Marine biodiversity of an Eastern Tropical Pacific oceanic island, Isla del Coco, Costa Rica

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Abstract: Isla del Coco (also known as Cocos Island) is an oceanic island in the Eastern Tropical Pacific; it is part of the largest national park of Costa Rica and a UNESCO World Heritage Site. The island has been visited since the 16th Century due to its abundance of freshwater and wood. Marine biodiversity studies of the island started in the late 19th Century, with an intense period of research in the 1930's, and again from the mid 1990's to the present. The information is scattered and, in some cases, in old publications that are difficult to access. Here I have compiled published records of the marine organisms of the island. At least 1688 species are recorded, with the gastropods (383 species), bony fishes (354 spp.) and crustaceans (at least 263 spp.) being the most species-rich groups; 45 species are endemic to Isla del Coco National Park (2.7% of the total). The number of species per kilometer of coastline and by square kilometer of seabed shallower than 200m deep are the highest recorded in the Eastern Tropical Pacific. Although the marine biodiversity of Isla del Coco is relatively well known, there are regions that need more exploration, for example, the south side, the pelagic environments, and deeper waters. Also, several groups of organisms, such as the flatworms, nematodes, nemerteans, and gelatinous zooplankton, have been observed around the Island but have been poorly studied or not at all. **Citation:** Cortés, J. 2012. Marine biodiversity of an Eastern Tropical Pacific oceanic island, Isla del Coco, Costa Rica. Rev. Biol. Trop. 60 (Suppl. 3): 131-185. Epub 2012 Dec 01.

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Isla del Coco (Cocos Island) is an oceanic island in the Eastern Tropical Pacific Ocean, about 500km from mainland Costa Rica (Cortés 2008), and biogeographically it is part of the Ocean Island Province (*sensu* Robertson & Cramer 2009). It is a highly diverse area with the highest number of endemic species in Costa Rica (Cortés & Wehrtmann 2009, Cortés 2013a). It was declared a National Park in 1978, a UNESCO World Heritage Site in 1997, and a Ramsar site in 1998. It is important for Costa Rica, due to of its biological and historical richness and also because the Territorial Sea surrounding the island makes the marine area of Costa Rica more than 10 times its terrestrial area (Cortés & Wehrtmann 2009, Cortés 2013b).

Marine biodiversity studies at Isla del Coco started in the late 19th Century with the expedition of the US Fisheries Commission Steamer *Albatross* (see a history of marine research at what is now Parque Nacional Isla del Coco (Isla del Coco National Park) in Cortés 2008). Since then, many studies have been done but there is still more to be discovered. Hertlein (1963) compiled what was known about marine species of the Island. In this paper I update the list of marine organisms of Isla del Coco National Park, compare it with the species from the mainland, and identify areas for future research.

MATERIALS AND METHODS

Published records of marine species of Parque Nacional Isla del Coco (PNIC) were searched and species lists compiled. An

important source was the book "Marine Biodiversity of Costa Rica, Central America" edited by Wehrtmann and Cortés (2009). Here I included overlooked and newly published records. The number of species from PNIC is compared to the numbers from the rest of the Pacific of Costa Rica. Including the mainland, the Coco Volcanic Cordillera, the pelagic areas, and the Costa Rica Thermal Dome.

The perimeter of Isla del Coco is 28.8km, and it is surrounded by a platform that drops off at around 180-200m. The perimeter at 100m is 54.4km and at 200m is 71.4km. The area less than 50m deep around the island is 91.5km^2, less than 100m is 133km^2, and less than 200m deep is 318km^2 (O.G. Lizano, pers. comm. 2011). The Linear Biodiversity Index (LBI) and the Area Biodiversity Index (ABI) were calculated as in Wehrtmann *et al.* (2009). To calculate the LBI, the number of species was divided by the perimeter of the island. The ABI was calculated by dividing the number of species by the area down to the 200m isobaths; the depth within which almost all the species had been recorded.

MARINE BIODIVERSITY OF ISLA DEL COCO NATIONAL PARK

At least 1688 species of marine organisms (Appendix 1) have been reported from Isla del Coco National Park (PNIC). The most species-rich groups are the gastropods (383 species), bony fishes (354 spp.) and crustaceans (at least 263 spp.) (Table 1). Close to 4,700 species of marine organisms have been reported for Costa

TABLE 1
Number of marine species reported from Isla del Coco National Park (Complete list of species in Appendix 1), from Pacific Costa Rica, species found only at PNIC, and the percentage those species exclusively of PNIC represent within each taxa

TAXA	Species from PNIC	Species from Pacific Costa Rica	Species found only at PNIC	% species only at PNIC	References
Virus	2+	n.k.	n.k.	n.k.	185
Bacteria and Archaea	1+	Several	n.k.	n.k.	82, 153
Cyanobacteria	1	28	1	3.6	13, 181, 185
Dinoflagelados	7	102	6	5.9	180, 181
Chlorophyta	12	44	6	13.6	13, 14, 74, 75, 76
Ochrophyta	6	26	0	0	13, 14, 74, 76
Rhodophyta	13	146	1	0.7	13, 14, 74, 76
Foraminifera	20	95	19	20.0	49, 54, 55, 56, 57, 98, 111
Porifera	8	62	8	12.9	50, 68, 141, 186
Cnidaria	83	223	51	22.9	
Anthozoa	48	87	28	32.2	2, 20, 21, 22, 23, 23a, 36, 44, 45, 46, 48, 72, 112
Scyphozoa	7	10	4	40.0	15, 16, 149
Hydrozoa	28	127	19	15.0	17, 37, 44, 80, 81, 98, 109, 130, 147, 148, 149
Mollusca	490	1260	235	18.6	
Polyplacophora	8	24	5	20.8	60, 78, 156
Gastropoda	383	826	195	23.6	38, 59, 60, 69, 70, 98, 100, 101, 107, 108, 114, 125, 130, 137, 150, 152, 172
Bivalvia	78	390	28	7.2	69, 70, 89, 98, 118, 182
Cephalopoda	21	20	7	35.0	98, 99, 102, 144, 145, 146
Sipuncula	11	19	4	21.0	58, 65, 174
Echiura	1	1	0	0	64, 65
Annelida	120	413	101	24.5	8, 63, 64, 67, 92, 93, 94, 98, 103, 106, 170, 171

TABLE 1 (Continued)
Number of marine species reported from Isla del Coco National Park (Complete list of species in Appendix 1), from Pacific Costa Rica, species found only at PNIC, and the percentage those species exclusively of PNIC represent within each taxa

TAXA	Species from PNIC	Species from Pacific Costa Rica	Species found only at PNIC	% species only at PNIC	References
Crustacea	263+	888+	81	9.1	
Stomatopoda	6	29	2	6.9	176, 177, 179
Euphausiacea	Several spp.	20+	n.k.	n.k.	39, 130
Decapoda	139	458	49	10.6	1, 53, 73, 85, 88, 90, 91, 124, 136, 169, 177, 178, 179, 183, 184
Isopoda	3	37	2	5.4	18, 25, 26
Mysida	Several spp.	5+	n.k.	n.k.	130, 139
Tanaidacea	1	6	1	16.7	96
Amphipoda	25	117	11	9.4	11, 79, 86, 87, 130, 157, 164
Cirripedia	14	40	4	10.0	173, 188
Copepoda	70	172	9	5.3	130, 131, 165, 166, 167
Branchiopoda	1	1	1	100	130
Ostracoda	2	2	2	100	130
Pycnogonida	2	10	2	20.0	9
Insecta	1	9	0	0	162
Chaetognatha	8	27	6	22.2	41, 130, 168
Bryozoa	31	61	22	36.1	51, 98, 133, 134, 135
Brachiopoda	6	8	6	75.0	59, 60, 71, 98
Phoronida	1	1	1	100	66
Echinodermata	123	183	78	42.6	
Crinoidea	2	2	2	100	5, 7
Asteroidea	30	36	24	66.7	5, 7, 117, 119, 159
Ophiuroidea	30	54	17	31.5	5, 6, 7, 159
Echinoidea	31	44	16	36.4	5, 6, 7, 42, 43, 113, 159
Holothuroidea	30	47	19	40.4	5, 6, 7, 110, 159
Chordata	478	1083	119	11.0	
Appendicularia	9	10	7	70.0	10, 40, 41, 130
Thaliacea	3	4	3	75.0	130
Leptocardii	1	2	1	50.0	158, 175
Elasmobranchii	35	84	16	19.0	3, 34, 35, 47, 52, 115, 116, 122, 142, 143, 163
Actinopterygii	354	858	84	9.8	3, 4, 19, 27, 28, 29, 30, 31, 32, 33, 34, 35, 47, 62, 77, 83, 84, 95, 97, 104, 105, 121, 122, 123, 126, 127, 132, 138, 140, 142, 143, 151, 155, 163
Reptilia	5	5	0	0	84, 154, 161
Aves	55	92	16	17.4	12, 128, 187
Mammalia	16	28	6	21.4	120, 129
TOTAL	1688	4690	747	15.9%	

Pacific Costa Rica = mainland coast (MC), Coco Volcanic Cordillera (CVC) (also known as Cocos Ridge), Costa Rica Thermal Dome (CRTD), and Isla del Coco National Park (PNIC). + = more species than the number indicated are known, but have not been described. n.k. = not known.

