve, 1844	P	P	IC	it, of, sb	co	-/21	[216, 250]
<i>Mitra sphoni</i> Shasky & Campbell, 1964	Co, Me, P, Ga		IC	of	r, ru, s	1/31	[59, 60, 204, 216, 250, 324, 359]
<i>Mitra swainsonii swainsonii</i> Broderip, 1836	Co, Me, P, TP		PM, IC	sb	n.a.	5/200	[1, 2, 72, 216, 250, 272]
<i>Mitra tristis</i> Broderip, 1836	Co, Me, P, Ma, Ga, TP	N, P	PM, IC	it, sb	bo, m, r, s	0/22	[1, 45, 75, 113, 204, 212, 216, 247, 250, 272, 276, 360]
<i>Subcancilla attenuata</i> (Broderip, 1836)	Co, Me, P	P	PM, IC	of	bo, r	9/91	[40, 62, 72, 216, 250, 360]
<i>Subcancilla calodimota</i> (Berry, 1960)	Co, Me, P		PM	of	n.a.	18/46	[216]
<i>Subcancilla erythrogramma</i> (Tomlin, 1931)	Co, Me, P, Ga	N	IC	it, of	ru, s	-/165	[1, 62, 204, 216, 250, 276, 324, 379]
<i>Subcancilla gigantea</i> (Reeve, 1844, ex Swainson, MS)	Co, Me, P	N, P	PM	it, of	n.a.	-/73	[62, 216, 249, 285, 296, 320]
<i>Subcancilla sulcata</i> (Swainson in Sowerby, 1825)	Co, Me, P	G	PM, IC	it	m, r, s	-/112	[20, 62, 75, 216, 250, 379]
Family COSTELLARIIDAE							
<i>Thala jeancateae</i> Sphon, 1969	P, Ga		IC	of	n.a.	45/110	[204, 250, 334, 358]
<i>Thala solitaria</i> (C.B. Adams, 1852)	Me, P, Ga	P	PM	it, sb	bo, r	n.a.	[3, 204, 216, 358, 360]
Superfamily CANCELLARIOIDEA							
Family CANCELLARIIDAE							
<i>Admetula deroyae</i> (Pettit, 1970)	P, Ga		PM	n.a.	n.a.	150/200	[72, 204, 216]

<i>Axelella campbelli</i> (Shasky, 1961)	Co, Me, P	P	PM	n.a.	n.a.	18/91	[1, 216, 344]
<i>Axelella funiculatum</i> (Hinds, 1843)	Mg, Me, P	P	PM	of	n.a.	65	[72, 216, 379]
<i>Cancellaria albida</i> Hinds, 1843	Me, P	N	PM	of, sb	n.a.	20/128	[72, 75, 216, 276]
<i>Cancellaria buccinoides</i> Sowerby, 1832	P, PC	N	PM	of	m, s	13/27	[216, 352]
<i>Cancellaria bulbulus</i> Sowerby, 1832	Me, P	ES, N, P	PM	it, of	m	-/40	[72, 153, 216, 276, 320, 348]
<i>Cancellaria cassidiformis</i> Sowerby, 1832	Co, Me, P		PM	it, of, sb	m, s	-/40	[72, 103, 216]
<i>Cancellaria decussata</i> Sowerby, 1832	Mg, Co, Me, P	P	PM	it, of	m, s	-/120	[72, 216, 285, 320, 352]
<i>Cancellaria gemmulata</i> Sowerby, 1832	Me, P, Ga	P	PM	it, of	m, s	-/73	[72, 204, 216, 320, 352]
<i>Cancellaria indentata</i> Sowerby, 1832	Co, Me, P, Ga		PM	of	n.a.	50/110	[72, 204, 216, 285]
<i>Cancellaria jayana</i> Keen, 1958	Co, Me, P	P	PM	it, of	n.a.	-/100	[72, 216, 320]
<i>Cancellaria obesa</i> Sowerby, 1832	Ca, Me, P, Ga		PM	it, of	m, s	-/90	[1, 75, 138, 204, 216, 276, 352]
<i>Cancellaria pulchra</i> Sowerby, 1832	Co, Me, P, Ga, TP		IC	of	n.a.	-/55	[1, 45, 63, 204, 216, 303, 333]
<i>Cancellaria solida</i> Sowerby, 1832	Me, P	N, P	PM	it, of	s	-/37	[216, 276, 320, 352]
<i>Cancellaria urceolata</i> Hinds, 1843	Mg, Co, Me, P	N, P	PM	of	n.a.	30/100	[72, 216, 276, 345]
<i>Cancellaria ventricosa</i> Hinds, 1843	Mg, Co, Me, P, Ga	P	PM	of	n.a.	37/184	[204, 216, 276, 285]
<i>Narona clavatula</i> (Sowerby, 1832)	Me, P, TP	P	PM	it, of	n.a.	-/110	[75, 216, 276, 320]
<i>Svelia centrata</i> (Dall, 1896)	Co, Me, P	P	PM, IC	of	n.a.	-/200	[2, 63, 72, 216, 247, 250, 285]
<i>Trigonostoma breve</i> (Sowerby, 1832)	Me, P	N, P	IC	it, of, sb	n.a.	-/25	[216, 250, 347]
<i>Trigonostoma bullatum</i> (Sowerby, 1832)	Co, Me, P	P	PM	of	m	13/200	[1, 72, 216, 352]
<i>Trigonostoma goniosstoma</i> (Sowerby, 1832)	Co, Me, P	P	PM	it, of, sb	s	-/24	[216, 352]
<i>Trigonostoma milleri</i> Burch, 1949	Co, P, Ga		PM	n.a.	n.a.	n.a.	[42, 138, 204, 216, 348]
Superfamily CONOIDEA							
Family TEREBRIDAE							
<i>Hastula cinerea</i> (Born, 1778)	F, G, C, Br, EA, Co, Me, P	N, P	PM, Car	c, it, of	m, p, r, s, sh	0/27	[1, 36, 45, 55, 84, 86, 130, 216, 276, 302, 307, 377, 384]
<i>Terebra allyni</i> Bratcher & Burch, 1970	Co, Me, P		PM	it, of	n.a.	-/27	[34, 36, 216]

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Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Terebra armillata</i> Hinds, 1844	Mg, Me, P, Ga	G, N, P	PM, IC	it, of	m, s	-/110	[35, 36, 55, 72, 103, 204, 216, 248, 250, 276]
<i>Terebra berryi</i> Campbell, 1961	Co, Me, P		IC	it, of	n.a.	-60	[1, 35, 216, 247, 250, 324]
<i>Terebra corintoensis</i> Pilsbry & Lowe, 1932	Co, Me, P	N	IC	of	n.a.	13/135	[33, 216, 250, 276, 285]
<i>Terebra crenulata</i> (Linnaeus, 1758)	RS, PG, I, IP, NWP, SWP, CtP, Me, P, CI		IC	cl, cr, it, sb	s	-/100	[2, 85, 110, 214, 216, 248]
<i>Terebra elata</i> Hinds, 1844	Co, Me, P	N, P	PM, IC	it	n.a.	-70	[36, 55, 216, 248, 250, 276, 284]
<i>Terebra glauca</i> Hinds, 1844	I, Co, Me, P, Ga, TP	G, N, P	PM, IC	it	m, s	-/110	[34, 36, 55, 72, 75, 103, 204, 216, 248, 250, 276, 284]
<i>Terebra guayaquilensis</i> (E.A. Smith, 1880)	Co, Me, P, Ga		IC	it	m, s	-80	[36, 75, 103, 138, 204, 248, 250, 276]
<i>Terebra hancocki</i> Bratcher & Burch, 1970	Me, P	N, P	PM, IC	it, of	n.a.	-90	[2, 34, 72, 216, 248, 250]
<i>Terebra larvaeformis</i> Hinds, 1844	Co, Me, P, TP	G, N, P	PM	it, of	n.a.	-/146	[36, 55, 75, 216, 272, 276, 285]
<i>Terebra maculata</i> (Linnaeus, 1758)	RS, PG, I, IP, NWP, SWP, CtP, Me, P, CI	P	IC	cl, sb	s	1/200	[2, 18, 36, 85, 110, 113, 214, 216, 247, 250]
<i>Terebra ornata</i> Gray, 1834	Co, Me, P, Ga		PM, IC	it, of	n.a.	-82	[1, 2, 72, 113, 204, 216, 248, 250, 284]
<i>Terebra robusta</i> Hinds, 1844	Co, Me, P, Ga	P	PM, IC	it, of	n.a.	-/110	[2, 14, 36, 55, 72, 204, 216, 248, 250, 276, 285]
<i>Terebra sanjuanensis</i> Pilsbry & Lowe, 1932	Me, P	P	PM	n.a.	n.a.	7/27	[36, 216, 276, 324]

<i>Terebra strigata</i> Sowerby, 1825	Co, Me, P, Ga, TP				PM, IC	it, of	n.a.	-/55	[2, 36, 75, 113, 204, 216, 248, 250, 276, 379]
<i>Terebra variegata</i> Gray, 1834	Co, Me, P, Ga, TP				PM, IC	it, of	m, s	-/300	[2, 36, 55, 103, 204, 216, 248, 250, 272, 276, 341]
Family TURRIDAE									
<i>Agathotoma alticippe</i> (Dall, 1918)	Co, Me, P, Ga				PM, IC	sb	g, r	-/133	[185, 204, 216, 250]
<i>Agathotoma stellata</i> (Mörch, 1860)	Mg, Me, P				PM	n.a.	n.a.	n.a.	[185, 216]
<i>Bellaspira melae</i> Dall, 1919	Co, Me, P				IC	of	n.a.	20/183	[216, 250, 342]
<i>Buchema granulosa</i> (Sowerby, 1834)	Co, Me, P				IC	n.a.	n.a.	20/55	[216, 276]
<i>Calliclava jatiscoensis</i> McLean & Poorman, 1971	Me, P, Ga				PM	n.a.	n.a.	10/50	[204, 216]
<i>Calliclava pallida</i> (Sowerby, 1834)	Me, P				PM	n.a.	n.a.	10/25	[216]
<i>Calliclava subtilis</i> McLean & Poorman, 1971	P				PM	n.a.	s	9/30	[216, 344]
<i>Carinodrillia adonis</i> Pilsbry & Lowe, 1932	Co, Me, P, Ga				PM	n.a.	m, s	29/80	[72, 103, 204, 216]
<i>Carinodrillia alboangulata</i> (E.A. Smith, 1882)	Me, P				PM	sb	g, r	-/30	[185, 216]
<i>Clathurella rigida</i> (Hinds, 1843)	Ca, Co, Me, P, Ma, Ga				IC	of, sb	r, s	11/25	[1, 103, 204, 212, 216, 250, 333]
<i>Cochlespira cedonulli</i> (Reeve, 1843)	Co, Me, P, Ga				PM	n.a.	n.a.	50/275	[1, 72, 204, 216]
<i>Compsodrillia alcestis</i> (Dall, 1919)	Co, Me, P				PM	n.a.	m, s	20/90	[72, 103, 216]
<i>Compsodrillia</i> aff. <i>opaca</i> McLean & Poorman, 1971	Ca, Co, Me, P				PM	of	n.a.	95/140	[185, 216, 285]
<i>Crassispira abdera</i> (Dall, 1919)	P				IC	of, sb	n.a.	33/133	[216, 250]
<i>Crassispira ballenaensis</i> Hertlein & Strong, 1951	Me, P				PM	of	m, s	20/90	[72, 158, 216]
<i>Crassispira cerithioidea</i> (Carpenter, 1857)	Me, P				IC	of	r	20/70	[216, 250, 336]
<i>Crassispira discors</i> (Sowerby, 1834)	Co, Me, P				PM	sb	g, r	-/25	[1, 75, 216, 276, 341]
<i>Crassispira erigone</i> Dall, 1919	Co, Me, P				IC	n.a.	n.a.	20/60	[216, 250]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Crassispira incrassata</i> (Sowerby, 1834)	Co, Me, P		PM	of, sb	s	-/35	[185, 216]
<i>Crassispira maura</i> (Sowerby, 1834)	Co, Me, P		PM	n.a.	m, s	-65	[72, 216, 284]
<i>Crassispira turricula</i> (Sowerby, 1834)	Mg, Co, Me, P		PM, IC	of	n.a.	20/133	[75, 216, 250, 276]
<i>Crassispira xanti</i> Hertlein & Strong, 1951	Co, Me, P	N	PM	ma	l, s, sh	7/55	[1, 158, 216, 284]
<i>Cruziturrucula arcuata</i> (Reeve, 1843)	Me, P	P	PM	n.a.	n.a.	30/119	[1, 72, 216, 265]
<i>Daphnella allemani</i> (Bartsch, 1931)	Co, Me, P, Ga	P	IC	it, of	n.a.	-/60	[204, 216, 250, 285]
<i>Daphnella mazatlanica</i> Pilsbry & Lowe, 1932	Co, Me, P, Ga		IC	n.a.	n.a.	25/40	[204, 216, 250]
<i>Daphnella retusa</i> McLean & Poorman, 1971	Co, Me, P	P	IC	n.a.	n.a.	14/75	[216, 250, 324]
<i>Doxospira hertleini</i> Shasky, 1971	P	P	PM	n.a.	n.a.	20/75	[216]
" <i>Drillia</i> " aff. <i>actinocycla</i> Dall & Simpson, 1901	P		PM	n.a.	n.a.	n.a.	[185]
<i>Drillia clavata</i> (Sowerby, 1834)	Me, P, Ga		PM	n.a.	n.a.	4/70	[204, 216, 346]
<i>Drillia inornata</i> McLean & Poorman, 1971	Co, Me, P		PM	n.a.	n.a.	50/100	[216]
<i>Drillia macleani</i> Tucker, 1992	P, Ga		PM	n.a.	n.a.	9/30	[204, 344]
<i>Drillia roseola</i> (Hertlein & Strong, 1955)	Co, Me, P		PM	n.a.	n.a.	10/55	[72, 216]
<i>Drillia salvadorica</i> (Hertlein & Strong, 1951)	Co, Me, P	ES	PM	of	m	6/45	[158, 216, 346]
<i>Fustiurrucula armilda</i> (Dall, 1908)	Co, Me, P, Ga	P	PM	of	a, m, s, sh	40/280	[1, 72, 204, 158, 216]
<i>Globidrillia micans</i> (Hinds, 1843)	Co, Me, P	P	PM	n.a.	n.a.	10/30	[216, 276]
<i>Glyphostoma bayeri</i> Olsson, 1971	P		PM	n.a.	n.a.	30/200	[72, 216]
<i>Glyphostoma neglecta</i> (Hinds, 1843)	Co, Me, P	N, P	PM, IC	n.a.	m, s	11/67	[103, 216, 250, 276]

<i>Glyphostoma scobina</i> McLean & Poorman, 1971	P, Ga	n.a.	n.a.	20/200	[204, 216, 247, 250]
<i>Hindsiclava militaris</i> (Reeve, 1843, ex Hinds, MS)	Mg, Co, Me, P	of	s, so	20/90	[72, 103, 125, 159, 216]
<i>Hindsiclava resina</i> (Dall, 1908)	P	of	n.a.	15/245	[72, 216, 247]
<i>Hormospira tibya</i> (Dall, 1919)	Mg, Me, P	n.a.	n.a.	35/90	[72, 216]
<i>Hormospira spectabilis</i> Berry, 1958	Co, Me, P	of	n.a.	11/123	[1, 73, 216]
<i>Imaculata pilsbryi</i> Bartsch, 1950	Co, Me, P	n.a.	n.a.	10/70	[72, 216]
<i>Iredalea ella</i> (Pilsbry & Lowe, 1932)	Co, Me, P	sb	g, r	9	[216, 250, 276, 324]
<i>Iredalea perfecta</i> (Pilsbry & Lowe, 1932)	Co, Me, P	of	s	20/70	[216, 250, 285]
<i>Ithyocythara penelope</i> (Dall, 1919)	Co, Me, P, Ga	of	n.a.	20/70	[204, 216, 250, 324]
<i>Knefastia howelli</i> (Hertlein & Strong, 1951)	P	of	m, r, sh	77/112	[158, 185]
<i>Knefastia olivacea</i> (Sowerby, 1833)	Co, Me, P	it, of, sb	n.a.	-/50	[1, 75, 216, 276]
<i>Knefastia tuberculifera</i> (Broderip & Sowerby, 1829)	Co, Me, P	n.a.	n.a.	20/50	[1, 216, 276]
<i>Knefastia walkeri</i> Berry, 1958	Co, Me, P	of	n.a.	40/70	[72, 185, 216]
<i>Kurtzia granulatissima</i> (Mörch, 1860)	Mg, Co, Me, P	n.a.	g, r	20/40	[216, 284, 324]
<i>Kurtziella plumbea</i> (Hinds, 1843)	NEP, Ca, Co, Me, P	n.a.	co	10/50	[216, 250, 337, 340]
<i>Kylix impressa</i> (Hinds, 1843)	P	n.a.	n.a.	10/30	[216]
<i>Microdaphne trichodes</i> (Dall, 1919)	I, IP, Ca, Co, Me, P, Ma, Ga	it	g	-/146	[108, 110, 185, 204, 212, 214, 216, 250]
<i>Microdrillia zeuxippe</i> (Dall, 1919)	P, Ga	n.a.	n.a.	20/110	[204, 216, 247, 250]
<i>Mitromorpha floxa</i> (Carpenter, 1865)	Ca, Me, P, Ma, Ga	of, sb	r	-/33	[1, 30, 204, 212, 216, 250]
<i>Nannodiella nana</i> (Dall, 1919)	Co, Me, P	of	n.a.	20/70	[216, 250, 324]
<i>Pilsbryspira loxospira</i> (Pilsbry & Lowe, 1932)	Me, P	of	r	-/20	[216]
<i>Pilsbryspira cf. melchersi</i> (Menke, 1851)	Me, P	of, sb	r	n.a.	[185, 216]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Polystira nobilis</i> (Hinds, 1843)	Co, Me, P	P	PM	of	m, s, sh, so	20/200	[1, 2, 72, 103, 216, 276]
<i>Polystira oxytropis</i> (Sowerby, 1834)	Ca, Co, Me, P	N	PM	of	s, so	13/200	[1, 72, 103, 185, 216, 276, 379]
<i>Polystira picta</i> (Reeve, 1843, ex Beck, MS)	Co, Me, P		PM	n.a.	s, so	11/70	[1, 14, 72, 103, 216, 276]
<i>Pyrgocythara fusciligata</i> (Carpenter, 1856)	P	P	PM	ma, sb	n.a.	n.a.	[216]
<i>Strictispira stillmani</i> Shasky, 1971	Co, Me, P	P	PM	it, of	bo, r, s	n.a.	[216, 324, 360]
<i>Strombocentrus crockeri</i> Hertlein & Strong, 1951	Co, Me, P	P	PM	of	a, m, r, s, sh	25/112	[72, 105, 158, 216]
<i>Tenaturris cf. concinna</i> (C.B. Adams, 1852)	Me, P		PM	it	n.a.	-/20	[185, 216]
<i>Tenaturris merita</i> (Hinds, 1843)	Co, Me, P	N	PM, IC	it	r	-/33	[1, 216, 250, 276]
<i>Xanthodaphne agonia</i> (Dall, 1890)	P, Ga		IC	of	n.a.	1,159/1,850	[204, 216, 247, 250]
<i>Xanthodaphne encella</i> (Dall, 1908)	P		IC	of	n.a.	1,950	[216, 247, 250]
<i>Zonulispira grandinaculata</i> (C.B. Adams, 1852)	Co, Me, P	N, P	PM	it, of, sb	r	n.a.	[216, 276]
Family CONIDAE							
<i>Conus archon</i> Broderip, 1833	Co, Me, P	P	PM	of	n.a.	20/400	[2, 45, 72, 216, 276, 284, 345]
<i>Conus arcuatus</i> Broderip & Sowerby, 1829	Co, Me, P	P	PM	of	n.a.	10/100	[1, 2, 14, 72, 216, 263, 276]
<i>Conus bartschi</i> Hanna & Strong, 1949	Me, P		PM	of	n.a.	10/50	[1, 2, 68, 219, 379, 380]
<i>Conus brunneus</i> Wood, 1828	Mg, Me, P, Cl, Ga	N, P	PM, IC	it, of, sb	r	-/40	[1, 2, 45, 68, 75, 112, 113, 204, 216, 247, 250, 276, 279]
<i>Conus chaldaeus</i> (Röding, 1798)	I, IP, NWP, SWP, CtP, P, Cl, Ga	P	PM, IC	cr, it, of, rl, sb	p, r, s	n.a.	[2, 69, 85, 108, 110, 204, 214, 216, 250, 379]
<i>Conus dalli</i> Stearns, 1873	Co, Me, P, Ma, Ga	P	PM, IC	it	r, s	-/15	[1, 45, 70, 204, 212, 216, 247, 250, 262, 276]

<i>Conus ditadema</i> Sowerby, 1834	Co, Me, P, Cl, Ma, Ga	P	IC	cr, it	co, r, s	-/30	[1, 2, 18, 70, 113, 204, 212, 216, 247, 250, 262, 285, 379]
<i>Conus ebraeus</i> Linnaeus, 1758	RS, I, IP, NWP, SWP, ClP, P, Cl, Ga	G, P	PM, IC	cr, it, of, rl	co, r	n.a.	[2, 85, 107, 110, 147, 155, 157, 188, 204, 214, 216, 250, 336, 366]
<i>Conus emarginatus</i> Reeve, 1844	Me, P, Ga	N, P	IC	n.a.	n.a.	37	[204, 276, 345]
<i>Conus fergusoni</i> Sowerby, 1873	Mg, Me, P, Ga, TP	N, P	PM	it, of	r	-/165	[2, 72, 75, 204, 216, 272, 276, 279, 379]
<i>Conus gladiator</i> Broderip, 1833	Mg, Co, Me, P, Ma, Ga, TP	N, P	PM, IC	it	bo, m, r, s	n.a.	[2, 113, 185, 204, 212, 216, 247, 272, 276, 355, 360, 379]
<i>Conus gradatus</i> Wood, 1828, <i>ex</i> Mawe, MS	Ca, Me, P, Cl	P	IC	of	n.a.	28/119	[1, 2, 216, 247, 263]
<i>Conus lucidus</i> Wood, 1828	Mg, Me, P, Ga, TP	P	PM, IC	it, of	n.a.	-/33	[2, 45, 75, 138, 204, 216, 250, 320]
<i>Conus mahogani</i> Reeve, 1843	Co, Me, P, Ga, TP	P	PM, IC	sb	m	n.a.	[139, 194, 204, 272, 276]
<i>Conus nux</i> Broderip, 1833	Mg, Co, Me, P, Cl, Ma, Ga	N, P	PM, IC	it, sb	bo, r, s	-/2.5	[12, 18, 45, 113, 138, 185, 204, 212, 216, 250, 262, 274, 276, 355, 360]
<i>Conus orion</i> Broderip, 1833	C, Co, Me, P	P	PM	it	r, s	-/30	[1, 2, 216, 320, 355, 379]
<i>Conus patricius</i> Hinds, 1843	Me, P, Ga	ES, N, P	PM	of, sb	n.a.	16	[2, 76, 117, 153, 204, 216, 263, 264, 276, 379]
<i>Conus perplexus</i> Sowerby, 1857	Mg, Co, Me, P, Ga	P	PM	of	s	15/37	[72, 103, 126, 138, 185, 204, 216]
<i>Conus poormani</i> Berry, 1968	Co, Me, P	P	PM	of	s	20/100	[1, 2, 103, 216, 263, 285]
<i>Conus princeps</i> Linnaeus, 1758	Co, Me, P, TP	N, P	PM	cr, it, sb	co, m, r, s	n.a.	[2, 45, 75, 216, 276, 355]
<i>Conus purpurascens</i> Sowerby, 1833, <i>ex</i> Broderip, MS	Mg, Me, P, Cl, Ma, Ga, TP	N, P	PM, IC	it, sb	bo, m, r, s	n.a.	[1, 2, 12, 18, 45, 75, 113, 138, 204, 212, 216, 247, 250, 272, 274, 276, 279, 355, 360]
<i>Conus recurvus</i> Broderip, 1833	Mg, Co, Me, P, Ga	N, P	PM, IC	of	g	18/210	[1, 2, 75, 119, 138, 204, 216, 247, 250, 263]
<i>Conus regularis</i> Sowerby, 1833	Mg, Co, Me, P	N, P	PM	it, of, sb	a, m, s	-/100	[1, 18, 72, 216, 276, 355]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Conus tessulatus</i> Born, 1778	I, IP, NWP, SWP, CTP, Co, Me, P, Cl, Ga	P	IC	it, of	n.a.	-/30	[2, 108, 110, 113, 143, 204, 216, 250, 333, 335]
<i>Conus tiaratus</i> Sowerby, 1833, ex Broderip, MS	Co, Me, P, Cl, Ma, Ga		PM, IC	it	r, s	-/5	[2, 18, 113, 138, 204, 212, 216, 247, 250, 262, 274, 285, 355]
<i>Conus tornatus</i> Sowerby, 1833, ex Broderip, MS	Ca, Co, Me, P	P	PM	it, of	m, s	-/45	[1, 72, 75, 103, 216, 276, 320, 355]
<i>Conus virgatus</i> Reeve, 1849	Ca, Me, P	N	PM	it, of	n.a.	-/100	[2, 216, 276, 379]
<i>Conus vittatus</i> Hwass in Bruguière, 1792	Co, Me, P		PM	of	n.a.	18/50	[45, 216, 345]
<i>Conus ximenes</i> Gray, 1839	Me, P, Ga, TP	P	PM	it, of	n.a.	-/90	[75, 138, 204, 216, 276, 379]
Superorder HETEROBRANCHIA							
Superfamily							
ARCHITECTONICOIDEA							
Family ARCHITECTONICIDAE							
<i>Architectonica nobilis</i> Röding, 1798	NWA, F, G, C, Gu, Br, NEA, SEA, Me, P	P	PM, IC, Car	ct, sb	an, co, r, s, sh	1/250	[1, 2, 6, 24, 45, 72, 75, 84, 89, 244, 250, 267, 276, 302, 307, 342, 377, 387]
<i>Discotectonica placentalis</i> (Hinds, 1844)	Mg, Co, Me, P, Ga	P	IC	n.a.	co, g, m, ru	12/200	[1, 25, 172, 204, 216, 250]
<i>Helicacis areola bicanelliculatus</i> (Valenciennes, 1832)	Co, Me, P, Ga	P	PM	it, sb	an	n.a.	[1, 25, 113, 185, 204, 216, 276]
<i>Helicacis mazatlanicus</i> Pilsbry & Lowe, 1932	Co, Me, P, Ma, Ga, TP		PM, IC	it	n.a.	10/136	[25, 185, 204, 212, 216, 250]
<i>Pseudotorinia architae</i> (O.G. Costa, 1841)	Ca, Me, P, Ga		IC	n.a.	n.a.	17/201	[25, 250]
<i>Psilaxis radiata</i> (Röding, 1798)	RS, IP, NWP, SWP, CTP, P, Cl	P	IC	n.a.	a, co, m, ru, s	-/50	[108, 214, 250, 305, 336]

<i>Solitonax propinqua</i> Bieler, 1993	Me, P	PM	n.a.	n.a.	18/88	[25]
Superfamily RISSOELLOIDEA						
Family RISSOELLIDAE						
<i>Rissoella tumens</i> (Carpenter, 1857)	Co, Me, P, Ga	IC	n.a.	n.a.	n.a.	[105, 204, 216, 250, 324, 333]
Superfamily PYRAMIDELLOIDEA						
Family PYRAMIDELLIDAE						
<i>Besla caneloensis</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, s, sh	27	[158]
<i>Chrysallida clathratula</i> (C.B. Adams, 1852)	P, Ga	PM	ma	n.a.	n.a.	[204]
<i>Chrysallida</i> cf. <i>communis</i> (C.B. Adams, 1852)	P, TP	PM	n.a.	n.a.	n.a.	[185, 216, 272]
<i>Chrysallida costaricensis</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, s, sh	22/27	[158, 216]
<i>Chrysallida fasciata</i> (Carpenter, 1857)	Co, Me, P	PM	ma	n.a.	n.a.	[9, 91, 216]
<i>Chrysallida inconspicua</i> (C.B. Adams, 1852)	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Chrysallida</i> cf. <i>paupercula</i> (C.B. Adams, 1852)	Co, P	PM	n.a.	n.a.	n.a.	[91, 185, 216]
<i>Chrysallida</i> cf. <i>swetti</i> (Strong & Hertlein, 1939)	P	PM	of	n.a.	5/15	[185, 216]
<i>Chrysallida</i> cf. <i>telescopium</i> (Carpenter, 1857)	Co, Me, P	PM	n.a.	n.a.	18	[185, 216, 232, 363]
<i>Chrysallida woodbridgei</i> Hertlein & Strong, 1951	P	PM	n.a.	m, s, sh	22/27	[158]
<i>Eulimastoma dotella</i> (Dall & Bartsch, 1909)	N	PM	ma	l, m, s, sh	22/27	[1, 158]
<i>Herviera giriella</i> (Melvill & Standen, 1896)	SWP, CiP, Me, Co, P, Ma, Ga	IC	cr, it	sh	-/65	[204, 212, 214, 250, 329, 333]
<i>Iselica</i> cf. <i>kochi</i> Strong & Hertlein, 1939	Co, P	PM	n.a.	n.a.	5/15	[96, 185, 216]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Iselica maculosa</i> Carpenter, 1857	P		PM	ma	n.a.	n.a.	MZUCR 5304 and 3684
<i>Menestho aequisculpta</i> (Carpenter, 1864)	Me, P		IC	n.a.	n.a.	18/25	[216, 250]
<i>Menestho grijalvae</i> (Baker, Hanna & Strong, 1928)	Co, Me, P, Ga		IC	of	n.a.	9/60	[204, 250, 285, 333]
<i>Menestho nicoyana</i> (Hertlein & Strong, 1951)	P		PM	n.a.	m, s, sh	22/27	[158, 216]
<i>Miralda armata</i> (Carpenter, 1857)	Me, P		IC	n.a.	n.a.	25	[216, 250, 324]
<i>Miralda</i> cf. <i>azteca</i> (Strong & Hertlein, 1939)	P	P	PM	n.a.	n.a.	5/15	[216]
<i>Miralda terebellum</i> (C.B. Adams, 1852)	Co, P	P	PM, IC	it	co, ru, s	9/33	[91, 185, 216, 250, 324, 341]
<i>Odosstomia fetella</i> Dall & Bartsch, 1909	Ca, Me, P		PM	ma	sh	n.a.	[1]
<i>Odosstomia</i> cf. <i>mammillata</i> Carpenter, 1857	Me, P		PM	n.a.	n.a.		[185, 216, 324]
<i>Pycheulimella portoparkerensis</i> (Hertlein & Strong, 1951)	P		PM	n.a.	m, sh	22	[158]
<i>Pyramidella bicolor</i> Menke, 1854	Me, P		PM	n.a.	n.a.	n.a.	[216]
<i>Pyramidella elenensis</i> Bartsch, 1924	Co, P		PM	n.a.	n.a.	n.a.	[216, 285]
<i>Pyrgiscus amiriana</i> (Hertlein & Strong, 1951)	Co, P		PM	of	m, sh	22/35	[158, 285]
<i>Pyrgiscus ayamana</i> (Hertlein & Strong, 1951)	P	N	PM	ma	l, m, s, sh	22/27	[158]
<i>Pyrgiscus biolleyi</i> (Hertlein & Strong, 1951)	P	N	PM	ma	l, m, s, sh	22/27	[158]
<i>Pyrgiscus craticulata</i> (Mörch, 1859)	P		PM	n.a.	n.a.	55	[216]
<i>Pyrgiscus ekidana</i> (Hertlein & Strong, 1951)	P		PM	n.a.	m, s, sh	27	[158]

<i>Pygiscus guanacastensis</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, s, sh	22/27	[158]
<i>Pygiscus cf. indentata</i> (Carpenter, 1857)	Me, P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Pygiscus cf. lara</i> (Dall & Bartsch, 1909)	Me, P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Pygiscus machridei</i> (Dall & Bartsch, 1909)	Co, Me, P	PM	n.a.	n.a.	-/18	[185, 216]
<i>Pygiscus nicoyana</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, s, sh	22/27	[158]
<i>Pygiscus subula</i> (Mörch, 1859)	P	PM	n.a.	n.a.	n.a.	[216]
<i>Pygiscus sulacana</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, sh	22	[158]
<i>Pygiscus templetonis</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, s, sh	27	[158]
<i>Pygiscus tenuicula</i> (Gould, 1853)	Ca, Me, P	PM	n.a.	n.a.	n.a.	[1, 185, 216]
<i>Pygiscus zacae</i> (Hertlein & Strong, 1951)	P	PM	n.a.	m, sh	22	[158]
<i>Salassia cf. tropidita</i> Dall & Bartsch, 1909	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Triplychus incantatus</i> (Hertlein & Strong, 1939)	Co, Me, P, Ga	IC	n.a.	n.a.	90/100	[138, 204, 216, 242, 250, 285]
<i>Turbonilla cf. aculeus</i> (C.B. Adams, 1852)	Co, P	PM	of	n.a.	35	[185, 216, 285]
<i>Turbonilla cf. andrewsi</i> Dall & Bartsch, 1909	Co, P	PM	of	n.a.	35	[185, 216, 285, 324]
<i>Turbonilla excolpa</i> Dall & Bartsch, 1909	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Turbonilla cf. festiva</i> de Folin, 1867	P	PM	n.a.	n.a.	n.a.	[185, 216]
<i>Turbonilla masayana</i> Hertlein & Strong, 1951	P	PM	n.a.	n.a.	n.a.	[185, 216]

(continued)

Species List 28.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica ^c	Oceanic distribution ^d	Habitat/Community ^e	Depth (m) ^f	References ^g
<i>Turbonilla</i> cf. <i>muricata</i> (Carpenter, 1857)	Co, Me, P		PM	of	n.a.	35	[9, 185, 216, 285, 363]
<i>Turbonilla paucilirata</i> (Carpenter, 1857)	Me, P		IC	n.a.	n.a.	12/18	[216, 250]
<i>Turbonilla subangulata</i> (Carpenter, 1857)	Co, Me, P		PM	n.a.	n.a.	n.a.	[9, 185, 216, 232]
<i>Turbonilla utuana</i> Hertlein & Strong, 1951	P		PM	n.a.	m, s, sh	27	[158]
<i>Turbonilla vestae</i> Hertlein & Strong, 1951	P	N	PM	n.a.	n.a.	n.a.	[185, 216, 324]
Family AMATHINIDAE							
<i>Cyclothyca corrugata</i> Stearns, 1890	P	ES, N, P	PM	n.a.	n.a.	n.a.	[99, 216, 218, 153]
<i>Phasianema saxicola</i> (C.B. Adams, 1852)	P, Ga	P	IC	n.a.	ru, s	30/35	[204, 216, 333]
PULMONATA							
Order BASOMMATOPHORA							
Superfamily SIPHONARIOIDEA							
Family SIPHONARIOIDEA							
<i>Siphonaria gigas</i> Sowerby, 1825	Me, P, Ga, PC	N, P	PM, IC	cr, it, sb	r, s, sh	n.a.	[2, 12, 13, 45, 75, 138, 185, 204, 216, 222, 247, 250, 268, 269, 270, 276, 279, 360, 361, 364, 365]
<i>Siphonaria maura</i> Sowerby, 1835	Mg, Co, Me, P, PC	N	PM	cr, it	bo, r, s, sh	n.a.	[75, 216, 222, 268, 270, 276, 360, 361, 364, 365]
<i>Siphonaria palmata</i> Carpenter, 1857	Me, P	P	PM	n.a.	m, r, s	0/1	[216, 379]
<i>Williamia</i> cf. <i>peltoides</i> (Carpenter, 1864)	Ca, Me, P, Ma, Ga	P	PM, IC	it, sb, sp	a, r	0/33	[1, 67, 185, 204, 212, 216, 250]

Order EUPULMONATA
Suborder ACTOPHILA

Superfamily ELLOBIOIDEA

Family ELLOBIIDAE

<i>Credonia acuta</i> (d'Orbigny, 1835)	P	PM	ma	rt, w	n.a.	[74, 75, 216]
<i>Detracia globulus</i> (d'Orbigny, 1837)	P	PM	ma	n.a.	n.a.	[75, 216]
<i>Detracia strigosa</i> (von Martens, 1900)	P	PM	n.a.	n.a.	n.a.	[216]
<i>Detracia zeteki</i> Pilsbry, 1920	P	PM	ma	ru, rt, w	n.a.	[74, 216]
<i>Ellobium stagnalis</i> (d'Orbigny, 1835)	P, Ga	PM, IC	ma, sp	rt, w	n.a.	[74, 75, 141, 204, 216, 247, 250]
<i>Marinula concinna</i> (C.B. Adams, 1852)	P, TP	PM	ma	l, rt	n.a.	[74, 216, 272]
<i>Melampus carolinus</i> (Lesson, 1842)	P, Ga, TP	PM, IC	ma	rt, w	n.a.	[74, 75, 204, 216, 247, 250, 272]
<i>Melampus tabogensis</i> C.B. Adams, 1852	Co, Me, P, Ga	PM, IC	it, sb, sp	bo, r, ru, w	n.a.	[45, 204, 216, 247, 250, 285]
<i>Pedipes angulatus</i> C.B. Adams, 1852	Ca, Me, P, Ga	PM, IC	ma, sp	bo, r	-/60	[1, 204, 216, 250, 324]
<i>Phytia</i> (?) <i>infrequens</i> (C.B. Adams, 1852)	P	PM	ma	n.a.	n.a.	[216]
<i>Tralia panamensis</i> (C.B. Adams, 1852)	P	PM, IC	sp	bo, r	n.a.	[216, 247, 250]

n.a. = information not available

^aA = Atlantic; Ber = Bermuda; Br = Brazil (including Fernando de Noronha and Trindade islands); C = Caribbean; Ca = California; Cl = Clipperton Island; Co = Gulf of California; ct = circumtropical; Ctp = Central Pacific; EA = East Atlantic; F = Florida; G = Gulf of Mexico; Ga = Galapagos Islands; Gu = Guyana, Suriname, and French Guiana; I = Indian; IP = Indo-Pacific; M = Mediterranean; Ma = Malpelo Island; Me = Mexican; Mg = Magdalena Bay (transition area from the Californian province to the Mexican province); NEA = Northeast Atlantic; NEP = Northeast Pacific; NWA = Northwest Atlantic; NWP = Northwest Pacific; P = Panamic; PC = Peruvian-Chilean; PG = Persian Gulf; RS = Red Sea; SCA = South-Central Atlantic (Ascension and Saint Helena islands); SEA = Southeast Atlantic; SWA = Southwest Atlantic; SWP = Southwest Pacific; TP = (transition area from the Panamic province to the Peruvian Chilean province); WA = West Atlantic; *Note*: the classification of the western Atlantic and eastern Pacific provinces are based on Díaz Merlano and Puyana Hegedus (1994) and Reid (2002), respectively; but with modifications as indicated above.

^bES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cCar = also present on the Caribbean coast; IC = Isla del Coco; PM = Pacific mainland

^db = bays and coves; bw = brackish water; c = cienaga facies; cl = coastal lagoons; cr = coral reefs; d = drift; es = estuaries; fw = freshwater seepage; it = intertidal; ls = low salinity; ma = mangroves; of = offshore; rl = reef lagoons; sb = subtidal (on continental shelf); sm = salt marsh; sp = supratidal

^ea = algae; an = anemones; as = artificial substrates (jetties, pilings); ba = barnacles; bo = boulders; co = corals; e = equinoderms; g = gravel; l = leaves; m = mud; o = octocorals; p = polychaetes; r = rocks; rt = rotten vegetation; ru = rubble; s = sand; sd = sedge tussocks; sg = sea grasses; sh = shells; So = sponges; W = wood

^fLowermost occurrence (m)/uppermost occurrence (m)

^gReferences are indicated by numbers according to the reference list. MZUCR refers to catalogue numbers from the Museo de Zoología, Universidad de Costa Rica

Species List 29.1 Pelagic gastropod mollusks recorded from Costa Rican waters of the Caribbean Sea. Systematic arrangement follows that proposed by Lalli and Gilmer (1989), Van der Spoel (1996a, b), Van der Spoel and Dadón (1999), and Richter and Seapy (1999)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat/Community	Depth (m) ^e	References ^f
Subclass PROSOBRANCHIA						
Order MESOGASTROPODA						
Superfamily HETEROPODA						
Family ATLANTIDAE						
<i>Protantia souleyeti</i> (Smith, 1888)	ct	N,P	ep	wc	n.a.	[7]
Family CARINARIIDAE						
<i>Cardiopoda placenta</i> (Lesson, 1830)	n.a.		ep,o	wc	100–200	[7]
<i>Carinaria lamarcki</i> f. <i>lamarcki</i> Péron & Lesueur, 1810	ct	CA	ep	wc	0–300	[7, 8]
Subclass OPISTHBRANCHIA						
Order THECOSOMATA						
Suborder EUTHECOSOMATA						
Family LIMACINIDAE						
<i>Limacina inflata</i> (d'Orbigny, 1836)	ct	CA	ep,mp	wc	0–700	[2]
<i>Limacina trochiformis</i> (d'Orbigny, 1836)	ct	CA	ep	wc	0–200	[2]
Family CAVOLINIIDAE						
<i>Cavolinia inflata</i> f. <i>inflata</i> (Lesueur, 1813)	cp	CA	ep,mp	wc	0–500	[2]
<i>Creseis acicula</i> (Rang, 1828)	ct		ep	wc	0–200	[2]
<i>Diacavolinia longirostris</i> f. <i>longirostris</i> (d'Blainville, 1821)	ct	CA	ep	wc	0–250	[4]

<i>Diacria trispinosa</i> (d'Blainville, 1827)	ct	CA	ep,mp	wc	0–500	[2]
<i>Diacria danae</i> Van der Spoel, 1968	n.a.		n.a.	n.a.	n.a.	[9]
<i>Styliola subula</i> (Quoy & Gaimard, 1827)	ct	CA	ep	wc	0–250	[2]
Suborder PSEUDOTHECOSOMATA						
Family DESMOPTERIDAE						
<i>Desmopterus papilio</i> Chun 1889	ct		ep,mp	wc	50–500	[2]

n.a. = information not available

^acp = cosmopolitan; ct = circumtropical

^bCA = all Central American countries; N= Nicaragua; P = Panama

^cep = epipelagic; mp = mesopelagic; o = offshore

^dUppermost/lowermost occurrence (in meters)

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 29.2 Pelagic gastropod mollusks recorded from Costa Rican waters of the Pacific Ocean. Systematic arrangement follows that proposed by Lalli and Gilmer (1989), Van der Spoel (1996a, b), Van der Spoel and Dadón (1999), and Richter and Seapy (1999)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Habitat ^d Community	Depth ^e (m)	References ^f
Subclass PROSOBRANCHIA						
Order MESOGASTROPODA						
Superfamily HETEROPODA						
Family ATLANTIDAE						
<i>Atlanta fusca</i> Souleyet, 1852	n.a.		n.a.	wc	n.a.	[7]
<i>Atlanta gaudichaudi</i> Souleyet, 1852	n.a.		n.a.	wc	n.a.	[7]
<i>Atlanta helicinooides</i> Souleyet, 1852	n.a.	CA	n.a.	wc	n.a.	[7, 8]
<i>Atlanta inclinata</i> Souleyet, 1852	Ant, cp, EP, IP, Med		ep, n, o	wc	48–350	[5, 6, 7, 11]
<i>Atlanta lesueurii</i> Souleyet, 1852	Ant, cp, EP, IP, Med	CA	ep, n, o	wc	48–350	[5, 6, 7, 11]
<i>Atlanta peroni</i> Lesueur, 1817	ct	CA	n.a.	wc	n.a.	[7]
<i>Atlanta turriculata</i> d'Orbigny, 1836	Ant, EP, IP	CA	ep, n, o	wc	48–200	[7, 8]
<i>Oxygyrus keradrenii</i> (Lesueur, 1817)	Med, EP, IP, WA	CA	ep, n, o	wc	48–350	[5, 6, 7, 11]
<i>Protatlanta souleyeti</i> (Smith, 1888)	ct	CA	n.a.	wc	n.a.	[7]
Family CARINARIIDAE						
<i>Cardiapoda placenta</i> (Lesson, 1830)	Car, EA, EP, IP	P	ep, o	wc	100–200	[5, 6, 7, 11]
<i>Cardiapoda richardi</i> Vayssières, 1904	Ant, EP, IP		ep, o	wc	100–350	[5, 6, 11]
<i>Carinaria lamarecki</i> f. <i>lamarecki</i> Peron & Lesueur, 1810	n.a.		n.a.	wc	n.a.	[7, 8]
<i>Carinaria cristata</i> f. <i>cristata</i> (Linnaeus, 1776)	n.a.		n.a.	n.a.	n.a.	[7]
<i>Pterosoma planum</i> Lesson, 1827		n.a.	n.a.	wc	n.a.	[7, 8]
Family PTEROTRACHEIDAE						
<i>Firoida desmarestii</i> Lesueur, 1817	Car, EP, IP, Med, WA		ep, o	wc	143–350	[5, 6, 11]
<i>Pterotrachea coronata</i> Forskål, 1775	EP, IP, IO, Med, WA		ep, o	wc	200	[5, 6, 7, 8, 11]

Subclass OPISTHOBRANCHIA**Order THECOSOMATA****Suborder EUTHECOSOMATA**

Family LIMACINIDAE

<i>Limacina inflata</i> (d'Orbigny, 1836)	ct	CA	ep,m	wc	0-700	[3, 5, 6, 11]
<i>Limacina trochiformis</i> (d'Orbigny, 1836)	n.a.		n.a.	n.a.		[3]
Family CAVOLINIIDAE						
<i>Cavolinia uncinata</i> (Rang, 1829)	ct	CA	ep	wc	60-250	[3, 5, 6, 11]
<i>Clio pyramidata</i> f. <i>lanceolata</i> (Lesueur, 1813)	ct	CA	ep	wc	50-200	[9]
<i>Clio pyramidata</i> f. <i>pyramidata</i> Linnaeus, 1767	n.a.		n.a.	n.a.		[3, 5, 6, 11]
<i>Creseis virgula</i> f. <i>conica</i> Eschscholtz, 1829	Ct	P	ep	wc	0-80	[1, 5, 6, 11]
<i>Creseis acicula</i> f. <i>acicula</i> (Rang, 1828)	ct	CA	ep	wc	50-250	[3, 5, 6, 11]
<i>Creseis acicula</i> f. <i>clava</i> (Rang, 1828)	n.a.		n.a.	n.a.		[5, 6, 11]
<i>Diacavolinia longirostris</i> (d'Blainville, 1821)	ct	CA	ep	wc	0-250	[3, 4, 5, 6, 11]
<i>Diacria quadridentata</i> (d'Blainville, 1821)	EP,IP	CA	ep	wc	0-200	[3, 5, 6, 10, 11]
<i>Diacria schmidti</i> Van der Spoel, 1971	EP	P	n.a.	n.a.		[9]
<i>Hyalocylis striata</i> (Rang, 1828)	ct	CA	ep	wc	80-250	[3, 5, 6, 11]
Suborder PSEUDOTHECOSOMATA						
Family DESMOPTERIDAE						
<i>Desmopterus pacificus</i> Chun, 1889	ct	N	ep	wc	n.a.	[5, 6, 11]

n.a. = Information not available

^a Ant = Antarctic; Car = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; WA = western Atlantic

^b CA = all Central American countries; N = Nicaragua; P = Panama

^c ep = epipelagic; m = mesopelagic; n = neritic; o = offshore

^d wc = water column

^e Uppermost/Lowermost occurrences (in meters)

^f References are indicated by numbers according to the reference list

Species List 30.1 Benthic opisthobranchs and “cephalaspidean” heterobranchs from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Habitat ^c	Substrate ^d	Depth (m) ^e	References ^f
“Lower” HETEROBRANCHIA						
Family ACTEONIDAE						
<i>Acteon candens</i> Rehder, 1939	Car, WA		it, sb	sb	0–124	[1, 71, 104, 106, 108]
<i>Acteon finlayi</i> McGinty, 1955	Car, WA		it, mp	a, sb, rub	0–366	[1, 55, 106, 108]
<i>Rictaxis punctostriatus</i> (C.B. Adams, 1840)	Car, WA	P	ep, it	n.a.	0–110	[1, 30, 33, 65]
Family APLUSTRIDAE						
<i>Micromelo undatus</i> (Bruguère, 1792)	ct	H, P	it, sb	a, rb, sb, sp	0–15	[1, 30, 33, 39, 78, 104, 108, 113]
CEPHALASPIDEA						
Family CYLICHNIDAE						
<i>Acteocina canaliculata</i> (Say, 1826)	WA		it, sb	a, mb, sb, sg	0–49	[1, 33, 55, 104, 106, 108]
<i>Acteocina candei</i> (d’Orbigny, 1841)	Car, WA	P	it, sb	rb, re, sb	0–51	[1, 30, 33, 65, 80, 104, 105, 106, 108]
<i>Acteocina inconspicua</i> Olsson & McGinty, 1958	WA	P	it, sb	n.a.	0–16	[55, 106, 108]
Family RETUSIDAE						
<i>Pyrrunculus</i> aff. <i>caelatus</i> (Bush, 1885)	Car, WA		sb	co, mb, sb	27–79	[1, 106, 108]
<i>Retusa oxytata</i> Born, 1885	Car, WA		n.a.	n.a.	n.a.	[55]
<i>Retusa sulcata</i> (d’Orbigny, 1841)	Car, WA	P	sb	rb	5–174	[1, 30, 33, 104]
<i>Volvutella persimilis</i> (Mörch, 1875)	Car, WA		it, mp	a, sb	0–800	[1, 30, 33, 53, 71, 106, 108]
Family PHILINIDAE						
<i>Philine caballeri</i> Ortea, Espinosa & Moro, 2001	n.a.		sb	rb	9	[33, 100]
Family RUNCINIDAE						
<i>Runcina divae</i> (Ev. Marcus & Er. Marcus, 1963)	Car, WA		sb	a	1–2	[33, 74]
Family AGLAJIDAE						
<i>Navanax orbygnianus</i> (Rochebrune, 1881)	Car, EA, WA		it, sb	rb	1–18	[33]

<i>Philinopsis aeci</i> Ortea & Espinosa, 2001						
Family HAMINOEIDAE						
<i>Atys caribaensis</i> (d'Orbigny, 1841)	Car, WA	P	it, sb	a	6	[33, 92, 108]
<i>Atys macandrewii</i> Smith, 1872	Car, EA, WA		sb	a, co, rb, re, rub	0–183	[1, 30, 32, 104, 106, 108]
<i>Atys riseanus</i> Mörch, 1875	Car, WA	P	sb	mb	23–60	[106]
<i>Atys sandersoni</i> Dall, 1881	WA		sb	rb	2–93	[1, 30, 33, 106, 107]
<i>Atys sharpi</i> Vanatta, 1901	Car		sb	rb	26	[33a, 71]
<i>Haminoea elegans</i> (Gray, 1825)	Car, WA		sb	a, sb, sg	2–3	[104]
Family BULLIDAE						
<i>Bulla striata</i> Bruguière, 1792	Car, EA, WA		it, sb	sb, sg	10–52	[1, 62, 77, 114]
SACOGLOSSA						
Family JULIIDAE						
<i>Berthelintia caribbea</i> Edmunds, 1963	Car, WA	P	sb	a	1–25	[1, 33, 71, 104, 113]
Family OXYNOIDAE						
<i>Lobiger souverbii</i> P. Fisher, 1857	ct		it, sb	a, rb	0–11	[1, 5, 28c, 30, 33, 55, 56, 58, 63, 71, 75, 78, 104, 106, 108, 109, 110, 113]
<i>Oxynoe antillarum</i> Mörch, 1863						
<i>Oxynoe panamensis</i> Pilsbry & Olsson, 1943	Car, WA	P	it	a, sg	0	[104, 108, 113]
Family PLACOBANCHIDAE						
<i>Elyssia crispata</i> Mörch, 1863	Car, WA	B, H, P	it, sb	a, rb, re, rub, sg	0–24	[1, 33, 69, 71, 78, 104, 108, 113]
<i>Elyssia eugeniae</i> Ortea & Espinosa, 2002						
<i>Elyssia evelinae</i> Er. Marcus, 1957	n.a.		sb	a	16	[94]
<i>Elyssia flava</i> Verrill, 1901	WA		it	a	0	[1, 33, 63, 69]
<i>Elyssia ornata</i> (Swainson, 1840)	ct		sb	a, rb	16	[1, 33, 63, 69, 108, 113]
<i>Elyssia papillosa</i> Verrill, 1901	ct		it, sb	a, re, sg	0–30	[1, 33, 56, 71, 77, 78, 104, 108]
<i>Elyssia patina</i> Ev. Marcus, 1980	Car, WA		sb	a	8	[1, 33, 71, 74, 77, 104]
<i>Elyssia purchoni</i> Thompson, 1977	Car, WA		it, sb	a	0–8	[33, 72, 108]
	Car, WA		sb	a	2	[112]

(continued)

Species List 30.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat ^c	Substrate ^d	Depth (m) ^e	References ^f
<i>Elysia tuca</i> Ev. Marcus & Er. Marcus, 1967	Car, WA		it, sb	a	0.5–30	[1, 33, 69, 71, 77, 78, 104, 108, 114]
<i>Elysia zuletae</i> Ortea & Espinosa, 2002	Car		sb	a	5–20	[94]
<i>Thuridilla mazda</i> Ortea & Espinosa, 2000	Car		sb	rb, re	20	[33, 89, 108]
Family BOSELLIIDAE						
<i>Bosellia marusi</i> Ev. Marcus, 1972	WA		it, sb	a	0–25	[33, 71, 113]
* <i>Bosellia mimetica</i> Trinchese, 1891	Car		sb	a	9	[77]
Family HERMAEIDAE						
<i>Hermaea bifida</i> (Montagu, 1815)	EA		n.a.	n.a.	n.a.	[33, 110]
<i>Hermaea cruciata</i> Gould, 1870	WA		sb	a	8	[1, 71, 104, 108, 115]
Family LIMAPONTIIDAE						
* <i>Costasiella nonatoi</i> Ev. Marcus & Er. Marcus, 1966	Car		sb	a	1.5	[73a]
<i>Costasiella ocellifera</i> (Simroth, 1895)	Car, WA		it	n.a.	0	[33, 104]
<i>Ercolania selva</i> Ortea & Espinosa, 2001	n.a		it	a	0	[33, 91]
<i>Placida kingstoni</i> T.E.Thompson, 1977	Car, WA		sb	a	16	[33, 108, 113]
<i>Placida verticillata</i> Ortea, 1981	Car, EA		sb	a	7	[33, 83, 108]
Family CALIPHYLIDAE						
* <i>Caliphylia mediterranea</i> A. Costa, 1867	Car		it, sb	a	0–1.5	[77]
<i>Cyerce habanensis</i> Ortea & Templado, 1989	Car		sb	a	16	[33, 87, 108]
<i>Mourgona germaneae</i> Ev. Marcus & Er. Marcus, 1970	Car, WA		it, sb	n.a.	0–9	[33, 77, 104]
<i>Polybranchia viridis</i> (Deshayes, 1857)	Car, EP	P	it, sb	a, rb	0–7	[28c, 33, 71, 78, 79, 108, 110, 114]
ANASPIDEA						
Family APLYSIIDAE						
<i>Aplysia brasiliana</i> Rang, 1828	Car, WA		it, sb	a, co, rb	0–13	[1, 55, 71, 108]