Rica (Table 1); of these species, 747 or ~16% have been only reported from PNIC but not from other areas of Costa Rica. The percentages by taxonomic group ranged from 0 to 100%. All brown algae, echiuran, marine insects, and reptiles from PNIC are also found in the rest of Costa Rica. While all reported branchiopods, ostracods, phoronids, and crinoids, represented by one or two species, known from Costa Rica are reported from PNIC. Some groups have a disproportionate percentage of known species at PNIC, scyphozoans (40%), echinoderms as a phylum (42.6%), and its classes, asteroids (66.7%) echinoids (36.4%) and holothurians (40.4%), brachiopods (75.0%), and within the chordates, cephalochordates (50%) appendicularians (70%) and thaliacians (75%).

Species of several groups have been reported from other areas of Costa Rica than PNIC (Table 2). Some of these taxa we know are absent from PNIC, for example the seagrasses and mangroves, and some of the species associated to this ecosystems. Other groups have been observed, photographed or collected but there are no published accounts of them. Within these groups we have nematodes, nemerteans, ascideans, and parasites of fishes and turtles. Free-living flat worms have been observed along the mainland coast of Costa Rica as well as at PNIC, but there are no publications. Of other taxa we do not know if they are present or not, for example, marine fungi, cumaceans and kinorhynchans (Table 2). Plus there must be other marine groups that have been reported from the Eastern Tropical Pacific, for example, loriciferans (Heiner & Neuhaus 2007) that might be present at PNIC.

Forty five species or 2.7% of the species known from PNIC are endemic (Tables 3, 4), and this represents 47.4% of all endemic marine species of Costa Rica (95 spp.). The number of endemic species is relatively low, but that is common in marine environments. The list of endemic marine species is presented in Table 3, as well as the reference to the publication where the species was described. Between 1893 and 1971, 16 species were described, while 29 were described from 1981 to 2011. Most endemic species are fishes (33.3% of all endemics from PNIC) and most were described in the last 30 years (11 of the 15 species). Crustacea is the next group with most endemism, 28.9%, followed by the mollusks, 15.5%, all very well studied groups (Table 4). Within a particular group, the brachiopods have the highest percentage of endemism, 16.7% followed by the sponges and polyplacophorans with 12.5% (Table 4).

Biodiversity indices used to compare species diversity at Isla del Coco with that at the Costa Rican coast revealed significantly higher values at PNIC than at the coast. For example,

TABLE 2
Taxa reported from Pacific mainland Costa Rica, or Coco Volcanic Cordillera, but not from Isla del Coco National Park.

Taxonomic group	Number of species reported	Isla del Coco
Marine fungi (Ulken *et al.* 1990, Cortés 2009d)	5 genera	n.k.
Seagrasses (Cortés & Salas 2009)	2	Absent
Mangroves (Silva-Benavides 2009)	8	Absent
Nematods (De la Cruz & Vargas 1986, Vargas 1988a, b)	Several species	Present
Nemerteans (Dexter 1974)	Several species	Present
Cumaceans (Petrescu *et al.* 2009)	13	n.k.
Kinorhynchans (Neuhaus 2004, Neuhaus & Blasche 2006, Cortés 2009d)	2	n.k.
Ascidians (Van Name 1945, Tokioka 1971, 1972, Cortés 2009d, Nova-Bustos *et al.* 2010)	14	Present
Fish parasites (Cortés 2009e)	46	Present
Turtle parasites (Santoro & Mattiucci 2009)	34	Present

n.k. = not known; Present = have been observed or collected but there are no publications.

TABLE 3
Endemic marine species of Isla del Coco National Park, Costa Rica

Phylum Porifera
Class Hexactinellida, Order Hexactinosida, Family Tretodictyidae
1) *Tretodictyum cocosensis* Reiswig, 2010
Phylum Cnidaria
Class Anthozoa, Order Alcyonacea, Family Gorgoniidae
2) *Leptogorgia tricorata* Breedy & Cortés, 2011
3) *Pacifigorgia curta* Breedy & Guzman, 2003
Class Anthozoa, Order Scleractinia, Family Caryophylliidae
4) *Anomocora carinata* Cairns, 1991a
Class Hydrozoa, Order Filifora, Family Stylasteridae
5) *Pliobothrus fistulosus* Cairns, 1991b
6) *Stylaster cocosensis* Cairns, 1991b
Phylum Mollusca
Class Polyplacophora, Order Chitonida, Family Ischnochitonidae
7) *Ischnochiton victoriae* Ferreira, 1987
Class Gastropoda, Order Neogastropoda, Family Cystiscidae
8) *Gibberula achenea* Roth & Coan, 1971
Class Gastropoda, Subclass Vetigastropoda, Family Haliotidae
9) *Haliotis dalli roberti* McLean, 1970
Class Gastropoda, Subclass Patellogastropoda, Family Lottidae
10) *Lottia rothi* (Lindberg & McLean, 1981)
Class Gastropoda, Order Neogastropoda, Family Muricidae
11) *Favartia shaskyi* D'Attilio & Myers, 1988
Class Gastropoda, Order Neogastropoda, Family Olividae
12) *Oliva spicata deynzerae* Petuch & Sargent, 1986
Class Bivalvia, Order Ostreoida, Family Pectinidae
13) *Leopecten cocosensis* Waller, 2007
Phylum Arthropoda
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Diogenidae
14) *Allodardanus rugosus* Haig & Provenzano, 1965
15) *Cancellus tanneri* Faxon, 1893
16) *Paguristes fecundus* Faxon, 1893
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Gecarcinidae
17) *Johngarthi cocoensis* Perger, Vargas & Wall, 2011
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Paguridae
18) *Enallopaguropsis janetae* McLaughlin, 1982
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Palaemonidae
19) *Macrobrachium cocoensis* Abele & Kim, 1984
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Pinnotheridae
20) *Parapinnixa cortesi* Thoma, Heard & Vargas, 2005
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Porcellanidae
21) *Petrolisthes cocoensis* Haig, 1960
Subphylum Crustacea, Class Malacostraca, Order Decapoda, Family Upogebiidae
22) *Pomatogebia cocosia* (Williams, 1986)
Subphylum Crustacea, Class Malacostraca, Order Amphipoda, Family Isaeidae
23) *Gammaropsis dubia* (Shoemaker, 1942)
Subphylum Crustacea, Class Malacostraca, Order Amphipoda, Family Talitridae
24) *Talorchestia fritzi* Stebbing, 1903
Subphylum Crustacea, Class Maxillopoda, Order Monstrilloida, Family Monstrillidae
25) *Cymbasoma cocoense* Suárez-Morales & Morales-Ramírez, 2009
26) *Monstrillopsis chathamensis* Suárez-Morales & Morales-Ramírez, 2009
Phylum Brachiopoda
Class Rhynchonellata, Order Rhynchonellida, Family Frieleiidae
27) *Hispanirhynchia? craneana* (Dall, 1895)

TABLE 3 (Continued)
Endemic marine species of Isla del Coco National Park, Costa Rica

Phylum Echinodermata
Class Asteroidea, Order Paxillosida, Family Astropectinidae
28) *Astropecten benthophilus* Ludwig, 1905
29) *Persephonaster armiger* Ludwig, 1905
Class Echinoidea, Order Clypeasteroida, Family Mellitidae
30) *Encope cocosi* Clark, 1948
Phylum Chordata
Subphylum Vertebrata, Class Actinopterygii, Order Gobiesociformes, Familia Gobiesocidae
31) *Gobiesox woodsi* (Schultz, 1944)
32) *Tomicodon vermiculatus* Briggs, 1955
Subphylum Vertebrata, Class Actinopterygii, Order Lophiiformes, Family Ogcocephalidae
33) *Ogcocephalus porrectus* Garman, 1899
Subphylum Vertebrata, Class Actinopterygii, Order Ophidiiformes, Family Bythitidae
34) *Ogilbia cocoensis* Møller, Schwarzhans & Nielsen, 2005
Subphylum Vertebrata, Class Actinopterygii, Order Scorpaeniformes, Family Peristediidae
35) *Peristedion nesium* Bussing, 2010
Subphylum Vertebrata, Class Actinopterygii, Order Perciformes, Familia Chaenopsidae
36) *Acanthemblemaria atrata* Hastings & Robertson, 1999
Subphylum Vertebrata, Class Actinopterygii, Order Perciformes, Family Dactyloscopidae
37) *Gillellus chathamensis* Dawson, 1977
Subphylum Vertebrata, Class Actinopterygii, Order Perciformes, Family Gobiidae
38) *Chriolepis atrimelum* Bussing, 1997
39) *Chriolepis dialepta* Bussing, 1990
40) *Lythrypnus alphigena* Bussing, 1990
41) *Lythrypnus cobalus* Bussing, 1990
42) *Lythrypnus lavenbergi* Bussing, 1990
43) *Sicydium cocoensis* (Heller & Snodgrass, 1903)
Subphylum Vertebrata, Class Actinopterygii, Order Perciformes, Family Labridae
44) *Halichoeres salmofasciatus* Allen & Robertson, 2002
Subphylum Vertebrata, Class Actinopterygii, Order Perciformes, Family Tripterygiidae
45) *Axoclinus cocoensis* Bussing, 1991

the Linear Biodiversity Index for Isla del Coco is 58.6, which is significantly higher than the highest value (3.8) found by Wehrtmann *et al.* (2009) for the Costa Rican Pacific coast. The same happens when comparing the Area Biodiversity Index of continental shelves. The value for the 200m isobaths of PNIC is 5.3, compared to the highest value of 0.3 reported by Wehrtmann *et al.* (2009). The LBI and ABI values for the Costa Rican coastline and continental platform, respectively, were the highest when compared to other countries in the region (Wehrtmann *et al.* 2009). By all measures Isla del Coco is a very rich area in the eastern tropical Pacific.

STATUS OF THE ENDEMIC SPECIES

Forty five species are endemic to PNIC (Table 2). While some are abundant, such as the calcified hydrozoan *Stylaster cocosensis*, described in 1991 by Stephen D. Cairns, others have not been seen since they were described, for example, the sand dollar, *Encope cocosi*. This species had not been found alive since it was described by H.L. Clark in 1948. However, in January 2007 a specimen recently dead was dredged from deep water. In 1986 using the research submersible *Johnson-Sea-Link* (Harbor Branch Oceanographic Institution, Fort Pierce, Florida, USA) diving to

TABLE 4
Number of endemic marine species at Isla del Coco National Park, percentage of the total of the endemics of the island represented by a particular taxa, and percentage of endemics within its taxonomic group

TAXA	Number of endemic species	% of the total of endemics	% of endemics within the group
Porifera	1	2.2	12.5
Cnidaria	5	11.1	6.1
Anthozoa	3	6.7	6.4
Hydrozoa	2	4.4	7.1
Mollusca	7	15.5	1.3
Polyplacophora	1	2.2	12.5
Gastropoda	5	11.1	1.3
Bivalvia	1	2.2	1.3
Crustacea	13	28.9	4.9
Decapoda	9	20.0	6.5
Amphipoda	2	4.4	8.0
Copepoda	2	4.4	2.9
Brachiopoda	1	2.2	16.7
Echinodermata	3	6.7	2.4
Asteroidea	2	4.4	6.7
Echinoidea	1	2.2	3.2
Chordata	15	33.3	3.1
Actinopterygii	15	33.3	4.2
TOTAL	**45**		2.7

several hundred meters, collected specimens that resulted in new species and some were endemic (Cairns 1991a, b). We don not know the status of some of those endemics because no submersible with the depth capacity of the *Johnson-Sea-Link* has been back to the island. There is now another submersible operating more regularly at the island, the *DeepSee* (Undersea Hunter Group, Puntarenas, Costa Rica), with a depth capability of 450m (Cortés & Blum 2008). We have been able to observed several of the deepwater endemics collected in 1986, some are relatively abundant. Eleven endemic species have been described in the last decade so it's possible that eventually they will be found in other areas. Some species of fishes which were initially classified as endemic to one of the oceanic islands of the eastern Tropical Pacific are now reported from one or more of the other oceanic islands. For example, *Stegastes arcifrons* which have been found in the three oceanic islands, Galápagos, Malpelo and Isla del Coco or *Serranus tico* and *Halichoeres discolor,* found in Isla del Coco and Malpelo. Starr *et al.* (2012) indicated in their study of deepwater fishes of Isla del Coco National Park and Las Gemelas Seamount that probably deep areas in the eastern tropical Pacific will have similar species, but more studies and collections are needed.

DISCUSSION

Isla del Coco National Park has a rich marine biodiversity with some groups having been studied for many years and numerous scientists. For example, fishes and mollusks, especially gastropods, are relatively well known while other groups such as cyanobacteria, gelatinous zooplankton, nematodes and flatworms have been poorly studied or never at all even though we know they are on the island. As a result of recent expeditions (2006-2012) many new records of species have been

reported (Dean *et al.* 2010a, 2012, Sibaja-Cordero *et al.* 2012), including a phylum, Phoronida (Dean *et al.* 2010b), and new species are being discovered, even of conspicuous groups such as octocorals (Breedy & Cortés 2011, Breedy *et al.* 2012). Reports of new records and descriptions of new species are being prepared at the present time.

Hertlein (1963) did a compilation of published marine species of Isla del Coco, and included a biogeographic analysis of the flora and fauna of the island, plus an annotated bibliography. He reported 334 species (Table 5), with the gastropods (62 species) as the most species-rich group, followed by bony fishes (59) and crustaceans (56). The number of species and of different taxonomic groups has increased significantly but the same pattern of the most species-rich groups is maintained. Wehrtmann *et al.* (2009) reported 1,142 marine species for Isla del Coco National Park, with the most species-rich groups, in the same order, being the same as above. Here, 546 more species were added to the list of marine species of Isla del Coco National Park, and more will be added in the near future as other groups, depths and areas of the island are being studied.

Hickman (2009), in his study of the marine invertebrate biota of the Galápagos Islands, found that while some groups of species are depauperated others displayed high diversity when compared to mainland Ecuador. Similar patters were observed at Isla del Coco National Park. These patterns can be attributed to several possible factors likely acting in concert, both for source populations from elsewhere as well as established populations at PNIC: variation in the dispersal potential to and from PNIC, the probability of recruitment at PNIC, and the potential for survival and continued recruitment based on local environmental conditions. Species with long-lived larvae will have a chance of dispersing more than others if they find the type of environmental conditions necessary to survive and reproduce. For example, the absence of seagrasses and the low number of species of bivalves may be due to the lack of soft sediments where they can live.

AREAS FOR FUTURE RESEARCH

The least studied area of PNIC is the south side due to the normally rough sea conditions on that side (Lizano 2008). From a few observations, several species and environments in the south are different from the north in species density and composition, probably due to the currents that flow there (Cortés & Blum 2008).

TABLE 5
Marine species reported by Hertlein (1963) for Isla del Coco; fishes from Fowler (1938 in Hertlein 1963)

TAXA	Number of species	TAXA	Number of species
Foraminifera	17	Cirripedia	3
Cnidaria	24	Copepoda	2
Anthozoa	19	Brachiopoda	1
Hydrozoa	5	Bryozoa	20
Mollusca	90	Echinodermata	45
Polyplacophora	4	Asteroidea	6
Gastropoda	62	Ophiuroidea	15
Bivalvia	12	Echinoidea	13
Cephalopoda	12	Holothuroidea	11
Annelida	9	Chordata	72
Crustacea	56	Chondrichtyes	13
Decapoda	50	Actinopterygii	59
Amphipoda	1		
TOTAL 334 species			

More sampling should be done on that side in the future in the shallow and deepwaters of the south for better understanding the biodiversity of PNIC, and the effect of currents on that biodiversity.

There are several groups of organisms which have been observed and in some cases collected but for which there are no publications. Examples include cyanobacteria, sponges, flatworms, and nematodes (Table 2). For a few groups, especially the best known, there are some publications on their biogeographic relationships. Several species of stomatopods (Manning 1972), most reef building corals (Cortés 1986, 2011, Glynn & Ault 2000), some mollusks (Montoya & Kaiser 1988), sea urchins (Lessios *et al.* 1998), and about one third of the shore-fishes (Robertson *et al.* 2004) are related western Pacific species. More molecular work is needed to discover cryptic species (e.g. Knowlton 2000, Boulay *et al.* in prep.), and the genetic connectivity (e.g. Lessios & Robertson 2006) of PNIC populations with other areas.

Polidoro *et al.* (2012) indicated the importance of species-specific information regarding population trends and extinction risks for developing conservation strategies. To do this we must first know what is there, which this paper intends to fulfill. Then we need to know what is the status of the populations, how they are changing over time, and what is affecting them. Unfortunately for most groups this information is unknown.

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RESUMEN

La Isla del Coco es una isla oceánica en el Pacífico Tropical Oriental; es parte del Parque Nacional más grande de Costa Rica y es un sitio de Patrimonio Mundial. La isla ha sido visitada desde el Siglo XVI por su abundancia de agua dulce y árboles. Estudios de biodiversidad marina de la isla empezaron a finales del Siglo XIX, con un intenso período de investigación en la década de 1930, y de nuevo desde mediados de la década de 1990 al presente. La información sobre organismos marinos se encuentra dispersa y en algunos casos en publicaciones antiguas. En el presente trabajo se recopilan todos los registros publicados de organismos marinos de la isla. Al menos 1688 especies han sido registradas, con los gasterópodos (383 especies), peces óseos (354 spp.) y crustáceos (al menos 263 spp.) como los grupos con más especies; de esas, 45 son especies endémicas del Parque Nacional Isla del Coco (2.7% del total). El número de especies por kilómetro de costa y por kilómetro cuadrado de lecho marino de menos de 200m de profundidad son los más altos de cualquier sitio estudiado. Aunque se conoce relativamente bien la biodiversidad marina de la Isla del Coco, hay regiones, por ejemplo, el lado sur, los ambientes pelágicos, y las zonas más profundas que requieren de más exploración. También, varios grupos de organismos han sido observados en la isla pero muy poco estudiados o no del todo, por ejemplo los gusanos planos, nemátodos y el plancton gelatinosos.