<i>Aplysia dactylomela</i> Rang, 1828	ct	H, P	it, sb	a, co, rb, re, sg	0-37	[1, 30, 33, 55, 56, 58, 64, 70, 71, 75, 78, 104, 113]
<i>Aplysia parvula</i> Guilding in Mörch, 1863	ct	ES, P	it, sb	a, rb, sb, rub	0-30	[6, 28c, 30, 33, 37, 46, 56, 58, 65, 70, 75, 104, 107, 108, 110, 113]
<i>Bursatella learchii</i> de Blainville, 1817	ct	B, ES, N, P	it, sb	sg	0.5-15	[1, 33, 56, 70, 71]
<i>Dolabrifera dolabrifera</i> (Rang, 1828)	ct		it, sb	a, rb, sb	0-16	[1, 28c, 35, 58, 59, 81, 109, 110, 111]
<i>Notarchus punctatus</i> Philippi, 1836	Car, WA		sb	sb, sg	25	[33, 71, 113]
<i>Petalifera ramosa</i> Baba, 1959	IP, WA		sb	a, mb	6-37	[1, 33, 70, 71, 75, 104, 108, 113]
<i>Phyllaplysia engelii</i> Er. Marcus, 1955	Car, WA		it, sb	a, rb	0-23	[33, 62, 70, 71, 104, 108]
<i>Stylocheilus striatus</i> (Quoy & Gaimard, 1824)	ct		it, sb	a, rb, rub, sb, sg	0-30	[1, 28c, 33, 37, 56, 58, 70, 71, 75, 78, 108, 113]
TYLODINOIDEA						
Family UMBRACULIDAE						
<i>Umbraculum umbraculum</i> (Lightfoot, 1786)	Car, EP, IP	P	it, mp	rb	0-203	[1, 30, 58, 108, 110, 111]
PLEUROBRANCHOMORPHA						
Family PLEUROBRANCHIDAE						
* <i>Pleurobranchus</i> sp.	n.a		sb	rb	7.5	LACM
<i>Pleurobranchus areolatus</i> Mörch, 1863	Car, EP, WA	ES, N, P	it, sb	rb, re	0-31	[1, 17, 28c, 33, 37, 56, 58, 59, 71, 73, 75, 77, 81, 108, 110, 111, 113]
NUDIBRANCHIA						
Doridacea						
Family GONIODORIDIDAE						
<i>Ancula espinosai</i> Ortea, 2001	n.a		sb	rb	9	[33, 84]
Family POLYCERATIDAE						
<i>Polycera hedgpethi</i> Er. Marcus, 1964	EA, EP, IP, Med		sb	b	25	[33, 66]

(continued)

Species List 30.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat ^c	Substrate ^d	Depth (m) ^e	References ^f
<i>Polycera manzanilloensis</i> Ortea, Espinosa & Camacho, 1999	Car		sb	a	8	[33, 97, 108]
<i>Tambja oliva</i> Meyer, 1977	WA	P	sb	rb	8–25	[33, 79]
Family AEGIRETIDAE						
* <i>Aegires gomezi</i> Ortea, Luque & Templado, 1990	Car		sb	rb	7.5	[95a]
<i>Aegires sublaevis</i> Odhner, 1932	Car, EA, EP, WA	P	sb	n.a.	12	[33, 79, 104]
Family HEXABRANCHIDAE						
<i>Hexabranchius morsomus</i> Ev. Marcus & Er. Marcus, 1962	Car		sb	a, re	6–33	[33, 55, 71, 108, 116]
Family DENDRODORIDIDAE						
<i>Dendrodoris krebbsii</i> (Mörch, 1863)	Car, WA	P	it, sb	co, sp	0–25	[1, 33, 56, 71, 75, 79, 104, 108, 114]
<i>Dendrodoris magagnai</i> Ortea & Espinosa, 2001	n.a		sb	rb	20	[33, 90]
Family PHYLLIDIIDAE						
<i>Ceratophyllidia papilligera</i> (Bergh, 1890)	Car, EA, WA, WP	H	ep, sb	a, rb, co, sp	2–185	[1, 33, 56, 71, 75, 108, 114]
<i>Phyllidella molaensis</i> (Meyer, 1977)	WA	P	sb	rb	3–15	[33, 80]
Family CHROMODORIDIDAE						
* <i>Chromodoris binza</i> Ev. Marcus & Er. Marcus, 1963	Car		sb	rb	7.5	[74]
<i>Chromodoris clenchi</i> (Russell, 1935)	Car, WA	P	it, sb	co, rb, rub	0–30	[1, 33, 57, 72, 80, 110, 116]
<i>Chromodoris grahami</i> T.E. Thompson, 1980	Car	P	it, sb	co, rb	0.5–12	[16, 56, 114]
<i>Chromodoris kempfi</i> Ev. Marcus, 1971	Car, WA	P	sb	re, sp	6, 37	[33, 56, 71, 108]
<i>Hypselodoris acriba</i> Ev. Marcus & Er. Marcus, 1967	Car, WA	H	sb	a, rb, re, rub, sp	3–15	[1, 33, 56, 71, 108]
<i>Hypselodoris ruthae</i> Ev. Marcus & Hughes, 1974	Car, WA	P	it, sb	a, re, rub, sp	0.5–20	[33, 56, 71, 78, 79, 108, 114]

<i>Noumea regalis</i> Ortea, Caballer & Moro, 2001	n.a	sb	rb	9	[99]
<i>Tyrinna evelinae</i> (Er. Marcus, 1958)	Car, EA, EP, WA	it, sb	rb	0–14	[1, 6, 15, 33, 37, 58, 59, 75]
Family DISCODORIDAE					
<i>Discodoris evelinae</i> Er. Marcus, 1955	Car, WA	it, sb	co, rb	0–30	[33, 56, 62, 71, 75, 79, 104, 108]
<i>Discodoris phoca</i> Ev. Marcus & Er. Marcus, 1967	WA	sb	rb, sp	12	[1, 33, 71, 75]
* <i>Jorunna spazzola</i> Er. Marcus, 1955	Med, WA	sb	rb	7.5	[70a]
<i>Paradoris multicber</i> (Ev. Marcus, 1970)	WA	sb	a, rb	12–52	[33, 68, 108]
<i>Platydoris angustipes</i> (Mörch, 1863)	Car, WA	it, sb	re	0–11	[33, 56, 71, 75, 77, 79]
<i>Taringa tritorquis</i> Ortea, Pérez & Llera, 1982	Car, EA	sb	rb	10	[33, 95]
Family DORIDAE					
<i>Aphelodoris antillensis</i> Bergh, 1879	Car, WA	sb	co, re	1–16	[1, 33, 56, 71, 75, 77, 79, 104, 108, 114]
<i>Doris verrucosa</i> Linnaeus, 1758	EA, Med, WA	it, sb	rb	0–12	[1, 33, 62, 63, 71]
DENDRONOTACEA					
Family BORNELLIDAE					
<i>Bornella calcarata</i> Mörch, 1863	Car, WA	ep, sb	co, rub, sg	4–103	[33, 56, 64, 71, 75, 108, 114]
Family DOTIDAE					
<i>Doto awapa</i> Ortea, 2001	n.a	sb	h	10	[33, 85]
<i>Doto cabecar</i> Ortea, 2001	Car	sb	h	20	[77, 85]
<i>Doto chica</i> Ev. Marcus & Er. Marcus, 1960	Car, WA	sb	h, rb	4–9	[33, 71, 85, 103]
<i>Doto curere</i> Ortea, 2001	n.a	sb	rb	6	[33, 85]
<i>Doto duao</i> Ortea, 2001	n.a	sb	h	10–19	[33, 85]
<i>Doto escallari</i> Ortea, Moro & Espinosa, 1999	WA	it, sb	h	1–2	[33, 85, 108]
<i>Doto lugula</i> Ortea, 2001	n.a	sb	rb	25	[33, 85]
<i>Doto kekoldi</i> Ortea, 2001	n.a	sb	h	9	[33, 85]
<i>Doto pita</i> Er. Marcus 1955	Car, WA, EA	sb	h	23	[1, 33, 71, 85, 104]

(continued)

Species List 30.1 (continued)

Species	World distribution ^a	Central America ^b	Habitat ^c	Substrate ^d	Depth (m) ^e	References ^f
<i>Doto proranao</i> Ortea, 2001	n.a	sb	sb	h	9	[33, 85]
Family SCYLLAEIDAE						
* <i>Crosslandia</i> cf. <i>daedali</i> Poorman & Mulliner, 1981	EP	it, sb	it, sb	a	0–5	[2, 22, 28c, 103, 109, 110]
<i>Scyllaea pelagica</i> Linnaeus, 1758	ct	it, sb	it, sb	a	0–16	[1, 33, 56, 104, 108]
Family TRITONIIDAE						
<i>Tritonia wellsi</i> Er. Marcus, 1961	WA	sb	sb	co, g	3–8	[1, 33, 71, 75, 108]
JANOLIDACEA						
Family PROCTONOTIDAE						
<i>Janolus costacubensis</i> Ortea & Espinosa, 2000	Car	sb	sb	re	20	[33, 88]
AEOLIDACEA						
Family FLABELLINIDAE						
* <i>Flabellina</i> sp.	Car	sb	sb	rb	7.5	LACM
<i>Flabellina engeli</i> Ev. Marcus & Er. Marcus, 1968	WA	sb	sb	h	16	[33, 76]
Family EUBRANCHIDAE						
<i>Eubranchus conicta</i> (Er. Marcus, 1958)	Car, WA	sb	sb	a	8	[33, 64, 78, 104]
<i>Eubranchus convenientis</i> Ortea & Caballer, 2002	n.a	sb	sb	a	1	[93]
<i>Eubranchus leopoldoi</i> Caballer, Ortea & Espinosa, 2001	n.a	sb	sb	a	9	[26, 33]
Family TERGIPEDIDAE						
<i>Cuthona genovae</i> (O'Donoghue, 1929)	n.a	sb	sb	n.a.	5–15	[33, 82, 107]
<i>Cuthona iris</i> Edmunds & Just, 1983	Car	sb	sb	h	6	[33, 98]
<i>Cuthona tina</i> (Er. Marcus, 1957)	Car, WA	sb	sb	n.a.	9	[33, 63, 103]
Family FACELINIDAE						
<i>Dondice occidentalis</i> (Engel, 1925)	Car, WA	sb	sb	h	0–30	[1, 33, 56, 64, 77, 104, 114]

<i>Learchis poica</i> Ev. Marcus & Er. Marcus, 1960	Car, WA	it, sb	h, rb	0.5–18	[1, 33, 55, 77, 104, 114]
<i>Nanuca sebastiani</i> Er. Marcus, 1957	Car, WA	sb	a	20	[33, 63, 77, 104, 108]
<i>Phidiana adiuncta</i> Ortea, Caballer & Moro, 2004	n.a.	sb	rb	8	[101a]
<i>Phidiana lynceus</i> Bergh, 1867	Car, EP, WA	it, sb	a, rb	0–23	[1, 33, 56, 75, 77, 78, 104, 108, 114]
<i>Flabellina marcusorum</i> Gosliner & Kuzirian, 1990	Car, EP, WA	it, sb	rb	0–22	[6, 10, 28c, 33, 52, 56, 110, 111]
Family AEOLIDIIDAE					
<i>Berghia creutzbergi</i> Er. Marcus & Ev. Marcus, 1970	Car	it	a	3	[33a, 77]
<i>Berghia verrucicornis</i> (A. Costa, 1864)	Arc, EA, Med, WA	it, sb	an	0–9	[33, 113]
<i>Millereolidia ritmica</i> (Ortea, Caballer & Espinosa, 2003)	n.a.	it	a	0	[101]
<i>Spurilla neapolitana</i> (delle Chiaje, 1823)	ct	it, sb	a, an, rb, sb	0–20	[1, 28c, 33, 63, 71, 75, 108, 110]
Family GLAUCIDAE					
<i>Cratena piutaensis</i> Ortea, Caballer & Espinosa, 2003	n.a.	sb	a	4	[101]

n.a. = information not available

*New records for the Caribbean Coast of Costa Rica

LACM = specimens deposited at the Natural History Museum of Los Angeles County

^a Arc = Arctic; Car = Caribbean; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; M = Mediterranean; WA = western Atlantic (no Caribbean); WP = western Pacific

^b B = Belize; ES = El Salvador; H = Honduras; N = Nicaragua; P = Panama

^c ep = epipelagic; it = intertidal; mp = mesopelagic; sb = subtidal (on continental shelf)

^d a = Algae; an = Anemones; b = Bryozoans; co = Coral; g = Gorgonians; h = Hydroid colonies; mb = Muddy bottom; rb = Rocky bottom; re = Reefs; rub = rubble bottom; sb = sandy bottom; sg = sea grass; sp = sponges

^e Uppermost/lowermost occurrences (in meters)

^f References are indicated by numbers according to the reference list

Species List 30.2 Benthic opisthobranchs and “cephalaspidean” heterobranchs from Pacific Costa Rica

Species	World distribution ^a	Central America ^b	Pacific Costa Rica ^c	Habitat ^d	Substrate ^e	Depth (m) ^f	References ^g
“Lower” HETEROBANCHIA							
Family ACTEONIDAE							
<i>Acteon traskii</i> Steams, 1897	EP	P	PM	sb	n.a.	3–64	[28c, 58, 110, 119]
<i>Crenilabium venustus</i> (d’Orbigny, 1840)	EP	P	PM	sb	n.a.	18–64	[28b, 58]
CEPHALASPIDEA							
Family CYLICHNIDAE							
<i>Acteocina carinata</i> (Carpenter, 1857)	EP	P	PM	it	mb	0–30	[6, 28c, 53d, 54, 58, 109, 110, 119]
<i>Acteocina infrequens</i> (C.B. Adams, 1852)	EP	P	PM	sb	n.a.	1–35	[28c, 58, 119]
<i>Acteocina</i> sp. 1	EP		PM	sb	n.a.	16–18	[28c, 119]
<i>Acteocina</i> sp. 2	EP		PM	it	n.a.	0–2	[28c, 119]
<i>Cylichna atahualpa</i> (Dall, 1908)	EP	P	PM	ep, mp, sb	n.a.	25–590	[28c, 58, 110, 119]
<i>Cylichnella goslineri</i> Valdés & Camacho-García, 2004	EP		PM	it	n.a.	0	[28c, 119]
<i>Cylichnella tabogaensis</i> (Strong & Hertlein, 1939)	EP	P	PM	sb	n.a.	1–90	[28c, 58, 110, 119]
Family RETUSIDAE							
<i>Retusa paziana</i> Dall, 1919	EP		PM	it, sb	n.a.	0–42	[28c, 58, 110, 119]
<i>Retusa</i> sp.	EP		PM	sb	n.a.	3–15	[28c, 119]
<i>Volvulella catharia</i> Dall, 1919	EP	P	IC, PM	ep, mp, sb	n.a.	26–457	[28c, 58, 110, 119]
<i>Volvulella cylindrica</i> (Carpenter, 1864)	EP	P	PM	sb	n.a.	75	[1, 6, 28c, 53d, 54, 60, 110, 119]
<i>Volvulella panamica</i> Dall, 1919	EP	P	PM	ep, mp	n.a.	4–137	[28c, 58, 119]
Family AGLAJIDAE							
<i>Aglaja regiscorona</i> Bertsch, 1972	EP		PM	sb	rb	2	[9, 28c, 37, 41, 109, 110, 119]
<i>Navanax aenigmaticus</i> (Bergh, 1893)	Car, EA, EP, WA	ES, N, P	PM	it, sb	rb	0–18	[6, 28c, 41, 46, 53d, 56, 58, 109, 110, 119]

<i>Navanax polyalphos</i> (Gosliner & Williams, 1972)	EP	P	PM	it, sb	mb, rb	0-3	[6, 9, 28c, 37, 52, 53d, 109, 110, 119]
* <i>Philinopsis cf. cyanea</i> (Martens, 1879)	EP, IP	P	PM	sb	rb	44-47	[28c, 53a, 53d]
Family BULLIDAE							
<i>Bulla punctulata</i> A. Adams in Sowerby, 1850	EP	ES, P	IC, PM	it, sb	rb	0-15	[1, 28c, 53d, 58, 109, 110, 119]
Family HAMINOEIDAE							
<i>Atyis defuncta</i> (Baker & Hanna, 1927)	EP		PM	sb	n.a.	9-30	[1, 28c, 109, 119]
<i>Atyis exarata</i> (Carpenter, 1857)	EP		PM	ep, it, sb	n.a.	0-90	[28c, 119]
<i>Haminoea ovalis</i> Pease, 1868	EP, IP	P	PM	it, sb	rb, re	0-15	[28c, 53a, 53d, 102, 109, 119]
SACOGLOSSA							
Family JULIIDAE							
<i>Berthelinia chloris</i> (Dall, 1918)	EP		PM	it	a	0	[1, 6, 28c, 53d, 58, 110]
<i>Julia thecaphora</i> (Carpenter, 1857)	EP		IC	sb	n.a.	20	[28c, 81, 109]
Family OXYNOIDAE							
<i>Lobiger souverbii</i> Fischer, 1857	ct		PM	it, sb	a, rb	0-11	[1, 5, 28c, 30, 33, 53d, 55, 56, 58, 63, 71, 75, 78, 104, 106, 108, 109, 110, 113]
<i>Oxynoe panamensis</i> Pilsbry & Olsson, 1943	EP, WA	P	PM	it	a	0	[1, 28c, 33, 53d]
Family PLACOBANCHIDAE							
<i>Elysiya diomedea</i> (Bergh, 1894)	EP	ES, N, P	PM	it, sb	rb, re, sb	sg 0-23	[1, 17, 28c, 37, 53d, 58, 59, 75, 110]
<i>Elysiya pusilla</i> (Bergh, 1872)	IP		PM	it, sb	a	0-30	[28c, 31, 53d, 57]
<i>Elysiya</i> sp. 1	n.a.		PM	it	a	0	[28c, 53d]
<i>Elysiya</i> sp. 2	n.a.		PM	it	a	0	[28c, 53b, 53d]
<i>Elysiya</i> sp. 3	n.a.		PM	it	a	0	[28c]
Family HERMAEIDAE							
<i>Hermaea</i> sp. 1	n.a.		PM	it	rb	0	[28c]

(continued)

Species List 30.2 (continued)

Species	World distribution ^a	Central America ^b	Pacific Costa Rica ^c	Habitat ^d	Substrate ^e	Depth (m) ^f	References ^g
<i>Hermæa</i> sp. 2	n.a.		PM	it	a	0	[28c]
<i>Hermæa</i> sp. 3	n.a.		PM	it	a	0	[28c]
Family LIMAPONTIIDAE							
<i>Placida cremoniana</i> (Thrinchese, 1872)	Med, WP		PM	it, sb	rb	0–12	[4, 28c, 53d]
<i>Placida</i> sp.	n.a.		PM	it	a	0	[28c]
Family CALIPHYLIDAE							
<i>Caliphyla</i> sp.	EP		PM	it	a	0	[28c]
<i>Cyerce ortegi</i> Valdés & Camacho-García, 2000	EP, IP		PM	it, sb	a, rb	0–10	[28c, 53d, 110, 118]
<i>Polybranchia viridis</i> (Deshayes, 1857)	Car, EP	P	PM	it, sb	rb	0–7	[28c, 33, 53d, 75, 79, 111, 112]
ANASPIDEA							
Family APLYSIIDAE							
<i>Aplysia californica</i> Cooper, 1863	EP		PM	it, sb	rb	0–20	[28c, 53b, 53d]
<i>Aplysia dactylomela</i> Rang, 1828	ct	H, P	PM	it, sb	rb, re, sg	0–37	[1, 28c, 30, 33, 53d, 55, 56, 58, 64, 70, 71, 75, 78, 104, 113]
<i>Aplysia parvula</i> Guilding in Mörch, 1863	ct	ES, P	PM	it, sb	a, rb, sb, rub	0–30	[6, 28c, 30, 33, 37, 46, 53d, 56, 58, 65, 70, 75, 104, 107, 108, 110, 113]
<i>Dolabella auricularia</i> (Lightfoot, 1786)	ct	P	PM	it, sb	rb	0–18	[1, 28c, 37, 53d, 58, 59, 109, 110]
<i>Dolabrifera dolabrifera</i> (Rang, 1828)	ct	B, ES, N, P	PM	it, sb	a, rb, sb	0–16	[1, 28c, 35, 53d, 58, 59, 81, 109, 110, 111]
<i>Notarchus indicus</i> Scheigger, 1820	ct		PM	sb	a	6	[3, 28b, 31, 53d]
<i>Phyllaplysia padinae</i> Williams & Gosliner, 1973	EP	P	PM	it, sb	a	0–20	[28c, 37, 53a, 53d, 96, 110, 120]
<i>Stylochellus striatus</i> (Quoy & Gaimard, 1832)	ct		PM	it, sb	a, rb, rub, sb, sg	0–30	[1, 28c, 33, 37, 53d, 56, 58, 70, 71, 75, 78, 108, 113]

TYLODINOIDEA									
Family UMBRACULIDAE									
<i>Umbraculum umbraculum</i> (Lightfoot, 1786)	Car, EP, IP	P	PM	it, mp	rb	0-203	[1, 28c, 30, 53d, 58, 108, 110, 111]		
Family TYLODINIDAE									
<i>Tylostina jungina</i> Gabb, 1865	EP	P	PM	it, sb	rb, sp	0-25	[1, 6, 28c, 37, 53d, 58, 59, 81, 109, 110, 111]		
PLEUROBRANCHOMORPHA									
Family PLEUROBRANCHIDAE									
<i>Berthella agassizi</i> (MacFarland, 1909)	Car, EP	P	PM	it, sb	rb	0-6	[6, 28c, 36, 53a, 53d, 50, 109, 110]		
<i>Berthella martensi</i> (Pilsbry, 1896)	EP, IP	P	PM	it, sb	rb	0-30	[28c, 36, 50, 53d, 109, 110]		
<i>Berthella stellata</i> (Risso, 1826)	ct	P	PM	it, sb	rb	0-10	[6, 28c, 50, 53d, 109, 110]		
<i>Berthellina ilisima</i> Ev. Marcus & Er. Marcus, 1967	EP	P	IC, PM	it, sb	rb	0-31	[6, 28c, 37, 53d, 58, 59, 81, 109, 110]		
<i>Pleurobranchus areolatus</i> (Mörch, 1863)	Car, EP, WA	ES, N, P	IC, PM	it, sb	rb, re	0-31	[1, 17, 28c, 33, 37, 53d, 56, 58, 59, 71, 73, 75, 77, 81, 108, 110, 111, 1113]		
NUDIBRANCHIA									
DORIDACEA									
Family GONIODORIDIDAE									
<i>Okenia academica</i> Camacho-García & Gosliner, 2004	n.a.		PM	it	rb	0	[28a, 28c,]		
<i>Trapania inbioitica</i> Camacho-García & Ortea, 2000	EP	P	PM	sb	rb	2	[27, 28c, 109]		
Family POLYCERIDAE									
<i>Limacia janssi</i> (Bertsch & Ferreira, 1974) EP		P	PM	it, sb	sb	0-20	[1, 25, 28c, 53d, 75, 105]		
<i>Polycera alabe</i> Collier & Farmer, 1964	EP	P	PM	it, sb	b, rb	0-14	[1, 6, 28c, 37, 53a, 53d, 58, 59, 109, 110]		
* <i>Polycera gnupa</i> Ev. Marcus & Er. Marcus, 1967	EP	P	PM	sb	b	7-31	[28c, 53a, 53d]		

(continued)

Species List 30.2 (continued)

Species	World distribution ^a	Central America ^b	Pacific Costa Rica ^c	Habitat ^d	Substrate ^e	Depth (m) ^f	References ^g
<i>Polycera</i> sp.	EP	P	PM	it, sb	b	0–16	[28c, 53b]
<i>Polycerella glandulosa</i> , Behrens & Gosliner, 1988	EP	P	PM	it, sb	b	0–20	[6, 8, 28c, 53a, 53d, 109, 110]
* <i>Roboastra leonis</i> Pola, Cervera & Gosliner, 2005	EP		PM	sb	rb	18–31	[28c, 102a]
<i>Tambja abdere</i> Farmer, 1978	EP		IC, PM	sb	rb	3–61	[28c, 36, 37, 53d, 59, 109, 110]
<i>Tambja elitora</i> (Ev. Marcus & Er. Marcus, 1967)	EP		PM	it, sb	rb	0–46	[1, 6, 28c, 36, 37, 53d, 58, 59, 75]
Family DENDRODORIDIDAE							
<i>Dendrodoris fumata</i> (Rüpell & Leuckart, 1831)	EP, IP	P	IC, PM	it, sb	rb	0–21	[24, 28c, 53d, 81, 109, 110]
<i>Doriopsilla janaina</i> Ev. Marcus & Er. Marcus, 1967	EP	P	PM	it, sb	rb	0–18	[1, 28c, 37, 53b, 53d, 58, 72, 109, 110]
<i>Doriopsilla rowena</i> Ev. Marcus & Er. Marcus, 1967	EP	P	PM	it, sb	rb	0–20	[28c, 37, 57, 74, 107]
Family CHROMODORIDIDAE							
<i>Cadlina luama</i> (Ev. Marcus & Er. Marcus, 1967)	EP	P	PM	it, sb	rb	0–40	[1, 6, 28c, 37, 53a, 53d, 58, 110, 117]
<i>Cadlina sparsa</i> (Odhner, 1921)	EP, WA		PM	it, sb	rb	0–9	[1, 28c, 37, 53d, 58, 75, 110]
<i>Cadlina</i> sp.	EP		PM	it, sb	rb	0–22	[28c, 53b, 53d]
<i>Chromodoris norristi</i> Farmer, 1963	EP		PM	it, sb	rb	15	[28c, 37, 59, 110]
<i>Chromodoris sphoni</i> Ev. Marcus, 1971	EP	ES, P	IC, PM	it, sb	rb	0–21	[14, 20, 23, 28c, 37, 53d, 59, 109, 110]
<i>Glossodoris baumanni</i> (Bertsch, 1970)	EP	P	IC, PM	it, sb	g, rb	0–21	[1, 6, 11, 14, 23, 28c, 53d, 58, 75, 81, 109]
<i>Glossodoris dalli</i> (Bergh, 1879)	EP	P	PM	it, sb	rb	0–30	[1, 11, 23, 28c, 37, 53d, 58, 59, 75, 109]

<i>Glossodoris sedna</i> Ev. Marcus & Er. Marcus, 1967	Car, EP, WA	ES, H, P	PM	it, sb	rb	0-19	[1, 11, 13, 14, 23, 28c, 37, 53d, 58, 59, 75, 109, 110]
<i>Hypselodoris agassizii</i> (Bergh, 1894)	EP	ES, P	PM	it, sb	rb	0-19	[1, 11, 13, 14, 28c, 37, 53d, 61, 113, 114]
<i>Hypselodoris ghiselini</i> Bertsch, 1978	EP		PM	it, sb	rb	0-5	[6, 28c, 53d, 59, 110]
<i>Mexichromis antonii</i> (Bertsch, 1976)	EP	P	PM	it, sb	rb	0-28	[5, 10, 12, 14, 20, 28c, 37, 53a, 53d, 59, 109, 110]
<i>Mexichromis tica</i> Gosliner, Ortea & Valdés, 2004	EP		PM	sb	rb	23	[28c, 52a]
<i>Mexichromis tura</i> (Ev. Marcus & Er. Marcus, 1967)	EP	P	PM	it, sb	rb	0-20	[1, 12, 14, 23, 28c, 37, 53d, 59, 112]
<i>Tyrinna evelinae</i> (Er. Marcus, 1958)	Car, EA, EP, WA		PM	it, sb	rb	0-14	[1, 6, 15, 28c, 33, 37, 53d, 58, 59, 75]
Family DISCODORIDIDAE							
<i>Atagema</i> sp.	EP	P	PM	it	rb	0	[28c, 53d]
<i>Diailula aurila</i> (Ev. Marcus & Er. Marcus, 1967)	EP	ES, P	PM	it, sb	rb	0-6	[28, 28c, 53d, 75]
<i>Diailula greeleyi</i> (MacFarland, 1909)	EP, WA	P	PM	it, sb	rb	0-10	[1, 22, 28, 28c, 53a, 53d, 86, 110]
<i>Discodoris ketos</i> Ev. Marcus & Er. Marcus, 1967	Car, EP	P	PM	it, sb	rb	0-18	[1, 28c, 37, 53a, 53d, 58, 109, 110]
<i>Geitodoris mavis</i> (Ev. Marcus & Er. Marcus, 1967)	EP		PM	it, sb	rb	0-7	[28c, 75]
<i>Hoplodoris bramale</i> Fahey & Gosliner, 2003	EP	P	PM	it	rb	0	[28c, 34, 53a, 53d]
<i>Jorunna osde</i> Camacho-Garcia & Gosliner, 2008	EP		PM	it	rb	0	[28c, 28d, 53d]
<i>Jorunna tempisquensis</i> Camacho-Garcia & Gosliner, 2008	EP		PM	it	rb	0	[28c, 28d]

(continued)

Species List 30.2 (continued)

Species	World distribution ^a	Central America ^b	Pacific Costa Rica ^c	Habitat ^d	Substrate ^e	Depth (m) ^f	References ^g
<i>Taringa aivica</i> Ev. Marcus & Er. Marcus, 1967	EP	P	PM	it, sb	rb	0–16	[1, 6, 7, 28, 28c, 37, 53a, 53d, 58, 75, 109]
<i>Taringa Thordisa niteseni</i> Chan & Gosliner, 2007	EP	P	PM	it	rb	0–1	[28c, 53d]
<i>Thordisa</i> sp.	EP	P	PM	it, sb	rb, sp	0–9	[28c, 28e]
Family DORIDIDAE							
<i>Conualevia alba</i> Collier & Farmer, 1964	EP		PM	it, sb	rb	0–17	[1, 6, 28c, 37, 53d, 58, 109, 110]
<i>Doris immonda</i> (Risbec, 1928)	EP	P	PM	it, sb	rb	0–9	[28c, 115a]
<i>Doris pickensi</i> Ev. Marcus & Er. Marcus, 1967	EP		PM	it, sb	rb	0–6	[1, 28c, 37, 53d, 58]
<i>Doris tanya</i> (Ev. Marcus, 1971)	EP		PM	it, sb	rb	0–10	[6, 28c, 53d, 110]
DENDRONOTACEA							
Family LOMANOTIDAE							
* <i>Lomanotus vermiformis</i> Eliot, 1908	Ct		PM	it, sb	h	1–12	[6, 28c]
Family DOTIDAE							
<i>Doto lancei</i> Ev. Marcus & Er. Marcus, 1967	EP		PM	sb	h		[28c, 53d]
<i>Doto</i> sp.	n.a		PM	it, sb	h	2–16	[28c]
Family HANCOCKIIDAE							
<i>Hancockia californica</i> MacFarland, 1923	EP		PM	sb	rb	16	[1, 6, 28c, 53d, 61]
Family SCYLLAEIDAE							
<i>Crosslandia daedali</i> Poorman & Mulliner, 1981	EP		PM	it, sb	a	0–5	[2, 22, 28c, 53d, 103, 109, 110]
<i>Notobryon</i> sp.	n.a		PM	it	a	0	[28c]
Family TRITONIIDAE							
<i>Marionia</i> sp.	EP		PM	sb	co	20	[28c, 53d]

<i>Tritonia myrakeanae</i> Bertsch & Mosqueira, 1986	EP	PM	it	n.a.	0	[6, 21, 28c, 53d]
<i>Tritonia pickensi</i> Ev. Marcus & Er. Marcus, 1967	EP	PM	it, sb	g	0-18	[1, 19, 28c, 53a, 53d, 58, 75, 109, 110]
ARMINACEA						
Family ARMINIDAE						
<i>Armina californica</i> (Cooper, 1863)	EP	ES, P	it, mp	mb, sb	0-227	[1, 6, 28c, 53d, 58, 61, 109, 110]
* <i>Armina</i> sp.	EP	P	n.a.	n.a.	44-47	[53a]
<i>Histiomena convolvula</i> (Lance, 1962)	EP	PM	sb	n.a.	15	[28c, 53d, 58]
JANOLIDACEA						
Family PROCTONOTIDAE						
<i>Janolus barbarensis</i> (Cooper, 1863)	EP	PM	sb	rb	6	[28b, 28c, 43, 53d]
<i>Janolus anulatus</i> Camacho-García & Gosliner, 2006	EP	PM	sb	rb	6	[28b, 28c, 53d]
AEOLIDACEA						
Family FLABELLIDAE						
<i>Flabellina bertsi</i> Gosliner & Kuzirian, 1990	EP	P	it, sb	h, rb	0-18	[10, 28c, 51, 53d, 96, 110]
<i>Flabellina cynara</i> (Ev. Marcus & Er. Marcus, 1967)	EP	P	it, sb	re, sb	0-18	[1, 28c, 37, 53a, 53d, 58, 59, 109, 110]
<i>Flabellina marcosorum</i> Gosliner & Kuzirian, 1990	Car, EP, WA	P	it, sb	rb	0-22	[6, 10, 28c, 33, 51, 53d, 56, 58, 109, 110]
<i>Flabellina telja</i> Ev. Marcus & Er. Marcus, 1967	EP	P	it, sb	rb	0-21	[1, 28c, 37, 53d, 58, 59, 75, 110]
<i>Flabellina vansyoci</i> Gosliner, 1994	EP	P	sb	rb	10	[22, 28c, 47, 53d, 110]
Family EUBRANCHIDAE						
<i>Eubranchius</i> sp.	IP, EP	PM	sb	rb	0	[28c, 53d]
Family TERGIPEDIDAE						
<i>Cuthona destinyae</i> Hermsillo & Valdés, 2007		P	it	rb	0	[28c, 53c, 53d,]

(continued)

Species List 30.2 (continued)

Species	World distribution ^a	Central America ^b	Pacific Costa Rica ^c	Habitat ^d	Substrate ^e	Depth (m) ^f	References ^g
<i>Cuthona millenae</i> Hermosillo & Valdés, 2007	n.a		PM	sb	h	5	[28c, 53c]
<i>Cuthona phoenix</i> Gosliner, 1981	EP		PM	it	h	0	[6, 28c, 42]
<i>Cuthona</i> sp. 1	EP	P	PM	sb	rb	14–18	[28c, 53d]
<i>Cuthona</i> sp. 2	n.a		PM	sb	rb	14–18	[28c]
<i>Cuthona</i> sp. 3	n.a		PM	it	rb	0	[28c]
<i>Cuthona</i> sp. 4	n.a		PM	sb	rb	14–18	[28c]
<i>Cuthona</i> sp. 5	EP		PM	it	rb	0	[28c]
<i>Phestilla lugubris</i> (Bergh, 1870)	IP	P	IC, PM	it, sb	co, rb	0–21	[28c, 31, 53d, 109, 110]
Family FACELINIDAE							
<i>Bajaeolis bertschi</i> Gosliner & Behrens, 1986	EP	P	PM	sb	h	18	[28c, 38, 49, 53d, 59, 109, 110]
<i>Facelina</i> sp.	EP		PM	it, sb	rb	0–18	[28c]
<i>Favorinus elenalexitarum</i> (García & Troncoso, 2001)	EP	P	PM	it, sb	rb	0–18	[28c, 39, 53d, 110]
* <i>Glaucus atlanticus</i> Förster, 1777	CT		PM	ep	s	0	[53d]
<i>Hermosita hakunamata</i> (Ortea, Caballer & Espinosa, 2003)	EP	P	PM	sb	h	12	[28c, 53a, 53d, 101]
<i>Noumeella rehderi</i> Er. Marcus, 1965	EP		PM	sb	rb	10	[28c, 67]
<i>Noumeella rubrofasciata</i> Gosliner, 1991	EP	P	PM	sb	rb	2–20	[8, 28c, 45, 53a, 53d, 110]
<i>Phidiana lasrucensis</i> Bertsch & Ferreira, 1974	EP	H, P	PM	it, sb	rb, sb	0–22	[28c, 37, 53a, 53d, 109, 110]
Family AEOLIDIIDAE							
<i>Aeolidiella alba</i> (Risbec, 1928)	Ct	P	PM	it, sb	rb	0–10	[1, 28c, 44, 53c, 58, 109, 110]
<i>Aeolidiella chromosoma</i> (Cockerell & Eliot, 1905)	EP	N, P	PM	it, sb	rb	0–18	[1, 6, 28c, 37, 53d, 58, 75, 110]

<i>Aeolidiella indica</i> Bergh, 1888	Ct	P	IC, PM	it, sb	rb	0-24	[1, 18, 28c, 48, 53b, 53d, 109, 110]
<i>Baeolidiella nodosa</i> (Haefelfinger & Stamm, 1958)	Car, EP, IP, Med		PM	sb	rb	1-4	[28c, 40, 53b, 53d]
* <i>Berghia major</i> (Eliot, 1903)	EP, IP	P	PM	it	rb	1	[44, 53d]
<i>Spurilla neapolitana</i> (Delle Chiaje, 1823)	Ct	P	PM	it, sb	a, an, rb, sb	0-20	[1, 28c, 33, 53d, 63, 71, 75, 108, 110]

n.a. = information not available

* New records for the Pacific coast of Costa Rica

^aCar = Caribbean; CT = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; Med = Mediterranean; WA = western Atlantic (no Caribbean); WP = western Pacific

^bB = Belize; ES = El Salvador; H = Honduras; N = Nicaragua; P = Panama

^cIC = Isla del Coco; PM = Pacific mainland

^dep = epipelagic; it = intertidal; mp = mesopelagic; sb = subtidal (on continental shelf)

^ea = algae; an = anemones; b = bryozoans; co = coral; g = gorgonians; h = hydroid colonies; mb = muddy bottom; rb = rocky bottom; re = reefs; s = siphonophores; sb = sandy bottom; sg = sea grass; sp = sponges; rub = rubble bottom

^fUppermost/lowermost occurrences (in meters)

^gReferences are indicated by numbers according to the reference list

Species List 31.1 Bivalves from the Caribbean coast of Costa Rica; the higher-level taxonomy as proposed by Coan *et al.* (2000)

Species	World distribution ^a	Depth ^b (m)	Oceanic distribution ^c	Habitat/Community ^d	References ^e
Subclass PROTobranchia					
Order NUCULOIDA					
Superfamily NUCULOIDEA					
Family NUCULIDAE					
<i>Nucula crenulata</i> A. Adams, 1856	Car, WA	0	st	m,s	[1, 41, 43]
<i>Nucula proxima</i> Say, 1822	Car, WA	0	st	m,s	[1, 41]
Superfamily NUCULANOIDEA					
Family NUCULANIDAE					
* <i>Adrana elizabethae</i> Ortea & Espinosa, 2001	Car	5–10	of	m	[73]
<i>Niculana (Saccella) acuta</i> (Conrad, 1832)	Car, WA	12–23	of	m	[1, 41]
Subclass PTERIOMORPHIA					
Order ARCOIDA					
Superfamily ARCOIDEA					
Family ARCIDAE					
Subfamily ARCINAE					
<i>Acar dominguis</i> (Lamarck, 1819)	Car, WA	8–12	of	r	[1, 41, 43, 59a]
<i>Arca imbricata</i> Bruguière, 1789	Car, WA	3–12	of, st	r	[1, 41, 43, 59a]
<i>Arca zebra</i> (Swainson, 1833)	Car, WA	12–23	of	r	[1, 41, 43, 76]
<i>Barbatia (Barbatia) cancellaria</i> (Lamarck, 1819)	Car, WA	4	st	r	[1, 41, 43, 76]
<i>Barbatia (Cucullaearca) candida</i> (Helbling, 1779)	Car, WA	6–12	st	r	[1, 41, 43, 76]
<i>Fugleria tenera</i> (C.B. Adams, 1845)	Car, WA	0–12	it, st	r	[1, 41, 43, 76]
Subfamily ANADARINAE					
<i>Anadara (Colosarca) notabilis</i> (Röding, 1798)	Car, WA	6–10	of, st	m,s	[1, 41, 43, 76]
<i>Anadara (Lar-kina) transversa</i> (Say, 1822)	Car, WA	5–10	of	m,s	[1, 41, 43]
<i>Anadara (Scapharca) brasiliana</i> (Lamarck, 1819)	Car, WA	12	of	m,s	[1, 41, 43]
<i>Anadara (Scapharca) chemnitzii</i> (Philippi, 1851)	Car, WA	6–12	of	m,s	[1, 41, 43]
<i>Lunarca ovalis</i> (Bruguière, 1798)	Car, WA	0–5	st	m,s	[43, 59a, 76]

Family NOETIIDAE					
Subfamily NOETIINAE					
<i>Noetia (Noetia) bisulcata</i> (Lamarck, 1819)	Car, WA	0-5	st	m.s	[76]
Subfamily STRIARCIINAE					
<i>Arcopsis adamsi</i> (Dall, 1886)	Car, WA	4-12	of, st	m.s	[1, 41, 43, 59a]
Superfamily GLYCYMERIDOIDEA					
Family GLYCYMERIDIDAE					
<i>Glycymeris (Glycymeris) spectralis</i> Nicol, 1952	Car	0-5	st	s	[76]
<i>Glycymeris (Glycymeris) undata</i> (Linnaeus, 1758)	Car, WA	6-12	st	s	[1, 41]
<i>Glycymeris (Tucetona) pectinata</i> (Gmelin, 1791)	Car, WA	0-12	st	s	[1, 41, 43, 75]
Order MYTILOIDA					
Superfamily MYTILOIDEA					
Family MYTILIDAE					
Subfamily MYTILINAE					
<i>Brachidontes (Hormomya) domingensis</i> (Lamarck, 1819)	Car, WA	n.a.	st	r	[1, 42, 43, 75]
<i>Brachidontes (Hormomya) exustus</i> (Linnaeus, 1758)	Car, WA	9	st	r	[1, 41, 43]
Subfamily Crenellinae					
<i>Crenella abbotii</i> Altana, 1968	Car	9	of	r	[41]
<i>Crenella decussata</i> (Montagu, 1808)	Car, WA	10	of	r	[1, 33, 41, 75]
<i>Lioberus castaneus</i> (Say, 1822)	Car	9	of	r	[1, 41, 43]
<i>Musculus lateralis</i> (Say, 1822)	Car, WA	7-29	of	r	[1, 41, 43, 75]
Subfamily LITHOPHAGINAE					
<i>Botula fusca</i> (Gmelin, 1791)	Car, EP, IP, WA	0-532	it, of, st	co, sh	[4, 43, 62, 75, 97]
<i>Lithophaga anillarum</i> (d'Orbigny, 1853)	Car	15	of	r	[1, 41, 43, 75]
<i>Lithophaga bisulcata</i> (d'Orbigny, 1853)	Car, WA	9	of	co, sh	[1, 41, 43, 75]
Subfamily MODIOLINAE					
<i>Modiolus (Modiolus) americanus</i> (Leach, 1815)	Car, EP, WA	0-20	it, of, st	r	[1, 41, 43, 62, 75]
Order PTERIOIDA					
Suborder PTERIINA					
Superfamily PTERIOIDEA					
Family PTERIIDAE					

(continued)

Species List 31.1 (continued)

Species	World distribution ^a	Depth ^b (m)	Oceanic distribution ^c	Habitat/Community ^d	References ^e
<i>Pinctada imbricata</i> Röding, 1798	Car, WA	6–12	of	r	[1, 41, 43, 62, 75]
<i>Pteria colymbus</i> (Röding, 1798)	Car, WA	3–52	of	r	[1, 41, 43, 59a, 75]
Family ISOGNOMONIDAE					
<i>Isoognomon alatus</i> (Gmelin, 1791)	Car	0	it	w	[59a]
<i>Isoognomon bicolor</i> (C.B. Adams, 1845)	Car	3	of	r	[1, 41, 43, 75]
<i>Isoognomon radiatus</i> (Anton, 1838)	Car	8	of	r	[1, 41, 43, 59a, 75, 67c]
Family MALLEIDAE					
<i>Malleus (Mavifundus) regulus</i> (Forskål, 1775)	Car, EP	8–23	of	sh.sp	[1, 41, 43, 62, 81, 82]
Suborder PINNINA					
Superfamily PINNOIDEA					
Family PINNIDAE					
<i>Atrina seminata</i> (Lamarck, 1819)	Car	2–10	of	r	[1, 41, 43]
<i>Pinna carnea</i> (Lightfoot, 1786)	Car	2–52	of	r	[1, 41, 43]
Order LIMOIDA					
Superfamily LIMOIDEA					
Family LIMIDAE					
<i>Ctenoides mitis</i> (Lamarck, 1807)	Car	4–15	of	r	[41, 43, 67b, 75]
<i>Ctenoides scabra</i> (Born, 1778)	Car	1–14	of, st	r	[41, 43, 59a, 75]
<i>Lima caribaea</i> d'Orbigny, 1853	Car	0–52	it, of, st	r	[1, 41, 43, 75, 67c]
<i>Limaria pellucida</i> (C.B. Adams, 1846)	Car, WA	10–12	of	r	[1, 41, 43, 75]
Order OSTREOIDA					
Suborder OSTREINA					
Superfamily OSTREOIDEA					
Family OSTREIDAE					
Subfamily CRASSOSTREINAE					
<i>Crassostrea virginica</i> (Gmelin, 1791)	Car, WA	0–12	of	r	[1, 41, 43, 75]

Species List 31.1 (continued)

Species	World distribution ^a	Depth ^b (m)	Oceanic distribution ^c	Habitat/Community ^d	References ^e
Superfamily DREISSENOIDEA					
Family DREISSENIIDAE					
<i>Mytilopsis dominguensis</i> Récluz, 1852	Car,WA	4–12	of	r	[1, 41, 59a]
Superfamily LUCINOIDEA					
Family LUCINIDAE					
Subfamily LUCININAE					
<i>Codakia costata</i> (d'Orbigny, 1953)	Car	1–10	of,st	s	[1, 41, 43, 59a, 67c]
<i>Codakia orbicularis</i> (Linnaeus, 1758)	Car	8–12	of	s	[1, 41, 43, 59a]
<i>Ctena orbiculata</i> (Montagu, 1808)	Car	2–9	of	s	[1, 41, 43, 59a]
<i>Ctena pectinella</i> (C.B. Adams, 1852)	Car	6–182	of	s	[41, 43]
<i>Lucinisca muricata</i> (Spengler, 1778)	Car	12	of	s	[1, 41, 43]
<i>Phacoides pectinata</i> (Gmelin, 1791)	Car	0	it	s	[41, 43, 59a]
Subfamily DIVARICELLINAE					
<i>Divalinga quadrisulcata</i> (d'Orbigny, 1845)	Car	0–95	it,of,st	s	[1, 41, 43, 67c]
<i>Divalinga weberi</i> Olsson & McGinty, 1958	Car	0–12	it,of,st	s	[41]
Subfamily MILTHINAE					
<i>Anodontia (Pegophysema) alba</i> Link, 1807	Car,WA	0–23	it,of,st	s	[1, 41, 59a, 67c]
Family UNGULINIDAE					
<i>Diplodonta notata</i> Dall & Simpson, 1901	Car	2–12	it,of,st	ru,s	[41, 43, 59a, 75]
<i>Diplodonta punctata</i> (Say, 1822)	Car,WA	1–60	of,st	ru,s	[41, 43, 75]
<i>Diplodonta semiaspera</i> Philippi, 1836	Car,WA	12–52	it,of,st	ru,s	[41, 75]
Superfamily CRASSATELLOIDEA					
Family CRASSATELLIDAE					
Subfamily SCAMBULINAE					
<i>Crassinella guadalupensis</i> (d'Orbigny, 1853)	Car	n.a.	n.a.	n.a.	[59a, 67c]
<i>Crassinella lunulata</i> (Conrad, 1834)	Car,WA	0–58	it,of,st	ru,s	[41, 43, 75]
<i>Crassinella martinicensis</i> (d'Orbigny, 1853)	Car,WA	8–60	of,st	ru,s	[1, 43, 75, 76, 67c]

Superfamily CARDITOIDEA						
Family CARDITIDAE						
<i>Carditamera gracilis</i> (Shuttleworth, 1856)	Car	4	of,st	s		[1, 41, 43]
<i>Carditamera domingensis</i> (d'Orbigny, 1853)	Car,WA	1-128	of,st	s		[1, 41, 43]
Family CONDYLOCARDIIDAE						
<i>Carditopsis bernardi</i> (Dall, 1903)	Car	5-42	of,st	s		[1, 59a, 75, 76]
Superfamily CHAMOIDEA						
Familia CHAMIDAE						
<i>Arcinella arcinella</i> Linnaeus, 1858	Car	6-73	of	r		[1, 41]
<i>Chama congregata</i> Conrad, 1833	Car,WA	n.a.	of	sh		[1, 41, 43, 59a, 75]
<i>Chama florida</i> Lamarck, 1819	Car	1-88	of	r		[1, 41, 43, 75]
<i>Chama inezae</i> Bayer, 1943	Car	5-18	of	r,sh		[1, 11a, 41, 43]
<i>Chama macerophylla</i> (Gmelin, 1791)	Car,WA	0	it	r		[1, 41, 43, 59a, 75]
<i>Chama radians</i> Lamarck, 1819	Car,WA	4-72	of	r,sh		[1, 11a, 41, 43, 75]
Superfamily ARCTICOIDEA						
Family TRAPEZIDAE						
<i>Coralltophaga coralltophaga</i> (Gmelin, 1791)	Car,WA	0-52	it,of,st	r		[1, 41, 43, 75]
Superfamily CARDIOIDEA						
Family CARDIIDAE						
Subfamily CARDIINAE						
<i>Papyridea semisulcata</i> (Gray, 1825)	Car,WA	2-73	of	s		[1, 41, 43, 75]
<i>Papyridea soleniformis</i> (Bruguière, 1789)	Car,WA	2-10	of,st	s		[1, 41, 43, 75]
<i>Trachycardium (Dallocardia) muricatum</i> (Linnaeus, 1758)	Car,WA	9-30	of	s		[1, 41, 43, 75]
Subfamily FRAGINAE						
<i>Americardia media</i> (Linnaeus, 1758)	Car,WA	1-60	of,st	s		[1, 41, 43]
<i>Trigonocardia antillarum</i> (d'Orbigny 1853)	Car	5-332	of,st	s		[1, 41, 43, 67c]
Subfamily LAEVICARDIINAE						
<i>Laevicardium pictum</i> Ravanel, 1861	Car,WA	155	of	s		[1, 41, 43]

(continued)

Species List 31.1 (continued)

Species	World distribution ^a	Depth ^b (m)	Oceanic distribution ^c	Habitat/Community ^d	References ^e
Superfamily VENEROIDEA					
Family VENERIDAE					
Subfamily VENERINAE					
<i>Globivenus rigida</i> (Dillwyn, 1817)	Car	14–54	of,st	s	[1, 41, 43]
<i>Periglypta listeri</i> (Gray, 1838)	Car	1–5	st	s	[1, 43, 75, 76]
Subfamily CHIONINAE					
<i>Anomalocardia brasiliiana</i> (Gmelin, 1791)	Car	1	st	s	[41, 43]
<i>Chione cancellata</i> (Linnaeus, 1767)	Car,WA	1–25	of,st	s	[1, 41, 43, 59a]
<i>Chiatropsis intapurpurea</i> (Conrad, 1849)	Car,WA	1–85	of,st	s	[1, 41, 43]
<i>Lirophora paphia</i> (Linnaeus, 1767)	Car,WA	1–100	of,st	s	[1, 41, 43, 75]
Subfamily DOSINIINAE					
<i>Dosinia concentrica</i> (Born, 1778)	Car	12	st	s	[1, 41, 43]
Subfamily GOULDIINAE					
<i>Gouldia cerina</i> (C.B. Adams, 1845)	Car,WA	1–173	of,st	s	[1, 41, 43, 75]
Subfamily MERETRICINAE					
<i>Tivela abacanis</i> Dall, 1902	Car	0–5	it,st	s	[1, 43, 75, 76]
<i>Tivela macrooides</i> (Born, 1778)	Car	0–12	of,st	s	[1, 41, 43, 59a]
Subfamily PITARINAE					
<i>Macrocallista maculata</i> (Linnaeus, 1758)	Car,WA	12–23	of,st	s	[1, 41, 43]
<i>Pitar (Hysteroconcha) drone</i> (Gmelin, 1758)	Car	8	st	s	[41, 43]
<i>Pitar (Hysteroconcha) circinatus</i> (Born, 1778)	Car	0–12	of,st	s	[41, 43]
<i>Pitar albidus</i> (Gmelin, 1791)	Car	0–14	of,st	s	[1, 41, 43, 59a, 67c]
<i>Pitar fulminatus</i> (Menke, 1828)	Car,WA	12	of,st	s	[1, 41, 43]
<i>Transennella cubaniana</i> (d'Orbigny, 1853)	Car	9–12	of	s	[1, 41, 43, 75, 67c]
Family PETRICOLIDAE					
<i>Choristodon robustum</i> (Sowerby, 1834)	Car,WA	0–8	it,of,st	s	[1, 41, 43]

Superfamily MACTROIDEA						
Family MACTRIDAE						
Subfamily MACTRINAE						
<i>Macrellona alata</i> (Spengler, 1802)	Car,WA	2-18	of,st	s		[1, 41, 43, 59a]
<i>Macrotoma fragilis</i> (Gmelin, 1791)	Car,WA	5-10	of,st	s		[1, 41, 43, 75]
<i>Macrotoma petiti</i> (d'Orbigny 1846)	Car	12-40	of	s		[41]
<i>Mulinia cleryana</i> (d'Orbigny, 1846)	Car	1-12	of,st	s		[1, 41, 43, 59a]
Subfamily PTEROPSELLINAE						
<i>Anatina anatina</i> (Spengler, 1802)	Car,WA	5-35	of	s		[76]
Superfamily SOLENOIDEA						
Family SOLENIDAE						
<i>Solen obliquus</i> Spengler, 1794	Car	0-5	it,st	s		[76, 96]
<i>Solen tayrona</i> Cosel, 1985	Car	8	of,st	s		[43, 76]
Superfamily TELLINOIDEA						
Family TELLINIDAE						
Subfamily TELLININAE						
<i>Strigilla (Pisostrigilla) pisiformis</i> (Linnaeus, 1758)	Car	8	of	s		[1, 41, 43]
<i>Strigilla (Strigilla) carmaria</i> (Linnaeus, 1758)	Car,WA	0-12	of,st	s		[1, 41, 43, 59a, 75]
<i>Strigilla (Strigilla) producta</i> Tryon, 1870	Car	0-5	of,st	s		[1, 76]
<i>Strigilla (Strigilla) pseudocarmaria</i> Boss, 1969	Car	0-5	of,st	s		[1, 41, 43]
<i>Tellina (Angulus) everythara</i> Boss, 1964	Car	0-5	it,st	s		[43, 76]
<i>Tellina (Angulus) mera</i> Say, 1834	Car	0-5	it,st	s		[43, 76, 96]
<i>Tellina (Arcopagia) fausta</i> (Pulteney, 1799)	Car,WA	1-3	of,st	s		[1, 41, 43, 59a, 75]
<i>Tellina (Eurytellina) alternata</i> Say, 1822	Car,WA	0-5	it,st	s		[1, 59a, 76]
<i>Tellina (Eurytellina) angulosa</i> Gmelin, 1791	Car,WA	0-5	it,st	s		[1, 43, 76]
<i>Tellina (Eurytellina) lineata</i> Turton, 1819	Car	0-5	it,st	s		[1, 43, 59a, 75, 76]
<i>Tellina (Eurytellina) nitens</i> C.B. Adams, 1845	Car,WA	5-100	st	s		[1, 41, 43]
<i>Tellina (Eurytellina) punicea</i> Born, 1778	Car	0-12	it,st	s		[41]
<i>Tellina (Laciolina) laevigata</i> Linnaeus, 1758	Car,WA	23	of	s		[41, 43]
<i>Tellina (Merisca) aequistriata</i> Say, 1824	Car,WA	5-12	of,st	s		[1, 41, 43, 75]

(continued)

Species List 31.1 (continued)

Species	World distribution ^a	Depth ^b (m)	Oceanic distribution ^c	Habitat/Community ^d	References ^e
<i>Tellina (Merisca) cristallina</i> Spengler, 1798	Car,WA	0–23	of,st	s	[1, 41]
<i>Tellina (Scissula) sandix</i> Boss, 1968	Car,WA	5–10	of,st	s	[1, 41, 43]
<i>Tellina (Tellinella) listeri</i> Röding, 1798	Car,WA	2–12	of,st	s	[1, 41, 43, 75]
<i>Temnocncha brasiliiana</i> (Dall, 1921)	Car	0–12	it,of,st	s	[41]
Subfamily MACOMINAE					
<i>Macoma (Psammacoma) brevifrons</i> (Say, 1844)	Car	0	it	s	[41, 43]
Family DONACIDAE					
<i>Donax denticulatus</i> Linnaeus, 1758	Car	0–12	it,of,st	s	[1, 41, 43, 59a]
<i>Donax striatatus</i> Linnaeus, 1758	Car	0–12	of,st	s	[1, 41, 43]
<i>Iphigenia brasiliiana</i> (Lamarck, 1818)	Car	0–5	it,st	s	[1, 43, 59a, 76]
Family PSAMMOBIIDAE					
<i>Asaphis deflorata</i> (Linnaeus, 1758)	Car,IP	1	it	s	[1, 41, 43]
<i>Psammotella cruenta</i> (Lightfoot, 1786)	Car	1–14	it,st	s	[1, 41, 43, 75]
Family SEMELIDAE					
<i>Semele (Semele) purpurascens</i> (Gmelin, 1791)	Car,WA	0–5	st	s	[1, 43, 59a, 76]
<i>Semele (Semele) proficua</i> (Pulteney, 1799)	Car,WA	15	of,st	s	[1, 43, 41]
<i>Semelina nuculoides</i> (Conrad, 1841)	Car,WA	0–5	it,st	s	[1, 43, 76]
Family SOLECURTIDAE					
<i>Solecurtus cumingianus</i> Dunker, 1861	Car,WA	7–60	of	s	[1, 41, 43]
<i>Tagelus (Mexopleura) divinus</i> (Spengler, 1794)	Car,WA	2–12	of	s	[1, 41, 43]
Order MYOIDA					
Suborder MYOINA					
Superfamily MYOIDEA					
Family MYIDAE					
<i>Sphenia fragilis</i> (H. Adams & A. Adams, 1854)	Car,EP,WA	6–12	of	s	[1, 8, 29, 33, 41, 43, 62]
Family CORBULIDAE					
Subfamily CORBULINAE					
<i>Corbula (Caryocorbula) caribaea</i> (d'Orbigny, 1853)	Car	5–12	of	s	[41, 43, 67c]

<i>Corbula (Juliatorbula) aequivalvis</i> Philippi, 1836	Car	10	of	s	[41, 43]
<i>Corbula (Varicorbula) limatula</i> (Conrad, 1846)	Car	10	of	s	[41, 43, 67a, 67c]
Superfamily GASTROCHAENOIDEA					
Family GASTROCHAENIDAE					
<i>Gastrochaena (Spengleria) rostrata</i> (Spengler, 1783)	Car	0	it	r	[41, 43]
Suborder PHOLADINA					
Superfamily PHOLADOIDEA					
Family PHOLADIDAE					
Subfamily PHOLADINAE					
<i>Pholas (Thovana) campechiensis</i> Gmelin, 1791	Car	0	it	r	[43, 59a, 76]
Subfamily MARTESIINAE					
<i>Martesia (Martesia) striata</i> (Linnaeus, 1758)	cp	0–15	it	w	[1, 43, 59a, 62, 76]
Subclass ANOMALODESMATA					
Order PHOLADOMYOIDA					
Superfamily PANDOROIDEA					
Family PANDORIDAE					
<i>Pandora bushiana</i> Dall, 1886	Car	0–15	it	r	[41, 43]
Family LYONIIDAE					
<i>Entodesma beana</i> (d'Orbigny, 1853)	Car	0–15	it	r	[42, 43, 67c]
Superfamily THRACIOIDEA					
Family PERIPLOMATIDAE					
<i>Periploma (Periploma) margaritaceus</i> (Lamarck 1801)	Car	0–15	it	r	[41, 59a, 76]

n.a. = information not available

Species in **bold** font = present in both Caribbean and Pacific coasts

* = endemic species

^aCar = Caribbean; cp = Cosmopolitan; EP = Eastern Pacific; I = Indian Ocean; IP = Indo-Pacific; WA = Western Atlantic

^bUppermost and lowermost occurrences (in meters)

^cit = intertidal; of = offshore; st = subtidal

^dco = coral reef; m = mangrove; r = rocks; ru = rubble; s = sand; sh = shells; sp = sponges; w = wood

^eReferences are indicated by numbers according to the references list; numbers in **bold** font correspond to references where the species is reported as present in Costa Rica.