Palabras clave: Biodiversidad marina, Costa Rica, Isla del Coco, Pacífico Oriental, especies endémicas

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APPENDIX 1
Marine species reported from Isla del Coco National Park, Pacific Costa Rica

	Species	Ref.[1]
Virus	1. Viral talC sequences	185
	2. P-SSM4-like phages	185
Bacteria and Archaea	1. Possibly several species	153
Phylum CYANOBACTERIA, Class CYANOPHYCEAE Order SYNECHOCOCCALES, Family Synechococcaceae	**1. *Prochlorococcus* sp.**	185
Phylum MYZOZOA, Infraphylum DINOFLAGELLATA, Class PERIDINEA, Order Gonyaulacida, Family Goniodomataceae	**1. *Gambierdiscus* sp.**	180
	2. *Amphidinium carterae* Hulburt, 1957	180
Family Ostreopsidaceae	**3. *Coolia tropicalis* Faust, 1995**	180
	4. *Coolia* cf. *areolota*	180
	5. *Ostreopsis siamensis* Schmidt, 1901	180
Order Prorocentrida, Family Prorocentraceae	6. *Prorocentrum compressum* (Bailey, 1850) Abé ex Dodge, 1975	180
	7. *Prorocentrum concavum* Fukuyo, 1981	180
Phylum CHLOROPHYTA, Class BRYOPSIDOPHYCEAE, Order Bryopsidales, Family Bryopsidaceae	1. *Bryopsis pennata* J.V. Lamouroux, 1809	74, 76
	2. *Derbesia marina* (Lyngbye) Solier, 1846	74, 76
Family Codiaceae	3. *Codium picturatum* F.F. Pedroche & P.C. Silva, 1996	74, 76
Family Caulerpaceae	4. *Caulerpa peltata* J.V. Lamouroux, 1809	74
	5. *Caulerpa racemosa* (Forsskål) J. Agardh, 1873	74
	6. *Caulerpa serrulata* (Forsskål) J. Agardh, 1837	74, 76
Family Udoteaceae	7. *Boodleopsis verticillata* E.Y. Dawson 1960	14
Order Dasycladales, Family Dasycladaceae	**8. *Acetabularia parvula* Solms-Laubach, 1895**	74
Class ULVOPHYCEAE, Order Cladophorales, Family Cladophoraceae	**9. *Cladophora panamensis* W.R. Taylor, 1945**	74, 76
	10. *Cladophora* sp.	74
Order Ulvales, Family Ulvaceae	11. *Ulva flexuosa* Wulfen, 1803	14
	12. *Ulva intestinales* Linnaeus, 1753	74, 76
Phylum OCHROPHYTA, Class PHAEOPHYCEAE Order Dictyotales, Family Dictyotaceae	1. *Dictyopteris delicatula* J.V. Lamouroux, 1809	74
	2. *Dictyota stolonifera* Dawson, 1962	74, 76
	3. *Dictyota* sp.	74
	4. *Lobophora variegata* (Lamouroux) Womersley ex Oliveira, 1977	74, 76
	5. *Padina crispata* Thivy, 1945	74, 76
Order Scytosiphonales, Family Scytosiphonaceae	6. *Rosenvingea intrincata* (J. Agardh) Børgesen, 1914	74, 76
Phylum RHODOPHYTA, Class FLORIDEOPHYCEAE Order Corallinales, Family Corallinaceae	1. *Amphiroa* spp.	74
	2. *Amphiroa minutissima* Taylor, 1945	74, 76
	3. *Corallina* sp.	74

	Species	Ref.[1]
	4. *Dermatholithon saxicolum* (Lemoine) Setchell & Mason, 1943	74
	5. *Jania* spp.	74
Family Hapalidaceae	6. *Lithothamnion* sp.	74
Order Gelidiales, Family Gelidiaceae	7. *Gelidium* sp.	74
Order Hildenbrandiales, Family Hildenbrandiaceae	8. *Hildenbrandia* sp.	74
Order Nemaliales, Family Galaxauraceae	9. *Galaxaura filamentosa* R. Chou, 1945	74, 76
Order Gigartinales, Family Peyssonneliaceae	10. *Peyssonnelia rubra* J.G. Agardh, 1851	74, 76
Order Ceramiales, Family Ceramiaceae	11. *Ceramium* spp.	74
Family Rhodomelaceae	12. *Polysiphonia mollis*	74, 76
Order Gracilariales, Family Gracilariaceae	13. *Gracilaria* sp.	74
Phylum FORAMINIFERA, Class POLYTHALAMEA,		
Order Bulimida, Family Bolivinidae	**1. *Bolivina tongi* var. *filacostata* (Cushman & McCulloch, 1942)**	49, 56
Family Buliminitidae	**2. *Bulimina laevigata* Brady, 1881 as *Bolivina laevigata***	49, 56
Order Lagenida, Family Nodosariidae	**3. *Dentalina* cf. *jugosa***	57, 98
	4. *Laevidentalina filiformis* (d´Orbigny, 1826) as *Dentalina filiformis*	98
Order Lituolida, Family Ammodiscidae	**5. *Ammodiscus pacificus* Cushman & Valentine, 1930**	98
Family Discamminidae	**6. *Ammoscalaria compressa* (Cushman & McCulloch, 1939) as *Ammofrondicularia compressa***	49, 55
Family Haplophragmoididae	**7. *Haplophragmoides hancocki* Cushman & McCulloch, 1939**	57, 98
Family Hormosinidae	**8. *Reophax agglutinatus* Cushman, 1913**	98
	9. *Reophax excentricus* Cushman, 1910	98
Family Nouriidae	**10. *Nouria polymorphinoides* Heron-Allen & Earland, 1914**	98
Family Verneulinidae	**11. *Verneuilinulla advena* (Cushman, 1922) as *Eggerelloides advenus***	49, 55
Order Textulariida, Family Textulariidae	**12. *Textularia articulata* d'Orbigny, 1846**	98
	13. *Textularia conica* d'Orbigny, 1839	98
	14. *Textularia corrugata* Herron-Allen & Earland, 1915	98
	15. *Textularia panamensis* Cushman, 1918	98
	16. *Textularia schencki* Cushman & Valentine, 1930	98, 111
Order Trochamminidae, Family Trochamminidae	**17.** *Deuterammina rotaliformis* **Heron-Allen & Earland, 1911 as** *Trochammina rotaliformis*	49, 55
	18. *Polystomammina nitida* **(Brady, 1881)** as *Trochammina nitida*	49, 55
	19. *Trochammina charlottensis* Cushman, 1925	49, 55
Family Vaginulinidae	20. ***Vaginulina exilis*** Cushman & McCulloch, 1950	49, 57
Phylum PORIFERA, Class HEXACTINELLIDA		
Order Amphidiscosida, Family Hyalonematidae	**1. *Hyalonema* (*Coscinonema*) *pateriferum* Wilson, 1904**	50, 186
Order Hexactinosida, Family Aphrocallistidae	**2. *Aphrocallistes vastus* Schulze, 1886**	50, 186
Family Euritidae	**3. *Eurete erectum* Schulze, 1899**	50, 186
	4. *Eurete* sp.	50, 186
Family Tretodictyidae	***5. *Tretodictyum cocosensis* Reiswig, 2010**	141
Order Lyssacinosida, Family Rossellidae	**6. *Acanthascus* (*Staurocalyptus*) sp.**	50, 186
Class DEMOSPONGIAE, Order Spirophorida Family Pachastrellidae	**7. *Thenea fenestrata* (Schmidt, 1880)**	50, 186

	Species	Ref.[1]
Order Halichondrida, Family Axinellidae	**8. *Phakellia lamelligera* Wilson, 1904**	50, 186
Phylum CNIDARIA, Class ANTHOZOA		
Order Pennatulacea, Family Pennatulidae	**1. *Ptilosarcus undulatus* Verrill, 1865**	20, 21
Family Virgulariidae	**2. *Stylatula* cf. *elongate***	21
	3. *Stylatula* sp.	21
Order Alcyonacea, Family Aquaumbridae	**4. *Aquaumbra klapferi* Breedy, Van Ofwegen & Vargas, 2012**	23a
Family Clavulariidae	**5. *Rhodelinda* sp.**	21
Family Gorgoniidae	6. *Leptogorgia alba* (Duchassaing & Michelotti, 1864)	20, 21
	***7. *Leptogorgia tricorata* Breedy & Cortés, 2011**	22
	***8. *Pacifigorgia curta* Breedy & Guzmán, 2003**	21, 23
Family Isididae	**9. *Isidella* sp.**	21
Family Nephthiedae	**10. *Anthomastus* sp.**	21
Family Plexauridae	**11. *Psammogorgia variabilis* Studer, 1894**	21
	12. *Paramuricea* sp.	21
Family Primonoidae	**13. *Narella* sp.**	21
Order Actinaria, Family Isophelliidae	**14. *Telmatactis cricoides* (Duchassaing, 1850)**	45
	15. *Telmatactis panamensis* (Verrill, 1869)	2
Order Scleractinia, Family Agariciidae	16. *Gardineroseris planulata* (Dana, 1846)	46
	17. *Leptoseris papyracea* (Dana, 1846)	46
	18. *Leptoseris scabra* Vaughan, 1907	46
	19. *Pavona chiriquensis* Glynn *et al.*, 2001	46
	20. *Pavona clavus* (Dana, 1846)	46
	21. *Pavona gigantea* Verrill, 1869	46
	22. *Pavona maldivensis* (Gardiner, 1905)	46
	23. *Pavona varians* Verrill, 1864	46
	24. *Pavona xarifae* Scheer & Pillai, 1974	46
Family Caryophylliidae	***25. *Anomocora carinata* Cairns, 1991**	36, 46
	26. *Caryophyllia diomedeae* Marenzeller, 1904	36, 46
	27. *Caryophyllia perculta* Cairns, 1991	36, 46
	28. *Coenocyathus bowersi* Vaughan, 1906	36, 46
	29. *Desmophyllum dianthus* (Esper, 1794)	36, 46
	30. *Polycyathus hondaensis* (Durham & Barnard, 1952)	36, 46
	31. *Tethocyathus prahli* Lattig & Cairns 2000	46, 112
Family Dendrophylliidae	32. *Dendrophyllia oldroydae* Oldroyd, 1924	36, 46
	33. *Endopachys grayi* Milne Edwards & Haime, 1848	36, 46
	34. *Rhizopsammia verrilli* Van der Horst, 1922	36, 46
	35. *Tubastrea coccinea* Lesson, 1829	36, 46
Family Faviidae	**36. *Cladocora pacifica* Cairns, 1991**	36, 46
Family Flabellidae	**37. *Javania cailleti* (Duchassaing & Michelotti, 1864)**	36, 46
Family Fungiidae	38. *Fungia* (*Cycloseris*) *curvata* Hoeksema, 1989	36, 46
	39. *Fungia* (*Cycloseris*) *distorta* Michelin, 1842	36, 46
Family Pocilloporidae	40. *Pocillopora damicornis* (Linnaeus, 1758)	46
	41. *Pocillopora elegans* Dana, 1846	46
	42. *Pocillopora eydouxi* Milne Edwards & Haime, 1860	46
	43. *Pocillopora meandrina* Dana, 1846	46
Family Poritidae	44. *Porites lobata* Dana, 1846	46
Family Rhizangiidae	45. *Astrangia dentata* Verrill, 1866	36, 46
	46. *Culicia stellata* Dana, 1846	36, 46

	Species	Ref.[1]
Family Siderastreidae	47. *Psammocora stellata* (Verrill, 1866)	46
	48. *Psammocora superficialis* Gardiner, 1898	46
Class SCYPHOZOA, Order Coronatae		
Family Atollidae	49. *Atolla* sp.	15, 16
	50. *Atolla wyvillei* Haeckel, 1880	15, 16
	51. *Periphylla hyacinthina* (Péron & Lesueur, 1810)	15, 16
	52. *Periphylla* sp.	15, 16
Family Atorellidae	**53. *Atorella arcturi* Bigelow, 1928**	16
Family Linuchidae	**54. *Linuche unguiculata* (Swartz, 1788)**	16
Order SEMAEOSTOMEAE, Family Pelagiidae	55. *Pelagia noctiluca* (Forskål, 1775)	16
Class HYDROZOA		
Order Anthoathecata, Family Polyorchidae	**56. *Polyorchis penicillatus* (Eschscholtz, 1829)**	149
Family Stylasteridae	**57. *Errina macrogastra* Marenzeller, 1904**	37, 46
	***58. *Pliobothrus fistulosus* Cairns, 1991**	37, 46
	***59. *Stylaster cocosensis* Cairns, 1991**	37, 46
	60. *Stylaster galapagensis* Cairns, 1986	37, 46
	61. *Stylaster marenzelleri* Cairns, 1986	37, 46
Order Leptothecata, Family Campanulariidae	**62. *Clytia gracilis* (Sars, 1850) as *C. cylindrica* and as *Gonothyraea gracilis***	44, 80, 109
	63. *Obelia dichotoma* (Linnaeus, 1758) as *O. commissuralis*	44, 80, 98
Family Haleciidae	**64. *Halecium washingtoni* Nutting, 1901**	80, 81, 98
Family Sertulariidae	**65. *Thuiaria crisioides* Lamouoroux, 1824**	81, 98
Order TRACHYMEDUSAE, Family Rhopalonematidae	66. *Rhopalonema velatum* Gegenbaur, 1857	130
Other Hydromedusae	67-68. Two undentified species in two families	130
Subclass SIPHONOPHORAE, Order CALYCOPHORAE		
Family Abylidae	69. *Abylopsis* sp.	17, 130
	70. *Abylopsis tetragona* (Otto, 1823)	17, 130
Family Dyphidae	**71. *Dyphes dispar* (Chamisso & Eysenhardt, 1821)**	17, 130
	72. *Dyphes* sp.	17, 130
	73. *Eudoxoides mitra* (Huxley, 1859)	17, 130
	74. *Muggiaea atlantica* Cunningham, 1892	17, 130
Family Hippopodiidae	**75. *Vogtia serrata* (Moser, 1925)**	17
Family Prayidae	**76. *Nectadamas diomedeae* (Bigelow, 1911)**	17
	77. *Nectopyramis natans* (Bigelow, 1911)	17
	78. *Praya dubia* (Quoy & Gaimard, 1827)	17
Order PHYSONECTAE, Family Agalmatidae	**79. *Agalma okenis* Eschscholtz, 1825**	17, 147
	80. *Halistemma* sp.	17, 147
Family Athorybiidae	**81. *Athorybia rosacea* (Forskål, 1775)**	17
Family Forskaliidae	82. *Forskalia* sp.	17
Family Physophoridae	83. *Physophora hydrostatica* Forskål, 1775	17
Phylum MOLLUSCA, Class POLYPLACOPHORA		
Order Chitonida, Family Acanthochitonidae	**1. *Acanthochitona angelica* Dall, 1919**	156,160
	2. *Acanthochitona hirudiniformis* (Sowerby, 1832)	156
Family Chitonidae	**3. *Chiton goodallii* Broderip & Sowerby, 1832**	60, 156
	4. *Chiton stokesii* Broderip, 1832	60, 78, 156

	Species	Ref.[1]
Family Ischnochitonidae	***5. *Ischnochiton victoriae* Ferreira, 1987**	78, 156
	6. *Lepidozona rothi* Ferreira, 1983	78, 156
	7. *Stenoplax boogii* (Haddon, 1886)	78, 156
Family Mopaliidae	**8. *Placiphorella blainvillei* (Broderip, 1832)**	78, 156
Class GASTROPODA, Family Aeolidiidae	9. *Aeolidiella indica* Bergh, 1888	38
Family Aglajidae	10. ***Navanax aenigmaticus* (Bergh, 1894)**	172
Family Architectonicidae	11. *Architectonica nobilis* Röding, 1798	150
	12. *Discotectonica placentalis* (Hinds, 1844)	150
	13. *Heliacus mazatlanicus* Pilsbry & Lowe, 1932	150
	14. *Pseudotorinia architae* (O.G. Costa, 1841)	150
	15. *Psilaxis radiata* (Röding, 1798)	150
Family Amathinidae	**16. *Phasianema saxicola* (C.B. Adams, 1852)**	150
Family Areneidae	**17. *Arene ferruginosa* McLean, 1970**	150
	18. *Arene guttata* McLean, 1970	150
Family Atlantidae	19. *Atlanta* sp.	130
Family Barleeiidae	**20. *Barleeia* cf. *bifasciata***	150
	21. *Barleeia orcutti* Bartsch, 1920	150
	22. *Barleeia paupercula* (C.B. Adams, 1852)	150
	23. *Barleeia polychroma* (de Folin, 1870)	150
	24. *Amphithalamus inclusus* Carpenter, 1864	150
Family Buccinidae	25. *Bailya anomala* (Hinds, 1844)	150
	26. *Caducifer cinis* (Reeve, 1846)	150
	27. *Cantharus gemmatus* (Reeve, 1846)	150
	28. *Cantharus rehderi* Berry, 1962	150
	29. *Cantharus sanguinolentus* (Duclos, 1833)	150
	30. *Clivipollia fragaria* (Wood, 1828)	150
	31. *Colubraria lucasensis* Strong & Hertlein, 1937	150
	32. *Colubraria ochsneri* Hertlein & Allison, 1968	150
	33. *Engina jugosa* (C.B. Adams, 1852)	150
	34. *Phos articulatus* Hinds, 1844	150
	35. *Phos cocosensis* Dall, 1896	98
	36. *Phos crassus* Hinds, 1843	150
Family Bullidae	**37. *Bulla punctulata* A. Adams in Sowerby, 1850**	70
Family Bursidae	38. *Bursa calcipicta* Dall, 1908	150
	39. *Bursa corrugata* (Perry, 1811)	150
	40. *Bursa granularis* (Röding, 1798)	150
	41. *Marsupina nana* (Broderip & Sowerby, 1829)	150
Family Caecidae	**42. *Caecum clathratum* Carpenter, 1857**	150
	43. *Caecum* cf. *corrugulatum*	150
	44. *Caecum laqueatum* C.B. Adams, 1852	150
	45. *Caecum lohri* (Strong & Hertlein, 1939)	150
	46. *Caecum paradoxum* de Folin, 1867	150
	47. *Caecum parvum* C.B. Adams, 1852	150
	48. *Elephantulum heptagonum* (Carpenter, 1857)	150
	49. *Elephantulum liratocinctum* (Carpenter, 1857)	150
	50. *Fartulum glabriforme* (Carpenter, 1857)	150
Family Calyptraeidae	51. *Cheilea cepacea* (Broderip, 1834)	150
	52. *Cheilea corrugata* (Broderip, 1834)	150
	53. *Crucibulum scutellatum* (Wood, 1928)	150