Species List 31.2 Bivalves from the Pacific coast of Costa Rica; the higher-level taxonomy as proposed by Coan *et al.* (2000)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Subclass PROTobranchia						
Order NUCULOIDA						
Superfamily NUCULOIDEA						
Family NUCULIDAE						
<i>Nucula (Lamellinucula) exigua</i> Sowerby, 1833	EP	PM	10–1900	of	m,s	[34, 62, IB]
<i>Nucula (Lamellinucula) shencki</i> Hertlein & Strong, 1940	EP	PM	13–45	of	m,s	[62, 71, IB]
<i>Nucula (Nucula) declivis</i> Hinds, 1843	EP	PM	7–80	of,st	m,s	[62, IB]
Superfamily NUCULANOIDEA						
Family NUCULANIDAE						
Subfamily NUCULANINAE						
<i>Adrana crenifera</i> Sowerby, 1833	EP	PM	20	of	n.a.	[36, 62]
<i>Adrana suprema</i> (Pilsbry & Olsson, 1935)	EP	PM	0	it	s	[62, IB]
<i>Adrana tonosiana</i> (Pilsbry & Olsson, 1935)	EP	PM	26–37	of	s	[62, IB]
<i>Nuculana (Costelloleda) costellata</i> Sowerby, 1833	EP	PM	18–42	of	m	[62, IB]
<i>Nuculana (Costelloleda) marrella</i> Hertlein, Hanna & Strong, 1940	EP	PM	65–100	of	m	[62, IB]
<i>Nuculana (Saccella) Acrua</i> Dall, 1908.	EP	PM	30–100	of	m	[62, 74, IB]
<i>Nuculana (Jupiteria) callimene</i> (Dall, 1908)	EP	PM	480–470	of	m	[62]
<i>Nuculana (Saccella) eburnea</i> Sowerby, 1833	EP	PM	13–112	of	m	[62, IB]
<i>Nuculana (Saccella) elenensis</i> Sowerby, 1833	EP	PM	4–150	of,st	m	[34, 62, IB]
<i>Nuculana (Saccella) hindstii</i> (Hanley, 1860)	EP	PM	20–50	of	m	[34, 62]
<i>Nuculana (Saccella) impar</i> (Pilsbry & Lowe, 1932)	EP	PM	37–4	of,st	m	[34, 62, IB]
<i>Nuculana (Politoleda) polita</i> Sowerby, 1833	EP	PM	73–13	of	m	[62, IB]
Subclass PTERIOMORPHIA						
Order ARCOIDA						

Superfamily ARCOIDEA									
Family ARCIDAE									
Subfamily ARCINAE									
<i>Acar bailyi</i>	Bartsch, 1931	EP	PM	0-5	it, st	r	[34, 62, IB]		
<i>Acar gradata</i>	(Broderip & Sowerby, 1829)	EP	PM, IC	0-37	it, of, st	r	[1, 62, IB]		
<i>Acar rostrae</i>	(Berry, 1954)	EP	PM	0-20	it, of, st	r	[1, 62, IB]		
<i>Arca (Arca) mutabilis</i>	(Sowerby, 1833)	EP	PM, IC	0-82	it, of, st	r	[8, 62]		
<i>Arca (Arca) pacifica</i>	(Sowerby, 1833)	EP	PM, IC	0-137	it, of, st	r	[8, 62]		
<i>Barbatia (Barbatia) lurida</i>	(Sowerby, 1833)	EP	PM	0-22	it, of, st	r	[62, IB]		
<i>Barbatia (Calloarca) alternata</i>	(Sowerby, 1833)	EP	PM	7-27	of, st	r	[62, IB]		
<i>Barbatia (Cucullaearca) reeveana</i>	(d'Orbigny, 1846)	EP	PM, IC	0-120	it, of, st	r	[8, 62]		
<i>Fugleria ilota</i>	(Sowerby, 1833)	EP	PM	0-70	it, of, st	r	[62, IB]		
Subfamily ANADARINAE									
<i>Anadara (Anadara) adamsi</i>	Olsson, 1961	EP	PM	2	st	m, s	[62, IB]		
<i>Anadara (Anadara) concinna</i>	(Sowerby, 1833)	EP	PM	0-90	it, of, st	m	[1, 62, IB]		
<i>Anadara (Anadara) obesa</i>	(Sowerby, 1833)	EP	PM	22-112	of, st	m	[62, IB]		
<i>Anadara (Anadara) similis</i>	(C.B. Adams, 1852)	EP	PM	24	of	m	[62, IB]		
<i>Anadara (Anadara) tuberculosa</i>	(Sowerby, 1833)	EP	PM	0-5	it, of, st	m	[34, 48, 62, 78, IB]		
<i>Anadara (Cunearca) aequitorialis</i>	(d'Orbigny, 1846)	EP	PM	11-73	of	m	[62, IB]		
<i>Anadara (Cunearca) bifrons</i>	(Carpenter, 1857)	EP	PM	0	it	m	[62, IB]		
<i>Anadara (Cunearca) esmeralda</i>	(Pilsbry & Olsson, 1941)	EP	PM	73-55	of	m	[62, IB]		
<i>Anadara (Cunearca) perlabiata</i>	(Grant & Gale, 1931)	EP	PM	0-82	it, of, st	s	[62, IB]		
<i>Anadara (Esmerarca) reinharti</i>	(Lowe, 1935)	EP	PM, IC	2-91	st	m, s	[62, 68]		
<i>Anadara (Grandiarca) grandis</i>	(Broderip & Sowerby, 1829)	EP	PM, IC	0	it	m, s	[62, 68]		
<i>Anadara (Larkinia) multicostrata</i>	(Sowerby, 1833)	EP	PM	0-230	it, of, st	m, s	[48, 62, 78, IB]		

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
<i>Anadara (Poitarcia) nux</i> (Sowerby, 1833)	EP	PM	4–74	it,of,st	m,s	[62, IB]
<i>Anadara (Rasia) emarginata</i> (Sowerby, 1833)	EP	PM	5–51	of,st	m,s	[62, IB]
<i>Anadara (Rasia) formosa</i> (Sowerby, 1833)	EP	PM	11–82	of	m,s	[62, IB]
<i>Anadara (Scapharca) biangulata</i> (Sowerby, 1833)	EP	PM	5–80	st	m,s	[8, 62, IB]
<i>Lunarca brevifornis</i> (Sowerby, 1833)	EP	PM	0–44	it,of,st	r	[8, 62, IB]
Family NOETHIDAE						
Subfamily NOETHINAE						
<i>Noetia (Noetia) reversa</i> (Sowerby, 1833)	EP	PM	22–73	of	m,s	[8, 62, IB]
<i>Noetia (Sheldonella) delgada</i> (Lowe, 1935)	EP	PM	37–100	of	m,s	[62, IB]
Subfamily STRIARCINAE						
<i>Arcopsis solida</i> (Sowerby, 1833)	EP	PM,IC	20–50	of	m,s	[8, 62]
Superfamily GLYCYMERIDOIDEA						
Family GLYCYMERIDIDAE						
<i>Glycymeris (Axinactis) delessertii</i> (Reeve, 1843)	EP	PM	0–2	it,st	m,s	[62, IB]
<i>Glycymeris (Axinactis) inaequalis</i> (Sowerby, 1833)	EP	PM	4–24	of,st	m,s	[8, 62]
<i>Glycymeris (Ballaxinaca) multicosata</i> (Sowerby, 1833)	EP	PM	90	of	r,s	[62, 68 , 70]
<i>Glycymeris (Glycymeris) gigantea</i> (Reeve, 1843)	EP	IC	7–60	of,st	s	[62, IB]
<i>Glycymeris (Glycymeris) lineata</i> Olsson, 1961	EP	IC	n.a.	n.a.	n.a.	[8, 62 , 64]
<i>Glycymeris (Glycymeris) maculata</i> (Broderip, 1832)	EP	PM	5–45	st	s	[62, IB]
<i>Glycymeris (Tucetona) strigilata</i> (Sowerby, 1833)		PM,IC	13–110	of	m,s	[8, 62]
Superfamily PHILOBRYOIDEA						
Family PHILOBRYIDAE						
<i>Philobrya setosa</i> (Carpenter, 1864)	EP	PM	0–40	it,st	r,s	[34, 62, 89]
Order MYTILOIDA						
Superfamily MYTILOIDEA						

Family MYTILIDAE									
Subfamily MYTILINAE									
<i>Brachidontes adamsianus</i> (Dunker, 1857)	EP	PM	0	it	r	[62, 88]			
<i>Brachidontes puntarenensis</i> , (Pilsbry & Lowe, 1932)	EP	PM	0-15	it,of,st	r	[62]			
<i>Brachidontes semilaevis</i> (Menke, 1849)	EP	PM	31	of	r	[1, 62, IB]			
<i>Mytella charruamais</i> d'Orbigny, 1842	Car,EP	PM	0	it	m,s,r	[34, 62, IB]			
<i>Mytella speciosa</i> (Reeve, 1857)	EP	PM	10	st	m,s	[62, IB]			
<i>Mytella strigata</i> (Hanley, 1843)	Car,EP,Ca,WA	PM	0	it	m	[62, IB]			
<i>Mytilus strigatus</i> Hanley, 1843	EP	PM	10-12	of	m	[62, IB]			
Subfamily CRENELLINAE									
<i>Crenella decussata</i> (Montagu, 1808)	Arc,Car,EA,EP,IP,WA,WP	PM,IC	0-492	it,of,st	mr	[5, 49, 62, 88, 92, IB]			
<i>Gregariella coarctata</i> (Carpenter, 1857)	EP	PM	0-100	it,of,st	r	[34, 62, IB]			
<i>Lioberus sabadoricus</i> (Hertlein & Strong, 1946)	EP	PM	4-30	of,st	r	[62]			
Subfamily LITHOPHAGINAE									
<i>Botula cylista</i> Berry, 1959	Car,EP,I,IP,WA	PM	0-532	it,of,st	co,sh	[4, 43, 62, 75, 97, IB]			
<i>Leiosolenus spatiosa</i> (Carpenter, 1857)	EP	PM	0-27	it,of,st	sh	[62, IB]			
<i>Lithophaga (Diberus) plumula</i> (Hanley, 1843)	EP	PM,IC	0-40	it,of,st	co,sh	[8, 34, 49, 59, 62, 88]			
<i>Lithophaga (Labis) attenuata</i> (Deshayes, 1836)	EP	PM	0-15	it,of,st	r	[49, 62, 88, IB]			
<i>Lithophaga (Myoforceps) aristata</i> (Dillwyn, 1817)	EP	PM,IC	0-15	it,of,st	r,sh	[10, 11, 34, 49, 62, 88, 91]			
<i>Lithophaga (Stumpiella) calyculata</i> (Carpenter, 1857)	EP	PM,IC	n.a.	n.a.	sh	[1, 8]			
Subfamily MODIOLINAE									
<i>Amygdalum americanum</i> Soot-Ryen, 1955	EP	PM	4-37	st	r	[62, IB]			
<i>Modiolus (Modiolus) americanus</i> (Leach, 1815)	Car,EP,WA	PM	0-20	it,of,st	r	[1, 41, 43, 62, 75]			
<i>Modiolus (Modiolus) capax</i> (Conrad, 1837)	EP	PM	0-46	it,of,st	m,r	[8, 34, 62, IB]			
<i>Modiolus (Modiolus) eiseni</i> Strong & Hertlein, 1937	EP	PM	4-360	of,st	m,s,sh	[62, IB]			

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Subfamily Septiferinae						
<i>Septifer zeteki</i> Hertlein & Strong, 1946	EP	PM,IC	90	of	r	[8, 62]
Order PTERIOIDA						
Suborder PTERIINA						
Superfamily PTERIOIDEA						
Family PTERIIDAE						
<i>Pinctada mazatlanica</i> (Hanley, 1856)	EP	PM	0–27	of	r,s	[62, IB]
<i>Pteria sterna</i> (Gould, 1851)	EP	PM,IC	1–25	st	r,s	[8, 34, 48, 62, IB]
Family ISOGNOMONIDAE						
<i>Isognomon (Melina) janus</i> Carpenter, 1857	EP	PM,IC	0–35	st	m,s,r	[8, 39, 62, 69]
<i>Isognomon (Melina) recognitus</i> (Mabille, 1895)	EP	IC	0–5	it,st	r	[34, 38, 48, 62]
Family MALLEIDAE						
<i>Malleus (Mabvufundus) regulus</i> (Forskål, 1775)	Car,EP	PM,IC	8–23	of	sh,sp	[1, 41, 43, 62, 81, 82]
Suborder PINNINA						
Superfamily PINNOIDEA						
Family PINNIDAE						
<i>Atrina (Servatrina) maura</i> (Sowerby, 1835)	EP	PM	0	it,of	m	[62, 64, IB]
<i>Atrina (Servatrina) tuberculosa</i> (Sowerby, 1835)	EP	PM,IC	27	of	m	[8, 39, 62, 69]
<i>Pinna rugosa</i> Sowerby, 1835	EP	PM	0	it	m,s	[62, 80, IB]
<i>Steptopinna saccata</i> (Linnaeus, 1758)	EP,IP	PM,IC	1–2	st	m	[61, 83]
Order LIMOIDA						
Superfamily LIMOIDEA						
Family LIMIDAE						
<i>Lima tetrica</i> Gould, 1851	EP	PM,IC	9–110	of	Rs	[6, 8, 62]
<i>Limaria orbigny</i> (Lamy, 1930)	EP	PM	7–22	st	Rs	[6, 8, 34, 62, IB]
<i>Limaria pacifica</i> (d'Orbigny, 1846)	EP	PM,IC	0–2	st	r	[8, 62]
<i>Limatula similaris</i> (Dall, 1908)	EP	PM	55–42	of	m	[6, 8, 33, 34, 62]

Order OSTREOIDA									
Suborder OSTREINA									
Superfamily OSTREOIDA									
Family OSTREIDAE									
Subfamily OSTREINAE									
<i>Ostrea conchaphila</i> Carpenter, 1857	EP	PM	0-10	n.a.	r	[34, 62, IB]			
<i>Undulostrea megodon</i> (Hanley, 1846)	EP	PM	0-110	of	r	[8, 62, IB]			
Subfamily CRASSOSTREINAE									
<i>Crassostrea columbiansis</i> (Hanley, 1846)	EP	PM	0	it	r,m	[8, 62, IB]			
<i>Crassostrea gigas</i> (Thunberg, 1793)	M,NER,NWA,NWP	PM	0	it	r,m	[34, 94]			
<i>Crassostrea palmula</i> (Carpenter, 1857)	EP	PM,IC	0	it	r,m	[2, 62]			
<i>Crassostrea prismatica</i> (Gray, 1825)	EP	PM,IC	0	it	r	[8, 62, 68]			
Subfamily LOPHINAE									
<i>Dendostrea folium</i> (Linnaeus, 1758)	ct	IC	0	it	r	[6, 8, 81]			
Family GRYPHAEIDAE									
Subfamily PYCNODONTEINAE									
<i>Hyothisa hyotis</i> (Linnaeus, 1758)	EP,IO,IP,WP	PM	0-22	it,st	r	[8, 39, 62, IB]			
<i>Hyothisa solida</i> (Sowerby, 1871)	EP	IC	n.a.	it,st	r	[8]			
Superfamily PLICATULOIDEA									
Family PLICATULIDAE									
<i>Plicatula inezana</i> Durham, 1950	EP	PM	45-140	st	r	[62, 84]			
<i>Plicatula penicillata</i> Carpenter, 1857	EP	PM	20-80	st	r,sh	[8, 62, IB]			
<i>Plicatula spondyloopsis</i> Rochebrune, 1895	EP	PM	8-13	st	r	[8, 62]			
Suborder PECTININA									
Superfamily PECTINOIDEA									
Family PECTINIDAE									
Subfamily PECTININAE									
<i>Envola galapagensis</i> (Grau, 1959)	EP	IC	86	of	m,s	[62]			
<i>Envola perulus</i> (Olsson, 1961)	EP	PM,IC	8-22	st	m,s	[8 , 62]			
<i>Envola vogdesi</i> (Arnold, 1906)	EP	IC	2-155	of,st	m,s	[8 , 34, 46, 49, 62, 77]			
<i>Leopecten sericeus</i> (Hinds, 1845)	EP	PM,IC	13-183	of,st	m,s	[8, 62, 68, IB]			

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Subfamily CHLAMYDINAE						
<i>Argopecten ventricosus</i> (Sowerby, 1842)	EP	PM	1–55	st	s	[34, 46, 49, 62, 77, 95, IB]
<i>Leptopecten biolleyi</i> (Hertlein & Strong, 1946)						
<i>Leptopecten velero</i> (Hertlein, 1935)	EP	PM	18–220	of	s	[49, 62]
<i>Nodipecten subnodosus</i> (Sowerby, 1853)	EP	PM	5–100	of,st	s	[8, 49, 62, IB]
<i>Pacipecten tumbezensis</i> (d'Orbigny, 1846)	EP	PM,IC	0–110	it,of,st	s	[6, 26a , 62, 68]
<i>Spathochlamys vestalis</i> (Reeve, 1853)	EP	PM	0–128	of,st	s	[62, IB]
<i>Spathochlamys vestalis</i> (Reeve, 1853)	EP	PM	2–85	of,st	s	[46, 49, 62, 77, IB]
Family PROPEAMUSSIIDAE						
<i>Cyclopecten cocosensis</i> (Dall, 1908)	EP	IC	95–113	of	s	[26a , 62]
<i>Cyclopecten exquisitus</i> Grau, 1959	EP	IC	22–274	of	s	[62, 68]
<i>Cyclopecten rotundus</i> (Dall, 1908)	EP	PM	8–355	of,st	s	[8, 46, 62, 77, IB]
Family SPONDYLIDAE						
<i>Spondylus limbatus</i> G.B. Sowerby II, 1847	EP	PM,IC	0–55	it,of,st	r	[2, 8 , 33a, 62 , 86]
<i>Spondylus linguafelis</i> Sowerby, 1847	EP	IC	0	it	r	[6, 8 , 38 61, 66, 85]
<i>Spondylus princeps</i> Broderip, 1833	EP	PM	3–32	of,st	r	[8, 62, 86, IB]
Superfamily ANOMIOIDEA						
Family ANOMIIDAE						
<i>Anomia (Anomia) peruviana</i> d'Orbigny, 1846	EP	PM,IC	0–130	it,of,st	r	[8 , 34, 62, IB]
Subclass HETERODONTA						
Order VENEROIDA						
Superfamily CORBICULOIDEA						
Family CORBICULIDAE						
<i>Polymesoda (Egeta) anomala</i> (Deshayes, 1855)	EP	PM	0	it	m,s	[62, IB]
<i>Polymesoda (Egeta) inflata</i> (Philippi, 1851)	EP	PM	0–20	it,st	m	[62, 64, IB]

<i>Polymesoda (Neocyrena) nicaraguana</i> (Prime, 1869)	EP	PM	0	It	m	[62, IB]
<i>Polymesoda (Polymesoda) notabilis</i> (Deshayes, 1855)	EP	PM	0-12	it,st	m	[62]
Superfamily CYRENOIDOIDEA						
Family CYRENOIDIDAE						
<i>Cyrenoida panamensis</i> Pilsbry & Zetek, 1931	EP	PM	0	it	m	[62, IB]
Superfamily GLOSSOIDEA						
Family VESICOMYIDAE						
<i>Calyptogena costaricana</i> Krylova & Sahling, 2006						
Genus <i>Calyptogena</i> Dall, 1891						
* <i>Calyptogena costaricana</i> Krylova & Sahling, 2006						
Superfamily LUCINOIDEA						
Family LUCINIDAE						
Subfamily LUCININAE						
<i>Callucina prolongata</i> (Carpenter, 1857)	EP	PM	30-90	of	s	[62, IB]
<i>Codakia distinguenda</i> (Tryon, 1872)	EP	PM,IC	20-50	of	s	[8, 62]
<i>Ctena clarionensis</i> Hertlein & Strong, 1946	EP	IC	20-50	of	s	[40, 62]
<i>Ctena galapagana</i> (Dall, 1901)	EP	PM	0-37	it,of,st	s	[62, 64, IB]
<i>Ctena mexicana</i> (Dall, 1901)	EP	PM	20-50	of	s	[8, 62, IB]
<i>Luciniscia centrifuga</i> (Dall, 1901)	EP	PM	0-100	it,st	s	[6, 8, 62, IB]
<i>Luciniscia fenestrata</i> (Hinds, 1845)	EP	PM	13-73	it,st	s	[6, 62, IB]
<i>Parvilucina approximata</i> (Dall, 1901)	EP	PM	0-14	it,of,st	s	[50, 58, 62, IB]
<i>Parvilucina mazatlanica</i> (Carpenter, 1857)	EP	PM	4-14	of,st	s	[58, 62, IB]
<i>Radiolucina cancellaris</i> (Philippi, 1846)	EP	PM	7-70	of,st	s	[6, 8, 9, 62, IB]
Subfamily DIVARICELLINAE						
<i>Divalvinga eburnea</i> (Reeve, 1850)	EP	PM,IC	0-55	it,st	s	[8, 62]
<i>Divalvinga parparvula</i> (Dall, 1901)	EP	PM,IC	30	st	s	[8, 62]
Family UNGULINIDAE						
<i>Diplodontia (Diplodontia) sericata</i> (Reeve, 1850)	EP	PM	0-75	it,of,st	m,ru	[51, 62, IB]

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
<i>Diplodonta (Diplodonta) subquadrata</i> Carpenter, 1857	EP	PM	30–137	of	m	[6, 8, 55, 62]
<i>Diplodonta (Phlynderma) inezensis</i> (Hertlein & Strong 1947)	EP	PM	11–64	of,st	m,ru	[62, IB]
<i>Diplodoma (Phycoderata) caclata</i> Reeve, 1850)	EP	PM	0	it	r	[62, IB]
<i>Diplodonia (Phycoderma) insula</i> (Olsson, 1961)	EP	PM	0–18	it,of	m,r	[62, IB]
<i>Diplodoma (Timothyus) inezensis</i> (Hertlein & Strong 1947)	EP	PM	0	it	r	[62, IB]
Superfamily CRASSATELLOIDEA						
Family CRASSATELLIDAE						
Subfamily CRASSATELLINAE						
<i>Eucrassatella gibbosa</i> (Sowerby, 1832)	EP	PM	22–37	of	s	[8, 18, 62, IB]
Subfamily SCAMBULINAE						
<i>Crassinella adamsi</i> Olsson, 1961	EP	PM	9–100	of,st	s	[15, 18, 62, IB]
<i>Crassinella ecuadoriana</i> Olsson, 1961	EP	PM	0–55	it,of,st	s	[15, 62, IB]
<i>Crassinella nuculiformis</i> Berry, 1940	EP	PM	0–62	it,st	s	[15, 18, IB]
<i>Crassinella pacifica</i> (C.B. Adams, 1852)	EP	PM	0–158	it,of,st	s	[8, 15, 62, IB]
<i>Crassinella varians</i> (Carpenter, 1857)	EP	PM	0–113	it,of,st	s	[8, 15, IB]
Superfamily CARDITOIDEA						
Family CARDITIDAE						
Subfamily CARDITAMERINAE						
<i>Carditamera affinis</i> (Sowerby, 1833)	EP	PM	0–27	it,of,st	m,s	[6, 62, IB]
<i>Carditamera radiata</i> (Sowerby, 1833)	EP	PM	24	of	m	[62, IB]
Subfamily CARDITESINAE						
<i>Cardites crassicostrata</i> (Sowerby, 1825)	EP	PM	0–55	it,of	m	[8, 62, IB]
<i>Cardites laticostrata</i> (Sowerby 1833)	EP	PM,IC	0–27	it,of,st	r,s	[8, 62]
<i>Strophocardia megastrophia</i> (Gray, 1825)	EP	PM,IC	30–100	of	s	[8, 62]

Family CONDYLOCARDIIDAE									
<i>Condylocardia digueti</i>	Lamy, 1916	EP	PM	20–50	of	r,s		[8, 32, 62, IB]	
<i>Condylocardia hippopus</i>	(Möhrh, 1861)	EP	PM,IC	0–50	of,st	r,s		[8, 32, 62, IB]	
<i>Condylocardia sparsa</i>	Coan, 2003	EP	PM	20–50	of	s		[32, IB]	
Superfamily GALEOMMATOIDEA									
Family GALEOMMATIDAE									
<i>Galeomella peruviana</i>	(Olsson, 1961)	EP	PM	20–30	st	s		[6, 8, 62, IB]	
Family LASAEIDAE									
<i>Aligena cokeri</i>	Dall, 1909	EP	PM	25	of	an,m		[8, 62, IB]	
<i>Amerycina colpoica</i>	(Dall, 1913)	EP	IC	0–24	it,of,st	m,s		[8, 62, IB]	
<i>Bornita papyracea</i>	(Deshayes, 1856)	EP	PM	10–50	of	m		[62, IB]	
<i>Enstiellops hertletini</i>	Emerson & Puffer, 1957	EP	PM	2–35	of,st	s		[27, 28, 62, IB]	
<i>Kallia suborbicularis</i>	(Montagu, 1803)	Arc,EP,Med, WA,WP	PM	0–20	it,of,st	r		[10, 51, 62, 67, IB]	
<i>Lasaea adansonii</i>	(Gmelin, 1791)	Arc,ep	PM	0–10	it,st	r		[21, 34, 35, 44, 51, 62, IB]	
<i>Rochefortia compressa</i>	(Dall, 1913)	EP	PM	5–40	of,st	m,s		[62, 92]	
<i>Solecardia eburnea</i>	Conrad, 1849	EP	PM,IC	0–60	it,of,st	s		[8, 62]	
Superfamily CHAMOIDEA									
Family CHAMIDAE									
<i>Arcinella californica</i>	(Dall, 1903)	EP	PM	25–77	of	s		[4, 62, IB]	
<i>Chama buddiana</i>	C.B. Adams, 1852	EP	PM	0–2	it,st	r,s		[4, 55, 62]	
<i>Chama echinata</i>	Broderip, 1835	EP	PM	2–15	of,st	r,s		[4, 8, 55, 62, IB]	
<i>Chama frondosa</i>	Broderip, 1835	EP	PM	0–20	it,of,st	r,s		[4, 8, 55, 62, IB]	
<i>Chama sordida</i>	Broderip, 1835	EP	PM	0–82	it,of,st	r,s		[4, 62, 72, IB]	
<i>Chama squamuligera</i>	Pilsbry & Lowe, 1932	EP	PM,IC	0–20	it,of,st	r		[4, 8, 62]	
<i>Chama venosa</i>	Reeve, 1847	EP	PM	0–16	it,of,st	r,s		[4, 62, IB]	
<i>Pseudochama clarionensis</i>	Willett, 1938	EP	IC	27–55	of	r,s		[4, 8, 62]	
<i>Pseudochama corrugata</i>	(Broderip, 1835)	EP	PM	0–5	it,st	r,s		[4, 8, 62, IB]	

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Superfamily CARDIOIDEA						
Family CARDIIDAE						
Subfamily CARDIINAE						
<i>Acrosterigma pristipleura</i> (Dall, 1901)	EP	PM	0–90	it.of,st	s	[62, 93, IB]
<i>Papyridea aspersa</i> (Sowerby, 1833)	EP	PM,IC	0–60	it.of,st	s	[8, 51, 62, IB]
<i>Papyridea crockeri</i> Strong & Hertlein, 1937	EP	PM	30–157	of	s	[36, 62]
<i>Papyridea mantaensis</i> Olsson, 1961	EP	PM	0–8	of,st	s	[62, IB]
<i>Trachycardium (Dallocardia) senticosus</i> (Sowerby, 1833)	EP	PM	0–40	it.of,st	s	[51, 62, IB]
<i>Trachycardium (Mexicardia) procerum</i> (Sowerby, 1833)	EP	PM	0–50	it.of,st	s	[8, 51, 62, IB]
<i>Trachycardium (Phlogocardia) belcheri</i> (Broderip & Sowerby, 1829)	EP	PM	35–140	of	s	[51, 62, 63, IB]
<i>Trachycardium (Trachycardium) consors</i> (Sowerby, 1833)	EP	PM	0–45	it.of,st	s	[51, 62, IB]
Subfamily FRAGINAE						
<i>Americardia planicostata</i> (Sowerby, 1833)	EP	PM,IC	0–80	it.of,st	s	[8, 51, 62, 63, IB]
<i>Americardia biangulata</i> (Broderip & Sowerby, 1829)	EP	PM	0–100	it.of,st	s	[34, 51, 62, IB]
<i>Trigonicardia (Aptiocardia) obovale</i> (Sowerby, 1833)	EP	PM	0–80	it.of,st	s	[6, 51, 62, IB]
<i>Trigonicardia (Trigonicardia) granifera</i> (Broderip & Sowerby, 1833)	EP	PM	0–35	it.of,st	s	[51, 62, IB]
Subfamily LAEVICARDIINAE						
<i>Laevicardium elatum</i> (Sowerby, 1833)	EP	PM	0–20	it.of,st	s	[34, 62, IB]
<i>Nemocardium (Lophocardium) annettae</i> (Dall, 1889)	EP	PM	1–90	it.of,st	s	[51, 62, IB]
<i>Nemocardium (Lophocardium) cumingii</i> (Broderip, 1833)	EP	PM	22–26	of	s	[62, 87, IB]

<i>Nemocardium (Microcardium) pazianum</i> (Dall, 1916)	EP	PM	20-100	it,of,st	s	[8, 51, 62, IB]
Superfamily VENEROIDEA						
Family VENERIDAE						
Subfamily VENERINAE						
<i>Globivenus isocardia</i> (Verrill, 1870)	EP	PM,IC	20-90	of	s,m	[8, 62]
<i>Periglypta multicosata</i> (Sowerby, 1835)	EP	PM	2-20	of,st	s	[62, IB]
Subfamily CHIONINAE						
<i>Chione compta</i> (Broderip, 1835)	EP	PM	18-39	it,of,st	m	[6, 62, IB]
<i>Chione guatulcoensis</i> Hertlein & Strong, 1948	EP	PM	13	it,of,st	s	[8, 62, IB]
<i>Chione subimbricata</i> (Sowerby, 1835)	EP	PM	0-28	it,of,st	s	[62, IB]
<i>Chionopsis amathusia</i> (Philippi, 1844)	EP	PM	73	of	s	[6, 62, IB]
<i>Chionopsis gnida</i> (Broderip & Sowerby, 1829)	EP	PM	10-33	of	s	[62, IB]
<i>Chionopsis pulicaria</i> (Broderip, 1835)	EP	PM	0-18	it,of,st	s	[62]
<i>Chionopsis purpurissata</i> (Dall, 1902)	EP	PM	30-80	of	s	[62, 84]
<i>Ilio-chione subrugosa</i> (Wood, 1828)	EP	PM	0-17	it,of,st	m	[8, 62, IB]
<i>Lirophora mariae</i> (d'Orbigny, 1846)	EP	PM	110	of	s	[8, 62, IB]
<i>Lirophora oblitterata</i> (Dall, 1902)	EP	PM	18	of	s	[6, 62, IB]
<i>Notochione columbiensis</i> (Sowerby, 1835)	EP	PM	0	it	s	[62, IB]
<i>Leukoma asperrima</i> (Sowerby, 1835)	EP	PM	0-9	it,st	s,r	[8, 33b, 62, IB]
<i>Leukoma belli</i> (Olsson, 1961)	EP	PM	0	it	r,s	[62, 33b, IB]
<i>Leukoma grata</i> (Say, 1831)	EP	PM	0-390	it,of,st	m	[62, 33b, IB]
<i>Leukoma metodon</i> (Pilsbry & Lowe, 1932)	EP	PM	0	it	s	[62, 33b, IB]
Subfamily DOSINIINAE						
<i>Cyclinella producta</i> (Carpenter, 1856)	EP	PM	0	it	m	[62, IB]
<i>Cyclinella subquadrata</i> (Hanley, 1845)	EP	PM	14-90	of	s	[8, 62]
<i>Dosinia (Dosinia) dunkeri</i> (Philippi, 1844)	EP	PM	0-100	it,of,st	m,s	[8, 62, IB]
<i>Dosinia (Dosinia) ponderosa</i> (Schumacher, 1817)	EP	PM	60	of	s	[8, 62, IB]
<i>Dosinia (Dosinia) semioblitterata</i> Deshayes, 1853	EP	PM	12-28	of	s	[62, IB]

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Subfamily GAFRARIINAE						
<i>Gouldia (Gouldia) californica</i> Dall, 1917	EP	PM	3–160	of,st	s	[1, 8, 62, IB]
Subfamily METETRICINAE						
<i>Tivela (Planitivela) planulata</i> (Broderip & Sowerby, 1830)	EP	PM	0	I	s	[62, IB]
<i>Tivela (Tivela) byronensis</i> Gray, 1838)	EP	PM	0–73	it,of,st	s	[8, 62, IB]
<i>Tivela (Tivela) lineata</i> (Sowerby, 1851)	EP	PM	0	it	s	[62, IB]
Subfamily PITARINAE						
<i>Megapitaria aurantiaca</i> (Sowerby, 1831)	EP	PM	0–10	it,of,st	s	[6, 62, IB]
<i>Megapitaria squalida</i> (Sowerby, 1835)	EP	PM	0–160	it,of,st	s	[6, 8, 62, IB]
<i>Pitar (Agriopoma) caltharicus</i> (Dall, 1902)	EP	PM	35–100	of	s	[8, 62, IB]
<i>Pitar (Agriopoma) mexicanus</i> Hertlein & Strong, 1948	EP	PM	4–80	of,st	s	[1, 6, 62, IB]
<i>Pitar (Hyphantosoma) aletes</i> Hertlein & Strong, 1948	EP	PM	77–110	of	s,m	[47, 62, IB]
<i>Pitar (Hyphantosoma) hertleini</i> Olsson, 1961	EP	PM,IC	17	of	s	[8, 47, 62]
<i>Pitar (Hysteroconcha) lupanaria</i> (Lesson, 1830)	EP	PM	24	of	s	[62, IB]
<i>Pitar (Hysteroconcha) multispinosus</i> (Sowerby, 1851)	EP	PM	0	it	s	[62, IB]
<i>Pitar (Hysteroconcha) roseus</i> (Broderip & Sowerby, 1829)	EP	PM	10–73	of	s	[1, 62, IB]
<i>Pitar (Lamelliconcha) alternatus</i> (Sowerby, 1851)	EP	PM	0–55	it	s	[62, IB]
<i>Pitar (Lamelliconcha) callicomatus</i> (Dall, 1902)	EP	PM	18–73	of	s	[62, IB]
<i>Pitar (Lamelliconcha) concinnus</i> (Sowerby, 1835)	EP	PM	0–73	it,of,st	s	[62, IB]
<i>Pitar (Lamelliconcha) paytensis</i> d'Orbigny, 1845	EP	PM	91	of	s	[62, IB]
<i>Pitar (Lamelliconcha) tortuosus</i> (Broderip, 1835)	EP	PM	10–90	of	m,s	[62, IB]
<i>Pitar (Lamelliconcha) unicolor</i> (Sowerby, 1835)	EP	PM	0–11	it,st	s	[1, 62, IB]
<i>Pitar (Lamelliconcha) vinaceus</i> (Olsson, 1961)	EP	PM	0–12	it,st	s	[62, IB]

<i>Pitar (Pitar) consanguineus</i> (C. B. Adams, 1852)	EP	PM	5-44	of, st	s	[6, 62, IB]
<i>Pitar (Pitar) helena</i> Olsson, 1961	EP	PM	45	of	s	[62, IB]
<i>Pitar (Pitar) perfragilis</i> Pilsbry & Lowe, 1932	EP	PM	14-183	of	m, s	[8, 62, 72, 84]
<i>Pitar (Tinctoria) vulneratus</i> (Broderip, 1835)	EP	PM	0-15	it, of, st	s	[62, IB]
<i>Transennella modesta</i> (Sowerby, 1835)	EP	PM	90	of	s	[6, 8, 62, IB]
Subfamily TAPETINAE						
<i>Notopaphia ellipticus</i> (Sowerby, 1834)	EP	PM	0-24	it, of, st	r, m	[62, IB]
Family NEOLEPTONIDAE						
<i>Neolepton (Neolepton) subtrigonom</i> (Carpenter, 1857)	EP	PM, IC	90-10	of	r, s	[8, 19, 62, 79]
Family PETRICOLIDAE						
<i>Cooperella subdiaphana</i> (Carpenter, 1864)	EP	PM	37-46	of	s	[34, 62, IB]
<i>Petricola exarata</i> (Carpenter, 1857)	EP	PM	0	it	r	[25, 26, 62, IB]
<i>Petricola (Petricola) lucasana</i> Hertlein & Strong, 1948	EP	PM	0-30	it, of, st	co, sh	[25, 26, 62, IB]
<i>Petricola (Petricolirus) denticulata</i> Sowerby, 1834	EP	PM	0-22	it, of, st	r	[25, 26, 62, IB]
Superfamily MACTROIDEA						
Family MACTRIDAE						
Subfamily MACTRINAE						
<i>Harvella elegans</i> (Sowerby, 1825)	EP	PM	70-26	of	s	[54, 62, IB]
<i>Mactoderma velata</i> (Philippi, 1849)	EP	PM	0	it	m	[8, 62, IB]
<i>Mactrellona clisia</i> (Dall, 1915)	EP	PM	0	it	s	[54, 62, IB]
<i>Mactrellona exoleta</i> (Gray, 1837)	EP	PM	0-24	of	s	[6, 8, 54, 62, IB]
<i>Mactrellona subalata</i> (Mörch, 1860)	EP	PM	0-15	it, of, st	s	[54, 62, IB]
<i>Macrinula gonocyma</i> (Pilsbry & Lowe, 1932)	EP	PM	40	of	m	[54, 62, 74, IB]
<i>Mactrotoma californica</i> (Conrad, 1837)	EP	PM	0-15	it, of, st	m	[34, 62]
<i>Mactrotoma ishmica</i> Pilsbry & Lowe, 1932	EP	PM	0-30	it, of, st	s	[54, 62, IB]
<i>Mulinia pallida</i> (Broderip & Sowerby, 1829)	EP	PM	0-25	it, of, st	s, m	[54, 62, IB]
<i>Spisula williamsi</i> (Berry, 1960)	EP	PM	18-60	of	s, m	[62, IB]

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
<i>Tumbeziiconcha thracioides</i> (A. Adams & Reeve, 1850)	EP	PM	0–10	of	m	[62, IB]
Subfamily PTEROPSELLINAE						
<i>Raeta undulata</i> (Gould, 1851)	EP	PM	0–20	of,st	s,m	[34, 54, 62, IB]
Superfamily SOLENOIDEA						
Family SOLENIDAE						
<i>Solen</i> (<i>Solen</i>) <i>crockeri</i> Hertlein & Strong, 1950	EP	PM	9–29	of	s	[62, IB]
* <i>Solen</i> (<i>Solen</i>) <i>oerstedii</i> Mörch, 1860	EP	PM	n.a.	n.a.	s,m	[62, 68a]
<i>Solen</i> (<i>Solen</i>) <i>pfeifferi</i> Dunker, 1935	EP	PM	7–24	of,st	s,m	[62, IB]
<i>Solen</i> (<i>Solena</i>) <i>rudis</i> (C.B. Adams, 1852)	EP	PM	n.a.	n.a.	s,m	[62]
Family PHARIDAE						
<i>Ensis nitidus</i> (Clessin, in Küster & Clessin, 1888)	EP	PM	0–50	it,of,st	s,m	[62, IB]
Superfamily TELLINOIDEA						
Family TELLINIDAE						
Subfamily TELLININAE						
<i>Cymatocera undulata</i> (Hanley, 1844)	EP	PM	0–100	it,of,st	s,m	[8, 62, IB]
<i>Strigilla</i> (<i>Pisostrigilla</i>) <i>interrupta</i> Mörch, 1860	EP	PM	0–90	it,of,st	s	[62, IB]
<i>Strigilla</i> (<i>Simplistrigilla</i>) <i>servata</i> Mörch, 1860	EP	PM	20–50	of	s,m	[8, 62, 64, IB]
<i>Strigilla</i> (<i>Strigilla</i>) <i>chroma</i> Salisbury, 1934	EP	PM	0	it	s	[8, 62, IB]
<i>Strigilla</i> (<i>Strigilla</i>) <i>cicercula</i> (Philippi, 1846)	EP	PM	14–90	of	s	[62, IB]
<i>Strigilla</i> (<i>Strigilla</i>) <i>dichotoma</i> (Philippi, 1846)	EP	PM	0–90	it,of,st	s	[6, 62, IB]
<i>Strigilla</i> (<i>Strigilla</i>) <i>disjuncta</i> (Carpenter, 1856)	EP	PM	0–15	it,of,st	s	[62, IB]
<i>Strigilla</i> (<i>Strigilla</i>) <i>ervilia</i> (Philippi, 1846)	EP	PM	0	it	s	[62, IB]
<i>Tellidora burneti</i> (Broderip & Sowerby, 1829)	EP	PM	29–50	of	s	[62, IB]
<i>Tellina</i> (<i>Ellipsoidolina</i>) <i>decumbens</i> Carpenter, 1865						
<i>Tellina</i> (<i>Elliptotellina</i>) <i>pacifica</i> Dall, 1900	EP	IC	12–50	of	m	[62, IB]
<i>Tellina</i> (<i>Eurytellina</i>) <i>hiberna</i> Hanley, 1844	EP	PM	4–55	of	m	[8, 62]
<i>Tellina</i> (<i>Eurytellina</i>) <i>inaequistriata</i> Donovan, 1802	EP	PM	18–33	of	m	[62, 72, IB]

<i>Tellina (Eurytellina) laceridens</i> Hanley, 1844	EP	PM	0	it	m	[62, IB]
<i>Tellina (Eurytellina) regis</i> Hanley, 1844	EP	PM	0-2	it,st	m,s	[62, IB]
<i>Tellina (Eurytellina) rubescens</i> Hanley, 1844	EP	PM	0-10	it,st	m	[62, IB]
* <i>Tellina (Hertellina) nicoyana</i> Hertlein & Strong, 1949	EP	PM	64	of	m,s	[62]
<i>Tellina (Laciotina) ochracea</i> Carpenter, 1864	EP	PM,IC	80	of	m,s	[8, 36, 62, 84]
<i>Tellina (Lytratellina) lyrica</i> Pilsbry & Lowe, 1932	EP	PM	10-603	of	m,s	[62, IB]
<i>Tellina (Merisca) brevis</i> Deshayes 1855	EP	PM	0-30	it,of,st	m,s	[62, IB]
<i>Tellina (Merisca) cristallina</i> Spengler, 1798	EP	PM	0-90	it,of,st	m,s	[62, IB]
<i>Tellina (Merisca) martinicensis</i> d'orbigny, 1853	EP	PM	22-48	of	m,s	[62, IB]
<i>Tellina (Merisca) reclusa</i> Dall, 1900	EP	PM	5-70	of	m,s	[62, IB]
<i>Tellina (Moerella) amianta</i> Dall, 1900	EP	PM	10-28	of	m	[56, 62, IB]
<i>Tellina (Moerella) carpenteri</i> Dall, 1900	EP	PM	0-823	it,of,st	ru	[12, 34, 52, 62, 92, IB]
<i>Tellina (Moerella) coani</i> Keen, 1971	EP	IC	30	of	m,s	[8, 62]
<i>Tellina (Moerella) felix</i> Hanley, 1844	EP	PM	0-73	it,of,st	m	[62]
<i>Tellina (Moerella) meropsis</i> Dall, 1900	EP	PM	0-180	it,of,st	m,s	[12, 62, 72]
<i>Tellina (Moerella) subtrigona</i> Sowerby II in Reeve, 1866	EP	PM	0-22	it,of,st	m	[62, IB]
<i>Tellina (Phyllodella) insculpta</i> Hanley, 1844	EP	PM	6-26	of	s	[62, IB]
<i>Tellina (Phyllodina) pristiphora</i> Dall, 1900	EP	PM	22-155	of	m,s	[62, 72]
<i>Tellina (Scissuta) virgo</i> Hanley, 1844	EP	PM	0-30	it,of,st	s	[62, IB]
<i>Tellina (Tellinella) cumingii</i> Hanley, 1844	EP	PM,IC	9-73	of	m,s	[6, 8, 62]
<i>Tellina (Tellinidella) purpurea</i> Broderip & Sowerby, 1829	EP	PM	0-10	it,of	s	[62, IB]
<i>Temnoconcha cognata</i> (C.B. Adams, 1852)	EP	PM	8-73	of	s	[62, IB]
Subfamily MACOMINAE						
<i>Macoma (Psammacoma) egyptum</i> Keen, 1958	EP	PM	10-110	of	m	[62, IB]
<i>Macoma (Psammacoma) siliqua</i> (C.B. Adams, 1852)	EP	PM	10-150	of	m	[6, 62, IB]

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
<i>Psammotreta (Leporimetus) cognata</i> (Pilsbry & Vanatta, 1902)	EP	PM	15–100	of	s	[62, IB]
<i>Psammotreta (Leporimetus) dombei</i> (Hanley, 1844)	EP	PM	22	of	m	[62, 36]
<i>Psammotreta (Psammotreta) aurora</i> (Hanley, 1844)	EP	PM	33	of	s	[6, 8, 62, IB]
Family DONACIDAE						
<i>Donax (Chion) caelatus</i> Carpenter, 1857	EP	PM	0–3	it,st	s	[16, 20]
<i>Donax (Chion) ecuadorianus</i> Olsson, 1961	EP	PM	0–1	it,t	s	[16, 62, IB]
<i>Donax (Chion) obesus</i> d'Orbigny, 1845	EP	PM	0–6	it,st	s	[16, 62, IB]
<i>Donax (Donax) asper</i> Hanley, 1845	EP	PM	0	it	s	[16, 62, IB]
<i>Donax (Donax) assimilis</i> Hanley, 1845	EP	PM	0	it	s	[16, IB]
<i>Donax (Donax) dentifer</i> Hanley, 1843	EP	PM	0	it	s	[16, 20, 62, IB]
<i>Donax (Macherodonax) carinatus</i> Hanley, 1843	EP	PM	0–12	it,of,st	s	[16, 62, IB]
<i>Donax (Macherodonax) transversus</i> Sowerby, 1825	EP	PM	0	it	s	[16, 62, IB]
<i>Donax (Paradonax) californicus</i> Conrad, 1837	EP	PM	0	it	s	[8, 16, 62, IB]
<i>Donax (Paradonax) gracilis</i> Hanley, 1845	EP	PM	0–50	it,of,st	s	[8, 16, 62, IB]
<i>Iphigenia altior</i> (Sowerby, 1833)	EP	PM	0–24	it,of,st	s	[16, 62, IB]
Family PSAMMOBIIDAE						
<i>Gari (Dysmea) heleneae</i> Olsson, 1961	EP	PM	0–155	it,of,st	s	[30, 62, IB]
<i>Gari (Gobraeus) lata</i> (Deshayes, 1855)	EP	PM	0–18	it,of,st	s	[30, 62, IB]
<i>Gari (Gobraeus) maxima</i> (Deshayes, 1855)	EP	PM	15–17	of	s	[30, 62, IB]
<i>Heterodonax pacificus</i> (Conrad, 1837)	EP	PM	0–2	it,st	s	[14, 54, 62, IB]
<i>Sanguinolaria ovalis</i> Reeve, 1857	EP	PM	0	it	s	[62, IB]
<i>Sanguinolaria tellinoides</i> A. Adams, 1850	EP	PM	0	it	s	[62, IB]
Family SEMELIDAE						
<i>Abra palmieri</i> Dall, 1915	EP	PM	10–165	of	m,s	[1, 62, IB]
<i>Cumingia lamellosa</i> Sowerby, 1833	EP	PM	0–24	it,of,st	m	[62, IB]

<i>Leptomya ecuadoriana</i> Soot-Ryen, 1957	EP	PM	0-10	it,st	m	[62, IB]
<i>Semele (Amphidesma) formosa</i> (Sowerby, 1833)	EP	PM,IC	1-68	of,st	s	[17, 23 , 62]
<i>Semele (Amphidesma) pallida</i> (Sowerby, 1833)	EP	PM	13-128	of	s	[17, 23 , 62, IB]
<i>Semele (Amphidesma) purpurascens</i> (Gmelin, 1791)	EP	PM,IC	0-78	it,of,st	s	[22, 23 , 62]
<i>Semele (Amphidesma) venusta</i> (Reeve, 1853)	EP	PM	1-200	of,st	s,ru	[23, 53, 62, IB]
<i>Semele (Elegantula) rupium</i> (Sowerby, 1833)	EP	IC	1-73	of,st	s	[23 , 62]
<i>Semele (Semele) elliptica</i> (Sowerby, 1833)	EP	PM	0-9	it,st	s	[23, 62, IB]
<i>Semele (Semele) flavescens</i> (Gould, 1851)	EP	PM	0-5	it,st	s	[23, 62, 64, IB]
<i>Semele (Semele) lenticularis</i> (Sowerby, 1833)	EP	PM	0-44	it,of,st	s	[23, 62, IB]
<i>Semele jamesi</i> Coan, 1988	EP	PM,IC	5-161	of,st	s	[23 , 62]
<i>Semele jovis</i> (Reeve, 1853)	EP	PM	0-100	it,of,st	s	[23 , 62]
<i>Semele verrucosa</i> Mörch, 1860	EP	PM	0-23	it,of,st	s	[23, 62]
<i>Semelina subquadrata</i> (Carpenter, 1857)	EP	PM	35	of	s	[62, IB]
Family SOLECURTIDAE						
<i>Solecurtus guaymasensis</i> Lowe, 1935	EP	PM	30-110	of	m,s	[33, 34, 62, IB]
<i>Tagelus affinis</i> (C.B. Adams, 1852)	EP	PM	0-73	it,of,st	m	[8, 13, 62, IB]
<i>Tagelus californianus</i> (Conrad, 1837)	EP	PM	0	it	m,s	[13, 34 , 54, 62]
<i>Tagelus peruanus</i> (Dunker, 1862)	EP	PM	0-10	it,of,st	m,s	[62, 64, IB]
<i>Tagelus peruvianus</i> Pilsbry & Olsson, 1971	EP	PM	0-35	it,of,st	s	[62, IB]
<i>Tagelus politus</i> (Carpenter, 1857)	EP	PM	0-90	it,of,st	s	[62, 64, IB]
Order MYOIDA						
Suborder MYINA						
Superfamily MYOIDEA						
Family MYIDAE						
Subfamily CRYPTOMYINAE						
<i>Sphenia fragilis</i> (H. Adams & A. Adams, 1854)	Car,EP	PM	0-55	it,of,st	r	[1, 8, 29, 33, 41 , 43, 62] IB

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Family CORBULIDAE						
<i>Corbula (Caryocorbula) amythestina</i> (Olsson 1961)	EP	PM	n.a.	it.of,st	m,s	[31, 62]
<i>Corbula (Caryocorbula) nasuta</i> Sowerby, 1833	EP	PM,IC	2–152	it.of,st	m,s	[31, 62]
<i>Corbula (Caryocorbula) otra</i> Coan, 2002	EP	PM	0–55	it.of,st	s	[31, IB]
<i>Corbula (Caryocorbula) ovulata</i> Sowerby, 1833	EP	PM	0–55	it.of,st	s	[31, 62]
<i>Corbula (Panamicorbula) ventricosa</i> A. Adams & Reeve, 1850	EP	PM	0–22	it.of,st	s	[31, 62, IB]
<i>Corbula (Tenuicorbula) tenuis</i> Sowerby, 1833	EP	PM	0–73	it.of,st	s	[31, 62, IB]
<i>Corbula biradiata</i> Sowerby, 1833	EP	PM	0–57	it.of,st	s	[31, 62, IB]
<i>Corbula marmorata</i> Hinds, 1843	EP,WA	PM	0–137	it.of,st	s	[31, 62, IB]
<i>Corbula speciosa</i> Sowerby, 1833	EP	PM	4–30	it,st	s	[31, 62, IB]
Superfamily GASTROCHAENOIDEA						
Family GASTROCHAENIDAE						
<i>Lamychaena truncata</i> Sowerby, 1834	EP	PM	0–40	it.of,st	co,s	[62, IB]
Superfamily HIATELLOIDEA						
Family HIATELLIDAE						
<i>Hiatella arctica</i> (Linnaeus, 1767)	Arc,EP,WP	PM	0–390	it.of,st	r	[5, 34, 37, 45, 62, 92, IB]
Suborder PHOLADINA						
Superfamily PHOLADOIDEA						
Family PHOLADIDAE						
Subfamily PHOLADINAE						
<i>Barnea (Anchomasa) subtruncata</i> (Sowerby, 1834)	EP	PM	0–30	it.of,st	m,r	[34, 54, 62, 90, IB]
<i>Cyrtopleura crucigera</i> (Sowerby, 1834)	EP	PM	0	st	w	[1, 62, IB]
<i>Pholas (Thovana) chilensis</i> Molina, 1782	EP	PM	0	it	r	[62, IB]

Subfamily JOUANNETIINAE									
	<i>Jouannetta duchassaingii</i> Fischer, 1862	EP	PM	0	n.a.				[62, 65]
	<i>Pholadopsis pectinata</i> (Conrad, 1849)	EP	PM	0	it				[62, IB]
Subfamily MARTESIINAE									
	<i>Martesia (Martesia) striata</i> (Linnaeus, 1758)	Cp	PM	0–15	it,st				[1, 43, 59a, 62, 76]
	<i>Parapholas acuminata</i> (Sowerby, 1834)	EP	PM	0	it				[62, IB]
	<i>Parapholas calva</i> (Sowerby, 1834)	EP	PM	8–35	of				[6, 8, 62, IB]
Family TEREDINIDAE									
Subfamily Teredininae									
	<i>Lyrodus pedicellatus</i> (Quatrefages, 1849)	Cp	PM	0	it				[60, IB]
	<i>Psiloteredo healdi</i> (Bartsch, 1931)	EP	PM	0	st				[62, IB]
Subfamily Bankiinae									
	<i>Bankia zetekii</i> Bartsch, 1921	EP	PM	0	st				[62, IB]
Subclass ANOMALODESMATA									
Order PHOLADOMYOIDA									
Superfamily PANDOROIDEA									
Family PANDORIDAE									
	<i>Pandora cornuta</i> C.B. Adams, 1852	EP	PM	30–50	of				[57, 62, IB]
	<i>Pandora uncifera</i> Pilsbry & Lowe, 1932	EP	PM	35–50	of				[62, IB]
Family LYONSIIDAE									
	<i>Entodesma sechuranum</i> Pilsbry & Olsson, 1935	EP	PM	20	of				[62, IB]
Superfamily THRACIOIDEA									
Family THRACIIDAE									
	<i>Astheontheaerus villosior</i> Carpenter, 1964	EP	PM	0–73	it.of,st				[24, 62]
	<i>Bushia galapagana</i> (Dall, 1915)	EP	IC	57–83	of				[24]
	<i>Cyathodonta undulata</i> Conrad, 1847	EP	PM	9–39	of				[24, 34, 62, IB]
	<i>Thracia (Ixarita) curta</i> Conrad, 1837	EP	PM	0–48	it.of,st				[24, 34, 50, 62]
	<i>Thracia (Odontocinetina) bereniceae</i> Coan, 1990	EP	PM	0–46	it.of,st				[24]
	<i>Thracia (Odontocinetina) squamosa</i> Carpenter, 1856	EP	PM	90	of				[24, 62, IB]

(continued)

Species List 31.2 (continued)

Species	World distribution ^a	Costa Rica ^b	Depth ^c	Oceanic distribution ^d	Habitat/Community ^e	References ^f
Family SPHENIOPSISIDAE						
<i>Grippina californica</i> Dall, 1912	EP	PM	0–42	it.of,st	ru,s	[24, 62]
<i>Sphenopsis frank Bernardi</i> Coan, 1990	EP	PM	13–91	of	s	[24]
Family PERIPLOMATIDAE						
<i>Albimanus pentadactylus</i> (Pilsbry & Olsson, 1935)	EP	PM	0	st	s	[7, 62, IB]
<i>Periploma (Cricoploma) carpenteri</i> Dall, 1896	EP	PM	91–110	of	s	[7, 62, IB]
<i>Periploma (Cricoploma) discus</i> Stearns, 1890	EP	PM	0–40	it.of,st	s	[7, 62, 92]
<i>Periploma (Periploma) planiusculum</i> Sowerby, 1834	EP	PM	0	st	s	[7, 34, 62, IB]
Order SEPTIBRANCHIDA						
Superfamily CUSPIDARIOIDEA						
Family CUSPIDARIOIDAE						
<i>Cardiomya costata</i> (Sowerby, 1834)	EP	PM	0–39	it.of,st	m,s	[3, 33, 62, IB]
<i>Cardiomya ecuadoriana</i> (Olsson, 1961)	EP	PM	20–50	of	m,s	[3, 62, IB]
<i>Cuspidaria parapodema</i> Bernard, 1969	EP	PM	40–100	of	s	[62, 92, IB]
Superfamily VERTICORDIOIDEA						
Family VERTICORDIIDAE						
Subfamily VERTICORDIINAE						
<i>Haliotis aequacostata</i> (Howard, 1950)	EP	IC	175–190	of	m,s	[8, 62]
<i>Trigonulina novencostans</i> (A Adaras & Reeve, 1850)	EP	PM	30–66	of	m,s	[8, 33b, 62, IB]

n.a. = information not available

Species in **bold** font = present in both Caribbean and Pacific coasts

* = endemic species

^a Arc = Arctic; Car = Caribbean; cp = Cosmopolitan; ct = circumtropical; EP = Eastern Pacific; I = Indian Ocean; IP = Indo-Pacific; M = Mediterranean; NEP = North-east Pacific; NWA = North-west Atlantic; NWP = North-west Pacific; WA = Western Atlantic; WP = Western Pacific^b IC = Isla del Coco; PM = Pacific Mainland^c Uppermost and lowermost occurrences (in meters)^d it = intertidal; of = offshore; st = subtidal^e an = annelid (commensal, parasitic); co = coral reef; m = mangrove; r = rocks; ru = rubble; s = sand; sh = shells; sp = sponges; w = wood^f References are indicated by numbers according to the references list; **IB** = new records for Costa Rica from the National Biodiversity Institute (INBio) Data Base; numbers in **bold** font correspond to references where the species is reported as present in Costa Rica.