	Species	Ref.[1]
Family Cancellariidae	**54. *Cancellaria pulchra* Sowerby, 1832**	150
	55. *Sveltia centrota* (Dall, 1896)	150
	56. *Trigonostoma breve* (Sowerby, 1832)	150
Family Carinariidae	57. *Cardiapoda placenta* (Lesson, 1830)	130
Family Cassidae	**58. *Casmaria vibexmexicana* (Stearns, 1894)**	150
	59. *Cypraecassis coarctata* (Sowerby, 1825)	150
	60. *Cypraecassis tenuis* (Wood, 1928)	150
	61. *Semicassis centiquadrata* (Valenciennes, 1832)	150
Family Cavoliniidae	62. *Diacavolinia longirostris* (Blainville, 1821) as *Cavolina logirostris*	98, 101
	63. *Clio* sp.	130
	64. *Creseis virgula* Rang, 1828 as *Creseus virgula*	98, 101
	65. *Cuvierina* sp.	130
	66. *Diacria quadridentata* (Lesueur, 1821)	98, 101
Family Cerithiidae	67. *Cerithium adustum* Kiener, 1841	60, 150
	68. *Cerithium maculosum* Kiener, 1841	60, 150
	69. *Cerithium uncinatum* (Gmelin, 1791)	60, 150
	70. *Rhinoclavis gemmata* (Hinds, 1844)	60, 150
Family Cerithiopsidae	**71. *Cerithiopsis adamsi* Bartsch, 1911**	150, 160
	72. *Seila assimilata* (C.B. Adams, 1852)	150
	73. *Seila kanoni* (de Folin, 1867)	150
	74. *Seila pulmoensis* DuShane & Draper, 1975	150
Family Chromodorididae	75. *Chromodoris sphoni* Ev. Marcus, 1971	38
	76. *Glossodoris baumanni* (Bertsch, 1970)	38
Family Columbellidae	**77. *Aesopus chrysalloides* (Carpenter, 1864)**	150
	78. *Aesopus sanctus* Dall, 1919	150
	79. *Columbella labiosa* Sowerby, 1822	150
	80. *Columbella sonsonatensis* (Mörch, 1860)	150
	81. *Cotonopsis deroyae* (Emerson & D'Attilio, 1969)	150
	82. *Microcithara uncinata* (Sowerby, 1832)	150
	83. *Mitrella ocellata* (Gmelin, 1791)	150
	84. *Steironepion melanosticta* (Pilsbry & Lowe, 1932)	150
	85. *Zafrona incerta* (Stearns, 1892)	150
Family Conidae	86. *Conus brunneus* Wood, 1828	150
	87. *Conus chaldaeus* (Röding, 1798)	150
	88. *Conus dalli* Stearns, 1873	150
	89. *Conus diadema* Sowerby, 1834	150
	90. *Conus ebraeus* Linnaeus, 1758	150
	91. *Conus emarginatus* Reeve, 1844	150
	92. *Conus gladiator* Broderip, 1833	150
	93. *Conus gradatus* Wood, 1828	150
	94. *Conus lucidus* Wood, 1828	150
	95. *Conus mahogani* Reeve, 1843	150
	96. *Conus nux* Broderip, 1833	150
	97. *Conus purpurascens* Sowerby, 1833	150
	98. *Conus recurvus* Broderip, 1833	150
	99. *Conus tessulatus* Born, 1778	150
	100. *Conus tiaratus* Sowerby, 1833	150

	Species	Ref.[1]
Family Coralliophilidae	**101. *Babelomurex hindsii* (Carpenter, 1857)**	150
	102. *Babelomurex santacruzensis* (Emerson & D'Attilio, 1970)	150
	103. *Coralliophila macleani* Shasky, 1970	150
	104. *Coralliophila neritoidea* (Lamarck, 1816)	150
	105. *Coralliophila parva* (E.A. Smith, 1877)	150
	106. *Coralliophila rocasuciae* Myers & D'Attilio, 1990	150
	107. *Coralliophila violacea* (Kiener, 1836)	69
	108. *Quoyula madreporarum* (Sowerby, 1834)	150
	109. *Reliquiaecava robillardi* (Liénard, 1870)	150
	110. *Rhizochilus antipathum* Steenstrup, 1850	150
Family Costellariidae	**111. *Thala jeancateae* Sphon, 1969**	150
Family Cylichnidae	112. *Cylichna atahualpa* (Dall, 1908)	172
Family Cypraeidae	**113. *Blasicrura alisonae* Burgess, 1983**	150
	114. *Blasicrura rashleighana* (Melvill, 1888)	150
	115. *Blascicrura teres* Gmelin, 1791	150
	116. *Erosaria albuginosa* Gray, 1825	150
	117. *Erosaria caputserpentis* Linnaeus, 1758	150
	118. *Luria isabellamexicana* Stearns, 1893	150
	119. *Macrocypraea cervinetta* (Kiener, 1843)	150
	120. *Mauritia depressa* (Gray, 1824)	150
	121. *Monetaria moneta* Linnaeus, 1758	150
	122. *Talparia talpa* Linnaeus, 1758	150
	123. *Zonaria robertsi* (Hidalgo, 1906)	150
Family Cystiscidae	***124. *Gibberula achenea* Roth & Coan, 1971**	150, 152
	125. *Gibberula minor* (C.B. Adams, 1852)	150
	126. *Gibberula polita* (Carpenter, 1857)	150
	127. *Gibberula subtrigona* (Carpenter, 1864)	150
	128. *Persicula pulchella* (Kiener, 1834)	150
Family Dendrodoridae	129. *Dendrodoris fumata* (Rüpell & Leuckart, 1831)	38
Family Desmopteridae	**130. *Desmopterus papilio* Chun, 1889**	124
Family Elachisinidae	**131. *Elachisina johnstoni* (Baker, Hanna & Strong, 1930)**	150
Family Ellobiidae	132. *Ellobium stagnalis* (d'Orbigny, 1835)	60, 150
	133. *Melampus carolianus* (Lesson, 1842)	60, 150
	134. *Melampus tabogensis* C.B. Adams, 1852	60, 150
	135. *Melampus trilineatus* (C.B. Adams, 1852)	98
	136. *Pedipes angulatus* C.B. Adams, 1852	60, 150
	137. *Tralia panamensis* (C.B. Adams, 1852)	60, 150
Family Epitoniidae	**138. *Amaea deroyae* DuShane, 1970**	150
	139. *Epitonium acapulcanum* Dall, 1917	150, 160
	140. *Epitonium aciculinum* (Hinds, 1844)	150
	141. *Epitonium billeeanum* (DuShane & Bratcher, 1965)	150
	142. *Epitonium hancocki* DuShane, 1970	150
	143. *Epitonium indistinctum* (Sowerby, 1844)	150
	144. *Epitonium replicata* (Sowerby, 1844)	150
	145. *Opalia crystallina* (Carpenter, 1864)	150
	146. *Opalia infrequens* (C.B. Adams, 1852)	150
	147. *Opalia paulula* DuShane, 1974	150
	148. *Opalia sanjuanensis* (Lowe, 1932)	150

	Species	Ref.[1]
Family Eulimidae	**149. *Eulima elegantissima* de Folin, 1887**	150
	150. *Melanella ogasawarana* (Pilsbry, 1905)	150
	151. *Melanella townsendi* Bartsch, 1917	150
	152. *Niso aeglees* Bush, 1885	150
	153. *Niso interrupta* (Sowerby, 1834)	150
	154. *Sabinella shaskyi* Warén, 1992	150
	155. *Scalenostoma subulata* (Broderip, 1832)	150
	156. *Subniso rangii* (de Folin, 1867)	150
Family Fasciolariidae	157. *Leucozonia cerata* (Wood, 1828)	60, 150
	158. *Leucozonia tuberculata* (Broderip, 1833)	60, 150
	159. *Fusinus allyni* McLean, 1970	60, 150
	160. *Fusinus dupetitthouarsi* (Kiener, 1840)	60, 150
	161. *Fusinus turris* (Valenciennes, 1832)	60, 150
	162. *Pleuroploca princeps* (Sowerby, 1825)	60, 150
Family Fissurellidae	163. *Diodora inaequalis* (Sowerby, 1835)	150
	164. *Diodora punctifissa* McLean, 1970	150
	165. *Diodora saturnalis* (Carpenter, 1864)	150
	166. *Fissurella deroyae* McLean, 1970	150
	167. *Fissurella microtrema* Sowerby, 1835	150
	168. *Fissurella virescens* Sowerby, 1835	150
	169. *Lucapinella milleri* Berry, 1959	150
Family Haliotidae	***170. *Haliotis dalli roberti* McLean, 1970**	125, 150
Family Harpidae	171. *Harpa crenata* Swainson, 1822	150
	172. *Morum veleroae* Emerson, 1968	150
Family Hipponicidae	173. *Hipponix antiquatus panamensis* C.B. Adams, 1852	150
	174. *Hipponix grayanus* Menke, 1853	150
	175. *Pilosabia pilosa* (Deshayes, 1832)	150
Family Juliidae	**176. *Julia thecaphora* (Carpenter, 1857)**	38
Family Limacinidae	177. *Limacina inflata* (d'Orbigny, 1836)	98, 101
	178. *Limacina trochiformis* (d´Orbigny, 1836)	130
Family Litiopidae	179. *Alaba supralirata* Carpenter, 1857	150
Family Littorinidae	180. *Echinolittorina aspera* (Philippi, 1846) as *Littorina aspera*	98
	181. *Echinolittorina modesta* (Philippi, 1846) as *Nodilittorina modesta*	98
	182. *Littoraria coccinea* (Gmelin, 1791)	60, 150
	183. *Littoraria pintado pullata* (Carpenter, 1864)	60, 150
	184. *Littoraria undulata* (Gray, 1839)	60, 150
	185. *Littorina keenae* Rosewater, 1978	60, 150
	186. *Nodilittorina atrata* (C.B. Adams, 1852)	60, 150
	187. *Nodilittorina conspersa* (Philippi, 1847)	60, 150
	188. *Nodilittorina dubiosa* (C.B. Adams, 1852)	60, 150
Family Lottidae	189. *Lottia mesoleuca* (Menke, 1851)	150
	***190. *Lottia rothi* (Lindberg & McLean, 1981)**	114, 150
	191. *Lottia strigatella* (Carpenter, 1864)	150
	192. *Patelloida semirubida* (Dall, 1914)	150
	193. *Tectura ubiquita* (Lindberg & McLean, 1981)	150
Family Marginellidae	**194. *Volvarina taeniolata taeniolata* Mörch, 1860**	150, 160