Species List 32.1 Cephalopods known to occur commonly in waters of the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Order SEPIOLIDAE						
Family SEPIOLIDAE						
<i>Semirossia equalis</i> (Voss, 1950)	Car, WA	CA	b, n	130–260	s/mb	[Voss 1950]
<i>Semirossia tenera</i> (Verrill, 1880)	Car, WA	M	b, n	80–150	s/mb	[25, 26, 33]
Order MYOPSIDA						
Family LOLIGINIDAE						
<i>Doryteuthis (Amerigo) pealei</i> LeSueur, 1821	WA	CA	n	0–400	sb, wc	[7, 24, 25, 33]
<i>Doryteuthis (Doryteuthis) plei</i> Blainville, 1823	WA	CA	n	0–350	sb, wc	[7, 9, 24, 25]
<i>Doryteuthis (Doryteuthis) roperi</i> Cohen, 1976	Car	CA	n	45–300	sb, wc	[24, 25, 28, 33]
<i>Lolliguncula (Lolliguncula) brevis</i> (Blainville, 1823)	WA	CA	eb, st	<20	s/mb, wc	[24, 25, 33]
<i>Pickfordiateuthis pulcella</i> Voss, 1953	WA	CA	eb, st	<20	sg, sb	[4, 32, 33]
<i>Septoteuthis septioidea</i> (Blainville, 1823)	Car	CA	eb, st	<20	cr, sg, wc	[16, 22, 24, 25, 33]
Order OEGOPSIDA						
Family LEPIDOTEUTHIDAE						
<i>Pholidoteuthis adami</i> Voss, 1956	Car, WA	CA	eb, oc	80–935	wc	[8a, 15a, 33]
Family OMMASTREPHIDAE						
<i>Illex coindetii</i> (Verany, 1839)	EA, WA	CA	oc	0–1, 000	wc	[25]
<i>Ommastrephes barrami</i> (LeSueur, 1821)	Cp	CA	oc	0–1, 500	wc	[25]
<i>Ornithoteuthis antillarum</i> Adam, 1957	Ct	CA	oc	0–1, 200	wc	[25, 35]
<i>Sthenoteuthis pteropus</i> (Steenstrup, 1855)	EA, WA	CA	oc	0–1, 500	wc	[25]
Family THYSANOTEUTHIDAE						
<i>Thysanoteuthis rhombus</i> Troschel, 1857	Cp	CA	oc	0–500	wc	[24, 25]
Order OCTOPODA						
Family OCTOPODIDAE						
<i>Amphioctopus burryi</i> (Voss, 1950)	EA?, WA	M	b, st	10–200	sb, rub	[12, 25, 31, 33]
<i>Muusoctopus januarit</i> (Hoyle, 1885)	Car, WA	CA	b	350–750	mb	[25, 29, 31 Gleadall]
<i>Benithoctopus oregonae</i> Toll, 1981	Car	V	b	600–1, 000	mb	[29]

(continued)

Species List 32.1 (continued)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
<i>Callistoctopus cf. macropus</i> (Risso, 1826)	EA, WA?	CA	b, st	5–100	cr, sb, rub	[11, 19, 25, 34]
<i>Euaetocopus pillsburyae</i> Voss, 1975	WA	S	b, st	20–60	sb	[25, 39]
<i>Macrotritopus cf. defilippi</i> (Verany, 1851)	EA, WA?	CA	b, st	5–200	s/mb	[11, 14, 17, 25, 36]
<i>Octopus filosus</i> Howell, 1868 [= hummelincki Adam, 1936]	Car, WA	CA	b, st	5–200	cr, rub, sb	[1, 6, 19, 20, 25]
<i>Octopus maya</i> Voss & Solis, 1966	Car	M, B	b, st	10–100	rb, sg	[25, 30, 40]
<i>Octopus cf. vulgaris</i> Cuvier, 1797	EA, WA?	CA	b, it, st	0–100	rb, rub, sb	[11, 15, 19, 25]
<i>Pteroctopus schmidti</i> (Joubin, 1933)	Car, WA	CA	b	200–800	mb	[25, 33]
<i>Tetracheledone spinicirrhus</i> Voss, 1955	Car	CA	b	200–400	s/mb	[25, 33]
Generic placement not determined						
“ <i>Octopus</i> ” <i>briareus</i> Robson, 1929	Car, WA	M, C	b, it, st	0–20	cr, rb, sb, sg	[10, 13, 21, 25, 33]
“ <i>Octopus</i> ” <i>joubini</i> Robson, 1929	Car, WA	CA	b, it, st	0–100	cr, rub, sb	[8, 11, 20, 25]
“ <i>Octopus</i> ” <i>zonatus</i> Voss, 1968	Car	C	b, st	10–75	sb	[25, 37]
Family ARGONAUTIDAE						
<i>Argonauta argo</i> Linnaeus, 1758	Cp	CA	ep	0–20	wc	[25, 33]

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; WA = western Atlantic

^bCA = all Central American countries; B = Belize; C = Colombia; M = Mexico; S = Surinam; V = Venezuela

^cb = benthic; eb = epibenthic; ep = epipelagic; it = intertidal; n = neritic; oc = oceanic; st = subtidal

^dShallowest and deepest records of occurrence (in meters; rounded off)

^ecr = coral reefs; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; s/mb = sand-mud bottom; wc = water column

^fReferences are indicated by numbers according to the reference list

Species List 32.2 Cephalopods known to occur commonly in waters in the Pacific of Costa Rica and Isla del Coco

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Family LOLIGINIDAE							
<i>Lolliguncula (Lolliguncula) argus</i> Brakoniecki & Roper, 1985	EP	CA	PM	n	<50	sb, wc	[5, 25, 26]
<i>Lolliguncula (L.) panamensis</i> Berry, 1911 [= <i>tydeus</i> Brakoniecki, 1980]	EP	C, G, M, P	PM	n	<75	sb, wc	[3, 25–27]
<i>Lolliguncula (Loliolopsis) diomedea</i> (Hoyle, 1904)	EP	CA	IC, PM	n	<100	sb, wc	[25, 26, 38]
Order OEGOPSIDA							
Family ONYCHOTEUTHIDAE							
<i>Onychoteuthis banksi</i> (Leach, 1817)	Cp	CA	IC, PM	ep, mp	0–500	wc	[25, 26]
Family OMMASTREPHIDAE							
<i>Dosidicus gigas</i> (d'Orbigny, 1835 [in 1834–1847])	EP	CA	IC, PM	ep, mp	0–500	wc	[25, 26]
<i>Ommastrephes bartrami</i> (LeSueur, 1821)	Cp	CA	IC, PM	ep, mp	0–1, 500	wc	[25, 26]
<i>Sthenoteuthis oualantensis</i> (Lesson, 1830)	EP, IO, WP	CA	IC, PM	ep, mp	0–500	wc	[25, 26]
Family THYSANOTEUTHIDAE							
<i>Thysanoteuthis rhombus</i> Troschel, 1857	Cp	CA	IC, PM	ep, mp	0–500	wc	[25]
Order OCTOPODA							
Family OCTOPODIDAE							
<i>Euxoctopus panamensis</i> Voss, 1971	EP	C, P	PM	b, st	<50	sb	[18, 26, 38, H]
<i>Octopus</i> cf. <i>hubbsorum</i> Berry, 1953	EP	CA	PM	b, it, st	0–20	sb	[26, H]
<i>Parectopus digueti</i> (Perrier & Rochebrune, 1894)	EP	M, P	PM	b, it, st	0–10	sb	[26, H]
Generic placement not determined							
" <i>Octopus</i> " <i>alecto</i> Berry, 1953	EP	CA	IC, PM	b, it, st	0–20	rb, sb	[26, H]
" <i>Octopus</i> " <i>balboai</i> Voss, 1971	EP	ES, P	PM	b, st	20–100	s/mb	[38, H]
" <i>Octopus</i> " <i>chierchiai</i> (Jatta, 1889)	EP	CA	PM	b, pit, st	0–100	rub, sb	[23, 26, 38, H]
" <i>Octopus</i> " <i>fichi</i> Berry, 1953	EP	CA	PM	b, it, st	0–20	rb	H
" <i>Octopus</i> " <i>penicillifer</i> Berry, 1954 [= <i>stictochrus</i> Voss, 1971]	EP	M, P	PM	b, st	20–40	sb	[2, 26, 38, H]

(continued)

Species List 32.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
" <i>Octopus</i> " <i>selene</i> Voss, 1971	EP	P, C	PM	b	50–200	rb, sb	[26, 38, H]
Family ARGONAUTIDAE							
<i>Argonauta comutus</i> Conrad, 1854	EP	CA	IC, PM	ep	0–20	wc	[38, H]
<i>Argonauta nouryi</i> Lorois, 1852	EP	CA	IC, PM	ep	0–20	wc	[38, H]
<i>Argonauta pacifica</i> Dall, 1871	EP	CA	IC, PM	ep	0–20	wc	[38, H]

^acp = cosmopolitan; EP = eastern Pacific; IO = Indian Ocean; WP = western Pacific

^bCA = all Central American countries; C = Colombia; ES = El Salvador; G = Guatemala; M = Mexico; P = Panama

^cPM = Pacific mainland; IC = Isla del Coco

^db = benthic; ep = epipelagic; it = intertidal; mp = mesopelagic; n = neritic; st = subtidal

^eShallowest and deepest records of occurrence (in meters; rounded off)

^frb = rocky bottom; rub = rubble bottom; sb = sandy bottom; s/mb = sand-mud bottom; wc = water column

^gReferences are indicated by numbers according to the references list; H = Hochberg, unpublished

Species List 33.1 Phoronida species reported from the Caribbean Sea

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/Community ^e	References ^f	Larvae (planktonic)
Superphylum							
LOPHOPHORATA							
Phylum PHORONIDA							
<i>Phoronis hippocreperia</i> Wright, 1856	Car, EA, EP, Med, WA, WP	P	b, it, st	0–55	rb	[1, 2]	<i>Actinotrocha hippocreperia</i> Silén, 1954
<i>Phoronis muelleri</i> Selys-Longchamps, 1903	cp	P	b, st	10–400	mb, sb	[1, 2, 3]	<i>Actinotrocha branchiata</i> Müller, 1846
<i>Phoronis psammophila</i> Cori, 1889	cp	P	b, it, st	0–69	cl, mb, sb, sg	[1, 2, 3, 4, 5]	<i>Actinotrocha sabatieri</i> Roule, 1896

^a Car = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; Med = Mediterranean; WA = western Atlantic; WP = western Pacific

^b P = Panama

^c b = benthic; it = intertidal; st = subtidal

^d Uppermost and lowermost occurrences (in meters)

^e cl = coastal lagoons; mb = muddy bottom; rb = rocky bottom; sb = sandy bottom; sg = seagrass

^f References are indicated by numbers according to the reference list.

Species List 33.2. Phoronida species reported from the Pacific Central America

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth ^d	Habitat/Community ^e	References ^f	Larvae (planktonic)
Superphylum							
LOPHOPHORATA							
Phylum PHORONIDA							
<i>Phoronis hippocreperia</i> Wright, 1856	Car,EA,EP, Med,WA,WP	P	b,it,st	0–55	rb	[1, 2]	<i>Actinotrocha hippocreperia</i> Silén, 1954
<i>Phoronis muelleri</i> Selys-Longchamps, 1903	cp	P	b,st	10–400	mb,sb	[1, 2, 3]	<i>Actinotrocha branchiata</i> Müller, 1846
<i>Phoronis psammophila</i> Cori, 1889	cp	P	b,it,st	0–69	cl,mb,sb,sg	[1, 2, 3, 4, 5]	<i>Actinotrocha sabatieri</i> Roule, 1896
<i>Phoronopsis albomaculata</i> Gilchrist, 1907	cp	P	b,st	1–55	cl,mb,sb	[2, 4, 5]	unknown
<i>Phoronopsis harmeri</i> Pixell, 1912	EA,EP,Med,WP,WA	P	b,it,st	0–100	cl,mb,sb,sg	[2, 3, 4]	<i>Actinotrocha harmeri</i> Zimmer, 1964

^aCar = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; Med = Mediterranean; WA = western Atlantic; WP = western Pacific

^bP = Panama

^cb = benthic; it = intertidal; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecl = coastal lagoons; mb = muddy bottom; rb = rocky bottom; sb = sandy bottom; sg = seagrass

^fReferences are indicated by numbers according to the reference list

Species List 34.1 Bryozoans from the Caribbean coast of Costa Rica

Species	Location in Costa Rica	Reference ^a
Class GYMNOLAEMATA		
Order CHEILOSTOMATA		
Family ARACHNOPUSIIDAE		
<i>Poricella mucronata</i> (Smitt, 1873)	Portete	[1]
Family BRYOCRYPTELLIDAE		
<i>Rhamphostomella</i> sp.	Portete	[1]
Family CALLOPORIDAE		
<i>Parellisina latirostris</i> Osburn, 1940	Portete	[1]
Family CRIBILINIDAE		
<i>Cribrilaria flabellifera</i> (Kirkpatrick, 1888)	Portete	[1]
Family HIPPOPODINIDAE		
<i>Hippopodina feegeensis</i> (Busk, 1884)	Portete	[1]
Family MEMBRANIPORIDAE		
<i>Membranipora tuberculata</i> (Bosc, 1802)	Portete	[1]
Family PHIDOLOPORIDAE		
<i>Rhynchozoon</i> sp. 1	Portete	[1]
<i>Rhynchozoon</i> sp. 2	Portete	[1]
Family STEGINOPORELLIDAE		
<i>Labioporella granulosa</i> (Canu and Bassler, 1928)	Portete	[1]
(in ref.: <i>Labioporella sinuosa</i>)		
Family STOMACHETOSELLIDAE		
<i>Trematooecia aviculifera</i> (Canu and Bassler, 1923)	Portete	[1]
(in ref.: <i>Cigclisula aviculifera</i>)		
<i>Trematooecia turruta</i> (Smitt, 1873)	Portete	[1]
(in ref.: <i>Cigclisula turruta</i>)		
Family TEUCHOPORIDAE		
<i>Teuchopora</i> sp.	Portete	[1]
Unplaced Cheilostome		
<i>Escharina porosa</i> (Smitt, 1873)	Portete	[1]

^aReferences are indicated by numbers according to the reference list

Species List 34.2 Bryozoans from the Pacific of Costa Rica

Species	Location in Costa Rica ^a	Reference ^b
Class STENOLAEMATA		
Order CYCLOSTOMATA		
Family CRISIIDAE		
<i>Crisia elongata</i> Milne Edwards, 1838	PC	[1]
<i>Crisia occidentalis</i> Trask, 1857	BSE	[5]
Family DIAPEROECHIIDAE		
<i>Diaperoecia californica</i> (d'Orbigny, 1852)	PB	[1, 5]
Family LICHENOPORIDAE		
<i>Disporella californica</i> (d'Orbigny, 1853)	BSE	[5]
Family ONCOUSOECIIDAE		
<i>Proboscina major</i> (Johnston, 1847)	IC	[5]
Family TUBULIPORIDAE		
<i>Tubulipora pulchra</i> (MacGillivray, 1885)	BSE	[5]
Class GYMNOLAEMATA		
Order CTENOSTOMATA		
Family VESICULARIIDAE		
<i>Amathia convoluta</i> Lamarck, 1816	BC	[6]
Order CHEILOSTOMATA		
Family ADEONIDAE		
<i>Reptadonella violacea</i> (Johnston, 1847) (in ref. 4 as: <i>Adeona violacea</i>)	PC,IC	[1, 4]
Family BEANIIDAE		
<i>Beania hirtissima</i> (Heller, 1867)	BC	[3]
Family BITECTIPORIDAE		
<i>Hippoporina porcellana</i> Busk, 1860	Costa Rica	[4]
Family BRYOCRYPTELLIDAE		
<i>Cyclocolpoda ? parva</i> (Marcus, 1938)	PC	[1]
<i>Porella patens</i> Osburn, 1952	IC	[4]
<i>Porella porifera</i> (Hincks, 1884)	BC	[4]
Family BUFFONELLODIDAE		
<i>Aimulosia uvulifera</i> (Osburn, 1914)	BC,BCo,IC	[4]
Family BUGULIDAE		
<i>Bugula minima</i> Waters, 1909	IC	[3]
<i>Sessibugula translucens</i> Osburn, 1950	BSE	[3]
Family CALLOPORIDAE		
<i>Aplousina filum</i> (Jullien & Calvet, 1903)	IC	[3]
<i>Copidozoum spinatum</i> Osburn, 1950	GD	[3]
Family CANDIDAE		
<i>Amastigia rudis</i> (Busk, 1852)	BCo	[3]
<i>Scrupocellaria bertholetti</i> (Audouin, 1826)	PC	[1, 3]
<i>Scrupocellaria bertholetti</i> var <i>tenuirostris</i> Osburn, 1950	Off Costa Rica	[3]

(continued)

Species List 34.2 (continued)

Species	Location in Costa Rica ^a	Reference ^b
Family CELLEPORIDAE		
<i>Celleporina marginata</i> Canu & Bassler, 1930	IC	[4]
Family CREPIDACANTHIDAE		
<i>Crepidacantha setigera</i> (Smitt, 1873)	IC	[4]
Family CUPULADRIIDAE		
<i>Cupuladria canariensis</i> Busk, 1859 (probably a mis-identification, not in the tropical Americas)	Costa Rica	[3]
<i>Discoporella aff. umbellata</i> (Defrance, 1823) (in ref.: <i>Discoporella umbellata</i>)	Costa Rica	[3]
Family ELECTRIDAE		
<i>Electra cf. angulata</i> (Levinsen, 1909)	GD	[2]
<i>Conopeum commensale</i> (Kirkpatrick & Metzelaar, 1922)	BCo	[3]
Family EXECHONELLIDAE		
<i>Anexechona ancorata</i> Osburn, 1950	BSE	[3]
<i>Tripurula manica</i> (Canu & Bassler, 1930)	IC	[4]
Family HIPPOPODINIDAE		
<i>Hippopodina feegeensis</i> (Busk, 1884) (probably a mis-identification)	PC	[1]
Family HIPPOPORIDRIDAE		
<i>Hippoporella costulata</i> Canu and bassler, 1923	PC	[1]
<i>Hippoporella gorgonensis</i> Hastings, 1930	Costa Rica	[4]
<i>Odontoporella adpressa</i> (Busk, 1854)	Costa Rica	[4]
Family HIPPOTHOIDAE		
<i>Hippothoa divaricata</i> Lamouroux, 1821	Costa Rica	[4]
<i>Trypostega venusta</i> (Norman, 1864)	IC	[4]
Family LACERNIDAE		
<i>Arthropoma cecili</i> (Audouin, 1826)	IC	[4]
Family MAMILLOPORIDAE		
<i>Mamillopora cupula</i> Smitt, 1873	BC,IC	[4]
Family MEMBRANIPORIDAE		
<i>Membranipora arborescens</i> (Canu & Bassler, 1928)	PC	[1]
<i>Membranipora savarti</i> (Audouin, 1826)	BC	[3]
Family MICROPORELLIDAE		
<i>Microporella gibbosula</i> Canu & Bassler, 1930	BC	[4]
<i>Microporella umbracula</i> (Audouin, 1826)	PC	[1]
Family PETRALIIDAE		
<i>Hippopetraliella japonica</i> (Busk, 1884) (in ref.: <i>Petralia japonica</i>)	BC,BSE	[4]
Family PHIDOLOPORIDAE		
<i>Reteporellina denticulata</i> var. <i>gracilis</i> (Busk, 1884)	BS,IC	[4]

(continued)

Species List 34.2 (continued)

Species	Location in Costa Rica ^a	Reference ^b
<i>Rhynchozoon rostratum</i> (Busk, 1855) (only found on the Caribbean in Panamá)	PB	[4]
<i>Rhynchozoon</i> sp. 3.	PC	[1]
Family SCHIZOPORELLIDAE		
<i>Schizoporella linearis</i> var. <i>inarmata</i> (Hincks, 1884)	BSE	[4]
<i>Schizoporella ?serialis</i> (Séller, 1867)	PC	[1]
Family SMITTINIDAE		
<i>Parasmittina crosslandi</i> (Hastings, 1930)	PC	[1]
Family WATERSIPORIDAE		
<i>Watersipora biserialis</i> (Hincks, 1885)	IC	[4]

^aBC = Bahía Culebra; BCo = Bahía del Coco; BS = Bahía Salinas; BSE = Bahía de Santa Elena; GD = Golfo Dulce; IC = Isla del Coco; PB = Playa Blanca; PC = Playas del Coco

^bReferences are indicated by numbers according to the reference list

Species List 35.1 Brachiopoda species reported from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America	Oceanic distribution ^b	Depth (m) ^c	Habitat/Community ^d	References ^e
Order						
TEREBRATULIDA						
Suborder						
TEREBRATULIDINA						
Superfamily TEREBRATULOIDEA						
Family						
TEREBRATULIDAE						
Subfamily						
TEREBRATULINAE						
<i>Liothyrella moseleyi</i> (Davidson, 1878)	EP,Car,IO		b,st	250–4,000	mb,sb	[2, 3]

^a Car = Caribbean; EP = eastern Pacific; IO = Indian Ocean

^b st = subtidal; b = benthic

^c Uppermost and lowermost occurrences (in meters)

^d sb = sandy bottom; mb = muddy bottom

^e References are indicated by numbers according to the reference list

Species List 35.2 Brachiopoda species reported from the Pacific coast of Costa Rica

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References ^g
Subphylum LINGULIFORMEA							
Class LINGULATA							
Order LINGULIDA							
Superfamily LINGULOIDEA							
Family LINGULIDAE							
<i>Glottidia albida</i> (Hinds, 1844)	EP		PM	b,it,st	0-477	sb	[4,]
<i>Glottidia audebarri</i> (Broderip, 1835)	EP	P	PM	b,it,st	0-3	sb	[4, 5, 7]
Superfamily DISCINOIDEA							
Family DISCINIDAE							
<i>Discradisca strigata</i> (Broderip, 1834)	EP			it,b	0-33	rb	[6]
<i>Pelagodiscus atlanticus</i> (King, 1868)	cp			b,st	90-5,530	rb	[2, 3, 7, 8]
Subphylum RHYNCHONELLIFORMEA							
Class RHYNCHONELLATA							
Order RHYNCHONELLIDA							
Superfamily BASILOLOIDEA							
Family BASILOLIDAE							
Subfamily BASILOLINAE							
<i>Neorhynchia strebeli</i> (Dall, 1908)	Ant,EP		IC	b,st	1-4,513	mb	[2, 3]
Order TEREBRATULIDA							
Suborder TEREBRATULIDINA							
Superfamily TEREBRATULOIDEA							
Family TEREBRATULIDAE							
Subfamily TEREBRATULINAE							
<i>Liothyrella clarkeana</i> (Dall, 1895)	EP	P	IC	b,st	2,149-3,721	mb	[2, 3]
<i>Liothyrella moseleyi</i> (Davidson, 1878)	Car,EP,IO	P	IC	b,st	250-4,000	mb,sb	[2, 3]

Suborder TEREBRATELLIDINA

Superfamily ZEILLERIOIDEA

Family ZEILLERIIDAE

Subfamily MACANDREVIINAE

Macandrevia americana Dall, 1895*Macandrevia craniella* Dall, 1895*Macandrevia diamantina* (Dall, 1895)^a Ant = Antarctic; Car = Caribbean; cp = cosmopolitan; EP = eastern Pacific; IO = Indian Ocean^b P = Panama^c PM = Pacific mainland; IC = Isla del Coco^d it = intertidal; st = subtidal; b = benthic^e Uppermost and lowermost occurrences (in meters)^f rb = rocky bottom; sb = sandy bottom; mb = muddy bottom^g References are indicated by numbers according to the reference list

	Ant,EP	IC	b,st	112-4,062	mb,sb	[2, 3]
	EP	IC type-locality	b,st	2,149	mb	[2, 3]
	Ant,EP	IC type-locality	b,st	2,150-4,600	mb	[1, 2, 3]

Species List 36.1 List of echinoderms from the Caribbean coast of Costa Rica

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class CRINOIDEA						
Order COMATULIDA						
Family COLOBOMETRIDAE						
<i>Analcidometra armata</i> (Pourtales, 1869)	Car		eb,st	3–148	cr	[36, USNM E18729, new record]
Family COMASTERIDAE						
<i>Comactinia echinoptera</i> (Müller, 1840)	Car	G,H,N,P	eb,st	2–92	cr,rb	[36, UCR 161, UCR 201, new record]
Family NEMASTERIDAE						
<i>Nemaster discoideus</i> (Carpenter, 1888)	Car	CA	eb,st	20–40	cr	[36,51, pers. obs., new record]
<i>Nemaster rubiginosa</i> (Pourtales, 1869)	Car	CA	eb,st	6–15	rb	[18, 36, 51]
Class ASTEROIDEA						
Order PAXILLOSIDA						
Family ASTROPECTINIDAE						
<i>Astropecten articulatus</i> (Say, 1825)	Car	CA	eb,st	0–165	sb	[36, 69]
<i>Astropecten cingulatus</i> Sladen, 1833	Car		n.a	55–69	n.a.	[USNM E18415, new record]
<i>Astropecten marginatus</i> Gray, 1840	Car		n.a.	19	n.a.	[USNM E18387, new record]
Family LUIDIIDAE						
<i>Luidia senegalensis</i> (Lamarck, 1816)	Car		st	0–46	cl,mb,sb	[36]
Order VALVATIDA						
Family ASTEROPSIDAE						
<i>Poraniella echinulata</i> (Perrier, 1881)	Car	B,P	eb,it,st	3–339	cr,rb	[36, USNM E18074, new record]
Family OPHIDIASTERIDAE						
<i>Linckia guildingii</i> Gray, 1840	Car	B	eb,st	18–27	cr	[36, 69]
Family OREASTERIDAE						
<i>Oreaster reticulatus</i> (Linnaeus, 1758)	Car	G,B,P	eb,st	1–37	sg	[19, 28, 31, 36, 69]

Class OPHIUROIDEA						
Order PHRYNOPHIURIDA						
Family GORGONOCEPHALIDAE						
<i>Astrophyton muricatum</i> (Lamarck, 1816)	Car	CA	st	2–70m	cr,rb,sb	[36]
Order OPHIURIDA						
Family OPHIURIDAE						
<i>Ophirolepis impressa</i> Lütken, 1859	Car	B,P	it	0–24	cr,rb	[7, 36]
Family OPHIOCOMIDAE						
<i>Ophiocoma echinata</i> (Lamarck, 1816)	Car	CA	it	0–24	cr,m,sg	[36, 40, pers. obs., new record]
<i>Ophiocoma paucigranulata</i> Devaney, 1974	Car	B,P	it	1–24	cr,rb	[7, 24, 36]
<i>Ophiocoma wendtii</i> Müller & Troschel, 1842	Car		it	1–27	cr,sg	[36, UCR 461, new record]
<i>Ophiocomella</i> sp.	Car		n.a.	n.a.	n.a.	[UCR 498, new record]
<i>Ophiopsila hartmeyeri</i> Koehler, 1913	Car		it,st	12–161	cr,rb,sb	[36, UCR 300, new record]
Family OPHIONEREIDIDAE						
<i>Ophionereis reticulata</i> (Say, 1825)	Car	B,P	it,st	1–221	cr,rb,sg	[36, UCR 463, new record]
Family OPHIODERMATIDAE						
<i>Ophioderma appresum</i> (Say, 1825)	Car	B,P	it	0–50	cr,sg	[7, 36]
<i>Ophioderma brevispinum</i> (Say, 1825)	Car	B	it,st	1–223	mb,s,sg,sb	[7, 36]
<i>Ophioderma cinereum</i> Müller & Troschel, 1842	Car	B	it	0–24	cr,sg	[7, 36]
Family OPHIACTIDAE						
<i>Ophiactis savignyi</i> (Müller & Troschel, 1842)	Car		it,st	0–518	sg,sr,rb	[36]
Family AMPHIURIDAE						
<i>Ophiostigma isocanthum</i> (Say, 1825)	Car	B,P	it	1–223	sg,cr	[36]

(continued)

Species List 36.1 (continued)

	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Family OPHIOTHIRICHIDAE						
<i>Ophiothrix cimar</i> Hendler, 2005	Car	P	it	0–10	sg,cr	[35]
<i>Ophiothrix lineate</i> Lyman, 1860	Car	B	it	0–49	cr	[7, 36]
<i>Ophiothrix stri</i> Hendler, 2005	Car	P	it	0–10	cr	[35]
<i>Ophiothrix swensonii</i> Lütken, 1856	Car	B	it,st	0–479	cr,rb	[7, 36]
Class ECHINOIDEA						
Order CIDAROIDA						
Family CIDARIDAE						
<i>Euclidaris tribuloides</i> (Lamarck, 1816)	Car	G,B,H,P	eb,st	0–50	cr,rb,sg	[18, 28, 36, 44, 68, 69]
Order DIADEMATOIDA						
Family DIADEMATIDAE						
<i>Diadema antillarum</i> (Philippi, 1845)	Car	G,B,H,P	eb,st	0–50	cr,rb	[15, 17, 19, 28, 44, 56, 65, 68, 69]
Order TEMNOPLEUROIDA						
Family TOXOPNEUSTIDAE						
<i>Lytechinus variegatus</i> (Lamarck, 1816)	Car	G,B,H,P	eb,st	0–50	sg	[28, 36, 43, 44, 68, 69]
<i>Triploneustes ventricosus</i> (Lamarck, 1816)	Car	B,H,P	eb,st	0–55	sg	[37, 44, 69]
Order ECHINOIDA						
Family ECHINOMETRIDAE						
<i>Echinometra lucunter</i> (Linnaeus, 1758)	Car	CA	eb,st	0–45	cr,rb	[16, 18–20, 36, 44, 69]
<i>Echinometra viridis</i> A. Agassiz, 1863	Car	G,B,H,P	it	0–40	cr,rb	[7, 36]
Order HOLECTYPOIDA						
Family ECHINONEIDAE						
<i>Echinoneus cyclostomus</i> Leske, 1778	ct		eb,st	5–570	cr,rb	[20, 36]
Order CLYPEASTEROIDA						
Family CLYPEASTERIDAE						
<i>Clypeaster subdepressus</i> (Gray, 1825)	Car		it	5–50	sb,sg	[36, USNM E14506, new record]

Family MELLITIDAE						
<i>Leodia sextesperforata</i> (Leske, 1778)	Car	P	eb	0-60	sb	[36, 43, pers. obs., new record]
<i>Mellitia quinquesperforata</i> (Leske, 1778)	Car	P	eb,st	n.a.	sb	[10, 68]
Order SPATANGOIDA						
Family BRISSIDAE						
<i>Brissopsis atlantica</i> Mortensen, 1908	Car		n.a.	55	n.a.	[USNM E12973, new record]
<i>Brissus unicolor</i> (Leske, 1778)	Car,Med	H,P	eb,st	0-240	rb, sb	[10, 36, 44, 68]
<i>Meoma ventricosa</i> (Lamarck, 1816)	Car	CA	eb,st	2-200	cr,sg, sb	[20, 36, 44]
Class HOLOTHUROIDEA						
Order ASPIDOCHEIROTA						
Family HOLOTHURIDAE						
<i>Actinopyga agassizi</i> (Selenka, 1867)	Car	G,B,H,P	st,eb	0-54	cr,rb,sg	[7, 36]
<i>Holothuria mexicana</i> Ludwig, 1875	Car	G,B,H	eb,st	0.5-20	sg	[17, 28, 32, 36, 61, 62]
Order APODIDA						
Family SYNAPTIDAE						
<i>Euaptia lappa</i> (Müller, 1850)	Car	B,P	it	0-24	cr,sg	[7, 36]
<i>Synaptula hydriformis</i> (Lesueur, 1824)	Car	B	it	1-7	cr,sg	[36, UCR 459, new record]

n.a. = information not available

^aCar = Caribbean; ct = circumtropical; Med = Mediterranean

^bB = Belize; CA = all Central American countries; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^ceb = epibenthic; it = intertidal; st = subtidal

^dUppermost and lowermost occurrences (in meters)

^ecr = coral reefs; m = mangroves; mb = muddy bottom; rb = rocky bottom; sb = sandy bottom; sg = seagrass

^fReferences are indicated by numbers according to the reference list

Species List 36.2 List of echinoderms from the Pacific coast of Costa Rica

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
		Central America ^b	Endemic Pacific ^c				
Class CRINOIDEA							
Order COMATULIDA							
Family ANTEDONIDAE							
<i>Fariometra parvula</i> (Hartlaub, 1895)	EP		IC	bp	589–1,969	rb	[52, 53]
Family THALASSOMETRIDAE							
<i>Thalassometra agassizii</i> (Hartlaub, 1895)	EP		IC	bp	596–1,429	rb	[52, 53]
Class ASTEROIDEA							
Order PAXILLOSIDA							
Family ASTROPECTINIDAE							
<i>Astropecten armatus</i> Gray, 1840	EP	ES,P	PM	eb,st	0–160	sb	[6, 9, 13, 42]
<i>Astropecten benthophilus</i> Ludwig, 1905	EP		IC	eb	1,408	n.a.	[49, 52]
<i>Astropecten regalis</i> Gray, 1840	EP		PM	eb	n.a.	n.a.	[UCR 135–001, new record]
<i>Astropecten sulcatus</i> Ludwig, 1905	EP		IC	st	121	n.a.	[49, 52]
<i>Lepycaster inermis</i> (Ludwig, 1905)	EP	P	IC	eb	732–1,593	n.a.	[27, 49, 53]
<i>Persephonaster armiger</i> Ludwig, 1905	EP		IC	n.a.	n.a.	n.a.	[49, 52]
Family LUIDIIDAE							
<i>Luidia armata</i> Ludwig, 1905	EP		IC	st	95	n.a.	[49, 52]
<i>Luidia brevispina</i> Lütken, 1871	EP		PM	eb,st	n.a.	n.a.	[UCR 19, UCR 213, new record]
<i>Luidia tessellata</i> Lütken, 1859	EP		PM	n.a.	n.a.	n.a.	[USNM E28834, new record]
Family PORCELLANASTERIDAE							
<i>Eremicaster pacificus</i> (Ludwig, 1905)	EP		IC	eb	1,571–5,780	n.a.	[49, 53]
<i>Porcellanaster ceruleus</i> Thomson, 1877	EP,WP		IC	eb	1,158–6,035	n.a.	[53]

Order NOTOMYOTIDA									
Family BENTHOPECTINIDAE									
<i>Benthopecten spinuliger</i> (Ludwig, 1905)	EP	P	IC	eb		1,618–2,323	n.a.	[49, 53]	
<i>Pectinaster agassizii</i> (Ludwig, 1905)	EP	P	IC	eb		790–2,323	n.a.	[49, 53]	
Order VALVATIDA									
Family ARCHASTERIDAE									
<i>Parachaster spinuliger</i> Ludwig, 1905	EP		IC	eb		1,789–1,847	n.a.	[49]	
Family ASTEROPSEIDAE									
<i>Asteropsis carinifera</i> (Lamarck, 1816)	EP		PM	it	3		n.a.	[USNM E11398, new record]	
Family ASTERINIDAE									
<i>Asterope</i> sp.	EP		IC	n.a.		n.a.	n.a.	[UCR 391, new record]	
Family GONIASTERIDAE									
<i>Mediaster elegans</i> Ludwig, 1905	EP		IC	n.a.		n.a.	n.a.	[49]	
<i>Nymphaster diomedaeae</i> Ludwig, 1905	EP	P	IC	eb		702–1,618	n.a.	[27, 49, 53]	
<i>Pillsburiaster ernesti</i> (Ludwig, 1905)	EP		IC	eb		2,149	n.a.	[49]	
Family ASTERODISCIDIDAE									
<i>Pauliella aenigma</i> Ludwig, 1905	EP		IC,PM	eb,st		80–121	n.a.	[38, 49, 70]	
Family OPHIDIASTERIDAE									
<i>Leitaster</i> sp.	EP		IC	n.a.		n.a.	rb	[UCR 268, new record]	
<i>Linckia columbae</i> Gray, 1840	EP		IC	it,st		0–100	n.a.	[53]	
<i>Narcissia gracilis</i> A.H. Clark, 1916	EP		IC	st		57–91	n.a.	[53]	
<i>Ophidiaster</i> sp.	EP		IC	n.a.		n.a.	n.a.	[UCR 356, new record]	
<i>Pharia pyramidatus</i> (Gray, 1840)	EP	ES,P	PM	eb,st		1–130	rb	[6, 9, 13, 39, 64]	
<i>Platartia unifascialis</i> (Gray, 1840)	EP	ES,N,P	PM	eb,st		1–50	rb	[6, 8, 13, 39, 64]	
<i>Tamaria obstipa</i> Ziesenheim, 1942	EP		IC,PM	eb,st		n.a.	n.a.	[38, 53, 71]	
Family OREASTERIDAE									
<i>Nidorellia armata</i> (Gray, 1840)	EP	ES,N,P	IC,PM	eb,st		0–183	rb	[6, 9, 13, 42, 59, 69, UCR 124, new record]	

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
			Endemic	Pacific ^c				
<i>Pentacaster cummingsi</i> (Gray, 1840)	EP		IC,PM	eb,st	10	sg	[9, 13, 53]	
Family ACANTHASTERIDAE								
<i>Acanthaster ellisii</i> (Gray, 1840)	EP,WP		IC	st	15	cr	[5]	
<i>Acanthaster planci</i> (Linnaeus, 1758)	EP,WP	P	IC,PM	eb,st	n.a.	cr	[8, 30, 33]	
Family MITHRODIDAE								
<i>Mithrodia</i> sp.	EP		IC	n.a.	n.a.	n.a.	[UCR 351, new record]	
Order SPINDULOSIDA								
Family ECHINASTERIDAE								
<i>Echinaster</i> (<i>Othilia</i>) <i>aculeata</i> (Gary, 1840)	EP	B,N	PM	eb,st	n.a.	ep	[9,67]	
Family PTERASTERIDAE								
<i>Hymenaster purpureus</i> Ludwig, 1905	EP		IC	eb	n.a.	n.a.	[52]	
<i>Pteraster diaphanous</i> Ludwig, 1905	EP		IC	eb	1,408	n.a.	[49, 52]	
Order FORCIPULATIDA								
Family HELIASTERIDAE								
<i>Heliaster solaris</i> A.H. Clark, 1920	EP		PM	eb,st	n.a.	rb	[52, 53]	
Family ASTERIDAE								
<i>Coronaster marchenus</i> Ziesenhenné, 1942	EP		IC	eb,st	52–84	cr,rb	[37, 53, 72]	
<i>Hydrasterias improvisa</i> (Ludwig, 1905)	EP		IC	eb	1,618–2,418	n.a.	[52, 53]	
<i>Sclerasterias alexandri</i> (Ludwig, 1905)	EP		IC	st	121	n.a.	[USNM E34363, new record]	
<i>Sclerasterias heteropaes</i> Fisher, 1924	EP		IC	st	80–88	n.a.	[USNM E1020062, new record]	
<i>Taraster cocosanus</i> (Ludwig, 1905)	EP		IC	eb	245	n.a.	[52]	

Family PEDICELLASTERIDAE <i>Pedicellaster improvisus</i> Ludwig, 1905	EP	IC	eb	2,149	n.a.	[USNM E34432, new record]
Order BRISINGIDA						
Family BRISINGIDAE <i>Astrolirus panamensis</i> (Ludwig, 1905)	EP	IC	eb,st	48-2,418	n.a.	[53]
Class OPHIUROIDEA						
Order PHRYNOPHIURIDA						
Family OPHIOMYXIDAE <i>Ophiomyxa panamensis</i> Lütken & Mortensen, 1899	EP	IC	eb,st	n.a.	n.a.	[13, 38, 53]
Family GORGONOCEPHALIDAE <i>Astrocanthum spinosum</i> (Lyman, 1875)	EP	PM	n.a.	n.a.	n.a.	[UCR 25, new record]
Order OPHIURIDA						
Family OPHIURIDAE <i>Amphiophiura abscisa</i> (Lütken & Mortensen, 1899)	EP	IC	eb	245	n.a.	[50, 52]
<i>Ophiocten hastatum</i> Lyman, 1878	EP	IC	eb	825-4,700	n.a.	[53]
<i>Ophiolepis grisea</i> Clark, 1940	EP	PM	eb,st	n.a.	m,mb	[13, 52]
<i>Ophiolepis pacifica</i> Lütken, 1856	EP	PM	eb,st	n.a.	cr	[13]
<i>Ophiolepis plateia</i> Ziesenhenné, 1940	EP	PM	n.a.	n.a.	n.a.	[71]
<i>Ophiolepis variegata</i> Lütken, 1856	EP	PM	n.a.	n.a.	n.a.	[UCR 35, UCR 96, new record]
<i>Ophiomusium lymani</i> Thomson, 1873	EP	IC	eb,st	51-2,906	n.a.	[53]
<i>Ophiosphalma glabrum</i> (Lütken & Mortensen, 1899)	EP	IC	eb	878-5,203	n.a.	[53]
<i>Ophiozonella alba</i> (Lütken & Mortensen, 1899)	EP	IC	eb	1,400-2,500	mb	[49, 52, 53]
<i>Ophiura irrorata</i> (Lyman, 1860)	EP,WP	IC	eb	405-5,869	n.a.	[53]
<i>Ophiura nana</i> (Lütken & Mortensen, 1899)	EP	IC	eb	1,650	n.a.	[50, 52]

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
			Endemic	Pacific ^e				
Family OPHIOMIDAE								
<i>Ophiocoma aethiops</i> Lütken, 1859	EP	CA		IC,PM	it	0–30.5	cr	[6, 7, 13, 42, 53, 68, 69]
<i>Ophiocoma alexandri</i> Lyman, 1860	EP	CA		IC,PM	it	0–70	cr, sb	[6, 9, 13, 42, 52, 53, 67]
<i>Ophiocomaella sexradia</i> (Duncan, 1887)	n.a.			IC	st, eb	n.a.	cr, rb	[53]
Family OPHIONEREIDAE								
<i>Ophionereis annulata</i> (Le Conte, 1851)	EP	ES, P		IC, PM	it, st	0–60	cr, sb	[6, 13, 53, 54, 64, 66]
<i>Ophionereis dicyota</i> Ziesenheim, 1940	EP			PM	n.a.	n.a.	n.a.	[38, 71]
<i>Ophionereis eurybrachiplax</i> Ziesenheim, 1940	n.a.			IC	n.a.	n.a.	mb	[52]
<i>Ophionereis nuda</i> Lütken & Mortensen, 1899	EP			IC	st	73–155	n.a.	[52]
Family OPHIODERMATIDAE								
<i>Diopoderma danianum</i> (Verrill, 1867)	EP	G, ES, P		IC, PM	st, eb	n.a.	cr	[9, 13, 64]
<i>Ophiocryptus granulatus</i> Nielsen, 1932	EP			IC	n.a.	n.a.	n.a.	[73]
<i>Ophioderma appressum</i> (Say, 1825)	EP	B, P		PM	st, eb	n.a.	rb	[41, UCR 111, new record]
<i>Ophioderma panamense</i> Lütken, 1859	EP	ES, N, P		IC, PM	st, eb	0–20	cr	[6, 13, 42, 53, 63, 73]
<i>Ophioderma teres</i> (Lyman, 1860)	EP	ES, N, P		PM	st, eb	0–45	cr	[6, 13, 39, 64, 66]
<i>Ophioderma variegatum</i> Lütken, 1856	EP	N, P		IC, PM	st, eb	0–110	rb, sb	[13, 40, 53, 64, 73]
<i>Ophiopaepale diplax</i> (Nielsen, 1932)	EP	P		PM	st, eb	n.a.	mb	[13]
Family HEMIEURYALIDAE								
<i>Sigsbeia lineata</i> Lütken & Mortensen, 1899	EP	P		IC	st	43–183	cr	[13, 38, 53]
Family OPHIACTIDAE								
<i>Hemipholis gracilis</i> Verrill, 1867	EP			PM	n.a.	n.a.	n.a.	[USNM E28342, new record]
<i>Ophiactis savignyi</i> (Müller & Troschel, 1842)	EP	B, ES, P		IC, PM	it, st	0–128	rb, m	[6, 9, 53, 62, UCR 16, UCR 20, new record]

<i>Ophiactis simplex</i> (Le Conte, 1851)	EP		IC,PM	it,st	0-302	n.a.	[53]
Family AMPHIURIDAE							
<i>Amphiodia oerstedii</i> (Lütken, 1856)	EP		PM	n.a.	n.a.	n.a.	[USNM E28248, new record]
<i>Amphiodia tabogae</i> Nielsen, 1932	EP		IC,PM	it,st	0-118	n.a.	[53]
<i>Amphiodia urtica</i> (Lyman, 1860)	EP		PM	n.a.	n.a.	n.a.	[USNM E28346, new record]
<i>Amphiodia vicina</i> H.L. Clark, 1940	EP		PM	st	n.a.	mb	[13]
<i>Amphiodia violacea</i> (Lütken, 1856)	EP	B	IC	st	n.a.	n.a.	[11, 38]
<i>Amphipholis germinata</i> (Le Conte, 1851)	EP	ES,P	PM	st	n.a.	mb	[13, 57, 62, 66]
<i>Amphipholis platydisca</i> Nielsen, 1932	EP		PM	n.a.	n.a.	n.a.	[USNM E28338, new record]
<i>Amphipholis pugetana</i> (Lyman, 1860)	EP		PM	n.a.	n.a.	n.a.	[UCR 486, new record]
<i>Amphipholis puntarenae</i> (Lütken, 1856)	EP	P	PM	st,eb	n.a.	n.a.	[57, 67]
<i>Amphipholis squamata</i> (delle Chiaje, 1828)	EP	G,B,H,N,P	PM	st	n.a.	mb	[13, 57]
<i>Amphiura arcystata</i> H.L. Clark, 1911	EP		IC	eb,it,st	6-849	n.a.	[53]
<i>Amphiura diomedea</i> Lütken & Mortensen, 1899	EP		PM	n.a.	n.a.	n.a.	[UCR 499, new record]
<i>Ophiophragmus marginatus</i> (Lütken, 1859)	EP		IC,PM	it,st	0-134	n.a.	[53]
<i>Ophiophragmus ophiactoides</i> Ziesenhenne, 1940	EP		PM	st	n.a.	n.a.	[70]
<i>Ophiophragmus paucispinus</i> Nielsen, 1932	EP		IC	it,st	0-134	n.a.	[53]
<i>Ophiophragmus tabogensis</i> Nielsen, 1932	EP		PM	n.a.	n.a.	n.a.	[USNM E28344, new record]
<i>Triodia abdita</i> Clark, 1970	EP		IC	n.a.	n.a.	n.a.	[52]
Family OPHIOTRICHIDAE							
<i>Ophiothela gracilis</i> Nielsen, 1932	EP	P	PM	n.a.	n.a.	n.a.	[13]
<i>Ophiothela mirabilis</i> Verrill, 1867	EP		PM	n.a.	n.a.	n.a.	[2]
<i>Ophiothrix spiculata</i> Le Conte, 1851	EP	ES,N,P	IC,PM	eb,it,st	0-730	cr	[6, 13, 53, 59]

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
		Central America ^b	Endemic Pacific ^c				
Family OPHIACANTHIDAE							
<i>Ophiacantha phragma</i> Ziesenhenné, 1940	EP		IC	eb,st	13–644	n.a.	[38, 53, 71]
<i>Ophiophthalmus normani</i> (Lyman, 1879)	EP		PM	eb	540	n.a.	[UCR 500, new record]
<i>Ophiotoma paucispina</i> (Lütken & Mortensen, 1899)	EP		IC	eb	1,643–1,974	n.a.	[50]
Class ECHINOIDEA							
Order CIDAROIDA							
Family CIDARIDAE							
<i>Centrocidaris doerderleini</i> (A. Agassiz, 1898)	EP	P	IC	eb	100–250	n.a.	[14, 53]
<i>Eucidaris galapagensis</i> Döderleini, 1887	EP		IC	n.a.	n.a.	n.a.	[47]
<i>Eucidaris thourarii</i> (Valenciennes, 1846)	EP	ES,P	IC,PM	eb,st	0–150	cr	[6, 13, 14, 29, 42, 59, 60, 64, 68]
<i>Hesperocidaris asteriscus</i> Clark, 1948	EP	P	PM	eb	54–183	mb,rb	[14, UCR 60, UCR 67, new record]
<i>Hesperocidaris panamensis</i> (A. Agassiz, 1898)	EP		IC,PM	eb	100–600	n.a.	[14, 38]
Order ECHINOTHURIODA							
Family ECHINOTHURIIDAE							
<i>Tromkosoma hispidum</i> (A. Agassiz, 1898)	EP	P	IC	eb	1,820–2,763	n.a.	[53]

Order DIADEMATOIDA									
Family DIADEMATIDAE									
<i>Astropyga pulvinata</i> (Lamarck, 1816)	EP	ES,P	PM	eb,st	0-37	mb,rb,sb	[6, 9, 14, 39, 59]		
<i>Centrostephanus coronatus</i> (Verrill, 1867)	EP	P	IC,PM	eb,st	1-125	rb	[2, 39, 45, 53]		
<i>Diadema mexicanum</i> (A. Agassiz, 1863)	EP	ES,P	IC,PM	eb,st	0-104	cr,rb	[6, 14, 26, 29, 30, 59, 64]		
<i>Echinothrix diadema</i> (Linnaeus, 1758)	EP,WP		IC	st	3-5	n.a.	[46]		
<i>Echinothrix calamaris</i> (Pallas, 1774)	EP,WP		IC	st	46	n.a.	[46]		
Family ASPIDODIADEMATIDAE									
<i>Plesiadiadema horridum</i> (A. Agassiz, 1898)	EP		IC	eb	1,625-3,241	n.a.	[53]		
Order SALENOIDA									
Family SALENIIDAE									
<i>Salenocidaris militaris</i> (A. Agassiz, 1898)	EP	P	IC	eb	1,200-3,058	n.a.	[53]		
Order ARBACIOIDA									
Family ARBACIIDAE									
<i>Arbacia incisa</i> (A. Agassiz, 1863)	EP	ES,P	PM	eb,st	0-92	rb	[6, 9, 14, 64, UCR 50, UCR 99, new record]		
Order TEMNOPLEUROIDA									
Family TOXOPNEUSTIDAE									
<i>Lytechinus pictus</i> (Verrill, 1867)	EP	P	IC	st	0-300	n.a.	[13, 64]		
<i>Toxopneustes roseus</i> (A. Agassiz, 1863)	EP	ES,P	IC,PM	eb,st	0-24	rb	[6, 8, 14, 62]		
<i>Triploneustes depressus</i> A. Agassiz, 1863	EP	P	IC,PM	n.a.	n.a.	n.a.	[46]		
Order ECHINOIDA									
Family ECHINOMETRIDAE									
<i>Echinometra oblonga</i> (Blainville, 1825)	EP,WP		IC	it	n.a.	n.a.	[58]		
<i>Echinometra vanbrunni</i> (Linnaeus, 1758)	EP	CA	IC,PM	eb,st	0-53	cr	[6, 13, 37, 53, 54, 64, 67]		

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
			Endemic	Pacific ^c				
Order CLYPEASTEROIDA								
Family CLYPEASTERIDAE								
<i>Clypeaster europacificus</i> H.L. Clark, 1914	EP	P		IC,PM	it	0–110	mb	[13, 14, 42, 53, 64]
<i>Clypeaster ochrus</i> H.L. Clark, 1914	EP	P		IC	it	0–84	sb	[13, 14, 39, 64]
<i>Clypeaster rotundus</i> (A. Agassiz, 1863)	EP	CA		IC,PM	it	0–92	rb	[14, 37, 64]
<i>Clypeaster speciosus</i> Verrill, 1870	EP			IC	it	0–92	n.a.	[13]
Family MELLITIDAE								
<i>Encope cocosi</i> H.L. Clark, 1948	EP		X	IC	it	4–8	sb	[14,38]
<i>Encope irregularis</i> H.L. Clark, 1948	EP	P		PM	it	3–34	sb	[14]
<i>Encope michelini</i> L. Agassiz, 1841	EP			PM	eb	3–90	sb	[41, UCR 27, UCR 75, UCR 92, new record]
<i>Encope micropora</i> L. Agassiz 1841	EP	ES,P		IC,PM	it	0–30	sb	[6, 9, 14, 53, UCR 166, new record]
<i>Encope perspectiva</i> L. Agassiz, 1841	EP			PM	it	8–25	sb	[12, 14]
<i>Mellitela stokesi</i> L. Agassiz, 1841	EP	ES,P		PM	it	n.a.	sb	[6, 65]
<i>Mellitela longifissa</i> Michelin, 1858	EP	CA		PM	it	0–60	sb	[6, 14, 37, 42, 67]
Order CASSIDULOIDA								
Family CASSIDULIDAE								
<i>Cassidulus pacificus</i> (A. Agassiz, 1898)	EP			PM	n.a.	n.a.	n.a.	[pers. obs., new record]
Order SPATANGOIDA								
Family AEROPSIDAE								
<i>Aeropsis fulva</i> (A. Agassiz, 1898)	EP			IC	eb	1,974–2,471	n.a.	[1]
Family SCHIZASTERIDAE								
<i>Agassizia scrobiculata</i> Valenciennes, 1846	EP	ES,P		PM	eb,st	0–76	sb,rb,mb	[6, 14, 42, UCR 160, UCR 168, UCR 169, new record]

<i>Moiria clotho</i> (Michelin, 1855)	EP	P	PM	it	20	mb	[13, 14, 64]
Family BRISSIDAE							
<i>Briassopsis pacifica</i> (A. Agassiz, 1898)	EP		IC	eb, it, st	9-1,430	n.a.	[53]
<i>Briassus latecarinatus</i> (Leske, 1778)	CT		PM	it	0-45	sb	[3, 55]
<i>Meoma grandis</i> Gray, 1851	EP	P	IC, PM	it, st	0-110	sb	[9, 14, 64]
<i>Platobriassus pacificus</i> H.L. Clark, 1940	EP	P	IC	it, st	50	sb	[10, 14]
<i>Sylocidaris dubia</i> (H.L. Clark, 1907)	EP		IC, PM	n.a.	n.a.	n.a.	[13]
Family LOVENIIDAE							
<i>Homolampas hastata</i> (A. Agassiz, 1879)	EP		IC	eb	n.a.	n.a.	[1, 52]
<i>Lovenia cordiformis</i> A. Agassiz, 1872	EP	P	IC	it, st	0-200	sb	[9, 13, 14, 64]
Family ASTEROSTOMATIDAE							
<i>Argopatagus aculeata</i> (A. Agassiz, 1898)	EP		IC	eb	1,952	n.a.	[1, 52]
Class HOLOTHURIA							
Order DENDROCHIROTA							
Family SCLERODACTYLIDAE							
<i>Neothyone gibber</i> (Selenka, 1867)	EP	P	PM	eb	tide marks to few meters	rb	[21, 22]
<i>Neothyone gibbosa</i> Deichmann, 1938	EP	ES	PM	eb	n.a.	rb	[6, 9, 22, 64]
Family CUCUMARIIDAE							
<i>Cucumaria dubiosa</i> Semper, 1868	EP		PM	eb	n.a.	n.a.	[22]
<i>Cucumaria flamma</i> Solis-Marín & Laguarda-Figueroa, 1999	EP	P	PM	it	1-10	rb	[63, new record, pers. obs.]
<i>Pentamera chierchia</i> (Ludwig, 1887)	EP	P	PM	eb, it	0-73	rb	[9, 21, 22]
<i>Pentamera beebi</i> Deichmann, 1938	EP		PM	eb	73	n.a.	[21, 22]
<i>Pseudoconus californicus</i> (Semper, 1868)	EP	CA	PM	eb	0-183	n.a.	[23]
Family PHYLLOPHORIDAE							
<i>Euthyonidium ovulum</i> Deichmann, 1938	EP		PM	eb	n.a.	n.a.	[21, 22]

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
			Endemic	Pacific ^c				
<i>Euthyonidium veleronis</i> Deichmann, 1937	EP	ES	PM	PM	eb	shore	sb, cr	[6, 22]
Family PSOLIDAE								
<i>Psolus diomedea</i> Ludwig, 1894	EP		IC	IC	eb	11–133	n.a.	[21, 22, 48, 64]
<i>Thyonepsolus beebi</i> Deichmann, 1937	EP	P	IC,PM	IC,PM	eb	4–37	n.a.	[21, 22]
Order DACTYLOCHIROTIDA								
Family YPSILOTHURIIDAE								
<i>Ypsolothuria bitentaculata</i> (Ludwig, 1893)	EP		IC	IC	eb	225–4,082	n.a.	[53]
Order ASPIDOCHEIROTA								
Family STICHOPODIDAE								
<i>Isostichopus fuscus</i> (Ludwig, 1875)	EP	CA	IC,PM	IC,PM	eb,it	0–61	rb	[6, 9, 23, 37, 42, 64]
<i>Stichopus horrens</i> Selenka, 1867	EP		IC	IC	n.a.	n.a.	n.a.	[UCR 354, new record]
Family HOLOTHURIDAE								
<i>Bohadschia?</i> sp.	n.a.		IC	IC	n.a.	Shallow water	n.a.	[4]
<i>Holothuria arenicola</i> (Semper, 1868)	EP	CA	IC,PM	IC,PM	eb,st	Shallow water	rb	[21, 24, 26, 32, 41, 49, 64]
<i>Holothuria atra</i> (Jaeger, 1833)	EP,WP	P	IC	IC	eb	Shallow water	n.a.	[23, 38]
<i>Holothuria difficilis</i> (Semper, 1868)	EP	CA	IC,PM	IC,PM	eb,st	Shore	rb, sb	[23, 36]
<i>Holothuria gyriifer</i> (Selenka, 1867)	EP		PM	PM	eb	n.a.	n.a.	[2114]
<i>Holothuria hilla</i> Lesson, 1830	EP		IC,PM	IC,PM	n.a.	n.a.	n.a.	[3, UCR 361 new record]
<i>Holothuria imitans</i> (Ludwig, 1875)	EP	P	IC	IC	eb,st	Shallow water	rb	[23, 38]
<i>Holothuria impatiens</i> (Forskål, 1775)	EP	ES,P	IC,PM	IC,PM	eb,st	Shallow water	cr	[6, 23, 37]
						to few meters		
<i>Holothuria inhabilis</i> Selenka, 1867	EP		IC	IC	eb,st	1–25	n.a.	[21, 23]
<i>Holothuria inornata</i> Semper, 1868	EP		PM	PM	eb	n.a.	n.a.	[21]

<i>Holothuria kefersteini</i> (Selenka, 1867)	EP	ES,P	IC,PM	eb,st	Shallow water	rb	[6, 23, 38]
<i>Holothuria languens</i> (Selenka, 1867)	EP	P	PM	eb,st	n.a.	rb	[21, 23, 64]
<i>Holothuria leucospilota</i> (Brandt, 1835)	EP,WP		IC	it	n.a.	n.a.	[53]
<i>Holothuria lubricans</i> Selenka, 1867	EP	ES	PM	eb,st	0-55	mb,rb,sb	[6, 21, 42, 64]
<i>Holothuria maccullochi</i> Diechmann, 1958	EP	P	PM	eb,st	n.a.	n.a.	[23]
<i>Holothuria paraprinceps</i> (Diechmann, 1937)	EP		IC	eb	0-64	cr	[23, 38]
<i>Holothuria pardalis</i> Selenka, 1867	EP,CT	H,P	IC	eb,st	1-306	rb	[23, 38, 39, 48]
<i>Holothuria portovallartensis</i> (Caso, 1954)	EP	P	PM	eb,st	n.a.	rb	[23]
<i>Holothuria rigida</i> f. <i>atipica</i> (Selenka, 1867)	EP		PM	eb,st	Shallow water	sb	[23, 38]
<i>Holothuria theeli</i> (Diechmann, 1938)	EP,RS,WP		IC	eb,st	55-92	rb	[29, 23]
<i>Labiodemas americanum</i> Diechmann, 1938	EP	ES	IC,PM	eb	n.a.	n.a.	[6, 21, 23]
Family SYNALLACTIDAE							
<i>Mesothuria multiplies</i> (Ludwig, 1893)	EP		IC	eb	72.5-4,064	n.a.	[53]
<i>Pseudostichopus macdonaldi</i> (Ludwig, 1894)	EP		IC	eb	n.a.	n.a.	[52]
<i>Pseudostichopus mollis</i> Theel, 1886	EP,WP		IC	eb	100-5,203	n.a.	[53]
Order ELASIPODIDA							
Family DEIMATIDAE							
<i>Deima validum pacificum</i> Ludwig, 1894	EP		IC	eb	1,618-2,487	n.a.	[53]
Family PSYCHROPOTIDAE							
<i>Benthodytes sanguinolenta</i> Theel, 1882	EP,WP		IC	n.a.	n.a.	n.a.	[53]
Family ELPIDIIDAE							
<i>Peniagone vitrea</i> Theel, 1882	EP		IC	eb	1,160-4,507	n.a.	[53]
Family PELAGOTHURIIDAE							
<i>Pelagothuria natarrix</i> Ludwig, 1894	EP	P	IC	eb,it,st	0-540	n.a.	[53]

(continued)

Species List 36.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f	References
			Endemic	Pacific ^c				
Order MOLPADONIA								
Family CAUDINIDAE								
<i>Paracaudina chilensis</i> (Müller, 1850)	EP		PM	eb	0–10	n.a.		[21, 54]
Order APODIDA								
Family SYNAPTIDAE								
<i>Euapta godeffroyi</i> (Semper 1868)	EP	CA	PM	eb	0–24	cr		[36, UCR 112, new record]
Family CHIRIDOTIDAE								
<i>Chiridota pacifica</i> Heding, 1928	EP		IC	eb	n.a.	n.a.		[UCR 381, new record]

n.a. = information not available

^acr = circumtropical; EP = eastern Pacific; RS = Red Sea; WP = western Pacific

^bB = Belize; CA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cIC = Isla del Coco; PM = Pacific mainland

^dbp = bathypelagic eb = epibenthic; it = intertidal; st = subtidal

^eUppermost and lowermost occurrences (in meters)

^fcr = coral reefs; ep = epiphytic; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass

^gReferences are indicated by numbers according to the reference list

Species List 37.1 Chaetognatha effectively recorded in waters of the Caribbean coast of Costa Rica. Taxonomic arrangement and generic names follows classification proposed by Bieri (1991)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class SAGITTOIDEA						
Order MONOPHRAGMOPHORA						
Family EUKROHNIIDAE						
<i>Eukrohnia bathypelagica</i> Alvarito, 1962	Cp	n.a	bp,mp	200–1,000+	wc	[7]
<i>Eukrohnia fowleri</i> Ritter-Záhony, 1909	Cp	n.a	bp,mp	200–1,000+	wc	[7]
Order APHRAGMOPHORA						
Family KROHNITIIDAE						
<i>Krohnitta pacifica</i> (Aida, 1897)	Cp	CA	ep,mp,n (semi)	0–500	wc	[5, 8]
Family SAGITTIDAE						
<i>Caecosagitta macrocephala</i> (Fowler, 1904)	Cp	P	bp,mp	200–1,000+	wc	[7]
<i>Mesosagitta minima</i> (Grassi, 1881)	Cp	n.a	ep,n (semi)	0–200	wc	[7]
<i>Parasagitta tenuis</i> (Conant, 1896)	EA,EP,WA	CA	n	0–200	wc	[1, 5, 8]
<i>Serratogitta serratodentata</i> (Krohn, 1853)	EA,IO,WA	CA	ep	0–200	wc	[1, 5, 8]
<i>Solidosagitta zetesis</i> (Fowler, 1905)	Cp	n.a	ep,mp	0–1,000	wc	[7]
Family PTEROSAGITTIDAE						
<i>Pterosagitta draco</i> (Krohn, 1853)	Cp	CA	ep	0–200	wc	[5, 8]

^acp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; WA = western Atlantic

^bCA = all Central American countries; P = Panama; n.a= information not available

^cn = neritic; ep = epipelagic; mp = mesopelagic; bp = bathypelagic

^dUppermost and lowermost occurrences (in meters)

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 37.2 Chaetognatha effectively recorded in waters of the Pacific coast of Costa Rica. Taxonomic arrangement and generic names follows classification proposed by Bieri (1991)

Species	World distribution ^a	Central America ^b	Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
Class SAGITTIOIDEA						
Order APHRAGMOPHORA						
Family KROHNITTIDAE						
<i>Krohnitta pacifica</i> (Aida, 1897)	Cp	CA	n(semi), ep, mp	0–500	wc	[1, 2, 3, 4, 5, 6]
<i>Krohnitta subtilis</i> (Grassi, 1881)	Cp	ES, G, H, N, P	ep, mp	0–500	wc	[4, 6]
Family SAGITTIDAE						
<i>Aidanosagitta neglecta</i> (Aida, 1897)	IP	ES, G, H, N, P	ep	0–200	wc	[1, 2, 3, 4, 6, 9, 10]
<i>Aidanosagitta regularis</i> (Aida, 1897)	IP	CA	ep	0–200	wc	[1, 2, 3, 4, 5, 6, 9, 10]
<i>Ferosagitta ferox</i> (Doncaster, 1902)	IP	ES, G, N, P	ep	0–200	wc	[1, 2, 6]
<i>Ferosagitta robusta</i> (Doncaster, 1902)	IP	ES, G, N, P	ep	0–200	wc	[1, 4, 6, 9, 10]
<i>Flaccisagitta enflata</i> (Grassi, 1881)	Cp	ES, G, H, N, P	ep	0–200	wc	[1, 2, 3, 4, 6, 9, 10]
<i>Flaccisagitta hexaptera</i> (d'Orbigny, 1836)	Cp	ES, G, H, N, P	ep, mp	0–500	wc	[1, 2, 3, 4, 6, 9, 10]
<i>Mesosagitta decipiens</i> (Fowler, 1905)	Cp	H, N	mp	200–1000	wc	[4, 9, 10]
<i>Mesosagitta minima</i> (Grassi, 1881)	Cp	ES, G, H, N, P	ep	0–200	wc	[1, 2, 6]
<i>Parasagitta euneritica</i> (Alvaríño, 1962)	EP	P	ep, n	0–200	wc	[1, 6]
<i>Parasagitta friderici</i> (Ritter-Záhony, 1911)	EA, EP, WA	CA	ep, n	0–200	wc	[3, 5, 6]
<i>Parasagitta peruviana</i> (Sund, 1961)	EP	G, P	ep	0–200	wc	[1, 6]
<i>Zonosagitta popovicii</i> (Sund, 1961)	EP	G	ep	0–200	wc	[1, 3]
<i>Serratosagitta bieri</i> (Alvaríño, 1961)	EP	CA	ep, n	0–200	wc	[5, 6]
<i>Serratosagitta pacifica</i> (Tokioaka, 1940)	IP	CA	ep	0–200	wc	[1, 2, 3, 4, 5, 6, 9, 10]
<i>Zonosagitta bedotii</i> (Beraneck, 1895)	IP	CA	ep, n	0–200	wc	[1, 2, 3, 4, 5, 6, 9, 10]
<i>Zonosagitta pulchra</i> (Doncaster, 1902)	IP	ES, G, N, P	ep, n	0–200	wc	[1, 2, 3, 4, 6, 9, 10]
Family PTEROSAGITTIDAE						
<i>Pterosagitta draco</i> (Krohn, 1853)	Cp	CA	ep	0–200	wc	[2, 4, 5, 6]

^acp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; WA = western Atlantic

^bCA = all Central American countries; ES = El Salvador; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cep = epipelagic; mp = mesopelagic; n = neritic

^dUppermost and lowermost occurrence (in meters)

^ewc = water column

^fReferences are indicated by numbers according to the reference list

Species List 38.1 List of appendicularian species recorded in Costa Rican waters (eastern tropical Pacific). Systematic arrangement follows that proposed by Fenaux (1998)

Species	World distribution ^a	Central America	Costa Rica		Oceanic distribution ^c	Depth (m) ^d	Habitat/Community ^e	References ^f
			Pacific ^b					
Class APPENDICULARIA								
Family OIKOPLEURIDAE								
Subfamily BATHOCHORDAEINAE								
<i>Bathochordaeus charon</i> Chun, 1900	ct	n.a.	os		mp	0–700	wc	[1]
Subfamily OIKOPLEURINAE								
<i>Oikopleura fusiformis</i> Fol, 1872	ct	n.a.	PM		ep.n	0–500	cl,wc	*
<i>Oikopleura longicauda</i> (Vogt, 1854)	ct	n.a.	PM		ep.n	0–300	cl,wc	*
<i>Oikopleura rufescens</i> Fol, 1872	ct	n.a.	PM		ep.n	0–462	cl,wc	*
Family FRITILLARIDAE								
Subfamily FRITILLARINAE								
<i>Fritillaria formica</i> Fol, 1872	ct	n.a.	PM		ep.n	0–300	cl,wc	*
<i>Fritillaria haplostoma</i> Fol, 1872	ct	n.a.	PM		ep.n	0–500	cl,wc	*

n.a. = information not available

^a personal observation

^b ct = circumtropical

^c os = offshore; PM = Pacific mainland

^d ep = epipelagic; mp = mesopelagic; n = neritic

^e Uppermost and lowermost occurrences (in meters)

^f cl = coastal lagoons; wc = water column

^g References are indicated by numbers according to the reference list

Species List 39.1 Fishes reported and expected from the Caribbean coast of Costa Rica

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
CARTLAGINOUS FISHES						
Family HEXANCHIDAE						
<i>Hexanchus vitulus</i>	Car	N	X	mp	240	wc
Family GINGLYMOSTOMATIDAE						
<i>Ginglymostoma cirratum</i>	Car,EA,EP		X	b	20–35	sb
Family CARCHARHINIDAE						
<i>Carcharhinus altimus</i>	Car	N		ep	n.a.	wc
<i>Carcharhinus falciformis</i>	ct	CA		ep	n.a.	wc
<i>Carcharhinus leucas</i>	Car	CA	X	ep	n.a.	wc
<i>Carcharhinus limbatus</i>	Car	CA		ep	n.a.	wc
<i>Carcharhinus longimanus</i>	ep	CA		ep	n.a.	wc
<i>Carcharhinus obscurus</i>	Car	CA		ep	n.a.	wc
<i>Carcharhinus plumbeus</i>	Car,WP	CA		ep	n.a.	wc
<i>Carcharhinus signatus</i>	Car	H		ep	n.a.	wc
<i>Galeocerdo cuvier</i>	Car	CA		ep	n.a.	wc
<i>Negaprion brevirostris</i>	Car	CA		ep	n.a.	wc
<i>Prionace glauca</i>	Car	CA	X	ep	29–42	wc
<i>Rhizoprionodon lalandii</i>	Car	CA		ep	n.a.	wc
<i>Rhizoprionodon porosus</i>	Car	P		ep	n.a.	wc
Family LAMINIDAE						
<i>Isurus oxyrinchus</i>	Car	CA		ep	n.a.	wc
Family RHINCODONTIDAE						
<i>Rhincodon typus</i>	ct	CA		ep	n.a.	wc
Family SPHYRNIDAE						
<i>Sphyrna lewini</i>	ct	CA		ep	n.a.	wc
<i>Sphyrna media</i>	Car	P		ep	n.a.	wc
<i>Sphyrna mokarran</i>	ct	CA		ep	n.a.	wc

<i>Sphyma tiburo</i>	Car	CA	X	ep	6-27	wc
Family SCYLIORHINIDAE						
<i>Scyliorhinus boa</i>	Car	N		n.a.	n.a.	n.a.
<i>Scyliorhinus hesperius</i>	Car			n.a.	n.a.	n.a.
Family SQUATINIDAE						
<i>Squatina diumeril</i>	Car	N		eb	n.a.	mb
Family SQUALIDAE						
<i>Squalus cubensis</i>	Car	CA		n.a.	n.a.	n.a.
Family RHINOBATIDAE						
<i>Rhinobatos percellens</i>	WA	CA	X	b	6-20	mb
Family RAJIDAE						
<i>Raja ackleyi</i>	WA	CA		b	n.a.	mb
Family DASYATIDAE						
<i>Dasyatis americana</i>	Car	CA	X	b	1-18	mb
<i>Dasyatis guttatus</i>	Car	CA	X	b	20-24	mb
<i>Himantura schmardae</i>	WA	CA	X	b	n.a.	mb
Family UROLOPHIDAE						
<i>Urolophus jamaicensis</i>	WA	CA		b	12-49	mb
Family RHINOPTERIDAE						
<i>Rhinoptera bonasus</i>	WA	CA	X	wc	n.a.	wc
Family TORPEDINIDAE						
<i>Torpedo nobilitiana</i>	WA	P		b	n.a.	mb
Family NARCINIDAE						
<i>Diplobatis colombiensis</i>	Car	CA		b	n.a.	mb
<i>Narcine bancroftii</i>	WA	CA	X	b	1-53	mb
Family GYMNURIDAE						
<i>Gymnura micrura</i>	WA	CA		b	n.a.	mb
Family PRISTIDAE						
<i>Pristis pectinata</i>	WA	CA		b	n.a.	mb
<i>Pristis pristis</i>	WA	CA		b,mb	n.a.	mb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family MYLIOBATIDAE						
<i>Aetobatus narinari</i>	ct	CA		ep	n.a.	wc
<i>Myliobatis goodie</i>	Car	CA		ep	n.a.	wc
Family MOBULIDAE						
<i>Mania birostris</i>	ep	CA		ep	n.a.	wc
<i>Mobula hypostoma</i>	Car	CA		ep	n.a.	wc
BONY FISHES						
Family ELOPIDAE						
<i>Elops saurus</i>	Car	CA	X	n	2	wc
Family MEGALOPIIDAE						
<i>Megalops atlanticus</i>	Car,EA,EP	CA	X	n	1	wc
Family ALBULIDAE						
<i>Albula nemoptera</i>	Car	CA	X	n	7-31	wc
<i>Albula vulpes</i>	Car	CA	X	n	6-27	wc
Family ANGUILLIDAE						
<i>Anguilla rostrata</i>	Car	P	X	b	0.3-2	mb
Family MORINGUIDAE						
<i>Moringa edwardsi</i>	Car	CA	X	b	n.a.	sb
<i>Neconger mucronatus</i>	WA	CA		b	n.a.	sb
Family CHLOPSIDAE						
<i>Chlorhinus stensoni</i>	WA	CA	X	b	2	sb
<i>Kaupichthys hyoproroides</i>	Car	CA	X	b	0.5-7	sb
<i>Kaupichthys nuchalis</i>	Car	CA		b	n.a.	sb
Family MURAEINIDAE						
<i>Echidna catenata</i>	WA	CA	X	b	0.3-8	cr,rb
<i>Enchelycore nigricans</i>	Car	CA	X	b	0.5-8	cr,rb
<i>Enchelycore carychroa</i>	WA	CA		b	n.a.	cr,rb

<i>Gymnothorax funebris</i>	Car	CA	X	b	0.3-2	cr,rb
<i>Gymnothorax militaris</i>	Car	CA	X	b	0.5-8	cr,rb
<i>Gymnothorax moringa</i>	Car	CA	X	b	0.3-35	cr,rb
<i>Gymnothorax ocellatus</i>	Car	CA	X	b	12-33	mb
<i>Gymnothorax vicinus</i>	Car	CA	X	b	0.5-7	cr,rb
<i>Muraena robusta</i>	WA	P		b	n.a.	cr,rb
<i>Uropterygius macularius</i>	WA	CA	X	b	0.5-3	cr,rb
Family HETERENCHELYIDAE						
<i>Pythonichthys sanguineus</i>	Car		X	b	n.a.	mb
Family MURAEENESOCIDAE						
<i>Cynoponiticus savanna</i>	Car	H,N,P	X	eb	n.a.	mb
Family NETASTOMATIDAE						
<i>Hoplunnis macrura</i>	WA	CA	X	eb	0.5-3	mb
Family CONGRIDAE						
<i>Ariosoma anale</i>	Car	P		b	n.a.	mb
<i>Ariosoma balearicum</i>	Car	H		b	n.a.	mb
Family OPHICHTHIDAE						
<i>Athlia egmontis</i>	WA	CA	X	b	0.5-8	mb
<i>Caralophia toxochila</i>	Car		X	b	3	mb
<i>Ectophis interinctus</i>	WA	CA	X	b	n.a.	mb
<i>Myrophis platyrhynchus</i>	WA	CA	X	b	3	mb
<i>Myrophis punctatus</i>	WA	CA	X	b	0.4-2	mb
<i>Myrichthys ocellatus</i>	Car	CA	X	b	n.a.	mb
<i>Myrichthys breviceps</i>	Car	CA		b	n.a.	mb
<i>Ophichthys gomesi</i>	Car	CA	X	b	n.a.	mb
<i>Ophichthys ophis</i>	Car	CA		b	n.a.	mb
Family CLUPEIDAE						
<i>Harengula clupeiola</i>	Car	CA	X	n	11-91	wc
<i>Harengula humeralis</i>	WA	CA	X	n	2	wc
<i>Harengula jaguana</i>	Car	CA	X	n	n.a.	wc

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Jenkinsia lamprotaenia</i>	Car	CA	X	n	2	WC
<i>Jenkinsia majua</i>	Car	CA		n	n.a.	WC
<i>Jenkinsia stolifera</i>	WA	H,N,P		n	n.a.	WC
<i>Opisthonema oglinum</i>	Car	CA	X	n	1-18	WC
<i>Sardinella aurita</i>	Car,WP	CA		n	n.a.	WC
<i>Sardinella brasiliensis</i>	Car	CA		n	n.a.	WC
Family PRISTIGASTERIDAE						
<i>Chirocentron bleekertianus</i>	WA	CA	X	n	18	WC
<i>Pellona harroweri</i>	WA	P	X	n	18	WC
<i>Odontognathus compressus</i>	WA	P		P	n.a.	WC
Family ENGRAULIDAE						
<i>Anchoa colomensis</i>	Car	CA		n	n.a.	WC
<i>Anchoa cubana</i>	Car	CA		n	n.a.	
<i>Anchoa filifera</i>	Car	H		n	n.a.	
<i>Anchoa lamprotenia</i>	Car	CA	X	n	n.a.	WC
<i>Anchoa lyolepis</i>	Car	CA		n	6-55	WC
<i>Anchoa parva</i>	Car	CA		n	n.a.	WC
<i>Anchoa spinifer</i>	WA	CA	X	n	15	WC
<i>Anchovia clupeioides</i>	Car	CA		n	n.a.	WC
<i>Anchoviella elongata</i>	WA	G,P		n	n.a.	WC
<i>Anchoviella perfasciata</i>	Car	CA		n	n.a.	WC
<i>Cetengraulis edentulis</i>	Car	CA	X	n	6-27	WC
<i>Lycengraulis grossidens</i>	WA	P		n	n.a.	WC
Family SYNODONTIDAE						
<i>Saurida brasiliensis</i>	WA	CA	X	b	18-110	sb
<i>Saurida caribbaea</i>	WA	B		b	n.a.	sb
<i>Saurida normani</i>	Car	CA		b	180-192	sb

<i>Synodus foetens</i>	WA	CA	X	b	7-20	sb
<i>Synodon intermedius</i>	WA	CA	X	b	0.5-8	sb
<i>Synodon poeyi</i>	WA	N	X	b	11-33	sb
<i>Synodon synodus</i>	WA	CA	X	b	0.5-8	sb
<i>Trachinocephalus myops</i>	WA	CA	X	b	18-35	sb
Family ARIIDAE						
<i>Ariopsis assimilis</i>	Car	CA		b	n.a.	mb
<i>Ariopsis bonillai</i>	WA	P		b	n.a.	mb
<i>Arius melanopus</i>	WA	N	X	b	15-18	mb
<i>Arius proops</i>	WA	P		b	n.a.	mb
<i>Bagre bagre</i>	WA		X	b	n.a.	mb
<i>Bagre marinus</i>	Car	CA	X	b	11-20	mb
<i>Cathorops melanopus</i>	n.a.		X		n.a.	
<i>Cathorops spixii</i>	WA	CA		b	n.a.	mb
<i>Selanaspis herbergii</i>	WA			b	n.a.	mb
Family BATRACHOIDIDAE						
<i>Amphichthys cryptocentrus</i>	WA	CA		b	n.a.	sb
<i>Batrachoides gilberti</i>	WA	CA	X	b	n.a.	sb
<i>Batrachoides surinamensis</i>	WA	H,N	X	b	15-18	sb
<i>Porichthys plectrodon</i>	WA	P	X	b	2-6	sb
<i>Porichthys porosissimus</i>	WA	CA	X	b	11-75	sb
<i>Sanopus barbatus</i>	WA	CA	X	b	n.a.	sb
<i>Thalassophryne maculosa</i>	WA	P	X	b	18-110	sb
Family GOBIESOCIDAE						
<i>Acyrtops beryllina</i>	Car	CA		b	1.3	rb
<i>Arcos rubiginosus</i>	Car	CA	X	b	0.5-8	rb
<i>Gobiesox punctulatus</i>	WA	CA		b	n.a.	rb
<i>Rimicola brevis</i>	Car	P		b	n.a.	rb
<i>Tomicodon fasciatus</i>	WA	CA	X	b	0.3-8	rb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family ANTENNARIIDAE						
<i>Antennarius multiocellatus</i>	Car	CA	X	b	0.5–2	rb
<i>Antennarius ocellatus</i>	WA	CA		b	35–55	rb
<i>Antennarius striatus</i>	WA	CA	X	b	6–18	rb
<i>Histrion histrioi</i>	WA	CA		n	n.a.	wc
Family OGCOEPHALIDAE						
<i>Halieutichthys aculeatus</i>	Car	CA	X	b	33–44	sb
<i>Halieutichthys caribbaeus</i>	WA	CA	X	b	110	sb
<i>Ogcocephalus nasutus</i>	Car	CA	X	b	15	sb
<i>Ogcocephalus parvus</i>	WA	H,N,P	X	b	12–49	sb
<i>Ogcocephalus pumilus</i>	Car	CA	X	b	15	sb
<i>Zalietes mcginityi</i>	WA	N		b	180–192	mb
Family BREGMACEROTIDAE						
<i>Bregmaceros atlanticus</i>	WA	H		n.a.	180–220	wc
Family OPHIDIIDAE						
<i>Brotula barbata</i>	WA			b	n.a.	sb
<i>Lepophidium brevisbarbe</i>	WA	CA	X	b	11–31	sb
<i>Ophidion holbrookii</i>	WA	CA		b	n.a.	sb
<i>Parophidion schmidti</i>	WA	CA	X	b	1–8	sb
<i>Petrotyx sanguineus</i>	Car	CA	X	b	0.5–2	sb
Family BYTHITIDAE						
<i>Calamopteryx goslonei</i>	WA		X	b	n.a.	sb
<i>Dinemataichthys minyomma</i>	Car	H		b	n.a.	sb
<i>Ogilbia cayorum</i>	WA	CA	X	b	1–2	rb
<i>Ogilbia</i> sp.	WA		X	b	n.a.	
Family CARAPIDAE						
<i>Carapus bermudensis</i>	Car	CA	X	n	0.4–1	c

Family HEMIRAMPHIDAE									
<i>Hemiramphus balao</i>	Car,EA	CA		ep	0	WC			
<i>Hemiramphus brasiliensis</i>	Car	CA		ep	n.a.	WC			
<i>Hyporhamphus roberti</i>	WA	CA	X	ep	n.a.	WC			
<i>Hyporhamphus unifasciatus</i>	Car	CA		ep	n.a.	WC			
Family EXOCOETIDAE									
<i>Cypselurus cyanopterus</i>	Car,EA	CA		ep	0	WC			
<i>Cypselurus furcatus</i>	Car	CA		ep	0	WC			
<i>Cypselurus melanurus</i>	Car	CA		ep	0	WC			
<i>Exocoetus obtusirostris</i>	Car,EP,IO	CA		ep	0	WC			
<i>Exocoetus volitans</i>	Car	CA		ep	0	WC			
<i>Hirundichthys affinis</i>	Car	CA		ep	0	WC			
<i>Parexocoetus hillianus</i>	Car	CA		ep	0	WC			
Family BELONIDAE									
<i>Ablennes hians</i>	ct	CA		ep	0	WC			
<i>Platybelone argalus</i>	ct	CA		ep	0	WC			
<i>Strongylura marina</i>	WA	CA	X	ep	0	WC			
<i>Strongylura notata</i>	WA	CA	X	ep	0	WC			
<i>Strongylura timucu</i>	Car	CA	X	ep	0	WC			
<i>Tylosurus acus</i>	ct	CA		ep	0	WC			
<i>Tylosurus crocodilus</i>	ct	CA	X	ep	0	WC			
Family ATHERINIDAE									
<i>Atherinomorus stipes</i>	Car	CA	X	n	0.5-7	WC			
Family ATHERINOPSIDAE									
<i>Atherinella beani</i>	Car	P		n	n.a.	WC			
<i>Atherinella blackburni</i>	WA	CA		n	n.a.	WC			
<i>Atherinella chagresi</i>	Car	P	X	n	n.a.	WC			
<i>Atherinella milleri</i>	Car	CA	X	n	n.a.	WC			
<i>Melanorhinus microps</i>	Car	CA	X	n	8	WC			
<i>Membras sp.</i>	Car	H,N		n	n.a.	WC			

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family POLYMIXIIDAE						
<i>Polynixia nobilis</i>	WA	CA	X	n.a.	256	n.a.
Family HOLOCENTRIDAE						
<i>Holocentrus ascensionis</i>	Car	CA	X	eb	0.5–3	cr,rb
<i>Holocentrus rufus</i>	Car	CA	X	eb	2–35	rb,
<i>Myripristis jacobus</i>	Car	CA	X	eb	2–8	cr,rb
<i>Myripristis trachypoma</i>	Car	CA	X	eb	180	cr,rb
<i>Neoniphon marianus</i>	Car	CA	X	eb	n.a.	cr,rb
<i>Ostichthys trachypoma</i>	WA	CA		eb	n.a.	cr,rb
<i>Plectrypops retropinnis</i>	Car	CA		eb	0.5–8	cr,rb
<i>Sargocentron coruscus</i>	Car	CA	X	eb	4–8	cr,rb
<i>Sargocentron vexillarium</i>	Car	CA	X	eb	1–4	cr,rb
Family ZENIONTIDAE						
<i>Zenion hololepis</i>	WA	P	X	n.a.	256	n.a.
Family AULOSTOMIDAE						
<i>Aulostomus maculatus</i>	Car	CA	X	n	3–35	wc
Family FISTULARIIDAE						
<i>Fistularia petimba</i>	Car	CA		ep	n.a.	wc
<i>Fistularia tabacaria</i>	Car	CA	X	ep	2–49	wc
Family SYNGNATHIDAE						
<i>Bryx dunckeri</i>	Car	CA	X	b	3–4	sb,rb
<i>Cosmocampus elucens</i>	n.a.	CA		b	n.a.	sb,rb
<i>Hippocampus erectus</i>	Car	CA	X	b	33–49	rb,rub
<i>Hippocampus reidi</i>	WA	P	X	b	33–49	rb,rub
<i>Ooostethus brachyurus</i>	WA	P	X	b	0.4	sb,rb
<i>Pseudophallus mindii</i>	WA	P	X	b	0.4–0.5	sb,rb
<i>Syngnathus caribbaeus</i>	WA	B		b	n.a.	sb,rb

<i>Syngnathus floridae</i>	Car	P		X	b	n.a.	sb,rb
<i>Syngnathus pelagicus</i>	Car				b	n.a.	sb,rb
<i>Syngnathus scovelli</i>	Car	P			b	n.a.	sb,rb
Family SCORPAENIDAE							
<i>Neomerinthe beanorum</i>	WA	H,P			b	180-256	rub,cr
<i>Pontinus longispinus</i>	WA	CA		X	b	n.a.	rub,cr
<i>Scorpaena albifimbria</i>	WA	CA			b	n.a.	rub,cr
<i>Scorpaena bergii</i>	WA	CA			b	n.a.	rub,cr
<i>Scorpaena brachyptera</i>	WA	CA			b	n.a.	rub,cr
<i>Scorpaena brasiliensis</i>	WA	CA		X	b	6-49	rub,cr
<i>Scorpaena calcarata</i>	WA	N		X	b	6-33	rub,cr
<i>Scorpaena grandicornis</i>	WA	CA		X	b	1-4	rub,cr
<i>Scorpaena isihmensis</i>	Car	CA			b	6-55	rub,cr
<i>Scorpaena plumieri</i>	Car	CA		X	b	1-73	rub,cr
<i>Scorpenodes caribbaeus</i>	WA	CA		X	b	1-8	rub,cr
<i>Scorpenodes tredecimspinosus</i>	Car	CA		X	b	18	rub,cr
Family TRIGLIDAE							
<i>Bellator brachydir</i>	WA	CA			b	180	rub,rb
<i>Bellator militaris</i>	WA	CA			b	n.a.	rub,rb
<i>Bellator ribeiroi</i>	WA	H			b	n.a.	rub,rb
<i>Prionotus beani</i>	WA	H,N			b	n.a.	rub,rb
<i>Prionotus evolvans ?</i>	WA	N			b	12-40	rub,rb
<i>Prionotus ophryas</i>	Car	N,H			b	12-35	rub,rb
<i>Prionotus punctatus</i>	Car	CA		X	b	7-18	rub,rb
<i>Prionotus roseus</i>	WA	N			b	12-40	rub,rb
<i>Prionotus scitulus</i>	WA	CA			b	n.a.	b,rb,rb
<i>Prionotus stearnsi</i>	WA	CA			b	n.a.	rub,rb
Family DACTYLOPTERIDAE							
<i>Dactylopterus volitans</i>	Car	CA		X	b	2-35	rub,rb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family CENTROPOMIDAE						
<i>Centropomus ensiferus</i>	Car	CA	X	n	0.3–6	m,cl
<i>Centropomus paralellus</i>	Car	CA	X	n	n.a.	m,cl
<i>Centropomus pectinatus</i>	Car	CA	X	n	0.2–28	m,cl
<i>Centropomus undecimalis</i>	Car	CA	X	n	0.3–2	m,cl
Family SERRANIDAE						
<i>Alphesios afer</i>	Car	CA	X	eb	2	cr,rb
<i>Cephalopholis cruentata</i>	Car	CA	X	eb	0.5–8	cr,rb
<i>Cephalopholis fulva</i>	Car	CA	X	eb	0.5–8	cr,rb
<i>Diplacrum bivittatum</i>	Car	CA	X	eb	n.a.	mb,rub
<i>Epinephelus adscensionis</i>	Car,EA	CA	X	eb	n.a.	rb,rub
<i>Epinephelus guttatus</i>	Car	CA	X	eb	2–35	rb,rub
<i>Epinephelus itajara</i>	Car	P		eb	n.a.	rb,rub
<i>Epinephelus morio</i>	Car	P		eb	n.a.	rb,rub
<i>Epinephelus niveatus</i>	Car	CA	X	eb	n.a.	rb,rub
<i>Epinephelus striatus</i>	Car	CA		eb	n.a.	rb,rub
<i>Hemanthias vivanus</i>	Car	CA	X	n	11–180	wc
<i>Hypoplectrus puella</i>	WA	H		eb	35–55	rb,rub
<i>Mycteroperca acutirostris</i>	WA	P		eb	n.a.	rb,rub
<i>Mycteroperca bonaci</i>	WA	CA		eb	n.a.	rb,rub
<i>Paranthias fureifer</i>	WA	CA		n	n.a.	wc
<i>Promotogammus martinicensis</i>	WA	CA		n	n.a.	wc
<i>Serranus annularis</i>	Car	CA		eb	12–40	rb,rub
<i>Serranus atrobranchius</i>	WA	CA	X	eb	11–18	rb,rub
<i>Serranus baldwini</i>	n.a.	n.a.	X	eb	11–75	rb,rub
<i>Serranus flaviventris</i>	Car	CA	X	eb	2–12	rb,rub
<i>Serranus phoebe</i>	WA	CA	X	eb	11–15	rb,rub
<i>Serranus tigrinus</i>	Car	CA	X	eb	7–10	rb,rub

<i>Serranus tortugarum</i>	Car	N	X	eb	12-35	rb,rub
Family GRAMMISTIDAE						
<i>Pseudogramma gregoryi</i>	Car	CA	X	eb	0.5-8	rb,rub
<i>Rypiticus bistrirpinus</i>	EA,WA	CA	X	eb	12-40	rb,rub
<i>Rypiticus randalli</i>	WA	P	X	eb	7-20	rb,rub
<i>Rypiticus saponaceus</i>	Car,EA	CA	X	eb	0.5-8	rub,mb
<i>Rypiticus subbifrenatus</i>	WA	CA	X	eb	0.5-8	rb,rub
Family GRAMMATIDAE						
<i>Gramma loreto</i>	WA	CA	X	eb	n.a.	rb,rub
Family PRIACANTHIDAE						
<i>Heteropriacanthus cruentatus</i>	ct	CA	X	n	n.a.	wc
<i>Priacanthus arenatus</i>	Car,EA	CA	X	n	31-49	wc
<i>Pristigynys alba</i>	WA	CA	X	n	n.a.	wc
Family APOGONIDAE						
<i>Apogon affinis</i>	EA,WA	CA	X	eb	11-75	cr,rb
<i>Apogon maculatus</i>	WA	CA	X	eb	0.5-8	cr,rb
<i>Apogon townsendi</i>	WA	CA	X	eb	8	cr,rb
<i>Astrapogon stellatus</i>	WA	CA	X	eb	2-12	cr,rb
<i>Phaeptyx pigmentaria</i>	WA	CA	X	eb	0.5-8	cr,rb
Family MALACANTHIDAE						
<i>Caulolatilus cyanops</i>	Car	N	X	n	n.a.	wc
<i>Malacanthus plumieri</i>	WA	CA	X	b?	2-8	sb
Family RACHYCENTRIDAE						
<i>Rachycentron canadum</i>	cp	CA	X		7-240	wc
Family ECHENEIDAE						
<i>Echeneis naucrates</i>	ct	CA	X	n	4-7	wc
Family CORYPHAENIDAE						
<i>Coryphaena hippurus</i>	cp	CA	X	ep	n.a.	wc
<i>Coryphaena equiselis</i>	cp	CA	X	ep	n.a.	wc
Family CARANGIDAE						

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Alectis ciliaris</i>	ct	CA	X	n	6–64	wc
<i>Caranx bartholomaei</i>	Car	CA	X	n	2	wc
<i>Caranx crysos</i>	Car	CA	X	n	15	wc
<i>Caranx fuscus</i>	WA	CA		n	2	wc
<i>Caranx hippos</i>	ct	CA	X	n	0.2–30	wc
<i>Caranx latus</i>	Car,EA	CA	X	n	1–6	wc
<i>Caranx ruber</i>	Car	CA	X	n	2–6	wc
<i>Chloroscombrus chrysurus</i>	Car	CA	X	n	9–31	wc
<i>Decapterus macarellus</i>	Car	CA		n	n.a.	wc
<i>Decapterus punctatus</i>	Car	CA		n	35–49	wc
<i>Elagatis bipinnulatus</i>	ct	CA		n	n.a.	wc
<i>Hemicaranx amblyrhynchus</i>	Car	CA		n	2–18	wc
<i>Naucrates doctor</i>	ct	CA		n	15	wc
<i>Oligoplites palometa</i>	WA	G		n	n.a.	wc
<i>Oligoplites saliens</i>	WA	H	X	n	15	wc
<i>Oligoplites saurus</i>	Car	CA		n	n.a.	wc
<i>Selar crumenophthalmus</i>	ct	CA		n	n.a.	wc
<i>Selene setapinnis</i>	Car	CA	X	n	11–31	wc
<i>Selene vomer</i>	Car	CA	X	n	1–6	wc
<i>Seriola dumerili</i>	ct	CA		n	n.a.	wc
<i>Seriola rivoliana</i>	ct	CA		n	n.a.	wc
<i>Seriola zonata</i>	Car	CA		n	n.a.	wc
<i>Trachinotus carolinus</i>	Car	CA		n	n.a.	wc
<i>Trachinotus falcatus</i>	Car	CA		n	n.a.	wc
<i>Trachinotus goodie</i>	Car	CA		n	2	wc
<i>Trachurus lathami</i>	WA	CA		n	n.a.	wc
Family LUTJANIDAE						
<i>Lutjanus analis</i>	Car	CA	X	eb	1–2	m,sg

<i>Lutjanus apodus</i>	Car	CA	X	eb	0.3-3	sg, sb
<i>Lutjanus bucanella</i>	Car	CA	X	eb	n.a.	rb
<i>Lutjanus cyanopterus</i>	Car	CA	X	eb	n.a.	m, rb
<i>Lutjanus griseus</i>	Car, EA	CA	X	eb	n.a.	m, sb
<i>Lutjanus jocu</i>	Car	CA	X	eb	n.a.	rb
<i>Lutjanus mahogany</i>	Car	CA	X	eb	0.5-7	sb, sg
<i>Lutjanus purpureus</i>	Car	CA	X	eb	0.3-76	n.a.
<i>Lutjanus synagris</i>	Car	CA	X	eb	2-49	sb
<i>Lutjanus vivanus</i>	Car	CA	X	eb	n.a.	sb
<i>Ocyurus chrysurus</i>	Car, EA	CA	X	eb	1-35	wc
<i>Pristipomoides aquilonaris</i>	Car	CA	X	eb	18	n.a.
<i>Pristipomoides freemani</i>	WA	PB		n.a.	n.a.	n.a.
<i>Pristipomoides macrophthalmus</i>	Car	G, P		eb	n.a.	n.a.
<i>Rhomboplites aurorubens</i>	Car	CA		eb	n.a.	sb
Family LOBOTIDAE						
<i>Lobotes surinamensis</i>	cp	CA		eb	n.a.	wc
Family GERREIDAE						
<i>Diapterus auratus</i>	WA	CA	X	eb eb	n.a.	mb
<i>Diapterus rhombeus</i>	Car	CA	X	eb	n.a.	mb
<i>Eucinostomus argenteus</i>	Car	CA	X	eb	2	mb
<i>Eucinostomus gula</i>	Car	CA	X	eb	2-31	mb
<i>Eucinostomus harengulus</i>	WA	CA	X	eb	n.a.	mb
<i>Eucinostomus melanopterus</i>	Car	CA	X	eb	0.2-18	mb
<i>Eugerres brasiliianus</i>	WA	CA		eb	0-3	mb
<i>Eugerres plumieri</i>	Car	CA	X	eb	1-7	mb
<i>Gerres cinereus</i>	Car	CA		eb	n.a.	mb
Family HAEMULIDAE						
<i>Anisostremus surinamensis</i>	Car	CA	X	eb	2-4	mb
<i>Anisostremus virginicus</i>	Car	CA	X	eb	2-8	rb
<i>Conodon nobilis</i>	Car	CA	X	eb	1-18	mb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Haemulon album</i>	Car	CA		eb	n.a.	rb
<i>Haemulon aurolineatum</i>	Car	CA	X	eb	2–49	rb
<i>Haemulon bonariense</i>	Car	CA	X	V	2–6	rb
<i>Haemulon carbonarium</i>	Car	CA	X	eb	0.5–4	rb
<i>Haemulon chrysargyreum</i>	Car	CA		eb	n.a.	rb
<i>Haemulon flavolineatum</i>	Car	CA	X	eb	1–8	rb
<i>Haemulon macrostomum</i>	Car	CA	X	eb	0.5–8	rb
<i>Haemulon melanurum</i>	Car	CA		eb	n.a.	rb
<i>Haemulon parrai</i>	Car	CA	X	eb	0.5–8	rb
<i>Haemulon plumieri</i>	Car	CA	X	eb	2–12	rb
<i>Haemulon sciurus</i>	Car	CA	X	eb	2	rb
<i>Haemulon steindachneri</i>	Car	CA	X	eb	2–18	rb
<i>Haemulon striatum</i>	Car	CA		eb	n.a.	rb
<i>Haemulopsis corvinaeformis</i>	Car	CA	X	eb	7–18	mb
<i>Pomadasys croco</i>	Car	CA	X	eb	0.4–2	sb
<i>Orthopristis ruber</i>	WA	H		eb	n.a.	mb
Family SPARIDAE						
<i>Archosargus probatocephalus</i>	WA	CA		eb	n.a.	sb
<i>Archosargus rhomboidalis</i>	WA	CA		eb	n.a.	sb
<i>Calamus bajonado</i>	Car	CA		eb	n.a.	sb
<i>Calamus penna</i>	Car	CA		eb	6–27	sb
<i>Calamus pennatula</i>	Car	CA	X	eb	18–49	sb
<i>Pagrus pagrus</i>	WA	CA		eb	n.a.	sb
Family SCIAENIDAE						
<i>Bairdiella ronchus</i>	Car	CA	X	eb	7–37	mb
<i>Corvula sanctaeluiciae</i>	Car	CA	X	eb	2–18	mb
<i>Ctenosciaena gracilicirrus</i>	WA	N	X	eb	11–31	mb

<i>Cynoscion acoupa</i>	WA	P		eb	n.a.	mb
<i>Cynoscion jamaicensis</i>	Car	CA	X	eb	7-18	mb
<i>Cynoscion leiarchus</i>	WA	P		eb	n.a.	mb
<i>Cynoscion virens</i>	WA	N	X	eb	15	mb
<i>Equetus lanceolatus</i>	WA	CA		eb	n.a.	mb
<i>Equetus punctatus</i>	Car	CA		eb	8-10	mb
<i>Isopisthus parvipinnis</i>	WA	CA	X	eb	n.a.	mb
<i>Larimus breviceps</i>	Car	CA	X	eb	7-18	mb
<i>Menticirrhus americanus</i>	Car	CA	X	eb	7-18	mb
<i>Menticirrhus littoralis</i>	WA	CA		eb	n.a.	mb
<i>Micropogonias furnieri</i>	Car	CA		eb	2-18	mb
<i>Odonotocion dentex</i>	Car	CA	X	eb	2-8	mb
<i>Ophioscion punctatissimus</i>	WA	CA	X	eb	n.a.	mb
<i>Paralichthys brasiliensis</i>	WA	P	X	eb	15-18	mb
<i>Paralichthys trewavasae</i>	WA	P		n.a.	n.a.	n.a.
<i>Pareques acuminatus</i>	Car	CA	X	eb	1-8	mb
<i>Pareques iwamotoi</i>	WA	CA		eb	n.a.	mb
<i>Pareques umbrosus</i>	WA	CA		eb	n.a.	mb
<i>Prosciaena bathytatos</i>	WA	P		eb	n.a.	mb
<i>Stellifer colonensis</i>	Car	P		eb	n.a.	mb
<i>Stellifer stellifer</i>	WA	P		eb	n.a.	mb
<i>Stellifer venezuelae</i>	WA	H		eb	n.a.	mb
<i>Umbrina broussonnetii</i>	Car	CA	X	eb	9-20	mb
<i>Umbrina coroides</i>	Car	P		eb	n.a.	mb
Family MULLIDAE						
<i>Mulloidichthys martinicus</i>	Car	CA	X	eb	2-4	cr
<i>Mullus auratus</i>	Car	CA		eb	n.a.	sb
<i>Pseudupeneus maculatus</i>	Car	CA		eb	n.a.	sb,mb
<i>Upeneus parvus</i>	Car	CA	X	eb	11-18	sb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family PEMPHRIDAE						
<i>Pempherus schomburgki</i>	WA	CA	X	n	0.5–2	wc
Family KYPHOSIDAE						
<i>Kyphosus incisor</i>	Car	CA	X	n.a.	2	wc
<i>Kyphosus sectatrix</i>	Car	CA	X	n	1–2	wc
Family EPHIPPIDAE						
<i>Chaetodipterus faber</i>	Car	CA	X	eb	6–18	wc
Family CHAETODONTIDAE						
<i>Chaetodon capistratus</i>	Car	CA	X	eb	2–8	cr,rb
<i>Chaetodon ocellatus</i>	WA	CA	X	eb	0.5–35	cr,rb
<i>Chaetodon sedentarius</i>	WA	CA		eb	n.a.	cr,rb
<i>Chaetodon striatus</i>	EA, WA	CA	X	eb	0.5–35	cr,rb
<i>Prognathodes aculeatus</i>	Car, WA			eb	n.a.	cr,rb
Family POMACANTHIDAE						
<i>Centropyge argi</i>	Car	CA		eb	12	cr,rb
<i>Holacanthus ciliaris</i>	Car	CA	X	eb	2–8	cr,rb
<i>Holocanthus tricolor</i>	Car	CA	X	eb	8	cr,rb
<i>Pomacanthus arcuatus</i>	Car	CA	X	eb	2–35	cr,rb
<i>Pomacanthus paru</i>	Car, EA	CA	X	eb	2–4	cr,rb
Family POMACENTRIDAE						
<i>Abudefduf saxatilis</i>	Car	CA	X	it, st	0.3–7	cr,rb
<i>Abudefduf taurus</i>	Car	CA	X	it, st	0.3–8	cr,rb
<i>Chromis cyanea</i>	Car	CA		n	8–10	wc
<i>Chromis multilineata</i>	Car	CA	X	n	2–8	wc
<i>Microspathodon chrysurus</i>	EA, WA	CA	X	it, st	0.5–8	cr,rb
<i>Stegastes adustus</i>	Car	CA	X	it, st	1–8	cr,rb
<i>Stegastes leucostictus</i>	EA, WA	CA	X	it, st	0.5–8	cr,rb
<i>Stegastes planifrons</i>	Car	CA	X	it, st	0.5–8	cr,rb
<i>Stegastes variabilis</i>	WA	CA	X	it, st	2–7	cr,rb

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Hemipteronotus splendens</i>	WA	CA	X	st	4	sb
<i>Lachnolaimus maximus</i>	Car	CA	X	st	n.a.	rb
<i>Thalassoma bifasciatum</i>	EA, WA	CA	X	st	0.3–8	cr,rb
<i>Xyrichtys martinicensis</i>	WA	CA		st	n.a.	sb
<i>Xyrichtys novacula</i>	WA	CA		st	n.a.	sb
<i>Xyrichtys splendens</i>	WA	CA		st	n.a.	sb
Family SCARIDAE						
<i>Cryptotomus roseus</i>	Car	CA	X	st		cl, sb, sg
<i>Nicholsina usta</i>	Car	CA	X	st	6–31	rb
<i>Scarus coelestinus</i>	Car	CA	X	st	2	rb
<i>Scarus coeruleus</i>	Car	CA		st	n.a.	rb
<i>Scarus iseri</i>	Car	CA	X	st	2–3	rb, sg
<i>Scarus guacamaia</i>	Car, EA	CA	X	st	3	rb
<i>Scarus taeniopterus</i>	Car	CA	X	st	n.a.	rb
<i>Scarus vetula</i>	Car	CA	X	st	1–8	rb
<i>Sparisoma aurofrenatum</i>	Car	CA	X	st	8–44	rb
<i>Sparisoma chrysopterygum</i>	Car	CA	X	st	0.5–8	rb
<i>Sparisoma radians</i>	Car, EA	CA	X	st	1–31	rb
<i>Sparisoma rubripinne</i>	Car, EA	CA	X	st	0.5–4	rb, sg
<i>Sparisoma viride</i>	Car	CA	X	st	0.5–8	rb, sg
Family OPISTOGNATHIDAE						
<i>Lonchistium lemur</i>	Car	CA		b	180	n.a.
<i>Lonchopisthus hignani</i>	Car	CA		b	6–7	sb
<i>Opistognathus macrognaathus</i>	Car	CA	X	b	n.a.	sb
<i>Opistognathus maxillosus</i>	n.a.			b	1–7	sb
Family PERCOPHIDAE						
<i>Benbrops anatrostris</i>	WA	CA		n.a.	18	n.a.