	Species	Ref.[1]
Family Mitridae	195. *Mitra crenata* Broderip, 1836	60, 150, 160
	196. *Mitra effusa* Broderip, 1836	60, 150
	197. *Mitra ferruginea* Lamarck, 1811	60, 150
	198. *Mitra fultoni* E.A. Smith, 1892	60, 150
	199. *Mitra inca* d'Orbigny, 1841	60, 150
	200. *Mitra lens* Wood, 1828	60, 150
	201. *Mitra mitra* (Linnaeus, 1758)	60, 150
	202. *Mitra papalis* (Linnaeus, 1758)	60, 150
	203. *Mitra rupicola* Reeve, 1844	60, 150
	204. *Mitra sphoni* Shasky & Campbell, 1964	60, 150
	205. *Mitra swainsonii swainsonii* Broderip, 1836	60, 150
	206. *Mitra tristis* Broderip, 1836	60, 150
	207. *Subcancilla attenuata* (Broderip, 1836)	60, 150
	208. *Subcancilla erythrogramma* (Tomlin, 1931)	60, 150
	209. *Subcancilla sulcata* (Swainson *in* Sowerby, 1825)	60, 150
Family Muricidae	210. *Acanthais brevidentata* (Wood, 1828)	60, 150
	211. *Acanthotrophon sentus* Berry, 1969	60, 150
	212. *Aspella hastula* (Reeve, 1844)	60, 150
	213. *Aspella pollux* Radwin & D'Attilio, 1976	60, 150
	214. *Aspella pyramidalis* (Broderip, 1833)	60, 150
	215. *Bizetiella micaela* Radwin & D'Attilio, 1972	60, 150
	216. *Chicoreus eversoni* D'Attilio, Myers & Shasky, 1987	60, 150
	217. *Drupa ricinus* (Linnaeus, 1758)	69
	218. *Favartia cocosensis* Myers & D'Attilio, 1990	60, 150
	219. *Favartia diomedaea* (Dall, 1908)	60, 150
	220. *Favartia humilis* (Broderip, 1833)	60, 150
	221. *Favartia incisa* (Broderip, 1833)	60, 150
	222. *Favartia laurae* (Vokes, 1970)	60, 150
	223. *Favartia mildredae* (Poorman, 1980)	60, 150
	224. *Favartia purdyae* Vokes & D'Attilio, 1980	60, 150
	225. *Favartia radwini* (Emerson & D'Attilio, 1970)	60, 150
	***226. *Favartia shaskyi* D'Attilio & Myers, 1988**	61, 150
	227. *Hexaplex princeps* (Broderip, 1833)	60, 150
	228. *Mancinella speciosa* (Valenciennes, 1832)	60, 150
	229. *Mancinella triangularis* (Blainville, 1832)	60, 150
	230. *Morula uva* (Röding, 1798)	60, 150, 160
	231. *Murexiella humilis* (Broderip, 1833)	60, 150
	232**. *Muricopsis westonensis* Myers & D'Attilio, 1990**	60, 150
	233. *Muricopsis zeteki* Hertlein & Strong, 1951	60, 150
	234. *Neorapana muricata* (Broderip, 1832)	60, 150
	235. *Pascula rufonotata* (Carpenter, 1864)	60, 150, 160
	236. *Phyllocoma scalariformis* (Broderip, 1833)	60, 150
	237. *Plicopurpura columellaris* (Lamarck, 1822)	60, 150
	238. *Plicopurpura patula pansa* (Gould, 1853)	60, 150
	239. *Pterotyphis lowei lowei* (Pilsbry, 1931)	60, 150
	240. *Stramonita biserialis* (Blainville, 1832)	60, 150
	241. *Trachypollia lugubris* (C.B. Adams, 1852)	60, 150
	242. *Tribulus planospira* (Lamarck, 1822)	60, 150

	Species	Ref.[1]
	243. *Vasula melones* (Duclos, 1832)	60, 150
	244. *Vitularia salebrosa* (King & Broderip, 1832)	60, 150
Family Nassariidae	245. *Nassarius nassiformis* Leson, 1842	150
	246. *Nassarius nodicinctus* (A. Adams, 1852)	150
Family Naticidae	**247. *Eunaticina insculpta* (Carpenter, 1865)**	150
	248. *Natica elenae* Récluz, 1844	150
	249. *Natica grayi* Philippi, 1852	150
	250. *Natica idiopoma* Pilsbry & Lowe, 1932	150
	251. *Polinices helicoides* (Gray, 1825)	150
	252. *Polinices otis* (Broderip & Sowerby, 1829)	150
	253. *Polinices pardoanus* Dall, 1908	150
	254. *Mammilla simiae* (Deshayes, 1838) as *Polinices siiae*	100, 107, 150
Family Neritidae	255. *Nerita funiculata* Menke, 1851	60, 150
	256. *Nerita scabricosta* Lamarck, 1822	60, 150
	257. *Neritina latissima* Broderip, 1833	60, 150
Family Olividae	**258. *Oliva foxi* Stingley, 1984**	150
	259. *Oliva spicata* (Röding, 1798)	150
	***260. *Oliva spicata deynzerae* Petuch & Sargent, 1986**	137, 150
	261. *Olivella cocosensis* Olsson, 1956	150
Family Ovulidae	262. *Jenneria pustulata* (Lightfoot, 1786)	150
	263. *Neosimnia aequalis* (Sowerby, 1832)	150
	264. *Neosimnia avena* (Sowerby, 1832)	150
	265. *Pseudocypraea adamsonii* (Sowerby, 1832)	150
	266. *Simnialena rufa* (Sowerby, 1832)	150
	267. *Turbovula lenoreae* (Cardin & Walls, 1980)	150
Family Pelycidiidae	**268. *Pelycidion kelseyi* (Bartsch, 1911)**	150
Family Personidae	269. *Distorsio constricta constricta* (Broderip, 1833)	150
	270. *Distorsio decussata* (Valenciennes, 1832)	150
	271. *Distorsio jenniernestae* Emerson & Piech, 1992	150
Family Phenacolepadidae	**272. *Plesiothyreus osculans* (C.B. Adams, 1852)**	150
Family Phylliroidae	**273. *Phylliroë bucephala* Péron & Lesueur,1810**	130
Family Planaxidae	274. *Fossarus angulatus* Carpenter, 1857	150
	275. *Fossarus tuberosus* Carpenter, 1857	150
	276. *Planaxis planaxis* (a)	98
	277. *Planaxis planicostatus* Sowerby, 1825	150
Family Pleurobranchidae	278. *Berthellina ilisima* Marcus & Marcus, 1967	38
	279. *Pleurobranchus areolatus* (Mörch, 1863)	38
Family Pneumodermatidae	**280. *Pnemodermopsis* sp.**	130
Family Polyceridae	281. *Tambja adbere* Farmer, 1978	38
Family Potamididae	282. *Modulus cerodes* (A. Adams, 1851)	150
Family Pterotracheidae	283. *Pterotrachea coronata* Forsskål, 1775	130
Family Pyramidellidae	**284. *Herviera gliriella* (Melvill & Standen, 1896)**	150
	285. *Menestho aequisculpta* (Carpenter, 1864)	150
	286. *Menestho grijalvae* (Baker, Hanna & Strong, 1928)	150
	287. *Miralda armata* (Carpenter, 1857)	150
	288. *Miralda terebellum* (C.B. Adams, 1852)	150
	289. *Triptychus incantatus* (Hertlein & Strong, 1939)	150
	290. *Turbonilla pucilirata* (Carpenter, 1857)	150

	Species	Ref.[1]
Family Ranellidae	**291. *Charonia tritonis* Linnaeus, 1758**	150
	292. *Cymatium amictum* (Reeve, 1844)	150
	293. *Cymatium aquatile* (Reeve, 1844)	150
	294. *Cymatium* cf. *keenae*	150
	295. *Cymatium macrodon* (Valenciennes, 1832)	150
	296. *Cymatium muricinum* (Röding, 1798)	150
	297. *Cymatium nicobaricum* (Röding, 1798)	150
	298. *Cymatium succincta* (Linnaeus, 1771)	150
	299. *Cymatium vestitum* (Hinds 1844)	150
Family Retusidae	300. *Volvulella catharia* Dall, 1919	38
Family Rissoellidae	**301. *Rissoella tumens* (Carpenter, 1857)**	150, 160
Family Rissoidae	302. *Alvania inconspicua* C.B. Adams, 1852	150, 160
	303. *Folinia ericana* (Hertlein & Strong, 1951)	150
	304. *Rissoina burragei* Bartsch, 1915	150
	305. *Rissoina effusa* Mörch, 1860	150
	306. *Rissoina stricta* Menke, 1850	150
Family Scissurellidae	**307. *Sinezona rimuloides* (Carpenter, 1865)**	150
Family Siphonariidae	308. *Siphonaria gigas* Sowerby, 1825	60, 150
	309. *Williamia* cf. *peltoides*	60, 150, 160
Family Skeneidae	310. *Parviturbo stearnsii* (Dall, 1918)	150
	311. *Lodderena ornata* (Olsson &McGinty, 1958)	150
Family Strombidae	312. *Strombus granulatus* Swainson, 1822	150
Family Terebridae	313. *Terebra armillata* Hinds, 1844	150
	314. *Terebra berryi* Campbell, 1961	150
	315. *Terebra corintoensis* Pilsbry & Lowe, 1932	150
	316. *Terebra crenulata* (Linnaeus, 1758)	150
	317. *Terebra elata* Hinds, 1844	150, 160
	318. *Terebra glauca* Hinds, 1844	150
	319. *Terebra guayaquilensis* (E.A. Smith, 1880)	150
	320. *Terebra hancocki* Bratcher & Burch, 1970	150
	321. *Terebra maculata* (Linnaeus, 1758)	150
	322. *Terebra ornata* Gray, 1834	150
	323. *Terebra robusta* Hinds, 1844	150
	324. *Terebra strigata* Sowerby, 1825	150
	325. *Terebra variegata* Gray, 1834	150
Family Tergipedidae	326. *Phestilla lugubris* (Bergh, 1870)	38
Family Tonnidae	327. *Malea ringens* (Swainson, 1822)	150
Family Triphoridae	**328. *Metaxia brunnicephala* (Kay, 1979)**	150
	329. *Metaxia convexa* (Carpenter, 1857)	150
	330. *Triphora alternata* C.B. Adams, 1852	150
	331. *Triphora chamberlini* Baker, 1926	150
	332. *Triphora dalli* Bartsch, 1907	150
	333. *Triphora oweni* Baker, 1926	150
	334. *Triphora stephensi* Baker & Spicer, 1935	150
	335. *Triphora triticea* Pease, 1861	150
	336. *Viriola samoana* Cernohorsky, 1977	150
Family Triviidae	337. *Hespererato oligostata* (Dall, 1902)	150
	338. *Trivia atomaria* Dall, 1902	150