Family DACTYLOSCOPIIDAE									
<i>Dactyloscopus crossotus</i>	WA	CA		b	12	sb			
<i>Dactyloscopus peraitikos</i>	Car	P		b	n.a.	sb			
<i>Dactyloscopus tridigitatus</i>	WA	CA	X	b	0.5-4	sb			
<i>Gillulus greyae</i>	WA	CA,B			n.a.	sb			
<i>Gillulus rubrocinctus</i>	WA	CA	X	b	0.5-7	sb			
<i>Gillulus uranidea</i>	Car	B,P			n.a.	sb			
Family URANOSCOPIIDAE									
<i>Astroscopus γ-graecum</i>	WA	H		b	n.a.	sb			
<i>Kathetostoma cubana</i>	WA	H		b	180	sb			
Family BLENNIIDAE									
<i>Entomacrodus nigriticans</i>	WA	CA	X	b	0.5-8	rb			
<i>Hypleurochilus bermudensis</i>	Car	CA		b	n.a.	rb			
<i>Hypleurochilus springeri</i>	WA	CA		b	2	rb			
<i>Hypsoblennius invemar</i>	WA	P	X	b	8	rb			
<i>Lupinoblennius nicholsi</i>	WA	CA	X	b	0.5-3	rb			
<i>Lupinoblennius vinctus</i>	WA	CA		b	n.a.	rb			
<i>Ophioblennius atlanticus</i>	Car	CA	X	b	0.5-4	rb			
<i>Scartella cristata</i>	WA	CA	X	b	0.5-8	rb			
Family TRIPTERYGIIDAE									
<i>Enneanectes ativelis</i>	Car	CA	X	b	7-8	rb			
<i>Enneanectes atrorus</i>	Car	CA	X	b	2-8	rb			
<i>Enneanectes boehlkei</i>	Car	CA	X	b	0.5-8	rb			
<i>Enneanectes pectoralis</i>	Car	CA	X	b	0.5-8	rb			
Family LABRISOMIDAE									
<i>Labrisomus bucciferus</i>	WA	CA	X	b	1-4	rb			
<i>Labrisomus gobio</i>	Car	CA		b	2-8	rb			
<i>Labrisomus guppyi</i>	WA	CA		b	n.a.	rb			
<i>Labrisomus haitiensis</i>	Car	B		b	n.a.	rb			
<i>Labrisomus kalisherai</i>	WA	CA	X	b	0.5-3	rb			

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Labrisomus nigrinctus</i>	WA	CA		b	n.a.	rb
<i>Labrisomus nuchipinnis</i>	EA, WA	CA	X	b	0.5–4	rb
<i>Malacotenus aurolineatus</i>	WA	CA		b	n.a.	n.a.
<i>Melacotenus delalandi</i>	WA	CA	X	b	n.a.	rb
<i>Melacotenus gilli</i>	Car	H		b	n.a.	rb
<i>Melacotenus triangulatus</i>	WA	CA	X	b	1–8	rb
<i>Malacotenus</i> sp.	WA	P		b	n.a.	rb
<i>Paraclinus cingulatus</i>	Car	CA	X	b	0.5–8	rb
<i>Paraclinus fasciatus</i>	Car	CA	X	b	1–30	rb
<i>Paraclinus grandicornis</i>	Car	H		b	n.a.	rb
<i>Paraclinus marmoratus</i>	WA	CA		b	n.a.	rb
<i>Paraclinus nigripinnis</i>	WA	CA	X	b	1–4	rb
<i>Starksia occidentalis</i>	Car	P		b	n.a.	rb
<i>Starksia sluiteri</i>	Car	CA	X	b	0.5–7	rb
<i>Starksia starecki</i>	Car	H		b	n.a.	rb
Family CHAENOPSIDAE						
<i>Acanthemblemaria aspera</i>	Car	CA	X	b	8	rb
<i>Acanthe betinensis</i>	WA	CA	X	b	7–8	rb
<i>Acanthe rivasi</i>	WA	P	X	b	0.5–8	rb
<i>Acanthe spinosa</i>	Car	CA		b	n.a.	rb
<i>Chaenopsis limbaughi</i>	Car	CA		b	n.a.	sb
<i>Chaenopsis ocellata</i>	Car	CA		b	n.a.	sb
<i>Coralliozetus cardonae</i>	Car	CA	X	b	2–8	rb
<i>Ekemblemaria nigra</i>	WA	P	X	b	1–4	n.a.
<i>Emblemaria pandionis</i>	Car	CA		b	n.a.	n.a.
<i>Emblemaria hyltoni</i>	Car	H		b	n.a.	sb
<i>Hemiemblemaria simulus</i>	Car	H		b	n.a.	sb

<i>Stathmonotus gymnodermis</i>	Car	CA	X	b	2	rb
<i>Stathmonotus stahli</i>	Car	H		b	n.a.	rb
Family ELEOTRIDAE						
<i>Dormitator maculatus</i>	WA	CA	X	b	n.a.	mb
<i>Eleotris ambyoposis</i>	WA	CA	X	b	n.a.	mb,rb
<i>Eleotris pisonis</i>	WA	CA	X	b	n.a.	mb,rb
<i>Erotelis smaragdus</i>	WA	CA	X	b	n.a.	mb
<i>Gobiomorus dormitor</i>	WA	CA	X	b	n.a.	rb,sb
<i>Guavina guavina</i>	WA	P	X	b	n.a.	sb
Family GOBIIDAE						
<i>Barbulifer ceuthoecus</i>	WA	CA	X	b	1	n.a.
<i>Bathygobius mystacium</i>	Car	CA		b	n.a.	sb,mb
<i>Bathygobius soporator</i>	Car,EA	CA	X	b	0.5-6	rb
<i>Bolmannia boqueronensis</i>	WA	CA		b	n.a.	mb
<i>Coryphopterus dicrus</i>	Car	CA	X	b	0.5-8	sb
<i>Corythopterus glaucofraenum</i>	WA	CA	X	b	n.a.	sb
<i>Corythopterus lipernes</i>	Car	CA		b	n.a.	sb
<i>Ctenogobius boleosoma</i>	WA	CA	X	b	1-2	sb
<i>Ctenogobius fasciatus</i>	Car	CA	X	b	0.3-2	sb
<i>Ctenogobius saepepallens</i>	WA	CA	X	b	2-8	sb
<i>Elacatinus illecebrosus</i>	WA	P	X	b	4	mb
<i>Elacatinus multifasciatus</i>	WA	CA	X	b	1-3	mb
<i>Evorthodus lyricus</i>	WA	CA	X	b	0.3-2	sb
<i>Ginsburgellus novemlineatus</i>	Car	CA		b	n.a.	n.a.
<i>Gnatholepis thompsoni</i>	Car	CA	X	b	0.5-8	rb
<i>Gobioides broussoneti</i>	WA	CA		b	n.a.	sb
<i>Gobionellus hildebrandi</i>	Car	P		b	n.a.	mb
<i>Gobionellus oceanicus</i>	WA	CA		b	7-18	sb
<i>Gobionellus spilotum</i>	WA	P	X	n.a.	8	mb
<i>Gobiosoma spes</i>	WA	CA		b	n.a.	mb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Gobulus myersi</i>	WA	CA		b	n.a.	sb
<i>Lophogobius cyprinoides</i>	WA	CA		b	n.a.	mb
<i>Lythrypnus mowbrayi</i>	Car	CA	X	b	n.a.	rb
<i>Lythrypnus nesiotis</i>	Car	CA	X	b	8	rb
<i>Lythrypnus phorellus</i>	Car	CA		b	n.a.	sb
<i>Microgobius signatus</i>	WA	N		b	n.a.	sb
<i>Nes longus</i>	WA	P		b	n.a.	mb
<i>Palatogobius paradoxus</i>	WA	P		b	n.a.	n.a.
<i>Priolepis hipoliti</i>	WA	CA	X	b	0.5–8	rb
<i>Psilotris batrachoides</i>	WA	H		b	n.a.	n.a.
<i>Psilotris kaufmani</i>	WA	H		b	n.a.	n.a.
Family MICRODESIMIDAE						
<i>Cerdale floridana</i>	WA	CA		b	n.a.	mb, sb
<i>Microdesmus carri</i>	Car	CA		b	n.a.	mb
<i>Microdesmus luscus</i>	Car	P		b	n.a.	mb
Family ACANTHURIDAE						
<i>Acanthurus bahianus</i>	Car	CA	X	st	0.5–8	cr, rb
<i>Acanthurus chirurgus</i>	Car	CA	X	st	0.3–8	cr, rb
<i>Acanthurus coeruleus</i>	Car	CA	X	st	0.5–7	cr, rb
Family TRICHIURIDAE						
<i>Trichiurus lepturus</i>	Car	CA	X	n	11–46	wc
Family SCOMBRIDAE						
<i>Acanthocybium solandri</i>	cp	CA		ep	n.a.	wc
<i>Auxis rochei</i>	cp	CA		ep	n.a.	wc
<i>Euthynnus alletteratus</i>	Car, E.A., Med	CA		ep	n.a.	wc
<i>Katsuwonus pelamis</i>	cp	CA		ep	n.a.	wc
<i>Scomberomorus brasiliensis</i>	WA	CA	X	ep	4–40	wc

<i>Thunnus albacares</i>	ct	CA			ep	n.a.	wc
<i>Thunnus atlanticus</i>	Car	CA			ep	n.a.	wc
<i>Thunnus obesus</i>	ct	CA			ep	n.a.	wc
Family ISTIOPHORIDAE							
<i>Istiophorus albicans</i>	WA	CA			ep	n.a.	wc
<i>Tetrapturus albidus</i>	WA	CA			ep	n.a.	wc
Family GEMPYLIDAE							
<i>Ruvettus pretiosus</i>	ct	CA	X		ep	240	wc
Family STROMATEIDAE							
<i>Peprilus paru</i>	Car	CA	X		n	18	wc
Family BOTHIDAE							
<i>Bothus lunatus</i>	Car	CA			b	n.a.	sb
<i>Bothus maculiferus</i>	Car	CA			b	n.a.	sb
<i>Bothus ocellatus</i>	WA	CA	X		b	1-35	sb
<i>Bothus robinsi</i>	WA	CA			b	n.a.	sb
<i>Engyophrys senta</i>	WA	CA	X		b	18	mb
<i>Trichopsetta caribbea</i>	WA	CA	X		b	n.a.	mb
Family PARALICHTHYIDAE							
<i>Ancylopsetta cycloidea</i>	WA	N			b	n.a.	sb
<i>Citharichthys arcifrons</i>	WA	H			b	n.a.	mb
<i>Citharichthys gymnorhinus</i>	WA	CA			b	n.a.	sb
<i>Citharichthys cornutus</i>	WA	CA			b	n.a.	sb
<i>Citharichthys macrops</i>	WA	CA			b	n.a.	sb
<i>Citharichthys spilopterus</i>	WA	CA	X		b	0.2-20	mb
<i>Citharichthys uhleri</i>	Car	CA	X		b	1-2	mb
<i>Cyclopsetta chittendeni</i>	WA	CA	X		b	9-60	mb
<i>Cyclopsetta fimbriata</i>	WA	CA			b	35	mb
<i>Etropus crossotus</i>	EP,WA	CA			b	n.a.	sb
<i>Paralichthys albigutta</i>	WA	P			b	n.a.	mb
<i>Syacium gunteri</i>	WA	CA	X		b	15-20	mb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
<i>Syacium micrurum</i>	EA, WA	CA	X	b	2–15	mb
<i>Syacium papillosum</i>	WA	CA		b	2–31	mb
Family ACHIRIDAE						
<i>Achirus declivifrons</i>	n.a.		X	n.a.	n.a.	n.a.
<i>Achirus lineatus</i>	WA	CA	X	b	1–20	mb
<i>Gymnachirus nudus</i>	WA	CA	X	b	6	mb
<i>Trinectes inscriptus</i>	Car	CA	X	b	1	mb
<i>Trinectes maculatus</i>	WA	CA		b	n.a.	mb
<i>Trinectes paulistanus</i>	WA	CA	X	b	0.4–18	mb
Family CYNOGLOSSIDAE						
<i>Symphurus arawak</i>	Car	CA		b	n.a.	mb
<i>Symphurus caribbeanus</i>	Car	CA		b	n.a.	mb
<i>Symphurus diomedianus</i>	Car	CA		b	n.a.	mb
<i>Symphurus marginatus</i>	Car	CA		b	n.a.	mb
<i>Symphurus parvus</i>	WA	CA		b	n.a.	mb
<i>Symphurus pelicanus</i>	Car	CA		b	n.a.	mb
<i>Symphurus plagusia</i>	WA	CA	X	b	9–20	mb
<i>Symphurus tessellatus</i>	Car	CA		b	n.a.	mb
Family BALISTIDAE						
<i>Balistes capricus</i>	Car, EA	CA		n	2–31	cr, rb
<i>Balistes vetula</i>	Car, EA	CA	X	n	0.5–49	cr, rb
<i>Canthidermis maculata</i>	Ct	CA		n	n.a.	wc
<i>Canthidermis sufflamen</i>	WA	CA		n	n.a.	wc
<i>Melichthys niger</i>	Car, EA, EP	CA		n	n.a.	cr, rb
<i>Xanthichthys ringens</i>	WA	CA		n	n.a.	wc

Family MONACANTHIDAE									
<i>Alutera heudoloti</i>	EA, WA	CA		n	n.a.				wc
<i>Alutera monoceros</i>	WA	CA		n	n.a.				wc
<i>Alutera schoepfii</i>	Car	CA		n	n.a.				f,wc
<i>Alutera scriptus</i>	WA	CA		n	n.a.				wc
<i>Cantherhines pullus</i>	Car,EA	CA		n	2-35				rb
<i>Monacanthus ciliatus</i>	Car,EA	CA		n	6-35				wc
<i>Stephanolepis hispidus</i>	WA	CA		n	n.a.				wc
<i>Stephanolepis setifer</i>	Car	CA	X	n	n.a.				wc
Family OSTRACIONTIDAE									
<i>Acanthostracion polygonus</i>	WA	CA		n	n.a.				cr,rb
<i>Acanthostracion quadricornis</i>	Car,EA	CA	X	eb	6-35				cr,rb
<i>Lactophrys trigonus</i>	Car	CA	X	eb	2-3				rb
<i>Lactophrys triquetter</i>	Car	CA	X	eb	0.5-2				rb
<i>Rhinesomus bicaudalis</i>	Car	CA		eb	35				rb
Family TETRAODONTIDAE									
<i>Canthigaster rostrate</i>	Car,EA	CA	X	eb	0.5-44				cr,rb
<i>Lagocephalatus laevigatus</i>	Car,EA	CA	X	eb	6				n.a.
<i>Lagocephalatus lagocephalus</i>	ct	CA		eb	n.a.				n.a.
<i>Sphoeroides dorsalis</i>	WA	CA	X	eb	12-31				mb
<i>Sphoeroides greeleyi</i>	Car	CA		eb	12				mb
<i>Sphoeroides nephelus</i>	Car	CA		eb	6				mb
<i>Sphoeroides pachygaster</i>	ct	CA		eb	n.a.				n.a.
<i>Sphoeroides spengleri</i>	Car	CA	X	eb	2-35				mb
<i>Sphoeroides testudineus</i>	Car	CA	X	eb	2				mb
<i>Sphoeroides yergeri</i>	WA	H		eb	n.a.				n.a.
Family DIODONTIDAE									
<i>Chilomycterus antennatus</i>	Car	CA		eb	12				rb
<i>Chilomycterus antillarum</i>	WA	CA	X	eb	7-35				rb
<i>Diodon hystrix</i>	Car	CA		eb	n.a.				rb
<i>Diodon holocanthus</i>	ct	CA		eb	n.a.				rb

(continued)

Species List 39.1 (continued)

Species	World distribution ^a	Central America ^b	UCR ^c	Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
Family MOLIDAE						
<i>Mola mola</i>	ct	CA		ep	n.a.	wc
<i>Ranzania laevis</i>	ct	CA		ep	n.a.	wc

n.a.= information not available

^aCar = Caribbean; cp = cosmopolitan; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; Med = Mediterranean; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; B = Belize; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^cUCR: X = specimens deposited at University of Costa Rica (Museo de Zoología)

^db= benthic; eb epibenthic; ep = epipelagic; it = intertidal; mp = mesopelagic; n = neritic; st = subtidal

^eUppermost and lowermost occurrences in Costa Rican samples (trawl, seine, ichthyocide, etc.).

^fc = commensal; cl = coastal lagoons; cr = coral reefs; f = flotsam; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; sg = seagrass; wc = water column

Species List 39.2 Fishes reported and expected from the Pacific coast of Costa Rica

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UR			
CARTILAGINOUS FISHES						
Family HETERODONTIDAE						
<i>Heterodontus mexicanus</i>	EP	CA	X	b	46–72	rb, sb
Family LAMNIDAE						
<i>Carcharodon carcharias</i>	ct	CA		mp	n.a.	wc
Family ALOPIIDAE						
<i>Alopias superciliosus</i>	n.a.	CA	X	n	180	wc
<i>Alopias vulpinus</i>	n.a.	CA	X	n	51	wc
<i>Alopias pelagicus</i>	n.a.	CA		n	n.a.	wc
Family GINGLYMOSTOMATIDAE						
<i>Ginglymostoma cirratum</i>	EPEA, WA	CA	X	b	35–55	sb
Family RHINCODONTIDAE						
<i>Rhincodon typus</i>	ct	CA		ep	n.a.	wc
Family TRIAKIDAE						
<i>Mustelus dorsalis</i>	n.a.	CA	X	n.a.	n.a.	wc
<i>Mustelus lunulatus</i>	n.a.	CA	X	n.a.	10–194	wc
Family CARCHARINIDAE						
<i>Carcharhinus albimarginatus</i>	IPEP	CA	X	ep	n.a.	wc
<i>Carcharhinus altimus</i>	ct	CA		ep	n.a.	wc
<i>Carcharhinus falciformis</i>	ct	CA	X	ep	n.a.	wc
<i>Carcharhinus galapagensis</i>	ct	CA		ep	n.a.	wc
<i>Carcharhinus leucas</i>	EP, WA	CA	X	ep	n.a.	wc
<i>Carcharhinus limbatus</i>	ct	CA	X	ep	n.a.	wc
<i>Carcharhinus porosus</i>	EP, WA	CA	X	ep	3–27	wc
<i>Carcharhinus signatus</i>	n.a.	H,N,P	X	ep	10–56	wc
<i>Galeocerdo cuvier</i>	ct	CA	X	ep	n.a.	wc

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Nasolamia velox</i>	EP	CA	X	PM	ep	n.a.	wc
<i>Negaprion brevirostris</i>	ct	CA		PM	ep	n.a.	wc
<i>Rhizoprionodon longurio</i>	ct	CA	X	PM,IC	ep	3–36	wc
<i>Triaenodon obesus</i>	IPEP	P	X	PM,IC	b	13	sb
Family SPHYRNIDAE							
<i>Sphyrna corona</i>	EP	CA	X	PM	ep	15–48	wc
<i>Sphyrna lewini</i>	ct	CA	X	PM,IC	ep	36	wc
<i>Sphyrna media</i>	EP,WA	CA		PM	ep	n.a.	wc
<i>Sphyrna mokarran</i>	ct	CA		PM,IC	ep	n.a.	wc
<i>Sphyrna tiburo</i>	EP,WA	CA	X	PM	ep	6–27	n.a.
<i>Sphyrna zygaena</i>	ct	CA		PM	ep	n.a.	n.a.
Family DALATIIDAE							
<i>Centroscyllium nigrum</i>	n.a.	CA	X	PM	n.a.	770–880	n.a.
Family ECHINORHINIDAE							
<i>Echinorhinus cookei</i>	n.a.	CA	X	PM	ep	275–329	eb
Family SQUATINIDAE							
<i>Squatina californica</i>	n.a.	CA	X	PM	b	80	b
Family PRISTIDAE							
<i>Pristis pristis</i>	ct	CA	X	PM	b	n.a.	mb, sb
Family RHINOBATIDAE							
<i>Rhinobatos glaucostigma</i>	EP	CA	X	PM	b	n.a.	mb
<i>Rhinobatos leucorhynchus</i>	EP	CA	X	PM	b	9–64	mb
<i>Rhinobatos planiceps</i>	EP	CA	X	PM,IC	b	n.a.	mb
<i>Zapteryx xyster</i>	EP	CA	X	PM	b	5–82	mb
Family RAJIDAE							
<i>Raja badia</i>	EP	P		PM	b	n.a.	mb
<i>Raja cortezensis</i>	EP	CA		PM	b	15–90	mb

<i>Raja equatorialis</i>	EP	CA	X	PM	b	20-91	mb
<i>Raja vezei</i>	EP	CA	X	PM	b	15-91	mb
<i>Raja</i> sp.	EP	CA	X	PM	b	36-91	mb
Family DASYPATIDAE							
<i>Dasyatis dipterura</i>	EP	CA		PM	b	0-20	mb
<i>Dasyatis longa</i>	EP	CA	X	PM	b	n.a.	mb
<i>Himantura pacifica</i>	EP	CA	X	PM	b	n.a.	mb
<i>Taeniura meyeni</i>	IP/EP		X	IC	eb	10-20	sb
Family GYMNURIDAE							
<i>Gymnura afuerae</i>	EP	CA	X	PM	b	n.a.	mb
<i>Gymnura marmorata</i>	EP	CA	X	PM	b	n.a.	mb
Family UROLOPHIDAE							
<i>Urobatis concentricus</i>	EP	CA	X	PM	b	11-53	mb
<i>Urobatis halleri</i>	EP	CA	X	PM	b	0.6-11	mb
<i>Urotrygon aspidura</i>	EP	CA	X	PM	b	10-20	mb
<i>Urotrygon chilensis</i>	EP	CA	X	PM	b	5-130	mb
<i>Urotrygon cimar</i>	EP	P	X	PM	b	10	mb
<i>Urotrygon munda</i>	EP	CA	X	PM	b	9	mb
<i>Urotrygon nana</i>	EP	CA	X	PM	b	5-156	mb
<i>Urotrygon reticulata</i>	EP	P	X	PM	b	n.a.	mb
<i>Urotrygon rogersi</i>	EP	CA	X	PM	b	10-17	mb
<i>Urotrygon simulatrix</i>	EP	P		PM	b	n.a.	mb
Family MYLIOBATIDAE							
<i>Aetobatus narinari</i>	ct	CA	X	PM,IC	ep	7-40	wc
<i>Pteromylaeus asperimus</i>	EP	P		PM	n.a.	n.a.	n.a.
<i>Rhinoptera steindachneri</i>	EP	CA	X	IC	ep	36	wc
Family MOBULIDAE							
<i>Manta birostris</i>	ct	CA		PM,IC	ep	n.a.	wc
<i>Mobula japonica</i>	ct	CA		PM	ep	n.a.	wc
<i>Mobula munkiana</i>	n.a.	CA		PM,IC	ep	n.a.	wc

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Mobula thurstoni</i>	ct	CA		PM	n.a.	wc	
<i>Mobula tarapacana</i>	IPEA,EP	CA		PM,IC	n.a.	wc	
Family NARCINIDAE							
<i>Diplobatis ommata</i>	EP	CA	X	PM	12–106	mb	
<i>Narcine entemedor</i>	EP	CA	X	PM	18–60	mb	
<i>Narcine vermiculatus</i>	EP	CA	X	PM	13–40	mb	
Family TORPEDINIDAE							
<i>Torpedo peruana</i>	EP	CA	X	PM	80–274	mb	
BONY FISHES							
Family ELOPIDAE							
<i>Elops affinis</i>	EP	CA	X	PM	3–16	wc	
Family ALBULIDAE							
<i>Albula esucla</i>	EP	CA	X	PM	1–42	wc	
<i>Albula nemoptera</i>	EP,Car	CA	X	PM	23	wc	
Family MORINGUIDAE							
<i>Neoconger vermiformis</i>	EP	CA	X	PM	4–36	sb	
Family CHLOPSIDAE							
<i>Chlopsis aptenus</i>	EP	CA	X	PM	55–108	n.a.	
<i>Chlopsis kazutko</i>	EP	CA		PM	n.a.	n.a.	
Family MURAEINIDAE							
<i>Anarchias galapagensis</i>	EP	CA	X	PM,IC	1–18	cr,rb	
<i>Echidna nebulosa</i>	EP	CA	X	PM,IC	0.2–15	cr,rb	
<i>Echidna nocturna</i>	EP	CA	X	PM,IC	n.a.	cr,rb	
<i>Enchelycore octaviana</i>	EP	CA	X	PM,IC	0.5–18	cr,rb	
<i>Gymnomuraena zebra</i>	IPEP	CA	X	PM,IC	0.3–9	cr,rb	
<i>Gymnothorax burroensis</i>	IPEP	P	X	PM,IC	0–15	cr,rb	

<i>Gymnothorax castaneus</i>	EP	CA	X	PM,IC	b	1-30	cr,rb
<i>Gymnothorax dovii</i>	EP	P	X	PM,IC	b	0.2-11	cr,rb
<i>Gymnothorax equatorialis</i>	EP	CA	X	PM	b	21-130	mb
<i>Gymnothorax flavimarginatus</i>	I,EP	P	X	PM,IC	b	0.3-12	cr,rb
<i>Gymnothorax javanicus</i>	n.a.	n.a.	n.a.	IC	n.a.	n.a.	n.a.
<i>Gymnothorax meleagris</i>	n.a.	n.a.	n.a.	IC	n.a.	n.a.	n.a.
<i>Gymnothorax panamensis</i>	EP	CA	X	PM,IC	b	0.2-12	cr,rb
<i>Gymnothorax phalarus</i>	EP	CA	X	PM	b	54-295	mb
<i>Gymnothorax undulatus</i>	I,EP	P	X	PM	b	3-12	cr,rb
<i>Gymnothorax verrilli</i>	EP	CA	X	PM	b	12-35	cr,rb
<i>Muraena argus</i>	EP	CA	X	PM,IC	b	53-94	sb
<i>Muraena clepsydra</i>	EP	CA	X	PM,IC	b	0.2-57	cr,rb
<i>Muraena lentiginosa</i>	EP	CA	X	PM,IC	b	0.2-12	cr,rb
<i>Scuticaria tigrina</i>	EP	CA	X	PM,IC	b	9-15	cr,rb
<i>Sideria picta</i>	I,EP	CA	X	PM,IC	b	n.a.	cr,rb
<i>Uropterygius macrocephalus</i>	IO,EP	CA	X	PM,IC	b	0.3-6	cr,rb
<i>Uropterygius versutus</i>	EP	CA	X	PM,IC	b	0.3-30	cr,rb
Family HETERENCHELIDAE							
<i>Pythonichthys asodes</i>	EP	ES,N,P	X	PM	b	13-36	mb
Family MURAEENESOCIDAE							
<i>Cynoponticus coniceps</i>	EP	CA	X	PM	eb	3-30	mb
Family NETTASTOMATIDAE							
<i>Facciolella equatorialis</i>	EP	CA	X	PM	n.a.	500	n.a.
<i>Hoplunnis pacifica</i>	EP	CA	X	PM	b	47-275	mb
Family CONGRIDAE							
<i>Ariosoma gilberti</i>	EP	CA	X	PM,IC	b	18-73	mb
<i>Bathycongrus macrurus</i>	EP	CA	X	PM	b	n.a.	mb
<i>Bathycongrus varidens</i>	EP	CA	X	PM	b	n.a.	mb
<i>Chitoconger obtusus</i>	EP	CA	X	PM	b	55-200	mb
<i>Congrosoma evermanni</i>	EP	P	X	PM	b	n.a.	mb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR			
<i>Gnathopis cinctus</i>	EP	CA		b	n.a.	mb
<i>Gorgasia punctata</i>	EP	CA	X	b	n.a.	sb
<i>Heteroconger pellegrini</i>	EP	CA	X	b	n.a.	sb
<i>Heteroconger klausewitzi</i>	EP		X	b	n.a.	sb
<i>Japanoconger proriger</i>	EP	P	X	b	130–275	mb
<i>Paraconger californiensis</i>	EP	CA	X	b	n.a.	mb
<i>Paraconger similes</i>	EP	CA	X	b	n.a.	mb
<i>Rhynchoconger nitens</i>	EP	CA	X	b	15–284	mb
<i>Uroconger variidens</i>	EP	CA		b	n.a.	mb
<i>Xenomystax atrarius</i>	EP	CA		b	n.a.	mb
Family OPHICHTHIDAE						
<i>Apterictus equatorialis</i>	EP	CA		n.a.	15–145	n.a.
<i>Bascanichthys bascanoides</i>	EP		X	b	5–6	sb
<i>Bascanichthys cylindricus</i>	EP	P		b	n.a.	sb
<i>Bascanichthys panamensis</i>	EP	CA		b	n.a.	sb
<i>Caltechelys cliffi</i>	EP	CA		b	n.a.	sb
<i>Caltechelys eristigma</i>	EP	CA	X	b	n.a.	sb
<i>Echiophis brunneus</i>	EP	CA	X	b	2–98	mb
<i>Gordichthys combibus</i>	EP	CA	X	b	n.a.	sb
<i>Herpetoichthys fossatus</i>	EP	CA	X	b	110	mb
<i>Ichthyapus selachops</i>	EP	CA	X	b	2–17	mb
<i>Leptenchelys vermiciformis</i>	EP	CA		b	n.a.	mb
<i>Letharchus rosenblatti</i>	EP	CA	X	b	8–15	mb
<i>Myrichthys tigrinus</i>	EP	CA	X	b	0.3–83	sb
<i>Myrichthys aspetocheiros</i>	EP	CA	X	b	15–79	mb
<i>Myrophis vafer</i>	EP	CA	X	b	0.1–55	mb
<i>Ophichthus frontalis</i>	EP	CA	X	b	98	mb

<i>Ophichthus longipennis</i>	EP	CA	X	PM	b	55-69	mb
<i>Ophichthus mecopterus</i>	EP	CA	X	PM	b	43-64	mb
<i>Ophichthus melope</i>	EP	P	X	PM	b	110-224	mb
<i>Ophichthus remiger</i>	EP	N,P	X	PM	b	0.6-295	mb
<i>Ophichthus rugifer</i>	EP		X	IC	b	n.a.	mb
<i>Ophichthus tetratrema</i>	EP	P	X	PM	b	900	mb
<i>Ophichthus triserialis</i>	EP	CA	X	PM	b	80-280	mb
<i>Ophichthus zophochir</i>	EP	CA	X	PM	b	2-37	mb
<i>Paraetharchus pacificus</i>	EP	CA	X	PM,IC	b	14-21	mb
<i>Phaenonomas pinnata</i>	EP	CA	X	PM	b	8-12	mb
<i>Pisodonophis daspilotus</i>	EP	P	X	PM	b	n.a.	mb
<i>Pseudomyrophis micropinna</i>	EP	CA	X	PM	b	43-188	mb
<i>Quassiremus evionthas</i>	n.a.	n.a.	n.a.	IC	n.a.	n.a.	n.a.
<i>Quassiremus nothochir</i>	EP	CA	X	PM	b	6-14	mb
<i>Scytalichthys miurus</i>	EP		X	IC	b	n.a.	mb
Family CLUPEIDAE							
<i>Etrumeus acuminatus</i>	IP,EP	CA	X	PM	n	67-106	wc
<i>Harengula thrissina</i>	EP	CA	X	PM	n	6-23	wc
<i>Lile stolidera</i>	EP	CA	X	PM	n	0.3-26	wc
<i>Opisthonema bulleri</i>	EP	CA	X	PM	n	15-37	wc
<i>Opisthonema libertate</i>	EP	CA	X	PM	n	0.5-16	wc
<i>Opisthonema medirastre</i>	EP	CA	X	PM	n	15-56	wc
Family PRISTIGASTERIDAE							
<i>Ilisha furthii</i>	EP	ES,H,N,P	X	PM	n	3-47	wc
<i>Neopisthopterus tropicus</i>	EP	CA	X	PM	n	0.2-50	wc
<i>Odontognathus panamensis</i>	EP	CA	X	PM	n	0.5-48	wc
<i>Opisthopterus dovii</i>	EP	CA	X	PM	n	0.5-220	wc
<i>Opisthopterus equatorialis</i>	EP	CA	X	PM	n	3-42	wc
<i>Opisthopterus macrops</i>	EP	P	X	PM	n	18	wc
<i>Pliosostoma lutipinnis</i>	EP	CA	X	PM	n	0.5-37	wc

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
Family ENGRAULIDAE							
<i>Anchoa argentivittata</i>	EP	P		PM	n	0.5–102	wc
<i>Anchoa chamensis</i>	EP	CA	X	PM	n	18	wc
<i>Anchoa curta</i>	EP	CA	X	PM	n	0.3–18	wc
<i>Anchoa eigenmannia</i>	EP	P	X	PM	n	0.5–49	wc
<i>Anchoa exigua</i>	EP	CA	X	PM	n	18–80	wc
<i>Anchoa ishana</i>	EP	CA	X	PM	n	n.a.	wc
<i>Anchoa lucida</i>	EP	CA	X	PM	n	0.3–34	wc
<i>Anchoa mundeola</i>	EP	CA	X	PM	n	n.a.	wc
<i>Anchoa nasus</i>	EP	CA	X	PM	n	18–44	wc
<i>Anchoa panamensis</i>	EP	CA	X	PM	n	0.7–18	wc
<i>Anchoa spinifer</i>	EP	P	X	PM	n	7.3–55	wc
<i>Anchoa starksi</i>	EP	ES,H,I,N,P	X	PM	n	0.3–34	wc
<i>Anchoa walkeri</i>	EP	CA	X	PM	n	0.3–17	wc
<i>Anchovia macrolepidota</i>	EP	CA	X	PM	n	0.2–37	wc
<i>Anchoviella balboa</i>	EP	P		PM	n	n.a.	wc
<i>Cetengraulis mysticetus</i>	EP	CA	X	PM	n	13–55	wc
<i>Lycengraulis poeyi</i>	EP	ES,H,I,N,P	X	PM	n	1–50	wc
Family ARGENTINIDAE							
<i>Argentina aliciae</i>	EP	P	X	PM	n	71–195	wc
Family AULOPIDAE							
<i>Aulopus bajacali</i>	EP		X	IC	n	95–180	wc
Family SYNODONTIDAE							
<i>Synodus evermanni</i>	EP	CA	X	PM	b	23–284	mb
<i>Synodus laeertinus</i>	EP	CA	X	PM,IC	b	0.6–73	sb
<i>Synodus scituliceps</i>	EP	CA	X	PM	b	1–91	mb
<i>Synodus sechurae</i>	EP	CA	X	PM	b	25–40	mb

Family CHLOROPHTHALMIDAE									
<i>Chlorophthalmus mento</i>	EP	P	X	PM,IC	mp	128–360	wc		
Family ATELEPODIDAE									
<i>Guentherus altivela</i>	EA,EP	P	X	PM	n	200–700	eb		
Family CHANIDAE									
<i>Chanos chanos</i>	IPEP	CA	X	PM,IC	n	0.4–1	wc		
Family ARIIDAE									
<i>Ariopsis guatemalensis</i>	EP	CA	X	PM	b	1.5–11	mb		
<i>Ariopsis dasycephalus</i>	EP	P	X	PM	b	17–40	mb		
<i>Ariopsis seemanni</i>	EP	CA	X	PM	b	0.5–15	mb		
<i>Arius cookei</i>	EP	CA	X	PM	b	7–47	mb		
<i>Arius kessleri</i>	EP	CA	X	PM	b	10–47	mb		
<i>Arius leniginosus</i>	EP	P		PM	b	n.a.	mb		
<i>Arius osculus</i>	EP	P	X	PM	b	7–32	mb		
<i>Arius planiceps</i>	EP	CA	X	PM	b	9–91	mb		
<i>Arius platypogon</i>	EP	CA	X	PM	b	0.3–91	mb		
<i>Arius</i> sp. A	EP	P	X	PM	b	0.1–18	mb		
<i>Bagre panamensis</i>	EP	CA	X	PM	b	9–30	mb		
<i>Bagre pinnimaculatus</i>	EP	CA	X	PM	b	1–56	mb		
<i>Cathorops fuerthii</i>	EP	CA	X	PM	b	1–22	mb		
<i>Cathorops hypophthalmus</i>	EP	P	X	PM	b	n.a.	mb		
<i>Cathorops multiradiatus</i>	EP	CA	X	PM	b	n.a.	mb		
<i>Cathorops steindachneri</i>	EP	CA	X	PM	b	0.1–18	mb		
<i>Cathorops taylori</i>	EP	CA	X	PM	b	n.a.	mb		
<i>Cathorops tuyra</i>	EP	P	X	PM	b	10–18	mb		
<i>Sciadeichthys dowii</i>	EP	P	X	PM	b	0.5–9	mb		
<i>Sciadeops troschelii</i>	EP	CA	X	PM	b	3–28	mb		
Family BATRACHOIDIDAE									
<i>Batrachoides boulengeri</i>	EP	P	X	PM	b	1–5	mb,sb		
<i>Batrachoides pacifici</i>	EP	P	X	PM	b	9–50	mb,sb		

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Batrachoides walkeri</i>	EP	P		PM	b	n.a.	mb, sb
<i>Batrachoides waltersi</i>	EP	CA	X	PM	b	13	mb, sb
<i>Daector dowi</i>	EP	P	X	PM	b	n.a.	mb, sb
<i>Daector reticulata</i>	EP	P		PM	b	n.a.	mb, sb
<i>Daector schmitti</i>	EP	P	X	PM	b	0.3–8	mb, sb
<i>Porichthys greenei</i>	EP	CA	X	PM	b	2–200	mb
<i>Porichthys margaritatus</i>	EP	CA	X	PM	b	43–293	mb
Family GOBIESOCIDAE							
<i>Arcos decoris</i>	EP	P	X	PM	b	3–21	rb
<i>Arcos rhodospilus</i>	EP	P	X	PM, IC	b	0.2–5	rb
<i>Gobiesox adustus</i>	EP	CA	X	PM	b	0.2–3	rb
<i>Gobiesox crassicarpus</i>	EP	CA		PM	b	n.a.	rb
<i>Gobiesox daedeleus brachysoma</i>	EP	N,P	X	PM	b	n.a.	rb
<i>Gobiesox fulvus</i>	EP		X	IC	b	0–1	rb
<i>Gobiesox milleri</i>	EP		X	PM	b	36	rb
<i>Gobiesox papillifer</i>	EP	CA	X	PM	b	0.5–2	rb
<i>Gobiesox stenocephalus</i>	EP		X	PM	b	n.a.	rb
<i>Gobiesox woodsii</i>	EP		X	IC	b	0.3	rb
<i>Tomiconodon abuelorum</i>	EP		X	PM	b	<1	m
<i>Tomiconodon bidens</i>	EP	P		PM	b	n.a.	rb
<i>Tomiconodon myersi</i>	EP	CA		PM	b	n.a.	rb
<i>Tomiconodon petersi</i>	EP	CA	X	PM	b	0.2–5	rb
<i>Tomiconodon vermiculatus</i>	EP		X	IC	b	0.3	cr
Family LOPHIIDAE							
<i>Lophiodes caulinaris</i>	EP	CA	X	PM, IC	b	20–295	mb
<i>Lophiodes spilurus</i>	EP	CA	X	PM	b	101–410	mb

Family ANTENNARIIDAE									
<i>Antennarius avalonis</i>	EP	CA	X	PM,IC	b	9–284	rb		
<i>Antennarius coccineus</i>	ct	P	X	PM,IC	b	7–30	rb		
<i>Antennarius commersoni</i>	ct	P		PM,IC	b	n.a.	rb		
<i>Antennarius sanguineus</i>	EP	CA	X	PM,IC	b	0.4–64	rb		
<i>Antennatus sirigatus</i>	EP	CA	X	PM	b	0.2–27	rb		
Family OGCOEPHALIDAE									
<i>Ogcocephalus porrectus</i>	EP		X	IC	b	29–137	sb		
<i>Zalientes elater</i>	EP	CA	X	PM,IC	b	50–284	sb		
Family MORIDAE									
<i>Anitomor rostrata</i>	EP	P		PM	b	n.a.	mb		
<i>Physiculus nematopus</i>	EP	CA	X	PM	b	17–256	mb		
<i>Physiculus rastrelliger</i>	EP	CA	X	PM	b	220–275	mb		
Family BREGMACEROTIDAE									
<i>Bregmaceros bathymaster</i>	n.a.	CA	X	PM	n.a.	36–191	n.a.		
Family MERLUCCIIDAE									
<i>Merluccius angustimanus</i>	EP	P	X	PM,IC	eb	110–320	mb, sb		
Family OPHIDIIDAE									
<i>Brotula clarkae</i>	EP	CA	X	PM	b	13–329	mb, sb		
<i>Brotula ordwayi</i>	EP	P	X	PM	b	n.a.	mb, sb		
<i>Cherublemma emmelas</i>	EP	CA	X	PM	b	108–410	mb, sb		
<i>Lepophidium microlepis</i>	EP	CA	X	PM	b	53–200	mb, sb		
<i>Lepophidium negropinna</i>	EP	CA	X	PM	b	67–220	mb, sb		
<i>Lepophidium pardale</i>	EP	CA	X	PM	b	53–118	mb, sb		
<i>Lepophidium prorates</i>	EP	CA	X	PM	b	8–80	mb, sb		
<i>Neobythites stelliferoides</i>	EP	P	X	PM	b	73–295	mb, sb		
<i>Ophidion fulvum</i>	EP	P	X	PM	b	n.a.	mb, sb		
<i>Ophidion galeoides</i>	EP	CA		PM	b	n.a.	mb, sb		
<i>Ophidion</i> sp. #1	EP	CA	X	PM	b	n.a.	mb, sb		
<i>Ophidion</i> sp. #2	EP	CA	X	PM	b	n.a.	mb, sb		
<i>Otophidium indefatigable</i>	EP	CA	X	PM,IC	b	n.a.	mb, sb		

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
			UCR	Pacific ^c			
<i>Petrotyx hopkinsi</i>	EP	CA	X	PM,IC	b	1–20	rb
Family BYTHITIDAE							
<i>Grammonus diagrammus</i>	EP	CA	X	PM	b	73	rb
<i>Ogilbia</i> spp.	EP	CA	X	PM	b	0.5–27	rb
<i>Ogilbia</i> n. sp.	EP		X	IC	b	n.a.	cr
<i>Saccogaster normae</i>	EP	P	X	PM	b	73–91	n.a.
Family CARAPIDAE							
<i>Encheliophis dubius</i>	EP	CA	X	PM,IC	n	0.6–85	symbiont
<i>Encheliophis vermicularius</i>	EP	P	X	PM,IC	n	n.a.	symbiont
<i>Echiodon exsiliium</i>	EP	CA	X	PM,IC	n	2–128	symbiont
Family EXOCOETIDAE (Flying fishes)							
<i>Cheilopogon papilio</i>	n.a.	CA		PM	ep	surface	wc
<i>Cheilopogon xenopterus</i>	n.a.	CA		PM	ep	surface	wc
<i>Cypselurus callopterus</i>	EP	CA	X	PM	ep	surface	wc
<i>Exocoetus monocirrhus</i>	EP	CA	X	PM,IC	ep	surface	wc
<i>Exocoetus volitans</i>	ct	CA	X	PM,IC	ep	surface	wc
<i>Fodiator acutus</i>	EP,WA,EA	CA	X	PM	ep	surface	wc
<i>Hirundichthys marginatus</i>	n.a.	CA		PM	ep	surface	wc
<i>Hirundichthys speculiger</i>	n.a.	CA	X	PM,IC	ep	surface	wc
<i>Parexocoetus brachypterus</i>	n.a.	P	X	PM	ep	surface	wc
<i>Prognichthys tringa</i>	n.a.	CA		PM,IC	ep	surface	wc
Family HEMIRAMPHIDAE							
<i>Euleptorhamphus viridis</i>	IPEP	CA		PM,IC	ep	surface	wc
<i>Hemiramphus saltator</i>	EP	CA	X	PM	ep	surface	wc
<i>Hyporhamphus gilli</i>	n.a.	CA		PM	ep	surface	wc
<i>Hyporhamphus naos</i>	EP	CA		PM	ep	surface	wc
<i>Hyporhamphus snyderi</i>	n.a.	CA	X	PM	ep	surface	wc

<i>Hyporhamphus unifasciatus</i>	EP,WA	CA	X	PM	ep	surface	wc
<i>Oxyphorhamphus micropterus</i>	ct	CA		PM,IC	ep	surface	wc
Family BELONIDAE							
<i>Ablennes hians</i>	ct	CA	X	PM	ep	surface	wc
<i>Platybelone argalus</i>	ct	CA	X	PM,IC	ep	surface	wc
<i>Strongylara exilis</i>	n.a.	CA	X	PM,IC	ep	surface	wc
<i>Strongylara scapularis</i>	EP	CA	X	PM	ep	surface	wc
<i>Tylosurus acis pacificus</i>	ct	CA		PM,IC	ep	surface	wc
<i>Tylosurus crocodiles fodiator</i>	ct	CA	X	PM,IC	ep	surface	wc
Family ATHERINOPSIDAE							
<i>Atherinella argentea</i>	EP	CA	X	PM	n	0.3-4	wc
<i>Atherinella ertarcha</i>	EP	CA	X	PM,IC	n	0.4-6	wc
<i>Atherinella nepenthe</i>	EP	CA	X	PM	n	0.5	wc
<i>Atherinella nesiotos</i>	EP	CA	X	PM	n.a.	0-20	wc
<i>Atherinella pachylepis</i>	EP	ES,H,N,P		PM	n	n.a.	wc
<i>Atherinella panamensis</i>	EP	P		PM	n	n.a.	wc
<i>Atherinella starksi</i>	EP	P	X	PM	n	1.3-1.5	wc
<i>Melanorhinus cyanellus</i>	EP	P	X	PM,IC	n	6-18	wc
<i>Membras gilberti</i>	EP	P	X	PM	n	1.5	wc
Family HOLOCENTRIDAE							
<i>Myripristis berndti</i>	IP,EP	CA	X	PM,IC	eb	1-21	cr,rb
<i>Myripristis leitognathus</i>	EP	CA	X	PM,IC	eb	0.3-27	cr,rb
<i>Plectrypops lima</i>	IP,EP		X	IC	eb	7	cr,rb
<i>Sargocentron suborbitalis</i>	EP	CA	X	PM,IC	eb	0.2-21	cr,rb
Family AULOSTOMIDAE							
<i>Aulostomus chinensis</i>	ct	P	X	PM,IC	n	3-15	wc
Family FISTULARIIDAE							
<i>Fistularia commersonii</i>	ct	CA	X	PM,IC	ep	2-53	wc
<i>Fistularia corneta</i>	n.a.	CA	X	PM	ep	9-80	wc

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
			UCR	Pacific ^c			
Family SYNGNATHIDAE							
<i>Cosmocampus arctus</i>	EP	CA		PM	b	n.a.	cr,rb
<i>Bryx veleronis</i>	n.a.	CA	X	PM,IC	b	3-14	cr,rb
<i>Dorythamphus excisus</i>	IPEP	CA	X	PM,IC	b	0.2-27	cr,rb
<i>Hippocampus ingens</i>	EP	CA	X	PM,IC	b	6-119	cr,rb,rb
<i>Syngnathus auliscus</i>	EP	CA	X	PM	b	2	rb
Family SCORPAENIDAE							
<i>Pontinus clemensi</i>	EP		X	PM,IC	b	110-180	cr,rb
<i>Pontinus furcirhinus</i>	EP	CA	X	PM	b	98-191	rub
<i>Pontinus sierra</i>	EP	CA	X	PM,IC	b	15-284	rub
<i>Pontinus strigatus</i>	EP		X	PM,IC	b	120-144	cr,rb
<i>Pontinus</i> n. sp.	EP	CA	X	PM,IC	b	60-200	rub
<i>Scorpaena afuerae</i>	EP			PM,IC	b	n.a.	cr,rb
<i>Scorpaena histrio</i>	EP	CA	X	PM,IC	b	2-165	cr,rb
<i>Scorpaena mystes</i>	EP	CA	X	PM,IC	b	1-120	cr,rb
<i>Scorpaena russula</i>	EP	CA	X	PM,IC	b	8-128	cr,rb
<i>Scorpaena</i> n. sp.	EP		X	IC	b	n.a.	cr,rb
<i>Scorpaenodes xyris</i>	EP	CA	X	PM,IC	b	0.2-90	cr,rb
Family TRIGLIDAE							
<i>Bellator gymmostethus</i>	EP	CA	X	PM	b	19-295	rub,rb
<i>Bellator loxias</i>	EP	CA	X	PM,IC	b	55-165	rub,rb
<i>Bellator xenisma</i>	EP	CA	X	PM	b	32-284	rub,rb
<i>Peristedion barbiger</i>	EP	P	X	PM	b	50-295	rub,rb
<i>Peristedion crustosum</i>	EP	P	X	PM,IC	b	200-295	rub,rb
<i>Peristedion</i> n. sp.	EP		X	IC	b	19-55	rub,rb
<i>Prionotus</i> n. sp.	n.a.	n.a.		IC	n.a.	n.a.	n.a.
<i>Prionotus albostris</i>	EP	CA	X	PM	b	40-120	rub,rb

<i>Prionotus birostratus</i>	EP	CA	X	PM	b	9-23	rub,sb
<i>Prionotus horrens</i>	EP	CA	X	PM	b	9-60	rub,sb
<i>Prionotus ruscarius</i>	EP	CA	X	PM	b	9-73	rub,sb
<i>Prionotus stephanophrys</i>	EP	CA	X	PM	b	21-188	rub,sb
<i>Prionotus teaguei</i>	EP	CA	X	PM	b	17-284	rub,sb
Family CENTROPOMIDAE							
<i>Centropomus armatus</i>	EP	CA	X	PM	n	0.1-25	cl,m
<i>Centropomus medius</i>	EP	CA	X	PM	n	0.3-1	cl,m
<i>Centropomus nigrescens</i>	EP	CA	X	PM	n	0.3-2	cl,m
<i>Centropomus robalito</i>	EP	CA	X	PM	n	0.8-16	cl,m
<i>Centropomus viridis</i>	EP	CA	X	PM	n	0.8-1	cl,m
<i>Centropomus unionensis</i>	EP	ES,H,I,N,P	X	PM	n	0.1-28	cl,m
Family SERRANIDAE							
<i>Alphesthes immaculatus</i>	EP	CA	X	PM,IC	eb	0.3-15	cr,rub
<i>Alphesthes multiguttatus</i>	EP	CA	X	PM	eb	1-60	rb,rub
<i>Cephalopholis panamensis</i>	EP	CA	X	PM,IC	eb	1-20	cr,rub
<i>Dermatolepis dermatolepis</i>	EP	CA	X	PM,IC	eb	1-31	mb,rub
<i>Diplectrum eumelum</i>	EP	CA	X	PM	eb	40-120	mb,rub
<i>Diplectrum euryplectrum</i>	EP	CA	X	PM	eb	80-284	mb,rub
<i>Diplectrum labarum</i>	EP	CA	X	PM	eb	42-120	mb,rub
<i>Diplectrum macropoma</i>	EP	CA	X	PM	eb	5-220	mb,rub
<i>Diplectrum maximum</i>	EP	CA	X	PM	eb	44-293	mb,rub
<i>Diplectrum pacificum</i>	EP	CA	X	PM	eb	9-195	mb,rub
<i>Diplectrum rostrum</i>	EP	CA	X	PM	eb	36-201	mb,rub
<i>Epinephelus acanthistius</i>	EP	CA	X	PM	eb	19-141	rb,rub
<i>Epinephelus analogus</i>	EP	CA	X	PM	eb	3-82	rb,rub
<i>Epinephelus cfuientesi</i>	EP	CA	X	PM,IC	eb	19-120	cr,rub
<i>Epinephelus exsul</i>	EP	CA	X	PM	eb	20-82	rb,rub
<i>Epinephelus itajara</i>	EP,WA	CA	X	PM,IC	eb	n.a.	cr,rub
<i>Epinephelus labriformis</i>	EP	CA	X	PM,IC	eb	1-120	cr,rub

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Epinephelus niphobles</i>	EP	CA	X	PM,IC	18–120	rb,rub	
<i>Hemanthias peruanus</i>	EP	CA	X	PM	64–201	wc	
<i>Hemanthias signifer</i>	EP	CA	X	PM	44–275	wc	
<i>Liopropoma fasciatum</i>	EP	CA	X	PM	73	rb,rub	
<i>Liopropoma longilepis</i>	EP	P	X	PM	110–192	rb,rub	
<i>Mycteroperca olfax</i>	EP	CA	X	PM,IC	27–31	cr,rub	
<i>Mycteroperca xenarcha</i>	EP	CA	X	PM	11	rb,rub	
<i>Paranthias colonus</i>	EP	CA	X	PM,IC	7–64	wc	
<i>Paralabrax loro</i>	EP	CA	X	PM	21–110	rb,rub	
<i>Promotogranmus eos</i>	EP	CA	X	PM,IC	40–284	wc	
<i>Promotogranmus multifasciatus</i>	EP	CA	X	PM,IC	70–192	wc	
<i>Pseudogramma thaumasium</i>	EP	CA	X	PM,IC	2–17	rb,rub	
<i>Serranus aequidens</i>	EP	CA	X	PM,IC	15–220	rb,rub	
<i>Serranus huascarii</i>	EP	CA	X	PM	n.a.	rb,rub	
<i>Serranus psittacinus</i>	EP	CA	X	PM	2–118	rb,rub	
<i>Serranus tico</i>	EP	CA	X	IC	17–82	rb,rub	
<i>Rypiticus bicolor</i>	EP	CA	X	PM,IC	1–53	rb,rub	
<i>Rypiticus nigripinnis</i>	EP	CA	X	PM	0.6–77	rb,rub	
Family KUHLIIDAE							
<i>Kuhlia mugil</i>	IP,EP	CA	X	PM,IC	0.3–3	wc	
Family PRIACANTHIDAE							
<i>Cookeolus japonicus</i>	ct	CA	X	PM,IC	n.a.	wc	
<i>Heteropriacanthus cruentatus</i>	ct	CA	X	PM,IC	1–30	wc	
<i>Pristigenys serrula</i>	EP	CA	X	PM	20–190	wc	
Family APOGONIDAE							
<i>Apogon atradorsatus</i>	EP		X	IC	11–40	cr,rb	
<i>Apogon dovii</i>	EP	CA	X	PM,IC	1–30	cr,rb	

<i>Apogon pacifici</i>	EP	CA	X	PM	eb	4-68	rb
<i>Apogon retosella</i>	EP	CA	X	PM	eb	5-11	rb
Family MALACANTHIDAE							
<i>Caulolatilus affinis</i>	EP	CA	X	PM,IC	n	60-329	wc
<i>Caulolatilus hubbsi</i>	n.a.	n.a.	X	IC	n.a.	n.a.	n.a.
<i>Caulolatilus princeps</i>	EP	CA	X	PM	n	27-119	wc
<i>Malacanthus brevirostris</i>	IPEP	P	X	PM,IC	b	8-21	sb
Family EGHENEIDAE							
<i>Echeneis naucrates</i>	ct	CA	X	PM	n	4-7	wc
<i>Phtheiroichthys lineatus</i>	n.a.	CA		PM	n	n.a.	wc
<i>Remora australis</i>	n.a.	CA		PM	n	n.a.	wc
<i>Remora brachyptera</i>	n.a.	CA	X	PM,IC	n	200-250	wc
<i>Remora osteochir</i>	n.a.	CA	X	PM,IC	n	250	wc
<i>Remora remora</i>	ct	CA	X	PM,IC	n	4-91	wc
<i>Remorina albescens</i>	n.a.	CA		PM,IC	n	n.a.	wc
Family CARANGIDAE							
<i>Alectis ciliaris</i>	ct	CA	X	PM,IC	n	2-35	wc
<i>Carangoides orthogrammus</i>	IPEP	CA	X	PM,IC	n	n.a.	wc
<i>Carangoides otrynter</i>	EP	CA	X	PM	n	4-195	wc
<i>Caranx caballus</i>	EP	CA	X	PM,IC	n	3-83	wc
<i>Caranx caninus</i>	EP	CA	X	PM,IC	n	1-36	wc
<i>Caranx lugubris</i>	ct	CA		PM,IC	n	n.a.	wc
<i>Caranx melampygus</i>	n.a.	n.a.	X	IC	n.a.	n.a.	n.a.
<i>Caranx sexfasciatus</i>	IPEP	CA	X	PM,IC	n	1-9	wc
<i>Caranx vinctus</i>	EP	CA	X	PM	n	8-310	wc
<i>Chloroscombrus orqueta</i>	EP	CA	X	PM	n	10-40	wc
<i>Decapterus muroadsi</i>	n.a.	CA	X	PM	n	3-108	wc
<i>Decapterus macarellus</i>	ct	CA	X	PM,IC	n	20-170	wc
<i>Elaeatis bipinnulata</i>	ct	CA	X	PM,IC	n	27	wc
<i>Gnathanodon speciosus</i>	IPEP	CA	X	PM,IC	n	1-59	wc

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR			
<i>Hemicaranx leucurus</i>	EP	CA	X	PM	4–156	wc
<i>Hemicaranx zelotes</i>	EP	CA	X	PM	7–20	wc
<i>Naucrates ductor</i>	ct	CA		PM,IC	n.a.	wc
<i>Oligoplites altus</i>	EP	CA	X	PM	0.5–19	wc
<i>Oligoplites refulgens</i>	EP	CA	X	PM	1–30	wc
<i>Oligoplites saurus</i>	EP	CA	X	PM	0.5–6	wc
<i>Selar crumenophthalmus</i>	ct	CA	X	PM,IC	9–219	wc
<i>Selene brevoortii</i>	EP	CA	X	PM	2–73	wc
<i>Selene oerstedii</i>	EP	CA	X	PM	2–60	wc
<i>Selene peruviana</i>	EP	CA	X	PM	8–73	wc
<i>Seriola lalandi</i>	ct	CA	X	PM,IC	68–77	wc
<i>Seriola peruana</i>	EP	CA	X	PM,IC	5–120	wc
<i>Seriola rivoliana</i>	ct	CA	X	PM,IC	101–119	wc
<i>Trachinotus kennedyi</i>	EP	CA	X	PM	1.5–4	wc
<i>Trachinotus patiensis</i>	EP	CA	X	PM	23–130	wc
<i>Trachinotus rhodopus</i>	EP	CA	X	PM	1–10	wc
<i>Trachinotus stibbe</i>	EP	CA	X	PM,IC	9	wc
<i>Uraspis helvola</i>	ct	CA		PM,IC	n.a.	wc
Family NEMATISTIIDAE						
<i>Nematistius pectoralis</i>	EP	CA	X	PM	1	wc
Family CORYPHAENIDAE						
<i>Coryphaena equiselis</i>	ct	CA	X	PM,IC	n.a.	wc
<i>Coryphaena hippurus</i>	ct	CA	X	PM,IC	34–549	wc
Family LUTJANIDAE						
<i>Aphareus furca</i>	IP/EP		X	IC	27–29	wc
<i>Hoplopagrus guntheri</i>	EP	CA	X	PM,IC	12–42	rb

<i>Lutjanus aratus</i>	EP	CA	X	PM,IC	eb	0.2-64	cr,rb
<i>Lutjanus argentiventris</i>	EP	CA	X	PM,IC	eb	0.2-49	cl,m
<i>Lutjanus colorado</i>	EP	CA	X	PM	eb	0.5-49	rb
<i>Lutjanus guttatus</i>	EP	CA	X	PM	eb	0.5-156	mb
<i>Lutjanus inermis</i>	EP	CA	X	PM,IC	eb	6-18	cr,wc
<i>Lutjanus jordani</i>	EP	CA	X	PM,IC	eb	1-60	cr,m
<i>Lutjanus novemfasciatus</i>	EP	CA	X	PM,IC	eb	0.2-73	cl,m
<i>Lutjanus peru</i>	EP	CA	X	PM	eb	6-73	mb
<i>Lutjanus viridis</i>	EP	CA	X	PM,IC	eb	0.3-25	cr
Family LOBOTIDAE							
<i>Lobotes surinamensis</i>	ct	CA	X	PM	n	1-13	f,wc
Family GERREIDAE							
<i>Diapterus aureolus</i>	EP	CA	X	PM	eb	2-194	mb,sb
<i>Diapterus peruvianus</i>	EP	CA	X	PM	eb	0.3-50	mb
<i>Eucinostomus argenteus</i>	EP	CA	X	PM	eb	0.2-220	mb,sb
<i>Eucinostomus currani</i>	EP	CA	X	PM,IC	eb	0.2-54	cl,m,sb
<i>Eucinostomus entomelas</i>	EP	CA	X	PM	eb	0.2-8	mb
<i>Eucinostomus gracilis</i>	EP	CA	X	PM	eb	0.5-91	mb
<i>Eugerres brevinanus</i>	EP	CA	X	PM	eb	0.2-1	mb,sb
<i>Eugerres lineatus</i>	EP	CA	X	PM	eb	n.a.	sb
<i>Gerres cinereus</i>	EP	CA	X	PM	eb	0.2-30	sb
Family HAEMULIDAE							
<i>Anisotremus caesius</i>	EP	CA	X	PM,IC	eb	2-27	rb
<i>Anisotremus dovii</i>	EP	CA	X	PM	eb	0.3-195	mb
<i>Anisotremus interruptus</i>	EP	CA	X	PM,IC	eb	0.2-7	rb
<i>Anisotremus pacifici</i>	EP	CA	X	PM	eb	7-17	mb
<i>Anisotremus taeniatus</i>	EP	CA	X	PM,IC	eb	3-53	cr
<i>Conodon serrifer</i>	EP	CA	X	PM	eb	1-52	mb
<i>Haemulon flaviguttatum</i>	EP	CA	X	PM	eb	20	rb
<i>Haemulon maculicauda</i>	EP	CA	X	PM	eb	7	rb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR			
<i>Haemulon scudderii</i>	EP	CA	X	eb	1-42	rb
<i>Haemulon sexfasciatum</i>	EP	CA	X	eb	3-60	rb
<i>Haemulon steindachneri</i>	EP,WA	CA	X	eb	1-77	rb
<i>Haemulopsis axillaris</i>	EP	CA	X	eb	8-60	mb, sb
<i>Haemulopsis elongatus</i>	EP	CA	X	eb	2-29	mb, sb
<i>Haemulopsis leuciscus</i>	EP	CA	X	eb	1-29	mb, sb
<i>Haemulopsis nitidus</i>	EP	CA	X	eb	5-29	mb, sb
<i>Microlepidotus brevipinnis</i>	EP	CA	X	eb	1-42	sb
<i>Orthopristis chalceus</i>	EP	CA	X	eb	15-213	sb
<i>Pomadasys bayanus</i>	EP	CA	X	eb	0.2-80	sb
<i>Pomadasys branickii</i>	EP	CA	X	eb	0.5-165	mb, sb
<i>Pomadasys empherus</i>	EP	CA	X	eb	1	mb, sb
<i>Pomadasys macracanthus</i>	EP	CA	X	eb	0.3-19	sb
<i>Pomadasys panamensis</i>	EP	CA	X	eb	9-44	mb
<i>Xenichthys xanti</i>	EP	CA	X	eb	2-42	mb, sb
Family SPARIDAE						
<i>Catamus brachysomus</i>	EP	CA	X	eb	4-130	sb
Family SCIAENIDAE						
<i>Bairdiella armata</i>	EP	CA	X	eb	0.3-15	mb
<i>Bairdiella ensifera</i>	EP	ES,H,n,P	X	eb	1-56	mb
<i>Corvula macrops</i>	EP	CA	X	eb	10-14	mb
<i>Cynoscion albus</i>	EP	ES,H,N,P	X	eb	3-247	mb
<i>Cynoscion nannus</i>	EP	CA	X	eb	123-295	mb
<i>Cynoscion phoxocephalus</i>	EP	CA	X	eb	8-101	mb
<i>Cynoscion praedatorius</i>	EP	P	X	eb	9-29	mb
<i>Cynoscion reticulatus</i>	EP	CA	X	eb	10-220	mb

<i>Cynoscion squamipinnis</i>	EP	CA	X	PM	eb	10-30	mb
<i>Cynoscion stolzmanni</i>	EP	CA	X	PM	eb	3-220	mb
<i>Elattarchus archiduum</i>	EP	CA	X	PM	eb	1-40	mb
<i>Isopisthus remifer</i>	EP	CA	X	PM	eb	9-19	mb
<i>Larimus acclivis</i>	EP	CA	X	PM	eb	10-56	mb
<i>Larimus argenteus</i>	EP	CA	X	PM	eb	13-31	mb
<i>Larimus effulgens</i>	EP	CA	X	PM	eb	0.4-37	mb
<i>Larimus pacificus</i>	EP	CA	X	PM	eb	9-82	mb
<i>Macrondon mordax</i>	EP	P		PM	eb	n.a.	mb
<i>Menticirrhus elongatus</i>	EP	CA		PM	eb	2-56	mb
<i>Menticirrhus nasus</i>	EP	CA	X	PM	eb	4-156	mb
<i>Menticirrhus paitensis</i>	EP	CA		PM	eb	n.a.	mb
<i>Menticirrhus panamensis</i>	EP	CA	X	PM	eb	9-50	mb
<i>Micropogonias altipinnis</i>	EP	CA	X	PM	eb	0.3-47	mb
<i>Nebris occidentalis</i>	EP	CA	X	PM	eb	9-47	mb
<i>Odontoscion xanthops</i>	EP	CA	X	PM	eb	3-37	mb
<i>Ophioscion imiceps</i>	EP	CA	X	PM	eb	9-42	mb
<i>Ophioscion scierus</i>	EP	CA	X	PM	eb	0.5-50	mb
<i>Ophioscion simulus</i>	EP	P	X	PM	eb	2-4	mb
<i>Ophioscion strabo</i>	EP	CA	X	PM	eb	8-25	mb
<i>Ophioscion typicus</i>	EP	P	X	PM	eb	3-36	mb
<i>Ophioscion vermicularis</i>	EP	P		PM	eb	n.a.	mb
<i>Paralonchurus dumerilii</i>	EP	ES,H,N,P	X	PM	eb	3-36	mb
<i>Paralonchurus goodei</i>	EP	CA	X	PM	eb	9-56	mb
<i>Paralonchurus petersi</i>	EP	ES,H,N,P	X	PM	eb	7-40	mb
<i>Paralonchurus rathbuni</i>	EP	P	X	PM	eb	31-52	mb
<i>Pareques viola</i>	EP	P	X	PM	eb	3-27	cr
<i>Stellifer chrysoleuca</i>	EP	CA	X	PM	eb	8-18	mb
<i>Stellifer ericymba</i>	EP	CA	X	PM	eb	0.4-275	mb
<i>Stellifer furthii</i>	EP	H,N,P	X	PM	eb	3-50	mb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Stellifer illecebrosus</i>	EP	CA	X	PM	9-47	mb	
<i>Stellifer mancorensis</i>	EP	P	X	PM	0.4-37	mb	
<i>Stellifer oscitans</i>	EP	ES,H,I,N,P	X	PM	2-50	mb	
<i>Stellifer zosterocarus</i>	EP	P	X	PM	3-50	mb	
<i>Umbrina analis</i>	EP	CA		PM	n.a.	sb	
<i>Umbrina bussingi</i>	EP	CA	X	PM	49-239	mb	
<i>Umbrina dorsalis</i>	EP	CA		PM	n.a.	sb	
<i>Umbrina xanti</i>	EP	CA	X	PM,IC	1-49	sb	
Family MULLIDAE							
<i>Mulloidichthys dentatus</i>	EP	CA	X	PM,IC	5-52	cr	
<i>Pseudupeneus grandisquamis</i>	EP	CA	X	PM	3-72	mb, sb	
Family KYPHOSIDAE							
<i>Kyphosus analogus</i>	EP	CA	X	PM	n.a.	wc	
<i>Kyphosus elegans</i>	EP	CA	X	PM,IC	0.3-47	wc	
<i>Sectator ocyurus</i>	WP,EP	CA	X	PM,IC	4-64	wc	
Family EPHIPPIDAE							
<i>Chaetodipterus zonatus</i>	EP	CA	X	PM	2-275	mb	
<i>Parapsettus panamensis</i>	EP	CA	X	PM	3-183	mb	
Family CHAETODONTIDAE							
<i>Chaetodon humeralis</i>	EP	CA	X	PM,IC	1-239	cr,rb	
<i>Chaetodon lunula</i>	IE,EP		X	IC	n.a.	cr,rb	
<i>Forcipiger flavissimus</i>	EP,IP,RS	n.a.	n.a.	IC	<92	n.a.	
<i>Johnrandallia nigrirostris</i>	EP	CA	X	PM,IC	3-64	cr,rb	
<i>Prognathodes faicifer</i>	EP	CA	X	PM,IC	n.a.	cr,rb	
Family POMACANTHIDAE							
<i>Holacanthus passer</i>	EP	CA	X	PM,IC	2-59	cr,rb	
<i>Pomacanthus zonipectus</i>	EP	CA	X	PM,IC	0.3-83	cr,rb	

Family POMACENTRIDAE									
<i>Abudefduf concolor</i>	EP	CA	X	PM,IC	it,st	0.3-17	rb		
<i>Abudefduf declivifrons</i>	EP	CA	X	PM	it,st	0.6-1	rb		
<i>Abudefduf troschelli</i>	EP	CA	X	PM,IC	it,st	0.3-10	rb		
<i>Chromis alta</i>	EP		X	PM,IC	n	n.a.	rb		
<i>Chromis atrilobata</i>	EP	CA	X	PM,IC	st	2-10	rb		
<i>Microspathodon bairdii</i>	EP	CA	X	PM,IC	it,st	0.2-10	rb		
<i>Microspathodon dorsalis</i>	EP	CA	X	PM,IC	it,st	0.2-20	rb		
<i>Stegastes acapulcoensis</i>	EP	CA	X	PM,IC	it,st	0.3-20	rb		
<i>Stegastes arcifrons</i>	EP	CA	X	PM,IC	it,st	0.3-21	rb		
<i>Stegastes flavilatus</i>	EP	CA	X	PM,IC	it,st	0.2-27	rb		
<i>Stegastes leucurus beebei</i>	EP	CA	X	PM,IC	st	7-33	rb		
Family CIRRHITIDAE									
<i>Cirrhitichthys oxycephalus</i>	EP	CA	X	PM,IC	b	2-37	cr,rb		
<i>Cirrhitus rivulatus</i>	EP	CA	X	PM,IC	b	0.3-120	cr,rb		
<i>Oxyrrhites typus</i>	IP,EP	CA	X	PM	eb	>30	rb		
Family MUGILIDAE									
<i>Agonostomus monticola</i>	EP,WA	CA	X	PM,IC	n	0.2-2	sb,cl		
<i>Chaenomugil proboscideus</i>	EP	CA	X	PM,IC	st	0.2-3	cr,rb		
<i>Mugil cephalus</i>	ct	CA	X	PM	st	n.a.	cl,m,sb		
<i>Mugil curema</i>	EP,WA	CA	X	PM,IC	st	0.3-22	cl,m,sb		
<i>Mugil hospes</i>	EP,WA	CA		PM	st	n.a.	m,mb,sb		
<i>Xenomugil thoburni</i>	n.a.	CA		PM	st	n.a.	n.a.		
Family SPHYRAENIDAE									
<i>Sphyræna ennis</i>	EP	CA	X	PM	n	2-72	wc		
<i>Sphyræna idtiastes</i>	EP	CA		IC	n	n.a.	wc		
Family POLYNEMIDAE									
<i>Polydactylus approximans</i>	EP	CA	X	PM,IC	b	0.3-37	sb		
<i>Polydactylus opercularis</i>	EP	CA	X	PM	b	3-42	sb		

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
Family LABRIDAE							
<i>Bodianus diplotaenia</i>	EP	CA	X	PM,IC	st	3-49	cr,rb
<i>Decodon melasma</i>	EP	CA	X	PM,IC	st	80	sb
<i>Halichoeres adustus</i>	EP	P	X	PM,IC	st	0.3-7	cr,rb
<i>Halichoeres aestuaricola</i>	EP	CA	X	PM	st	0.3-1	rb,m
<i>Halichoeres chierchiae</i>	EP	CA	X	PM	st	1-18	rb
<i>Halichoeres discolor</i>	EP	CA	X	IC	st	5-31	cr,rb
<i>Halichoeres dispilus</i>	EP	CA	X	PM,IC	st	2-30	cr,rb
<i>Halichoeres melanotis</i>	EP	CA	X	PM	st	n.a.	rb
<i>Halichoeres nicholsi</i>	EP	CA	X	PM,IC	st	1-18	cr,rb
<i>Halichoeres notospilus</i>	EP	CA	X	PM	st	1-6	rb
<i>Halichoeres salmofasciatus</i>	EP		X	IC	st	n.a.	cr,rb
<i>Halichoeres n. sp.?</i>	EP		X	IC	st	91	rub
<i>Iniistius pavo</i>	I,EP	CA	X	PM,IC	st	8-12	sb
<i>Novaculichthys taeniorus</i>	I,EP	CA	X	PM,IC	st	3-21	sb
<i>Polylepton cruentum</i>	EP	CA	X	PM,IC	st	136-201	mb
<i>Stethojulis bandanensis</i>	I,EP	P	X	PM,IC	st	0.3-11	cr,rb
<i>Thalassoma grammaticum</i>	EP	CA	X	PM,IC	st	0.3-21	cr,rb
<i>Thalassoma lucasanum</i>	EP	CA	X	PM,IC	st	0.3-64	cr,rb
<i>Xyrichtys victori</i>	EP		X	IC	st	17	sb
Family SCARIDAE							
<i>Nicholsina denticulata</i>	EP	CA	X	PM	st	7	rb
<i>Scarus compressus</i>	EP	CA		PM	st	n.a.	rb
<i>Scarus ghobban</i>	I,EP	CA	X	PM	st	4-14	rb
<i>Scarus perriro</i>	EP	CA	X	PM	st	1-8	rb
<i>Scarus rubroviolaceus</i>	I,EP	CA	X	PM,IC	st	3-12	cr,rb

Family OPISTHOGNATHIDAE									
<i>Lonchopisthus sinuscalifornicus</i>	EP	CA	X	PM	b	40-73	sb		
<i>Opistognathus brochus</i>	n.a.		X	PM	n.a.	20-5574	n.a.		
<i>Opistognathus fenmutis</i>	n.a.		X	PM	n.a.		n.a.		
<i>Opistognathus galapagensis</i>	EP	P	X	PM	b	8-31	sb		
<i>Opistognathus panamaensis</i>	EP	P	X	PM,IC	b	2-34	sb		
<i>Opistognathus punctatus</i>	EP	CA	X	PM	b	n.a.	sb		
<i>Opistognathus rhomaleus</i>	EP	CA	X	PM	b	31-37	sb		
<i>Opistognathus scopis</i>	EP	CA	X	PM	b	27-40	sb		
<i>Opistognathus smithyanzi</i>	EP	CA	X	PM	b	9-20	sb		
Family DACTYLOSCOPIIDAE									
<i>Dactylagnus mundus</i>	EP	CA	X	PM	b	0.1	sb		
<i>Dactylagnus parvus</i>	EP	CA		PM	b	n.a.	sb		
<i>Dactyloscopus amnis</i>	EP	CA	X	PM	b	0.5-2	sb		
<i>Dactyloscopus byersi</i>	EP	CA	X	PM	b	n.a.	sb		
<i>Dactyloscopus fimbriatus</i>	EP	CA		PM	b	n.a.	sb		
<i>Dactyloscopus lunaticus</i>	EP	CA	X	PM	b	8-9	sb		
<i>Dactyloscopus minutus</i>	EP	CA	X	PM	b	3	sb		
<i>Dactyloscopus pectoralis</i>	EP	CA	X	PM,IC	b	1-10	sb		
<i>Dactyloscopus zelotes</i>	EP	ES,H,N,P		PM	b	n.a.	sb		
<i>Gillellus chathamensis</i>	EP		X	IC	b	7-73	sb		
<i>Gillellus searcheri</i>	EP	CA	X	PM	b	12-14	sb		
<i>Gillellus semicinctus</i>	EP	CA	X	PM	b	12-21	sb		
<i>Heteristius cinctus</i>	EP	CA	X	PM	b	9-15	sb		
<i>Myxodagnus opercularis</i>	EP	CA		PM	b	n.a.	sb		
<i>Myxodagnus macrognathus</i>	EP	CA		PM	b	n.a.	sb		
<i>Platygillellus altivelis</i>	EP	P	X	PM	b	27	sb		
<i>Platygillellus bussingi</i>	EP	P	X	PM	b	1-6	sb		
Family URANOSCOPIIDAE									
<i>Astroscopus zephyreus</i>	EP	CA	X	PM	b	n.a.	sb		
<i>Kathestostoma averruncus</i>	EP	CA	X	PM	b	80	sb		

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR			
Family BLENNIIDAE						
<i>Entomacrodus chiostrictus</i>	EP	CA	X	b	0.4–7	rb
<i>Hypsoblennius brevipinnis</i>	EP	CA	X	b	0.5–21	rb
<i>Hypsoblennius caulopus</i>	EP	N,P	X	b	n.a.	rb
<i>Hypsoblennius maculipinna</i>	EP	P	X	b	n.a.	rb
<i>Hypsoblennius paytensis</i>	EP	P	X	b	n.a.	rb
<i>Hypsoblennius striatus</i>	EP	P	X	b	0.3–1	rb
<i>Ophioblennius steindachneri</i>	EP	CA	X	b	0.3–50	rb
<i>Parahypsois piersoni</i>	EP	P	X	b	0.5	rb
<i>Plagiotremus azaleus</i>	EP	CA	X	b	0.4–27	rb,wc
Family TRIPTERYGIIDAE						
<i>Axoclinus cocoensis</i>	EP		X	b	0.3–37	rb
<i>Axoclinus lucillae</i>	EP	CA	X	b	0.2–27	rb
<i>Enneanectes sexmaculatus</i>	EP	CA	X	b	0.4–12	rb
<i>Lepidonectes clarkhubbsi</i>	EP	P	X	b	0.4–27	rb
Family LABRISOMIDAE						
<i>Labrisomus multiporosus</i>	EP	CA	X	b	0.5	rb
<i>Malacoctenus tetranemus</i>	EP	CA	X	b	0.5–27	rb
<i>Malacoctenus costaricanus</i>	EP	CA	X	b	0.2–4	rb
<i>Malacoctenus ebisui</i>	EP	CA	X	b	0.4–27	rb
<i>Malacoctenus margaritae</i>	EP	CA	X	b	0.6–12	rb
<i>Malacoctenus zonifer</i>	EP	CA	X	b	0.2–3	rb
<i>Mnierpes macrocephalus</i>	EP	CA	X	b	0.3–5	rb
<i>Paraclinus altivelis</i>	EP	CA	X	b	n.a.	rb
<i>Paraclinus beebei</i>	EP	P	X	b	0.2–6	rb
<i>Paraclinus magdalenae</i>	EP	CA	X	b	0.2–6	rb
<i>Paraclinus mexicanus</i>	EP	CA	X	b	18–21	rb

<i>Paraclinus monophthalmus</i>	EP				X	PM	b	0.2-12	rb
<i>Starksia fulva</i>	EP	P			X	PM	b	0.4-37	rb
<i>Starksia poshlon</i>	EP	P			X	PM	b	5-34	rb
<i>Starksia</i> n. sp.	EP				X	IC	b	n.a.	rb
Family CHAENOPSIDAE									
<i>Acanthemblemaria atrata</i>	EP				X	IC	b	5-35	rb
<i>Acanthemblemaria exilispinus</i>	EP	ES,H,I,N,P			X	PM	b	1-27	rb
<i>Acanthemblemaria hancocki</i>	EP	P			X	PM	b	0.4-21	rb
<i>Chaenopsis delatarrhis</i>	EP	P			X	PM	b	n.a.	sb
<i>Chaenopsis schmitti</i>	EP	P			X	PM	b	8-9	sb
<i>Chaenopsis</i> n. sp.	EP				X	PM,IC	b	17	rb
<i>Coralliozetus boehlkei</i>	EP	CA			X	PM,IC	b	1-27	rb
<i>Coralliozetus springeri</i>	EP	P			X	PM,IC	b	0.4-27	rb
<i>Ekemblemaria myersi</i>	EP	CA			X	PM	b	0.2-14	rb
<i>Emblemaria nivipes</i>	EP	P			X	PM,IC	b	11-46	sb
<i>Emblemaria piratica</i>	EP	CA			X	PM	b	5-27	rb
<i>Mccoskerichthys sandae</i>	EP	P			X	PM	b	8-21	rb
<i>Protemblemaria bicirrus</i>	EP	CA			X	PM	b	4-27	rb
<i>Stathmonotus culebrai</i>	EP	P			X	PM	b	1-27	rb
Family AMMODYTIDAE									
<i>Ammodytoides gilli</i>	EP	CA			X	PM	b	n.a.	sb
Family CALLIONYMIDAE									
<i>Synchiropus atrilabiatus</i>	EP	CA			X	PM,IC	b	55-275	mb, sb
Family ELEOTRIDAE									
<i>Eleotris picta</i>	EP	CA			X	PM,IC	b	1-3	cl, rb
<i>Eleotris tubularis</i>	EP				X	IC	b	0.1-1	cl, rb
Family GOBIIDAE									
<i>Akko brevis</i>	EP	CA			X	PM	b	n.a.	mb
<i>Bathygobius andrei</i>	EP	P			X	PM	b	0.2-1	mb, sb, m
<i>Bathygobius ramosus</i>	EP	CA			X	PM,IC	b	0.1-3	rb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Bollmannia chlamydes</i>	EP	P	X	PM	b	10–220	sb
<i>Bollmannia macropoma</i>	EP	CA	X	PM	b	36–220	sb
<i>Bollmannia marginalis</i>	EP	CA	X	PM	b	15–100	sb
<i>Bollmannia ocellata</i>	EP	CA	X	PM	b	16–48	sb
<i>Bollmannia stigmatura</i>	EP	CA	X	PM	b	18–256	sb
<i>Bollmannia umbrosa</i>	EP	CA	X	PM	b	36–189	sb
<i>Bollmannia</i> n. sp.	EP	P	X	PM	b	n.a.	sb
<i>Chriolepis arimelum</i>	EP		X	IC	b	n.a.	sb, rub
<i>Chriolepis cuneatus</i>	EP	CA	X	PM	b	n.a.	sb, rub
<i>Chriolepis dialepta</i>	EP		X	IC	b	7–31	sb, rub
<i>Coryphopterus urospilus</i>	EP	CA	X	PM, IC	b	0.4–27	sb
<i>Crenogobius manglicola</i>	EP	CA	X	PM	b	0.7–2	sb
<i>Crenogobius sagittula</i>	EP	CA	X	PM	b	–.3–4	sb, m
<i>Elacatinus puncticulatus</i>	EP	CA	X	PM	b	n.a.	cr, rb
<i>Elacatinus inornatus</i>	EP	P	X	PM	b	10–27	cr, rb
<i>Elacatinus janssi</i>	EP	P	X	PM	b	1–18	cr, rb
<i>Elacatinus nestotes</i>	EP		X	IC	b	5–12	cr, rb
<i>Enyppias aceras</i>	EP	P		PM	b	n.a.	n.a.
<i>Enyppias seminudus</i>	EP	CA	X	PM	b	1–13	n.a.
<i>Eretelis armiger</i>	EP	CA	X	PM	b	0.2–1	sb
<i>Evermannia erici</i>	EP		X	PM	b	<1	sb
<i>Evermannia panamensis</i>	EP	P	X	PM	b	0.1	sb
<i>Evermannia zosterura</i>	EP	CA	X	PM	b	0.1–4	sb
<i>Evorthodus minutus</i>	EP	CA	X	PM	b	0.7–4	sb
<i>Gobioides peruanus</i>	EP	H, N, P	X	PM	b	1–47	mb
<i>Gobionellus daguae</i>	EP	P	X	PM	b	n.a.	sb
<i>Gobionellus liolepis</i>	EP	P	X	PM	b	1–25	sb

<i>Gobionellus microdon</i>	EP	CA	X	PM	b	0.5-4	sb,m
<i>Gobionellus mystax</i>	EP	CA	X	PM	b	n.a.	sb
<i>Gobiosoma etheostoma</i>	EP	CA	X	PM	b	0.5-3	sb
<i>Gobiosoma hildebrandi</i>	EP	P		PM	b	n.a.	sb
<i>Gobiosoma homochroma</i>	EP	P		PM	b	n.a.	sb
<i>Gobiosoma nudum</i>	EP	CA	X	PM	b	0.1-9	sb
<i>Gobiosoma paradoxum</i>	EP	CA	X	PM	b	1	sb
<i>Gobiosoma</i> sp. 1	EP	P		PM	b	n.a.	sb
<i>Gobiosoma</i> sp. 2	EP	CA		PM	b	n.a.	sb
<i>Gobulus crescentalis</i>	EP	CA	X	PM	b	2-18	sb
<i>Gobulus hancocki</i>	EP	CA	X	PM,IC	b	0.2-14	sb
<i>Gymneleotris seminudus</i>	EP	CA	X	PM	b	0.2-3	rb
<i>Lophogobius cristulatus</i>	EP	P	X	PM	b	0.3-0.5	sb
<i>Lythrypnus alphigena</i>	EP		X	IC	b	n.a.	rub
<i>Lythrypnus cobaltus</i>	EP		X	IC	b	30-91	rb
<i>Lythrypnus lavenbergi</i>	EP		X	IC	b	n.a.	rub
<i>Lythrypnus rhizophora</i>	EP		X	IC	b	5-31	rb
<i>Microgobius brevispinis</i>	EP	CA	X	PM	b	n.a.	sb
<i>Microgobius crocatus</i>	EP	ES,H,N,P	X	PM	b	0.3-2	sb
<i>Microgobius curtus</i>	EP	P	X	PM	b	1-12	sb
<i>Microgobius cyclolepis</i>	EP	CA		PM	b	n.a.	sb
<i>Microgobius emblemaiticus</i>	EP	CA		PM	b	n.a.	sb
<i>Microgobius erectus</i>	EP	CA	X	PM	b	15-98	mb
<i>Microgobius miraflorensis</i>	EP	CA	X	PM	b	0.7-1	sb
<i>Microgobius tabogensis</i>	EP	CA	X	PM	b	1-2	sb
<i>Parella fusca</i>	EP	P		PM	b	n.a.	sb
<i>Parella ginsburgi</i>	EP	P		PM	b	n.a.	sb
<i>Parella lucretiae</i>	EP	P	X	PM	b	1	cl,sb
<i>Parella maxillaris</i>	EP	CA		PM	b	n.a.	sb
<i>Sicydium cocoensis</i>	EP		X	IC	b	0.1-11	cl,sb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
Family MICRODESMIIDAE							
<i>Cerdale ionthas</i>	EP	P		PM	b	n.a.	mb
<i>Cerdale paludicola</i>	EP	P	X	PM	b	0.3	mb
<i>Cerdale prolata</i>	EP	P		PM	b	n.a.	mb
<i>Clarkithys bilineatus</i>	EP	CA	X	PM,IC	b	0.3-3	mb
<i>Microdesmus affinis</i>	EP	CA		PM	b	n.a.	mb
<i>Microdesmus dipus</i>	EP	CA	X	PM	b	0.7	mb
<i>Microdesmus dorsipunctatus</i>	EP	CA	X	PM	b	0.2-4	mb
<i>Microdesmus hildebrandi</i>	EP	P		PM	b	n.a.	mb
<i>Microdesmus intermedius</i>	EP	P	X	PM	b	0.7-3	mb
<i>Microdesmus multiradiatus</i>	EP	P		PM	b	n.a.	mb
<i>Microdesmus retropinnis</i>	EP	P	X	PM	b	0.2-1	mb
<i>Microdesmus suttkusi</i>	EP	CA	X	PM	b	0.2-1	mb
<i>Prereleotris carinata</i>	EP	CA	X	PM	b	15	sb
Family ACANTHURIDAE							
<i>Acanthurus nigricans</i>	EP	CA	X	PM,IC	st	n.a.	cr,rb
<i>Acanthurus triostegus</i>	I,EP	CA	X	PM,IC	st	0.3-11	cr,rb
<i>Acanthurus xanopterus</i>	I,EP	CA	X	PM,IC	st	0.3-13	cr,rb
<i>Ctenochaetus marginatus</i>	W,EP	CA	X	PM,IC	st	3-15	cr,rb
<i>Prionurus laticlavus</i>	EP	CA	X	PM,IC	st	2-27	cr,rb
<i>Zanclus cornutus</i>	I,EP	CA	X	PM,IC	st	3-17	cr,rb
Family GEMPYLIDAE							
<i>Gempylus serpens</i>	EP?	CA	X	PM	n.a.	0.7-3	wc
<i>Lepidocybium flavobrunneum</i>	EP?	CA		PM	n.a.	n.a.	wc
<i>Ruvettus pretiosus</i>	EP?	CA	X	PM	n.a.	240	wc
Family TRICHIURIDAE							
<i>Trichiurus lepturus</i>	ct	CA	X	PM	n	9-275	wc

Family SCOMBRIDAE														
<i>Acanthocybium solandri</i>	ct	CA	X	PM,IC	ep	1-27	wc							
<i>Auxis rochei</i>	ct	CA	X	PM,IC	ep	10	wc							
<i>Auxis thazard</i>	ct	CA	X	PM,IC	ep	n.a.	wc							
<i>Euthymus lineatus</i>	EP	CA	X	PM,IC	ep	107-549	wc							
<i>Katsuwonus pelamis</i>	ct	CA	X	PM,IC	ep	n.a.	wc							
<i>Sarda orientalis</i>	IPEP	CA	X	PM,IC	ep	108	wc							
<i>Scomber japonicus</i>	ct	CA	X	PM	ep	20-102	wc							
<i>Scomberonorus sierra</i>	EP	CA	X	PM,IC	ep	1-549	wc							
<i>Thunnus albacares</i>	ct	CA	X	PM,IC	ep	549	wc							
Family XIPHIIDAE														
<i>Istiophorus platypterus</i>	ct	CA		PM,IC	ep	n.a.	wc							
<i>Makaira indica</i>	IPEP	CA		PM	ep	n.a.	wc							
<i>Makaira mazara</i>	ct	CA		PM,IC	ep	n.a.	wc							
<i>Tetrapturus angustirostris</i>	IPEP	CA		PM	ep	n.a.	wc							
<i>Tetrapturus audax</i>	IPEP	CA		PM,IC	ep	n.a.	wc							
<i>Xiphius gladius</i>	ct	CA		PM	ep	n.a.	wc							
Family NOMEIDAE														
<i>Cubiceps carinatus</i>	ct	CA	X	PM	ep	62-107	wc							
<i>Psenes cyanophrys</i>	ct	P	X	PM	ep	n.a.	wc							
<i>Psenes sio</i>	ct?	P	X	PM	ep	275	wc							
Family STROMATEIDAE														
<i>Peprilus medius</i>	EP	CA	X	PM	n	4-220	wc							
<i>Peprilus snyderi</i>	EP	CA	X	PM	n	26-235	wc							
Family BOTHIDAE														
<i>Bothus leopardinus</i>	EP	CA	X	PM,IC	b	3-110	sb							
<i>Bothus mancus</i>	IPEP	CA	X	IC	b	12-15	sb							
<i>Engyophrys sanctilaurentii</i>	EP	CA	X	PM	b	40-294	mb							
<i>Monolene asaetadi</i>	EP	CA	X	PM	b	68-255	mb							
<i>Monolene danae</i>	EP	P	X	PM	b	107-200	mb							

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
				UCR	Pacific ^c			
<i>Monolene maculipinna</i>	EP	P		X	PM	b	65–256	mb
<i>Perissias taeniopterus</i>	EP	CA		X	PM	b	41–203	sb
Family PARALICHTHYIDAE								
<i>Ancylopsetta dendritica</i>	EP	CA		X	PM	b	13–66	mb
<i>Citharichthys gilberti</i>	EP	CA		X	PM	b	0.3–1	mb
<i>Citharichthys gordae</i>	EP	CA		X	PM	b	n.a.	mb
<i>Citharichthys mariatorisae</i>	EP	CA		X	PM	b	13–18	mb
<i>Citharichthys platophrys</i>	EP	CA		X	PM	b	18–275	mb
<i>Citharichthys xanthostigma</i>	EP	CA		X	PM	b	n.a.	mb
<i>Cyclopsetta panamensis</i>	EP	CA		X	PM	b	2–56	mb
<i>Cyclopsetta querna</i>	EP	CA		X	PM	b	5–141	mb
<i>Etropus crossotus</i>	EP	CA		X	PM	b	13–60	mb
<i>Etropus delsmanni</i>	EP	CA		X	PM	b	n.a.	mb
<i>Etropus peruvianus</i>	EP	CA		X	PM	b	12–19	mb
<i>Hippoglossina bolmani</i>	EP	CA		X	PM,IC	b	n.a.	mb, sb
<i>Hippoglossina tetraphthalmus</i>	EP	CA		X	PM	b	n.a.	mb
<i>Paralichthys woolmani</i>	EP	CA		X	PM	b	n.a.	mb
<i>Syacium latifrons</i>	EP	CA		X	PM,IC	b	n.a.	mb, sb
<i>Syacium longidorsale</i>	EP	P		X	PM	b	n.a.	mb
<i>Syacium maculiferum</i>	EP			X	IC	b	n.a.	sb
<i>Syacium ovale</i>	EP	CA		X	PM	b	20–247	mb
Family ACHIRIDAE								
<i>Achirus klunzingeri</i>	EP	P		X	PM	b	10–59	mb
<i>Achirus mazatlanus</i>	EP	CA		X	PM	b	0.3–275	mb
<i>Achirus scutum</i>	EP	CA		X	PM	b	0.3–34	mb

<i>Trinectes fimbriatus</i>	EP	ES,H,N,P	X	PM	b	0.3-30	mb
<i>Trinectes fluviatilis</i>	EP	P	X	PM	b	1	mb
<i>Trinectes fonsecensis</i>	EP	CA	X	PM	b	0.3-275	mb
<i>Trinectes opercularis</i>	EP			PM	b	n.a.	mb
<i>Trinectes xanthurus</i>	EP	ES,H,N,P	X	PM	b	2-70	mb
Family SOLEIDAE							
<i>Aseraggodes herrei</i>	EP	CA	X	IC	b	5-21	sb
Family CYNOGLOSSIDAE							
<i>Symphurus atramentatus</i>	EP	CA	X	PM	b	8-19	mb
<i>Symphurus callopterus</i>	EP	CA	X	PM	b	25-224	mb
<i>Symphurus chabanaudi</i>	EP	CA	X	PM	b	2-275	mb
<i>Symphurus elongatus</i>	EP	CA	X	PM	b	9-220	mb
<i>Symphurus fasciolaris</i>	EP	CA	X	PM	b	8-60	mb
<i>Symphurus gorgonae</i>	EP	CA	X	PM	b	21-200	mb
<i>Symphurus leei</i>	EP	CA	X	PM	b	2-210	mb
<i>Symphurus melanurus</i>	EP	CA	X	PM	b	9-60	mb
<i>Symphurus melasmatotheca</i>	EP	CA	X	PM	b	21-55	mb
<i>Symphurus microlepis</i>	EP	P		PM	b	n.a.	mb
<i>Symphurus oligomerus</i>	EP	CA	X	PM	b	73-295	mb
<i>Symphurus prolatarus</i>	EP	CA	X	PM	b	n.a.	mb
<i>Symphurus undecimlepis</i>	EP	CA	X	PM	b	22-136	mb
<i>Symphurus varius</i>	EP	CA	X	IC	b	88-180	sb
<i>Symphurus williamsi</i>	EP	CA	X	PM	b	10-36	mb
Family BALISTIDAE							
<i>Balistes polylepis</i>	EP	CA	X	PM,IC	n	2-80	cr,rb
<i>Canthidermis maculatus</i>	ct	CA	X	PM,IC	n	13-212	f,wc
<i>Melichthys niger</i>	ct	CA	X	PM,IC	n	3-15	cr,rb
<i>Melichthys vidua</i>	ct		X	IC	n	10	cr,rb
<i>Pseudobalistes naufragium</i>	EP	CA	X	PM,IC	n	1-53	cr,rb

(continued)

Species List 39.2 (continued)

Species	World distribution ^a	Costa Rica			Oceanic distribution ^d	Depth (m) ^e	Habitat/Community ^f
		Central America ^b	UCR	Pacific ^c			
<i>Stefflamen verres</i>	EP	CA	X	PM,IC	eb	2–82	cr,rb
<i>Xanthichthys caeruleolineatus</i>	IPEP		X	IC	n	n.a.	cr
<i>Xanthichthys mento</i>	IPEP		X	IC	n	10	cr
Family MONACANTHIDAE							
<i>Aluterus monoceros</i>	ct	P	X	PM,IC	n	17–82	f,wc
<i>Aluterus scriptus</i>	ct	CA	X	PM,IC	n	1–13	f,wc
<i>Cantherhines dumerili</i>	WP,EP		X	PM,IC	eb	n.a.	cr
Family OSTRACIIDAE							
<i>Ostracion meleagris</i>	IPEP	CA	X	PM,IC	eb	14–20	cr,rb
Family TETRAODONTIDAE							
<i>Arothron hispidus</i>	IPEP	CA	X	PM,IC	eb	1–56	cr,rb
<i>Arothron meleagris</i>	IPEP	CA	X	PM,IC	eb	03–21	cr,rb
<i>Canthigaster punctatissima</i>	EP	CA	X	PM,IC	eb	0.4–27	cr,rb
<i>Guentheridia formosa</i>	EP	P	X	PM	eb	3–9	mb, sb, m
<i>Lagocephalus lagocephalus</i>	n.a.	CA	X	PM	ep	35–60	wc
<i>Sphoeroides angusticeps</i>	EP	CA	X	IC	eb	n.a.	cr,rb
<i>Sphoeroides annulatus</i>	EP	CA	X	PM	eb	0.5–56	mb
<i>Sphoeroides kendalli</i>	EP	P	X	PM	eb	2–64	mb
<i>Sphoeroides lobatus</i>	EP	CA	X	PM,IC	eb	2–91	cr,rb
<i>Sphoeroides rosenblatti</i>	EP	P	X	PM	eb	0.3–4	mb
<i>Sphoeroides sechurae</i>	EP	CA	X	PM	eb	8–72	mb
<i>Sphoeroides tricocephalus</i>	EP	P	X	PM	eb	3–52	mb
Family DIODONTIDAE							
<i>Chilomycterus reticulatus</i>	EP	CA	X	PM,IC	eb	n.a.	cr,rb

<i>Diodon eydouxi</i>	n.a.	CA		PM	ep	n.a.	wc
<i>Diodon holocanthus</i>	ct	CA	X	PM,IC	eb	0.4-53	cr,rb
<i>Diodon hystrix</i>	ct	CA	X	PM,IC	eb	5-11	cr,rb
Family MOLIDAE							
<i>Mola mola</i>	ct	CA	X	PM	ep	n.a.	wc
<i>Ranzania laevis</i>	ct	CA		PM	ep	n.a.	wc

n.a. = information not available

^aCar = Caribbean; ct = circumtropical; EA = eastern Atlantic; EP = eastern Pacific; IP = Indo-Pacific; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; ES = El Salvador; H = Honduras; N = Nicaragua; P = Panama UCR: X = specimen deposited at University of Costa Rica (Museo de Zoología)

^cIC = Isla del Coco; PM = Pacific mainland

^db = benthic; eb epibenthic; ep = epipelagic; it = intertidal; mp = mesopelagic; n = neritic; st = subtidal

^eUppermost and lowermost occurrence in Costa Rican sample (trawl, seine, ichthyocide, etc.)

^fcl = coastal lagoons; cr = coral reefs; f = flotsam; m = mangroves; mb = muddy bottom; rb = rocky bottom; rub = rubble bottom; sb = sandy bottom; wc = water column

Species List 40.1 Species of reptiles and amphibians found at marine environments in Costa Rican Caribbean coast. See text for our definition of marine environment

Species	World distribution ^a	Central American distribution ^b	Life mode ^c	Marine habitat ^d	Costa Rican distribution ^e	Abundance ^f	References ^g
Class AMPHIBIA							
Order ANURA							
Family BUFONIDAE							
<i>Chaunus marinus</i> Linné, 1758	Pan*, ET	B, G, ES, H, N, P	t	sb, m	Cc, Pc, Ich, PN, PO, ISL	c	[26, 28, 29]
Family HYLIDAE							
<i>Osteopilus septentrionalis</i> (Duméril & Bribon, 1841)	Car*		t	sb, m	Cc	r	[28, 29]
Class REPTILIA							
Order TESTUDINATA							
Family DERMOCHELYDIDAE							
<i>Dermochelys coriacea</i> (Vandelli, 1761)	Cp	B, G, ES, H, N, P	aq	wc, sb	Cc, Pc	i	[7, 28]
Family CHELONIIDAE							
<i>Caretta caretta</i> (Linné, 1758)	Cp		aq	wc, sb	Cc	r	[10, 11]
<i>Chelonia mydas</i> (Linné, 1758)	Pan	B, G, H, N, P	aq	wc, sb	Cc	u	[5, 16, 17]
<i>Eretmochelys imbricata</i> (Linné, 1766)	Pan	N, P	aq	wc, sb, rb	Cc, Pc	r	[24]
Order CROCODYLIA							
Family CROCODYLIDAE							
<i>Caiman crocodilus</i> (Linné, 1758)	ICA, NCA, NSA	B, G, ES, H, N, P	aq	m	Cc, Pc	u	[20]
<i>Crocodylus acutus</i> (Cuvier, 1807)	ICA, NCA, Car, NSA	B, G, ES, H, N, P	aq	wc, sb, m, cl	Cc, Pc	u	[2, 26]
Order SQUAMATA							
Family BOIDAE							
<i>Boa constrictor</i> Linné, 1758	ICA, NCA, SA	B, G, ES, H, N, P	t	sb, m	Cc, Pc	u	[31]
Family COLUBRIDAE							
<i>Tretanorhinus nigroluteus</i> Cope, 1861	ICA, NCA	B, G, H, N, P	aq, t	m	Cc	r	[W. Lamar, pers. obs.]

n.a. = information not available

* Introduced exotic

^aCar = Caribbean; Cp = cosmopolitan; ET = Extra Tropical; NCA = Nuclear Central America; ICA = Isthmian Central America; NSA = northern South America; Pan = Pan-tropical^bDistribution in Central America other than Costa Rica: B = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama^caq = aquatic most of the life cycle; t = terrestrial^dcl = coastal lagoon; m = mangrove; rb = rocky beach; sb = sand beach; wc = water column^eCc = Caribbean coast; Ich = Isla Chirra; PN = Península de Nicoya; PO = Península de Osa; Pc = Pacific coast; ISL = Isla San Lucas^fc = common (can find many individuals); i = infrequent (not predictable); r = rarely seen; u = usual (can be found in the appropriate habitat and season)^gReferences are indicated by numbers according to the reference list

Species List 40.2 Species of reptiles and amphibians found at marine environments in Costa Rican Pacific Ocean. See text for our definition of marine environment

Species	World distribution ^a	Central America ^b	Life mode ^c	Marine habitat ^d	Costa Rican distribution ^e	Abundance ^f	References ^g
Class AMPHIBIA							
Order GYMNOPHONA							
Family CAECILIIDAE							
<i>Gymnopsis multiplicata</i> Peters, 1874	ICA,NCA	B,G,ES,H,N,P	t	i	ICa	r	[26, 28]
Order ANURA							
Family BUFONIDAE							
<i>Chaunus marinus</i> Linné, 1758	Pan*,ET	B,G,ES,H,N,P	t	m, sb	Cc, Pc	c	[26, 28, 29]
Family LEPTODACTYLIDAE							
<i>Craugastor stejnegerianus</i> (Schmidt, 1857)	ICA,NCA,NSA	H,N,P	t	m, sb	ICa	c	[28]
<i>Craugastor stejnegerianus</i> (Cope, 1893)	ICA	N,P	t	sb	ICa	c	[28]
<i>Leptodactylus pentadactylus</i> (Hallowell, 1860)	ICA,NCA,NSA	B,G,ES,H,N,P	t	m	Pc	c	[28]
<i>Leptodactylus pentadactylus</i> (Laurenti, 1768)	ICA,SA	H,N,P	t	i	Cc, ICa, Pc	c	[28]
Family HYLIDAE							
<i>Smilisca phaeota</i> (Cope, 1862)	ICA,NCA	H,N,P	t	i	PO, ICa	c	[28]
Class REPTILIA							
Order TESTUDINATA							
Family DERMOCHELYIDAE							
<i>Dermochelys coriacea</i> (Vandelli, 1761)	Cp	B,G,ES,H,N,P	aq	sb, wc	Cc, Pc	i	[32]

(continued)

Species List 40.2 (continued)

Species	World distribution ^a	Central America ^b	Life mode ^c	Marine habitat ^d	Costa Rican distribution ^e	Abundance ^f	References ^g
Family CHELONIIDAE							
<i>Chelonia agassizi</i> Bocourt, 1868	EP,SP	G,ES,H,N,P	aq	sb,wc	Pc,PG,PN,PO	i	[6, 28]
<i>Eretmochelys imbricata</i> (Linné, 1766)	Pan	G,H,N,P	aq	wc,rb,sb	Cc,Pc,PG,PN,PO	r	[21, 22]
<i>Lepidochelys olivacea</i> (Eschscholtz, 1829)	WPEP,WA	G,ES,N,P	aq	sb,wc	Pc	u	[1, 8]
Order CROCODYLIA							
Family CROCODYLIDAE							
<i>Caiman crocodilus</i> (Linné, 1758)	ICA,NCA,NSA	B,G,ES,H,N,P	aq	m	Cc,Pc	u	[20]
<i>Crocodylus acutus</i> (Cuvier, 1807)	ICA,NCA,Car,NSA	B,G,ES,H,N,P	aq	cl,m,sb,wc	Cc,Pc	u	[2, 27]
Order SQUAMATA							
Suborder SAURIA							
Family CORYTOPHANIDAE							
<i>Basiliscus basiliscus</i> (Linné, 1758)	ICA,NCA,NSA	N,P	t	i,sb	ICa	c	[34]
Family EUBLEPHARIDAE							
<i>Coleonyx mitratus</i> (Peters, 1863)	NCA	G,ES,H,N	t	i	ICh,PN	r	[9, 32]
Family GEKKONIDAE							
<i>Lepidoblepharis xanthostigma</i> Noble 1916	ICA	N,P	t	i	Cc,PO,ICa	r	[28]
<i>Sphaerodactylus graptolaemus</i> Harris and Kluge, 1984	ICA	P	t	i,sb	PO,ICa	i	[28]
<i>Sphaerodactylus pacificus</i> Stejneger, 1903	ICA		t	i	IC	u	[28]
<i>Thecadactylus rapicauda</i> (Houttoyn, 1782)	ICA,NCA	B,G,S,H,N,P	t	i,sb	Cc,ICa,Pc	i	[28]

Family GYMNOPHTHALMIDAE									
<i>Leposoma southi</i>	Ruthven & Gaige, 1924	ICA	P	t	i	ICa	i	[28]	
Family IGUANIDAE									
<i>Ctenosaura similis</i>	(Gray, 1831)	ICA,NCA	B,G,ES,H,N,P	t	m, sb	MI, Pc	c	[26]	
<i>Iguana iguana</i>	(Linné, 1758)	NSA, Car	B,G,ES,H,N,P	t	wc, sb, m	Cc, Pc	u	[3, 25]	
Family PHRYNOSOMATIDAE									
<i>Sceloporus variabilis</i>	Wiegmann, 1834	ICA,NCA	G,ES,H,N	t	sb	PN	c	[30]	
FAMILY POLYCHROTIDAE									
<i>Norops limifrons</i>	(Cope, 1862)	ICA,NCA	H,N,P	t	i, sb	ICa	c	[12, 19]	
<i>Norops townsendi</i>	(Stejneger, 1900)	ICA		t	i	IC	c	[4]	
Family TEIIDAE									
<i>Ameiva quadrilineata</i>	(Hallowell, 1860)	ICA	P	t	i, sb	ICa	c	[12, 13]	
<i>Cnemidophorus deppii</i>	Wiegmann, 1834	ICA,NCA	G,ES,H,N	t	i, sb	IS	c	[12, 13]	
Suborder SERPENTES									
Family BOIDAE									
<i>Boa constrictor</i>	Linné, 1758	ICA,NCA,SA	B,G,ES,H,N,P	t	i, m	ICa, ISL	u	[14]	
<i>Corallus ruschenbergieri</i>	(Cope, 1876)	ICA,SA	P	t	m	PO	u	[15]	
Family COLUBRIDAE									
<i>Chironius carinatus</i>	(Linné, 1758)	ICA,NSA	P	t	m, sb	PO	i	[28]	
<i>Coniophanes fissidens</i>	(Gunther, 1858)	ICA,NCA,SA	B,G,ES,H,N,P	t	i, m	Pc, ICa	i	[31]	
<i>Imantodes cenchoa</i>	(Linné, 1758)	ICA,NCA,SA	B,G,ES,H,N,P	t	i	ICa	c	[28]	
<i>Leptodeira rubricata</i>	(Cope, 1893)	ICA	P	t	m	PO	r	[31]	
<i>Leptodrymus pulcherrimus</i>	(Cope, 1874)	ICA,NCA	G,ES,H,N	t	m, sb	PN	r	[26]	
<i>Mastigodryas melanotomus</i>	(Cope, 1868)	ICA,NCA	G,ES,H,N,P	t	m, sb	Pc, ICa	c	[28]	
<i>Oxybelis aeneus</i>	(Wagler, 1824)	ET, ICA, NCA, SA	B,G,ES,H,N,P	t	m	Cc, Pc	c	[31]	
<i>Pseustes poecilonotus</i>	(Gunther, 1858)	ICA,NCA,SA	B,G,ES,H,N,P	t	sb	Cc, Pc	u	[28]	

(continued)

Species List 40.2 (continued)

Species	World distribution ^a	Central America ^b	Life mode ^c	Marine habitat ^d	Costa Rican distribution ^e	Abundance ^f	References ^g
Family ELAPIDAE							
<i>Pelamis platurus</i> (Linné, 1766)	Pan	ES,G,H,N,P	aq	wc	Pc	u	[18]
Family LEPTOTYPHLOPIDAE							
<i>Leptotyphlops ater</i> Taylor, 1939	ICA	N,P	t	i	MI	r	[31]
Family LOXOCEMIDAE							
<i>Loxocemus bicolor</i> Cope, 1861	ICA,NCA	G,ES,H,N	t	sb	PN	i	[23]

n.a. = Information not available

* Introduced exotic

^aCar = Caribbean; Cp = cosmopolitan; EP = eastern Pacific; ET = extra Tropical; NCA = Nuclear Central America; ICA = Isthmian Central America; NSA = northern South America; SA = South America; Pan = Pan-tropical; WA = western Atlantic; WP = western Pacific; SP = south Pacific

^bDistribution in Central America other than Costa Rica: B = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panama

^caq = aquatic most of the life cycle; t = terrestrial

^dcl = coastal lagoon; i = island; m = mangrove; rb = rocky beach; sb = sand beach; wc = water column

^eCc = Caribbean coast; ICa = Isla del Caño; IC = Isla del Coco; ICh = Isla Chirra; MI = Islas Murciélago; PN = Península de Nicoya; PO = Península de Osa; Pc = whole Pacific coast; PG = Golfo de Papagayo; ISL = Isla San Lucas

^fc = common (one can find many individuals); i = infrequent (not predictable); r = rarely seen; u = usual (can be found in the appropriate habitat and season)

^gReferences are indicated by numbers according to the reference list

Species List 41.1 Coastal and marine birds in Costa Rica (Pacific and Caribbean) and Central America. Nomenclature and species order follow Dickinson (2003)

Species	English name	World distribution ^a	Central America ^b	Costa Rica Caribbean ^c	Costa Rica Pacific ^d	Habitat ^e	References ^f
Order PROCELLARIIFORMES							
Family DIOMEDEIDAE							
<i>Phoebastria irrorata</i> (Salvin, 1883)	Waved Albatross	EP	P		IC, Off	o,s	[1, 4, 7]
Family PROCELLARIIDAE							
<i>Calonectris diomedea</i> (Scopoli, 1769)	Cory's Shearwater	Car, WA, WP, IP	ES, G, H, N, P	CM	Off	o,s	*
<i>Procellaria parkinsoni</i> G.R. Gray, 1862	Parkinson's Petrel	EP, WP				o,s	[2, 4, 6, 7, 9]
<i>Pterodroma hasitata</i> (Kuhl, 1820)	Black-capped Petrel	Car, WA		Off		s	[2, 4, 6, 9]
<i>Pterodroma phaeopygia</i> (Salvin, 1876)	Dark-rumped Petrel	EP	P		IC, Off	o,s	[2, 4, 6, 7, 8, 9]
<i>Puffinus creatopus</i> Coues, 1864	Pink-footed Shearwater	EP	ES, G, H, N, P		IC, Off	o,s	[2, 4, 6, 9]
<i>Puffinus griseus</i> (J.F. Gmelin, 1789)	Sooty Shearwater	EA, EP, IP, WA, WP	CA		PM, Off	o,s	[2, 4, 6, 7, 9]
<i>Puffinus lherminieri</i> Lesson, 1839	Audubon's Shearwater	Car, EP, IO, WA, WP	P	Off	IC, Off	o,s	[2, 4, 6, 7, 8, 9]
<i>Puffinus pacificus</i> (J.F. Gmelin, 1789)	Wedge-tailed Shearwater	EP, IO, WP	P		PM, IC	s	[2, 4, 6, 7, 9]
<i>Puffinus tenuirostris</i> (Temminck, 1836)	Short-tailed Shearwater	Arc, EP, IO, WP			Off	o,s	[2, 4, 6, 9]
Family HYDROBATIDAE							
<i>Oceanites oceanicus</i> (Kuhl, 1820)	Wilson's Storm-Petrel	Ant, Car, EA, EP, IO, IP, RS, WA, WP	P	Off	Off	o,s	[2, 4, 6, 7, 9]
<i>Oceanodroma castro</i> (Harcourt, 1851)	Band-rumped Storm-Petrel	EA, EP, WA, WP			PM, IC, Off	o,s	[2, 4, 6, 8, 9]
<i>Oceanodroma leucorhoa</i> (Vieillot, 1818)	Leach's Storm-Petrel	Car, EA, EP, IO, WA, WP	ES, G, H, N		PM, IC, Off	o,s	[2, 4, 6, 8, 9]
<i>Oceanodroma markhami</i> (Salvin, 1883)	Markham's Storm-Petrel	EP			IC, Off	o,s	[2, 4, 6, 8, 9]
<i>Oceanodroma melania</i> (Bonaparte, 1854)	Black Storm-Petrel	EP	ES, G, H, N, P		PM, IC, Off	o,s	[2, 4, 6, 7, 8, 9]
<i>Oceanodroma microsoma</i> (Coues, 1864)	Least Storm-Petrel	EP	ES, G, H, N, P		PM, Off	o,s	[2, 4, 6, 7, 9]
<i>Oceanodroma tethys</i> (Bonaparte, 1852)	Wedge-rumped Storm-Petrel	EP	ES, G, H, N, P		PM, IC, Off	o,s	[2, 4, 6, 7, 8, 9]

Species List 41.1 (continued)

Species	English name	World distribution ^a	Central America ^b	Costa Rica Caribbean ^c	Costa Rica Pacific ^d	Habitat ^e	References ^f
<i>Pelagodroma marina</i> (Latham, 1790)	White-faced Storm-Petrel	EA,EP,IO,IP,WA,WP			IC,Off	o,s	[2, 4, 8, 9]
Order PELECANIFORMES							
Family PHAETHONTIDAE							
<i>Phaethon aethereus</i> Linnaeus, 1758	Red-billed Tropicbird	Car,EA,EP,IO,RS,WA,WP	CA	Off	Off	o,s	[2, 4, 6, 7, 9]
<i>Phaethon lepturus</i> Daudin, 1802	White-tailed Tropicbird	Ct	B,G,P?		IC,Off	o,s	[3, 4, 6, 7, 9]
Family FREGATIDAE							
<i>Fregata magnificens</i> Mathews, 1914	Magnificent Frigatebird	Car,EA,EP,WA	CA	CM	PM,IC	s	[2, 4, 6, 7, 8, 9]
<i>Fregata minor</i> (J.F. Gmelin, 1789)	Great Frigatebird	EA,EP,IO,WA,WP			IC	s	[2, 4, 8, 9]
Family PELECANIDAE							
<i>Pelecanus erythrorhynchos</i> J.F. Gmelin, 1789	American White Pelican	EP,WA	ES,G,H,N,P		PM	cr,s	[2, 4, 6, 7, 9]
<i>Pelecanus occidentales</i> Linnaeus, 1766	Brown Pelican	Car,EP,WA	CA	CM	PM,IC	cr,s	[2, 4, 6, 7, 8, 9]
Family SULIDAE							
<i>Sula dactylatra</i> Lesson, 1831	Masked Booby	Ct	CA	Off	IC,Off	cr,o,s	[2, 4, 6, 7, 8, 9]
<i>Sula leucogaster</i> (Boddaert, 1783)	Brown Booby	Ct	CA	CM	PM,IC	cr,s	[2, 4, 6, 7, 8, 9]
<i>Sula nebouxii</i> Milne-Edwards, 1882	Blue-footed Booby	EP	ES,H,N,P		PM,IC	cr,s	[2, 4, 6, 7, 8, 9]
<i>Sula sula</i> (Linnaeus, 1766)	Red-footed Booby	Ct	CA	Off	IC,Off	cr,s,o	[2, 4, 6, 7, 8, 9]
Family PHALACROCORACIDAE							
<i>Phalacrocorax brasilianus</i> (J.F. Gmelin, 1789)	Neotropical Cormorant	Car,EP,WA	CA	CM	PM	cl,m	[2, 4, 6, 7, 9]
Order CHARADRIIFORMES							
Family HAEMATOPODIDAE							
<i>Haematopus palliatus</i> Temminck, 1820	American Oystercatcher	Car,EP,WA	CA	CM	PM	cr,s	[2, 5, 6, 7, 9]
Family RECURVITRIDAE							
<i>Himantopus mexicanus</i> (Statius Müller, 1776)	Black-necked Stilt	Car,EP,WA	CA	CM	PM	cl,m	[2, 5, 6, 7, 9]

<i>Recurvirostra americana</i> J.F. Gmelin, 1789	American Avocet	Car,EP,WA	CA	PM	cl,m	[2, 5, 6, 7, 9]
Family CHARADRIIDAE						
<i>Charadrius alexandrinus</i> Linnaeus, 1758	Snowy Plover	Car,EA,EP,IO,Med,RS,WA,WP	CA	CM	cl,m,s	[2, 5, 6, 7, 9]
<i>Charadrius collaris</i> Vieillot, 1818	Collared Plover	Car,EP,WA	CA	CM	cl,m,s	[2, 5, 6, 7, 9]
<i>Charadrius semipalmatus</i> Bonaparte, 1825	Semipalmated Plover	Arc,Car,EP,WA	CA	CM	cl,cr,m,s	[2, 5, 6, 7, 8, 9]
<i>Charadrius wilsonia</i> Ord, 1814	Wilson's Plover	Car,EP,WA	CA	CM	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Pluvialis dominica</i> (Statius Müller, 1776)	American Golden-Plover	Arc,Car,EA,EP,WA,WP	CA	CM	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Pluvialis squatarola</i> (Linnaeus, 1758)	Black-bellied Plover	Arc,Car,EA,EP,IO,Med,RS,WA,WP	CA	CM	cl,cr,m,s	[2, 5, 6, 7, 8, 9]
Family SCOLOPACIDAE						
<i>Actitis macularia</i> (Linnaeus, 1766)	Spotted Sandpiper	Arc,Car,EP,WA	CA	CM	cl,cr,m,s	[2, 5, 6, 7, 8, 9]
<i>Aphriza virgata</i> (J.F. Gmelin, 1789)	Surfbird	EP	ES,G,H,N,P	PM	cl,cr,m,s	[2, 5, 6, 7, 9]
<i>Arenaria interpres</i> (Linnaeus, 1758)	Ruddy Turnstone	Arc,Car,EA,EP,IO,Med,RS,WA,WP	CA	CM	cl,cr,m,s	[2, 5, 6, 7, 8, 9]
<i>Calidris alba</i> (Pallas, 1764)	Sanderling	Arc,Car,EA,EP,IO,IP,Med,RS,WA,WP	CA	CM	cl,m,s	[2, 5, 6, 7, 9]
<i>Calidris alpina</i> (Linnaeus, 1758)	Dunlin	Arc,Car,EA,EP,IO,Med,RS,WA,WP	CA	PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Calidris bairdii</i> (Coues, 1861)	Baird's Sandpiper	Arc,Car,EP,WA	ES,G,H,N,P	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Calidris canutus</i> (Linnaeus, 1758)	Red Knot	Arc,Car,EA,EP,IP,Med,WA,WP	CA	PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Calidris ferruginea</i> (Pontoppidan, 1763)	Curlew Sandpiper	Arc,EA,EP,IO,IP,RS,WA,WP		PM	cl,m,s	[2, 5, 6, 9]
<i>Calidris fuscicollis</i> (Vieillot, 1819)	White-rumped Sandpiper	Arc,Car,EP,WA	CA	CM	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Calidris himantopus</i> (Bonaparte, 1826)	Stilt Sandpiper	Arc,Car,EP,WA	CA	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Calidris mauri</i> (Cabanis, 1857)	Western Sandpiper	Arc,Car,EP,WA	CA	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Calidris melanotos</i> (Vieillot, 1819)	Pectoral Sandpiper	Arc,Car,EP,WA	CA	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]

(continued)

Species List 41.1 (continued)

Species	English name	World distribution ^a	Central America ^b	Costa Rica Caribbean ^c	Costa Rica Pacific ^d	Habitat ^e	References ^f
<i>Callidris minutilla</i> (Vieillot, 1819)	Least Sandpiper	Arc,Car,EP,WA	CA	CM	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Callidris pusilla</i> (Linnaeus, 1766)	Semipalmated Sandpiper	Arc,Car,EP,WA	CA	CM	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Catoptrophorus semipalmatus</i> (J.F. Gmelin, 1789)	Willet	Car,EP,WA	CA	CM	PM,IC	cl,cr,m,s	[2, 5, 6, 7, 9]
<i>Heteroscelus incanus</i> (J.F. Gmelin, 1789)	Wandering Tattler	EP,WP	ES,G,H,N,P		PM,IC	cr	[2, 5, 6, 7, 8, 9]
<i>Limnodromus griseus</i> (J.F. Gmelin, 1789)	Short-billed Dowitcher	Arc,Car,EP,WA	CA	CM	PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Limnodromus scolopaceus</i> (Say, 1823)	Long-billed Dowitcher	Arc,Car,EP,WA	CA	CM	PM	cl,m	[2, 5, 6, 7, 9]
<i>Limosa fedoa</i> (Linnaeus, 1758)	Marbled Godwit	Car,EP,WA	CA	CM	PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Limosa haemastica</i> (Linnaeus, 1758)	Hudsonian Godwit	Arc,Car,EP,WA	CA	CM	PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Numenius americanus</i> Bechstein, 1812	Long-billed Curlew	Car,EP,WA	CA	CM	PM	cl,cr,m,s	[2, 5, 6, 7, 9]
<i>Numenius phaeopus</i> (Linnaeus, 1758)	Whimbrel	Arc,Car,EA,EP,IO,IP,RS,WA,WP	CA	CM	PM,IC	cl,cr,m,s	[2, 5, 6, 7, 8, 9]
<i>Philomachus pugnax</i> (Linnaeus, 1758)	Ruff	Arc,Car,EA,EP,IO,IP,Med,RS,WA,WP	G,P		PM	cl,m,s	[2, 5, 6, 7, 9]
<i>Tringa flavipes</i> (J.F. Gmelin, 1789)	Lesser Yellowlegs	Arc,Car,EP,WA	CA	CM	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Tringa melanoleuca</i> (J.F. Gmelin, 1789)	Greater Yellowlegs	Arc,Car,EP,WA	CA	CM	PM,IC	cl,m,s	[2, 5, 6, 7, 8, 9]
<i>Tringa solitaria</i> A. Wilson, 1813	Solitary Sandpiper	Arc,Car,EP,WA	CA	CM	PM,IC	cl,m	[2, 5, 6, 7, 8, 9]
Family PHALAROPIDAE							
<i>Phalaropus fulicarius</i> (Linnaeus, 1758)	Red Phalarope	Arc,EA,EP	ES,G,H,N		PM,IC,Off	o,s	[2, 5, 6, 9]
<i>Phalaropus lobatus</i> (Linnaeus, 1758)	Red-necked Phalarope	Arc,EP,IO,WP	ES,G,H,N,P		PM,Off	cl,m,o,s	[2, 5, 6, 7, 9]
<i>Steganopus tricolor</i> (Vieillot, 1819)	Wilson's Phalarope	Arc,Car,EP,WA	CA		PM,IC?	Off cl,m,o,s	[2, 5, 6, 7, 9]
Family LARIDAE							
<i>Anous minutus</i> Boie, 1844	Black Noddy	Car,EA,EP,WA,WP	B		IC	cr,o	[2, 4, 6, 9]
<i>Anous stolidus</i> (Linnaeus, 1758)	Brown Noddy	Car,EA,EP,IO,WA,WP	CA	Off	IC,Off	cr,o	[2, 4, 6, 7, 8, 9]
<i>Chlidonias niger</i> (Linnaeus, 1758)	Black Tern	Car,EA,EP,Med,WA,WP	CA	CM,Off	PM,Off	cl,m,o,s	[2, 4, 6, 7, 9]

<i>Cregagus furcatus</i> (Neboux, 1846)	Swallow-tailed Gull	EP	P		PM,IC,Off	o,s	[1, 4, 7, 9]
<i>Gygis alba</i> (Sparman, 1786)	White Tern	Car,EA,EP,WA,WP	P		IC,Off	cr,o	[2, 4, 6, 7, 8, 9]
<i>Larus argentatus</i> Pontoppidan, 1763	Herring Gull	Arc,Car,EA,EP,IO,WA,WP	CA	CM	PM,IC	m,s	[2, 5, 6, 7, 9]
<i>Larus atricilla</i> Linnaeus, 1758	Laughing Gull	Car,EA,EP,WA	CA	CM	PM,IC	m,s	[2, 5, 6, 7, 8, 9]
<i>Larus delawarensis</i> Ord, 1815	Ring-billed Gull	Car,EA,EP,WA	CA	CM	PM	m,s	[2, 5, 6, 7, 9]
<i>Larus heermanni</i> Cassin, 1852	Heermann's Gull	EP	G		PM	cl,m,s	[2, 4, 6, 9]
<i>Larus modestus</i> Tschudi, 1843	Gray Gull	EP,WA	P		PM,IC	s	[2, 4, 6, 7, 8, 9]
<i>Larus philadelphia</i> (Ord, 1815)	Bonaparte's Gull	Car,EA,EP,WA	CA	CM	PM	m,s	[2, 5, 6, 7, 9]
<i>Larus pipixcan</i> Wagler, 1831	Franklin's Gull	Car,EA,EP,WA	CA	CM	PM,IC	m,s	[2, 5, 6, 7, 8, 9]
<i>Phaetusa simplex</i> (Gmelin, 1789)	Large-billed Tern	WA	P	CM		o,s	*
<i>Sterna anaethetus</i> Scopoli, 1786	Bridled Tern	Car,EA,EP,IO,IP,RS,WA,WP	CA	Off	PM,OFF	cr,o	[2, 4, 6, 7, 9]
<i>Sterna antillarum</i> (Lesson, 1847)	Least Tern	Car,EP,WA,WP	CA	CM	PM	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna caspia</i> Pallas, 1770	Caspian Tern	Car,EA,EP,IO,IP,Med,RS,WA,WP	CA		PM	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna elegans</i> Gambel, 1849	Elegant Tern	Car,EA,EP,WA	ES,G,H,N,P	CM	PM,IC?	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna forsteri</i> Nuttall, 1834	Forster's Tern	Car,EA,EP,WA	CA	CM	PM	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna fuscata</i> Linnaeus, 1766	Sooty Tern	Car,EA,EP,IO,WA,WP	CA		IC,Off	o,s	[2, 4, 6, 7, 8, 9]
<i>Sterna hirundo</i> Linnaeus, 1758	Common Tern	Car,EA,EP,IO,IP,Med,RS,WA,WP	CA	CM	PM	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna nilotica</i> J.F. Gmelin, 1789	Gull-billed Tern	Car,EA,EP,IO,IP,Med,RS,WA,WP	CA	CM	PM	cl,m,s	[2, 4, 6, 7, 9]
<i>Sterna sandvicensis</i> Latham, 1787	Sandwich Tern	Car,EA,EP,Med,WA	CA	CM,Off	PM,IC,Off	cl,m,o,s	[2, 4, 6, 7, 9]
<i>Sterna maxima</i> Boddaert, 1783	Royal Tern	Car,EA,EP,WA	CA	CM	PM	s	[2, 4, 6, 7, 9]
<i>Xema sabini</i> (Sabine, 1819)	Sabine's Gull	Arc,Car,EP,WP	CA		PM,IC,Off	o,s	[2, 4, 6, 7, 8, 9]
Family RYNCHOPIDAE							
<i>Rynchops niger</i> Linnaeus, 1758	Black Skimmer	Car,EP,WA	CA	CM	PM	cl,m,s	2,4,6,7,9

(continued)

Species List 41.1 (continued)

Species	English name	World distribution ^a	Central America ^b	Costa Rica Caribbean ^c	Costa Rica Pacific ^d	Habitat ^e	References ^f
Family STERCORARIIDAE							
<i>Catharacta macconnicki</i> Saunders, 1893	South Polar Skua	Ant,Car,EA,EP,IP,WA,WP	ES,G,H,N,P	CM,Off	PM,Off	o,s	[2, 5, 6, 7, 9]
<i>Stercorarius longicaudus</i> Vieillot, 1819	Long-tailed Jaeger	Arc,Car,EA,EP,WA,WP	ES,G,H,N,P	PM,Off	PM,Off	o,s	[2, 5, 6, 7, 9]
<i>Stercorarius parasiticus</i> (Linnaeus, 1758)	Parasitic Jaeger	Ant,Car,EA,EP,IO,IP,WA,WP	CA	PM,IC,Off	PM,IC,Off	o,s	[2, 5, 6, 7, 8, 9]
<i>Stercorarius pomarinus</i> (Temminck, 1815)	Pomarine Jaeger	Ant,Car,EA,EP,IO,IP,WA,WP	CA	CM,Off	PM,IC,Off	o,s	[2, 5, 6, 7, 8, 9]

* Unpublished; confirmed during the preparation of this document

^a Ant = Antarctic; Arc = Arctic; Car = Caribbean; Ct = circumtropical; EA = Eastern Atlantic; EP = Eastern Pacific; IO = Indian Ocean; IP = Indopacific; Med = Mediterranean; RS = Red Sea; WA = Western Atlantic; WP = Western Pacific

^b CA = All Central American Countries; B = Belize; ES = El Salvador; G = Guatemala; H = Honduras; N = Nicaragua; P = Panamá

^c CM = Caribbean mainland; Off = Offshore

^d IC = Isla del Coco; Off = Offshore; PM = Pacific mainland

^e cl = Coastal lagoon; cr = Coastal rock; m = Mangrove; o = Oversea; s = Shore

^f References are indicated by numbers according to the references list

Species List 42.1 Marine mammals reported from the Caribbean coast of Costa Rica, Central America; taxonomic nomenclature based on Rice (1998)

Species	World distribution ^a	Central America ^b	Costa Rica Occurrence ^c	Oceanic distribution ^d	Status ^e	References ^f
Order CARNIVORA						
Suborder PINNIPEDIA						
Family PHOCIDAE						
<i>Monachus tropicalis</i> Gray, 1850	Car	CA, B	-	-	Ex	[5, 17, 25, 26]
Order SIRENIA						
Family TRICHECHIDAE						
<i>Trichechus manatus manatus</i> Linnaeus, 1778	Car, EA, WA	B, G, H, N, P	O	C, R	VUA lcd C2a	[8, 22, 23, 25, 26, 27, 29]
Order CETACEA						
Suborder MYSTICETI						
Family BALAENOPTERIDAE						
<i>Balaenoptera acutorostrata</i> Lacépède, 1804	cp(except RS)	CA, P	E	P	LR/nt, I	[10, 19, 25]
<i>Balaenoptera borealis</i> Lesson, 1828	cp	CA, P	E	P	ENA1 abd, I	[10, 19, 25]
<i>Balaenoptera edeni</i> Anderson, 1878	Car, EA, EP, IO, IP, WP, WA	CA, P	E	CP	DD, I	[10, 19, 25]
<i>Balaenoptera musculus</i> , Linnaeus 1758	cp (except RS, Med)	CA, P	E	P	ENA1 abd, I	[10, 19, 25]
<i>Balaenoptera physalus</i> Linnaeus, 1758	cp (except RS)	CA, P	E	P	ENA1 abd, I	[10, 19, 25]
Suborder ODONTOCETI						
Family PHYSETERIDAE						
<i>Physeter macrocephalus</i> Linnaeus, 1758	Ant, EA, EP, WA, WP, IO, IP, Med	CA, P	E	CP	VUA lbd I	[10, 19, 25]
Family KOGIIDAE						
<i>Kogia breviceps</i> de Blainville, 1838	EA, EP, WA, WP, IO	CA, P	E	P	LR/lc	[10, 19, 25]
<i>Kogia sima</i> Owen, 1866	EA, EP, WA, WP, IO, IP	CA, P	E	P	LR/lc	[10, 19, 25]
Family ZIPHIIDAE						
<i>Mesoplodon densirostris</i> de Blainville, 1817	Car, EA, EP, WA, WP, IO, IP, Med	CA, P	E	P	DD	[10, 19, 25]

(continued)

Species List 42.1 (continued)

Species	World distribution ^a	Central America ^b		Costa Rica		Oceanic distribution ^d	Status ^e	References ^f
		CA	CA, P	Occurrence ^c	P			
<i>Mesoplodon europaeus</i> Gervais, 1855	Car, EA	CA	E	E	P	DD	[10, 19, 25]	
<i>Ziphius cavirostris</i> Cuvier, 1823	EA, EP, WA, WP, IO, IP, Med	CA, P	E	E	CP	DD	[10, 19, 25]	
Family DELPHINIDAE								
<i>Delphinus delphis</i> Linnaeus, 1758	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, B, P	E	E	CP	DD*	[10, 19, 25]	
<i>Feresa attenuata</i> Gray, 1874	Car, EA, EP, WA, WP, IO, IP, Med	CA, B, P	E	E	P	DD	[10, 19, 25]	
<i>Globicephala macrorhynchus</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP	CA, B, P	O	O	CP	LR/cd	[10, 19, 25, 32]	
<i>Grampus griseus</i> Cuvier, 1812	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, B, P	E	E	P	DD	[10, 19, 25]	
<i>Lagenodelphis hosei</i> Fraser, 1956	EP, WA, IO	CA, B, P	E	E	P	DD	[10, 19, 25]	
<i>Peponocephala electra</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP	CA, B, P	E	E	P	LR/lc*	[10, 19, 25]	
<i>Pseudorca crassidens</i> Owen, 1846	Car, EA, EP, WA, WP, IO, IP, RS	CA, B, P	E	E	CP	LR/lc*	[10, 19, 25]	
<i>Orcinus orca</i> Linnaeus, 1758	cp	CA, B, P	E	E	CP	LR/cd	[10, 19, 25]	
<i>Sotalia guianensis</i> Van Bénédén, 1864	Car, WA	N, P	C	C	C	DD, I	[8, 9, 12, 25, 32]	
<i>Stenella attenuata</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP, RS	CA, B, P	O	O	CP	LR/cd	[10, 19, 25]	
<i>Stenella longirostris</i> Gray, 1828	Car, EA, EP, WA, WP, IO, IP, RS	CA, B, P	E	E	CP	LR/cd	[10, 19, 25]	
<i>Stenella coeruleoalba</i> Meyen, 1833	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, B, P	E	E	P	LR/cd	[10, 19, 25]	
<i>Stenella clymene</i> Gray, 1850	Car, EA, WA	CA, B, P	E	E	P	DD	[10, 19, 25]	
<i>Stenella frontalis</i> Cuvier, 1829	Car, EA, WA	CA, B, P	F	F	CP	DD	[10, 19, 25, 31]	
<i>Steno bredanensis</i> Lesson, 1828	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, B, P	F	F	CP	DD	[10, 19, 25]	
<i>Tursiops truncatus</i> Montagu, 1821	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, B, P	C	C	CP	DD	[10, 19, 12, 25, 32]	

^aAnt = Antarctic; Car = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; B = Belize; G = Guatemala, H = Honduras, N = Nicaragua; P = Panama

^cC = common; E = expected; F = frequent; O = occasional

^dC = Coastal populations, P = Pelagic populations, CP = both coastal and pelagic populations, R = riverine

^eIUCN Red List (1996, 2000, [http://www/redlist.org](http://www.redlist.org)). DD = data deficient; LR/cd = lower risk taxon-specific or habitat-specific; LR/nt = Lower Risk taxa close to be qualify as Vulnerable; LR/lc = ; Lower Risk taxa do not qualify for conservation-dependent or near-threatened; ENA/labd = Endangered, population reduction in form of direct observation, index of abundance appropriate to the taxon, decline in area of occupancy, extent of occurrence, and/or quality of habitat; VUA1cdC2a = vulnerable, observed, estimated, inferred, or suspected reduction of at least 20% the last 10 years or three generations based on decline in area of occupancy, extent of occurrence and/or quality of habitat, actual, or potential levels of exploitation, population estimated to less than 10,000 mature individuals and either continuing decline, severely fragmented (i.e. no subpopulation estimated to contain more than 1,000 mature individuals); VUA1bd = vulnerable observed, estimated, inferred, or suspected reduction of at least 20% the last 10 years or three generations based on an index of abundance appropriate for the taxon and actual or potential levels of exploitation; Ex = extinct, I = Appendix I of CITES (<http://www.cites.org/>)

^fReferences are indicated by numbers according to the reference list

Species List 42.2 Marine mammals reported from the Pacific coast of Costa Rica, Central America; taxonomic nomenclature based on Rice (1998)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Occurrence ^d	Oceanic distribution ^e	Status ^f	References ^g
Order CARNIVORA							
Suborder PINNIPEDIA							
Family OTARIIDAE							
<i>Zalophus californianus</i> Lesson, 1828	EP	CA	PM, IC	A	C	LC/cd	[1, 11, 15, 25]
<i>Zalophus wolfebaeki</i> Sivertsen, 1953	EP	CA	IC	A	C	DD	[15, 25]
Order CETACEA							
Family BALAENOPTERIDAE							
<i>Balaenoptera acutorostrata</i> Lacépède, 1804	cp (except RS)	CA, P	O	E	P	LR/nt, I	[10, 19, 25, 31]
<i>Balaenoptera borealis</i> Lesson, 1828	cp	CA, P	O, IC	E	P	ENAI abd, I	[6, 10, 17, 18, 19, 21, 25, 31]
<i>Balaenoptera edeni</i> Anderson, 1878	Car, EA, EP, IO, IP, WP, WA	CA, P	PM, O, IC	O	CP	DD, I	[6, 10, 14, 17, 18, 19, 21, 25, 31]
<i>Balaenoptera musculus</i> , Linnaeus, 1758	Cp (exceptRS, Med)	N, P	IC, O	O	P	ENAI abd, I	[10, 14, 17, 18, 19, 21, 25, 28, 31]
<i>Balaenoptera physalus</i> , Linnaeus, 1758	Cp (exceptRS)	CA, P	O, IC	E	P	ENAI abd, I	[6, 10, 17, 18, 19, 21, 25, 31]
<i>Megaptera novaeangliae</i> Borowski, 1781	Ant, EA, EP, WA, WP, IO, IP, Med	CA, P	PM, IC	F	C	VUA1ad, I	[2, 6, 7, 10, 17, 18, 19, 21, 24, 25, 30, 31]
Family PHYSETERIDAE							
<i>Physeter macrocephalus</i> Linnaeus, 1766	Ant, EA, EP, WA, WP, IO, IP, Med	CA, P	O, IC	O	CP	VUA1bd, I	[6, 10, 14, 17, 18, 19, 21, 25, 31]
Family KOGIIDAE							
<i>Kogia breviceps</i> de Blainville, 1838	EA, EP, WA, WP, IO	CA, P	O	E	P	LR/c*	[10, 17, 18, 19, 21, 25, 31]
<i>Kogia sima</i> Owen, 1866	EA, EP, WA, WP, IO, IP	CA, P	O	O	P	LR/c*	[10, 17, 18, 19, 25, 31]

Family ZIPHIIDAE							
<i>Mesoplodon densirostris</i> Blainville, 1817	Car, EA, EP, WA, WP, IO, IP, Med	CA, P	O, IC	R	P	DD	[10, 17, 18, 19, 21, 25, 31]
<i>Mesoplodon peruvianus</i> Reyes, Mead, & Van-Waerebeek, 1991	EP	CA, P	O	E	P	DD	[10, 17, 18, 19, 25, 31]
<i>Mesoplodon</i> spp.	EP	CA	PM, O, IC	O	P	?	[10, 17, 18, 19, 21, 25]
<i>Ziphius cavirostris</i> Cuvier, 1823	EA, EP, WA, WP, IO, IP, Med	CA, P	PM, O, IC	O	CP	DD	[3, 10, 17, 18, 19, 21, 25, 31]
Family DELPHINIDAE							
<i>Delphinus delphis</i> Linnaeus, 1758	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, P	O	C	P	DD*	[6, 10, 14, 17, 18, 19, 21, 25, 31]
<i>Feresa attenuata</i> Gray, 1874	Car, EA, EP, WA, WP, IO, IP, Med	CA, P	O	E	P	DD	[10, 17, 18, 19, 25, 31]
<i>Globicephala macrorhynchus</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP	CA, P	PM, O, IC	C	CP	LR/cd	[6, 10, 14, 17, 18, 19, 21, 31]
<i>Grampus griseus</i> Cuvier, 1812	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, P	O, IC	C	P	DD	[10, 14, 17, 18, 19, 21, 25, 31]
<i>Lagenodelphis hosei</i> Fraser, 1956	EP, WA, IO	CA, P	O	R	P	DD	[10, 17, 18, 19, 21, 25, 31]
<i>Peponocephala electra</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP	CA, P	O	R	P	LR/lc*	[10, 14, 17, 18, 19, 21, 25, 31]
<i>Pseudorca crassidens</i> Owen, 1846	Car, EA, EP, WA, WP, IO, IP, RS	CA, P	O	R	CP	LR/lc*	[4, 6, 10, 14, 17, 18, 19, 21, 25, 31]
<i>Orcinus orca</i> Linnaeus, 1758	cp	CA, P	PM, O, IC	R	CP	LR/cd	[6, 10, 13, 14, 17, 18, 19, 21, 25, 31]
<i>Stenella attenuata</i> Gray, 1846	Car, EA, EP, WA, WP, IO, IP, RS	CA, P	PM, O	C	CP	LR/cd	[6, 10, 14, 17, 18, 19, 20, 21, 25, 31]
<i>Stenella longirostris</i> Gray, 1828	Car, EA, EP, WA, WP, IO, IP, RS	CA	PM, O, IC	F	CP	LR/cd	[6, 10, 14, 17, 18, 19, 21, 25, 31]
<i>Stenella coeruleoalba</i> Meyen, 1833	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, P	PM, O, IC	C	P	LR/cd	[10, 14, 17, 18, 19, 21, 25, 31]

(continued)

Species List 42.2 (continued)

Species	World distribution ^a	Central America ^b	Costa Rica Pacific ^c	Occurrence ^d	Oceanic distribution ^e	Status ^f	References ^g
<i>Steno bredanensis</i> Lesson, 1828	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, P	PM, O	F	CP	DD	[6, 10, 14, 17, 18, 19, 21, 25, 31]
<i>Tursiops truncatus</i> Montagu, 1821	Car, EA, EP, WA, WP, IO, IP, Med, RS	CA, P	PM, O, IC	C	CP	DD	[3, 6, 10, 14, 17, 18, 19, 21, 25, 31]

^aAnt = Antarctic; Car = Caribbean; cp = cosmopolitan; EA = eastern Atlantic; EP = eastern Pacific; IO = Indian Ocean; IP = Indo-Pacific; Med = Mediterranean; RS = Red Sea; WA = western Atlantic; WP = western Pacific

^bCA = all Central American countries; N = Nicaragua; P = Panama

^cPM = Pacific mainland; IC = Isla del Coco; O = Pacific offshore

^dA = accidental; C = common; E = expected; F = frequent; O = occasional; R = rare

^eC = Coastal populations, P = Pelagic populations; CP = both coastal and pelagic populations

^fIUCN Red List (1996, 2000, [http://www/redlist.org](http://www.redlist.org)) DD = data deficient; LR/cd = lower risk taxon-specific or near-threatened; ENA labd = endangered, population reduction in form qualify as vulnerable; LR/lc = lower risk taxa do not qualify for conservation-dependent or near-threatened; ENA labd = endangered, population reduction in form of direct observation, index of abundance appropriate to the taxon, decline in area of occupancy, extent of occurrence, and/or quality of habitat; VUA labd = vulnerable, observed, estimated, inferred, or suspected reduction of at least 20% the last 10 years or three generations based on direct observation and actual or potential levels of exploitation; VUA lbd = vulnerable observed, estimated, inferred or suspected reduction of at least 20% the last 10 years or three generations based on an index of abundance appropriate for the taxon and actual or potential levels of exploitation; Ex = extinct, I = Appendix I of CITES (<http://www.cites.org/>)

^gReferences specified by numbers in the reference list

Species List 43.1 Marine fungi collected in the Pacific coast of Costa Rica. Systematics according to <http://www.plantbio.uga.edu/zoosporicfungi/index.html>

Species	Costa Rica ^a	Habitat ^b	References ^c
Kingdom FUNGI			
Phylum CHYTRIDIOMYCOTA			
Class CHYTRIDIOMYCETES			
Chytridiomycota, genus unidentified	GN	m	[6]
<i>Dermocystidium</i> sp.	GN	m	[6]
Phylum STRAMENOPILA			
Class LABYRINTHULOMYCOTA			
Family LABYRINTHULACEAE			
<i>Labyrinthula</i> sp.	GN	m	[6]
Family THRAUSTOCHYTRIACEAE			
<i>Thraustochytrium</i> sp.	GN	m	[6]
<i>Schizochytrium</i> sp.	GN	m	[6]
<i>Ulkenia</i> sp.	GN	m	[6]

^aGN = Golfo de Nicoya

^bm = mangrove

^cReferences are indicated by numbers according to the reference list

Species List 43.2 Salps collected off the Caribbean coast of Costa Rica. Systematics of higher taxa as in Brusca and Brusca (2003) and Myers *et al.* (2006)

Species	Habitat ^a	References ^b
Phylum CHORDATA		
Subphylum UROCHORDATA		
Class THALIACEA		
Order SALPIDA		
Family SALPIDAE		
<i>Thalia democratica</i> (Forskål, 1775)	pl	[1]
<i>Weelia cylindrica</i> (Cuvier, 1804)	pl	[1]

^apl = planktonic

^bReference are indicated by numbers according to the reference list

Species List 43.3 Kinorynchs and invertebrate chordates collected from the Pacific coast of Costa Rica. Systematics of higher taxa as in Brusca & Brusca (2003) and Catalogue of Life (<http://annual.sp2000.org/2006>)

Species	Costa Rica ^a	Habitat ^b	References ^c
Phylum KINORHYNCHA			
Order CYCLORHAGIDA			
Family CENTRODERIDAE			
<i>Campyloderes</i> cf. <i>vanhoeffeni</i>	CR	be	[2]
Family ECHINODERIDAE			
* <i>Fissuroderes thermoi</i> Neuhaus and Blasche 2006	CR	be	[3]
Phylum CHORDATA			
Class ASCIDIACEA			
Order ENTEROGONA			
Family ASCIDIIDAE			
<i>Ascidia ceratodes</i> (Huntsman, 1912)	PC	be,rb	[5]
<i>Ascidia</i> sp.	PC	be,rb	[5]
Family DIAZONIDAE			
* <i>Rhopalaea birkelandi</i> Tokioka 1971	PC	be,rb	[4,5]
Family DIDEMNIDAE			
<i>Didemnum</i> (<i>Didemnum</i>) <i>candidum</i> Savigny, 1816	PC	be,rb	[5]
<i>Didemnum</i> (<i>Didemnum</i>) <i>moseleyi</i> (Herman, 1886)	PC	be,rb	[5]
<i>Lissoclinum caulleryi</i> Ritter and Forsyth, 1917	PC	be,rb	[5]
<i>Lissoclinum fragile</i> (Van Name, 1902)	PC	be,rb	[5]
Family POLYCLINIDAE			
<i>Amaroucium constellatum</i> Verrill, 1871	PC	be,rb	[5]
<i>Polyclinum laxum</i> Van Name, 1945	PC	be,rb	[5]
Order PLEUROGONA			
Family PYURIDAE			
<i>Pyura lignosa</i> Michaelsen, 1908	PC	be,rb	[5]
<i>Pyura</i> sp. aff. <i>vittata</i>	PC	be,rb	[5]
Family STYELIDAE			
<i>Polyandrocarpa</i> (<i>Eusyntyela</i>) <i>tinctoria</i> Van Name, 1902	PC	be,rb	[5]
<i>Symplegma pizoni</i> Ritter and Forsyth, 1917	PC	be,rb	[5]
<i>Styela partita</i> Stimpson, 1852	PC	be,rb	[5]
Class CEPHALOCHORDATA			
Family BRANCHIOSTOMIDAE			
<i>Branchiostoma californiense</i> Andrews, 1893	GN	be,rb	[7]

* = Species described with specimens collected in Costa Rica

^aCR = Cocos ridge; G = Guanacaste; GN = Golfo de Nicoya; PC = Playas del Coco

^bbe = benthic; rb = rocky bottom; sb = sandy bottom

^cReferences are indicated by numbers according to the reference list

Species List 44.1 Marine parasites collected from fish from the Caribbean coast of Costa Rica. Taxonomy of higher taxa as in Brusca and Brusca (2003), and Rodríguez-Ortíz *et al.* (2004)

Species	Host	References ^a
Phylum ARTHROPODA		
Subphylum CRUSTACEA		
Class MAXILLOPODA		
Subclass COPEPODA		
Order SIPHONOSTOMATOIDA		
Family CALIGIDAE		
<i>Caligus mutabilis</i> Wilson, 1905	<i>Scomberomorus brasiliensis</i>	[7]
Family PSEUDOCYCNIDAE		
<i>Pseudocycnoides buccata</i> (Wilson, 1922)	<i>Scomberomorus brasiliensis</i>	[7]

^a References are indicated by numbers according to the reference list

Species List 44.2 Marine parasites collected from fish from the Pacific coast of Costa Rica. Taxonomy of higher taxa as in Brusca and Brusca (2003), and Rodríguez-Ortíz *et al.* (2004)

Species	Host	Sites ^a	References ^b
Phylum PLATYHELMINTHES			
Class MONOGENOIDEA			
Subclass POLYONCHOINEA			
Family ALLODISCOCOTYLIDAE			
<i>Hargicola oligoplites</i> (Hargis, 1957) Lebedev, 1970	<i>Oligoplites altus</i>	GN	[18]
Family CEMOCOTYLIDAE			
<i>Cemocotylella elongata</i> (Meserve, 1938) Price, 1962	<i>Caranx caballus</i>	GN	[18]
Family CHAUHANEIDAE			
<i>Ahpua piscicola</i> Caballero & Bravo-Hollis, 1973	<i>Caranx caballus</i> , <i>Oligoplites altus</i>	GN	[9,18]
Family DICLIDOPHORIDAE			
<i>Hargicotyle louisianensis</i> (Hargis, 1955) Mamaev, 1972	<i>Menticirrhus</i> sp.	P	[2]
Originally described as <i>Choricotyle louisiana</i>			
Family DISCOCOTYLIDAE			
<i>Heterobothrium ecuadori</i> (Meserve, 1938) Originally described as <i>Tagia ecuadori</i>	<i>Spherooides</i> sp.	ML	[3,5,14]
<i>Pseudomazocraes monsvaisae</i> Caballero & Bravo-Hollis, 1955	<i>Vomer declivifrons</i>	P	[9, 18]
Family MICROCOTYLIDAE			
<i>Jaliscia caballeroi</i> (Bravo-Hollis, 1960) Mamaev & Egorova, 1977	Tuna	GN	[18]
<i>Polymicrocotyle manteri</i> Lamothe- Argumedo, 1967	<i>Luytjanus colorado</i>	GN	[9, 18]
Family PROTOMICROCOTYLIDAE			
* <i>Neomicrocotyle pacifica</i> (Meserve, 1938) Yamaguti, 1968	<i>Caranx marginatus</i>	BC	[3, 14, 18]
Originally described as <i>Protomicrocotyle pacifica</i>			
Class TREMATODA			
Subclass DIGENEA			
Family ACANTHOCOLPIDAE			
<i>Helicometra sinuata</i> (Rudolphi, 1819) Odhner, 1902	Moray	BC	[10]
<i>Manteria brachydera</i> (Manter, 1940) Caballero, 1950	<i>Caranx caballus</i> , <i>Oligoplites altus</i> , <i>Oligoplites refulgens</i>	GN	[17]
<i>Stephanostomum casum</i> (Linton, 1910) McFarlane, 1934	<i>Epinephelus itajara</i>	J	[16]
Family BUCEPHALIDAE			
<i>Bucephalopsis</i> sp.	<i>Caranx caballus</i>	PC	[18]
<i>Bucephalus introversus</i> Manter, 1940	<i>Caranx hippos</i> , <i>Seriola</i> sp.	BC	[9, 10, 18]
Family DIDYMOZOIDAE			
Didymozoidae gen. sp. nov. (metacercariae)	<i>Haemulon maculicauda</i>	BC	[16]

(continued)

Species List 44.2 (continued)

Species	Host	Sites ^a	References ^b
Family FELLODISTOMATIDAE			
<i>Tergestia laticollis</i> (Rudolphi 1819) Stossich, 1899	<i>Caranx caballus</i>	BC,O	[3, 10, 16]
Family HEMIURIDAE			
<i>Ectenurus virgulus</i> Linton, 1910	<i>Fistularia commersoni</i>	O	[16]
<i>Lecithochirium microstomum</i> Chandelr, 1935	<i>Fistularia commersoni</i>	O	[16]
<i>Lecithochirium monticelli</i> (Linton, 1898) Crowcroft, 1946	<i>Synodus</i> sp.	O	[2]
<i>Mecoderus oligoplites</i> Manter, 1940	<i>Oligoplites altus</i> , <i>Oligoplites refulgens</i> , <i>Oligoplites</i> sp.	GN,P	[2, 17]
<i>Pseudolecithaster</i> sp.	<i>Echidna nocturna</i>	J	[16]
* <i>Theletrum lamothei</i> Pérez-Ponce de León, León-Règagnon & Monks 1998	<i>Echidna nocturna</i>	J	[16]
Family LEPOCREADIIDAE			
<i>Bianium plicatum</i> (Linton, 1928) in Brenes (1961) as <i>Diploproctodaeum</i> <i>plicatum</i> (Linstow, 1928)	<i>Sphoeroides</i> sp.	ML	[3, 5]
<i>Bianium simonei</i> (Travarssos, Freitas & Buhrheim 1965) Yamaguti, 1971	<i>Arothron hispidus</i>	N	[15]
<i>Hypocreadium myohelicatum</i> Bravo-Hollis & Manter, 1957	<i>Epinephelus itajara</i>	C	[16]
Family MONORCHIIDAE			
* <i>Lasiotocus costaricae</i> (Manter, 1940) Yamaguti, 1954	Yellow-striped grunt or porgy	BC	[3, 8, 10, 18]
Originally described as <i>Proctptrema</i> <i>costaricae</i>			
Family OPECOELIDAE			
<i>Helicometra sinuata</i> (Rudolphi, 1819) Odhner, 1902	Moray	BC	[3, 10]
Class CESTODA			
Subclass EUCESTODA			
Family ONCHOBOTHRIIDAE			
* <i>Acanthobothrium campbelli</i> Marques, Brooks & Monks, 1995	<i>Urotrygon chilensis</i>	GN	[11]
* <i>Acanthobothrium cimari</i> Marques, Brooks & Monks, 1995	<i>Dasyatis longus</i>	GN	[11]
* <i>Acanthobothrium costarricense</i> Marques, Brooks & Monks, 1995	<i>Dasyatis longus</i>	GN	[11]
* <i>Acanthobothrium franus</i> Marques, Centritto & Stewart, 1997	<i>Narcine entemedor</i>	J	[13]
* <i>Acanthobothrium inbiorium</i> Marques, Centritto & Stewart, 1997	<i>Narcine entemedor</i>	J	[13]
* <i>Acanthobothrium puntarenasense</i> Marques, Brooks & Monks, 1995	<i>Dasyatis longus</i>	GN	[11]
* <i>Acanthobothrium nicoyaense</i> Brooks & McCorquodale, 1995	<i>Aetobatus narinari</i>	GN	[4]

(continued)

Species List 44.2 (continued)

Species	Host	Sites ^a	References ^b
* <i>Acanthobothrium vargasi</i> Marques, Brooks & Monks, 1995	<i>Dasyatis longus</i>	GN	[11]
* <i>Acanthobothroides pacificus</i> Marques, Brooks & Molina-Ureña, 1996	<i>Himantura pacifica</i>	BC	[12]
Family PHYLLOBOTHRIIDAE			
* <i>Rhinebothrium geminum</i> Marques, Brooks & Molina-Ureña, 1996	<i>Himantura pacifica</i>	BC	[12]
Family PTEROBOTHRIIDAE			
<i>Pterobothrioides carvajali</i> Campbell & Beveridge, 1997	<i>Dasyatis longus</i>	J	[6]
Family TRILOCULARIIDAE			
* <i>Escherbothrium molinae</i> Berman & Brooks, 1994	<i>Urotrygon chilensis</i>	GN	[1]
Phylum ACANTHOCEPHALA			
Class PALAEACANTHOCEPHALA			
Order ECHINORHYNCHIDA			
Family ILLIOSENTIDAE			
* <i>Koronacatha pectinarius</i> (Van Cleave, 1940) Monks <i>et al.</i> , 1997; originally described as <i>Tegorhynchus pectinarius</i>	“Medialuna”, <i>Microlepidotus brevipinnis</i>	BC,J	[15, 20]
Phylum NEMATODA			
Class ADENOPHOREA			
Family GNATHOSTOMATIDAE			
* <i>Echinocephalus janzeni</i> Hoberg, Brooks, Molina-Ureña & Erbe, 1998	<i>Himantura pacifica</i>	BC	[8]
Phylum ARTHROPODA			
Subphylum CRUSTACEA			
Class MAXILLOPODA			
Subclass COPEPODA			
Order SIPHONOSTOMATOIDA			
Family BOMOLOCHIDAE			
<i>Unicolax collateralis</i> Cressey & Cressey 1980	<i>Euthynnus lineatus</i>	PC	[7]
Family CALIGIDAE			
<i>Caligus omisus</i> Cressey & Cressey, 1980	<i>Scomberomorus sierra</i>	PC	[7]
<i>Caligus chorinemi</i> Kroyer, 1863	<i>Seriola dorsalis</i>	BC	[21]
Family LERNANTHROPIDAE			
<i>Lernanthropus micropterygis</i> Richiardi, 1885	<i>Seriola</i> sp.	BC	[21]
Family PANDARIDAE			
<i>Pandarus satyrus</i> Dana, 1852	<i>Prionace glauca</i>	PC	[19]
Family PSEUDOCYCNIDAE			
<i>Peudocycnoides buccata</i> (Wilson, 1922)	<i>Scomberomorus sierra</i>	PC	[7]
<i>Peudocycnus appendiculatus</i> Heller, 1868	<i>Thunnus albacares</i>	PC	[7]

* = species described with material collected in Costa Rica

^aBC = Bahía Culebra; C = Playa Cuajiniquíl; GN = Golfo de Nicoya; J = Playa Junquillal; ML = Mata de Limón; N = Playa Nacascolo; O = Playa Ocotal; P = Puntarenas; PC = Pacific coast of Costa Rica, no specific location given

^bReferences are indicated by numbers according to the reference list

Species List 45.1 Parasites reported from the green turtle (*Chelonia mydas*) of the Parque Nacional Tortuguero, north Caribbean coast of Costa Rica (Santoro et al. 2006, 2007a, b, c)

Parasites	Microhabitat	Geographical distribution ^a	Other sea turtle hosts ^b	References ^c
Phylum PLATYHELMINTHES				
Class TREMATODA				
Subclass DIGenea				
Family ANGIODICTYIDAE				
<i>Deuterobaris intestinalis</i> Mehrotra, 1973	Intestine	I	None	[31, 45]
<i>Microscaphidium reticulare</i> van Beneden, 1859	Intestine	A, C, E, G, J, M, NS, PR	None	[6, 15]
<i>Microscaphidium warui</i> Blair, 1986	Urinary bladder	A, P, T	None	[6]
<i>Octangium hiphalum</i> Blair, 1987	Lower intestine	A, I, T	None	[7, 16, 31]
<i>Polyangium linguatula</i> Looss, 1899	Intestine	A, B, C, E, F, H, I, PR, S	1	[6, 13, 14, 15]
Family CLINOSTOMIDAE				
<i>Clinostomum complanatum</i> Rudolphi, 1814	Oesophagus	Cosmopolitan	None	[24]
Family PARAMPHISTOMIDAE				
<i>Schizamphistomoides erratum</i> Blair, 1983	Lower intestine	A, K, M, PR, SL, T	4	[5]
<i>Schizamphistomoides scleroporium</i> Creplin, 1844	Stomach/Intestine	A, C, EU, NA, TR	4	[5]
Family PRONOCEPHALIDAE				
<i>Charaxicephaloides</i> sp.	Stomach	C	None	[20, 21]
<i>Charaxicephalus robustus</i> Looss, 1901	Oesophagus/Stomach	E	None	[26, 41]
<i>Cricocephalus albus</i> Kuhl & van Hasselt, 1822	Oesophagus/Stomach	A, B, E, I, IC, J, P, PR, S, T, TR	4	[17, 25, 48]
<i>Cricocephalus megastomus</i> Looss, 1902	Oesophagus/Stomach	C, E, I, PR, T	4	[9, 15, 16, 17, 20, 27]
<i>Cricocephalus resectus</i> Looss, 1902	Oesophagus/Stomach	CE, E, I, T	None	[9, 16, 41, 48]
<i>Desmogonius desmogonius</i> Stephens, 1911	Oesophagus/Stomach	JA, T, F	None	[10, 16, 29, 44]
<i>Himasomum lobatus</i> Looss, 1901	Intestine	B, E, F, FI, JA, ME, P, PR, T	4, 5	[14, 16, 17, 34, 48]
<i>Pleurogonius linearis</i> Looss, 1901	Intestine	B, E, J, ME, PR	4	[17, 48]
<i>Pleurogonius longiusculus</i> Looss, 1901	Intestine	B, E, I, P	None	[9, 48]
<i>Pleurogonius sindhii</i> Mehra, 1939	Intestine	P, PK	None	[48]

(continued)

Species List 45.1 (continued)

Parasites	Microhabitat	Geographical distribution ^a	Other sea turtle hosts ^b	References ^c
<i>Pleurogonius solidus</i> Looss, 1901	Intestine	C,E	4	[48]
<i>Pleurogonius tortugueroi</i> Santoro <i>et al.</i> 2007c	Lower intestine	n. sp.	None	[40]
<i>Pronocephalus obliquus</i> Looss, 1899	High intestine	B,E,I,PPK	None	[9, 48]
<i>Pyelosomum cochlear</i> Looss, 1899	Urinary bladder	E,F,H,ME,I,PR	5	[13, 14, 15, 33, 48]
<i>Rameshwariotrema uterorescens</i> Rao, 1975	Oesophagus	I,PR	4	[14, 36]
Family RHYTIDODIDAE				
<i>Rhytidodoidea intestinalis</i> Price, 1939	Gall bladder	NZPW,P	None	[8, 35]
<i>Rhytidodoidea similis</i> Price, 1939	Gall bladder/Liver	NZPW,P	None	[8, 35]
Family SPIRORCHIIDAE				
<i>Amphitorchis solus</i> Simha & Chattopadhyaya, 1970	Intestine	I	None	[42]
<i>Haplootrema postorchi</i> Rao, 1976	Great vessels/Heart	A,I,H	None	[12, 13, 37]
<i>Learedius learedi</i> Price, 1934	Great vessels/Heart/ Oesophagus/Gall bladder/ Liver/Intestine	A,B,BE,F,GC,H,I,ME, NZPW,PPK,PR	2,3,4	[1, 22, 30, 43]
<i>Monticellius indicum</i> Mehra, 1939	Heart	PK	None	[30]
<i>Neospirotrichis</i> sp. *.**	Heart/Small vessels of oesophagus, stomach, intestine, urinary bladder	A,BE,F,NZPW	1	[19, 23, 43]

Phylum ANNELIDA
Class CLITELLATA
Subclass HIRUDINEA

Family OZOBANCHIDAE

Ozobranchus branchiatus Menzies, 1791 Skin ct,ME 5 [18, 32]

n. sp. = new species

* Only histological finding.

** Two *Neospitorchis* species have been described to date: *N. pricei* Manter & Larson, 1950 from *C. caretta* and *N. schistosomatooides* Price, 1934 from *C. mydas*.

^aA = Australia; B = Brazil; BE = Bermuda; C = Cuba; CE = Ceylon; Ct = circumtropical; E = Egypt; EU = Europe; F = Florida; FI = Filipinas; G = Ghana; GC = Grand Cayman; H = Hawaii; I = India; IC = Iles de Cocotiers; J = Japan; JA = Jamaica; K = Kiribati; M = Malaysia; ME = Mexico; NA = North America; NS = North Sea; NZPW = National Zoological Park of Washington, USA; P = Panama; PK = Pakistan; PR = Puerto Rico; S = Singapore; SL = Sri Lanka; T = Taiwan; TR = Trinidad

^b1 = *Caretta caretta*; 2 = *Chelonia agassizii*; 3 = *Chelonia mydas*; 4 = *Eretmochelys imbricata*; 5 = *Lepidochelys olivacea*

^cReferences are indicated by numbers according to the reference list

Species List 45.2 Parasites reported from the olive ridley turtle (*Lepidochelys olivacea*) of the Pacific coast of Costa Rica (Santoro & Morales 2007)

Parasites	Microhabitat	Locality ^a	Geographical distribution ^b	Other sea turtle hosts ^c	References ^d
Phylum PLATYHELMINTHES					
Class TREMATODA					
Subclass DIGENEA					
Family GORGODERIDAE					
<i>Plexiochorus cymbiformis</i> (Rudolphi, 1819) Looss, 1901	Urinary bladder	ONWR	A,E,F,G,I,IT,J,ME, NG,PPR	1, 3, 4	[4, 28, 33, 48]
Family PACHYPSOLIDAE					
<i>Pachypsolus irroratus</i> (Rudolphi, 1819) Looss, 1902	Stomach	ONWR	A,F,FR,IT,ME,NA, NG,PPR,RS,S	1, 3, 4	[2, 3, 4, 28, 34]
Family PLAGIORCHIIDAE					
<i>Enodiotrema megachondrus</i> Looss, 1899	Intestine	GN	C,E,FR,IT,ME,S	1, 3, 4	[2, 20, 28, 34, 48]
Family SPIRORCHIIDAE					
Spirorchid eggs*	Lungs/Spleen/Intestine	GN	A,AS,BWI,CS,CR, F,GC,H,ME,US	1, 2, 3, 4	[1, 11, 19, 38, 39, 43, 47]
Phylum ANNELIDA					
Class CLITELLATA					
Subclass HIRUDINEA					
Family OZOBANCHIDAE					
<i>Ozobranchus branchiatus</i> Menzies, 1791	Skin	Nan,ONWR	ct,ME	3, 5	[personal observation 2002, 2004, 32]

* Only histological finding.

^a GN = Golfo de Nicoya; ONWR = Ostional National Wildlife Refuge, Nan = Nancite nesting beach^b A = Australia; AS = Atlantic seaboard (Florida to Massachusetts); BWI = British West Indies; C = Cuba; CR = Costa Rica; CS = Caribbean Sea; Ct = circumtropical; E = Egypt; F = Florida; FR = France; G = Greece; GC = Grand Cayman; H = Hawaii; I = India; IT = Italy; J = Japan; ME = Mexico; NA = Northwest Atlantic coast of Africa; NG = New Guinea; P = Panama; PR = Puerto Rico; RS = Red Sea; S = Spain; US = USA^c 1 = *Caretta caretta*; 2 = *Chelonia agassizii*; 3 = *Chelonia mydas*; 4 = *Eretmochelys imbricata*; 5 = *Lepidochelys olivacea*^d References are indicated by numbers according to the references list