	Species	Ref.[1]
	339. *Trivia pacifica* (Sowerby, 1832, *ex* Gray, MS)	150
	340. *Trivia panamensis* Dall, 1902	150
Family Trochidae	**341. *Calliotropis equatorialis* (Dall, 1896)**	150
	342. *Mirachelus galapagensis* McLean, 1970	150
	343. *Solariella diomedea* Dall, 1919	150
Family Truncatellidae	**344. *Truncatella bairdiana* C.B. Adams, 1852**	150
Family Turbinellidae	**345. *Surculina blanda* (Dall, 1908)**	150
Family Turbinidae	**346. *Tegula cooksoni* (E.A. Smith, 1877)**	150
	347. *Tegula fasciata* (Born, 1778)	150
	348. *Tegula gallina* (Forbes, 1850)	98
	349. *Tegula maculostriata* (C.B. Adams, 1845)	98
	350. *Tricolia diantha* (McLean, 1970) as *Eulithidium diantha*	150, 160
	351. *Tricolia variabilis* (Pease, 1861)	150
	352. *Turbo saxosus* Wood, 1828	150,160
	353. *Turbo squamiger* Reeve, 1843	150
Family Turridae	354. *Agathotoma alcippe* (Dall, 1918)	150
	355. *Bellaspira melea* Dall, 1919	150
	356. *Buchema granulosa* (Sowerby, 1834)	150
	357. *Clathurella rigida* (Hinds, 1843)	150
	358. *Crassispira abdera* (Dall, 1919)	150
	359. *Crassispira cerithoidea* (Carpenter, 1857)	150
	360. *Crassispira erigone* Dall, 1919	150
	361. *Crassispira turricula* (Sowerby, 1834)	150
	362. *Daphnella allemani* (Bartsch, 1931)	150
	363. *Daphnella mazatlanica* Pilsbry & Lowe, 1932	150
	364. *Daphnella retusa* McLean & Poorman, 1971	150
	365. *Glyphostoma neglecta* (Hinds, 1843)	150
	366. *Glyphostoma scobina* McLean & Poorman, 1971	150
	367. *Hindsiclava resina* (Dall, 1908)	150
	368. *Iredalea ella* (Pilsbry & Lowe, 1932)	150
	369. *Iredalea perfecta* (Pilsbry & Lowe, 1932)	150
	370. *Ithycythara penelope* (Dall, 1919)	150
	371. *Kurtziella plumbea* (Hinds, 1843)	150
	372. *Microdaphne trichodes* (Dall, 1919)	150
	373. *Microdrillia zeuxippe* (Dall, 1919)	150
	374. *Mitromorpha filosa* (Carpenter, 1865)	150
	375. *Nannodiella nana* (Dall, 1919)	150
	376. *Tenaturris merita* (Hinds, 1843)	150
	377. *Xanthodaphne agonia* (Dall, 1890)	150
	378. *Xanthodaphne encella* (Dall, 1908)	150
Family Turritellidae	379. *Turritella clarionensis* (Hertlein & Strong, 1951)	150
	380. *Vermicularia* cf. *frisbeyae*	150
	381. *Vermicularia pellucida eburnea* (Reeve, 1842)	150
Family Vanikoridae	**382. *Vanikoro acuta* Récluz, 1844**	150
	383. *Vanikoro aperta* (Carpenter, 1864)	150
Family Vermetidae	384. *Eualetes tulipa* (Chenu, 1843, *ex* Rousseau, MS)	150
	385. *Petaloconchus complicatus* Dall, 1908	150
	386. *Petaloconchus macrophragma* (Carpenter, 1856)	150
	387. *Vermetus* sp.	98

	Species	Ref.[1]
Family Vitrinellidae	388. *Cyclostremiscus trigonatus* (Carpenter, 1857)	150
	389. *Parviturboides monilifer* (Carpenter, 1857)	150
	390. *Solariorbis allomphalus* Pilsbry & Olsson, 1952	150
	391. *Solariorbis regularis* (C.B. Adams, 1852)	150
Class BIVALVIA, Order Anomalodesmata		
Family Poromyidae	**392. *Cetomya scapha* (Dall, 1902) as *Cetoconcha scapha***	98
Order Arcoida, Family Arcidae	393. *Acar gradata* (Broderip & Sowerby, 1829)	118
	394. *Anadara* (*Esmerarca*) *reinharti* (Lowe, 1935)	118
	395. *Anadara* (*Grandiarca*) *grandis* (Broderip & Sowerby, 1829)	118
	396. *Arca* (*Arca*) *mutabilis* (Sowerby, 1833)	118
	397. *Arca* (*Arca*) *pacifica* (Sowerby, 1833)	118
	398. *Barbatia* (*Cucullaearca*) *reeveana* (d'Orbigny, 1846)	118
	399. *Larkinia multicostata* (Sowerby, 1833)	70
Family Glycymerididae	**400. *Axinactis inaequalis* (Sowerby, 1833)**	70
	401. *Glycymeris* (*Glycymeris*) *gigantea* (Reeve, 1843)	118
	402. *Glycymeris* (*Glycymeris*) *lintea* Olsson, 1961	118
	403. *Glycymeris* (*Tucetona*) *strigilata* (Sowerby, 1833)	118
Family Noetiidae	404. *Arcopsis solida* (Sowerby, 1833)	118
Order Mytiloida, Family Mytilidae	405. *Crenella decussata* (Montagu, 1808)	118
	406. *Crenella divaricata* (Orbigny in Sagra, 1853)	98
	407. *Lithophaga* (*Diberus*) *plumula* (Hanley, 1843)	118
	408. *Lithophaga* (*Labis*) *attenuata* (Deshayes, 1836)	98
	409. *Lithophaga* (*Myoforceps*) *aristata* (Dillwyn, 1817)	118
	410. *Lithophaga* (*Stumpiella*) *calyculata* (Carpenter, 1857)	118
	411. *Septifer zeteki* Hertlein & Strong, 1946	118
Order Pterioida, Family Isognomonidae	**412. *Isognomon bicolor* (Adams, 1845) as *I. chmnitzianum***	98
	413. *Isognomon* (*Melina*) *janus* Carpenter, 1857	118,160
	414. *Isognomon* (*Melina*) *recognitus* (Mabille, 1895)	118,160
	415. *Isognomon quadrangularis* (a)	98
Family Malleidae	416. *Malleus* (*Malvufundus*) *regulus* (Forsskål, 1775)	118
Family Pinnidae	417. *Atrina* (*Servatrina*) *tuberculosa* (Sowerby, 1835)	118
	418. *Steptopinna saccata* (Linnaeus, 1758)	118
Family Pteriidae	419. *Pincatada mazatlanica* (Hanley, 1856)	69
	420. *Pteria sterna* (Gould, 1851)	118
Order Limoida, Family Limidae	421. *Lima tetrica* Gould, 1851	118
	422. *Limaria pacifica* (d'Orbigny, 1846)	118
Order Ostreoida, Family Anomiidae	423. *Anomia* (*Anomia*) *peruviana* d'Orbigny, 1846	118
Family Gryphaeidae	**424. *Hyotissa solida* (Sowerby, 1871)**	118
Family Ostreidae	425. *Crassostrea palmula* (Carpenter, 1857)	118
	426. *Crassostrea prismatica* (Gray, 1825)	118
	427. *Dendostrea folium* (Linnaeus, 1758)	118
Family Pectinidae	**428. *Argopecten circularis* (Sowerby, 1835)**	70
	429. *Euvola galapagensis* (Grau, 1959)	118
	430. *Euvola hancocki* (Grau, 1959)	89
	431. *Envola perulus* (Olsson, 1961)	118
	432. *Euvola vogdesi* (Arnold, 1906)	118
	***433. *Leopecten cocosensis* Waller, 2007**	182

	Species	Ref.[1]
	434. *Leopecten sericeus* (Hinds, 1845)	118
	435. *Nodipecten subnodosus* (Sowerby, 1853)	118
Family Propeamussiidae	**436. *Cyclopecten cocosensis* (Dall, 1908)**	118
	437. *Cyclopecten exquisitus* Grau, 1959	118
Family Spondylidae	438. *Spondylus calcifer* Carpenter, 1857	118
	439. *Spondylus limbatus* Sowerby, 1847	118
	440. *Spondylus linguaefelis* Sowerby, 1847	118
	441. *Spondylus violacescens* Lamarck, 1819 as *S. tenebrosus*	69
Order Veneroida, Family Cardiidae	442. *Papyridea aspersa* (Sowerby, 1833)	118
	443. *Americardia planicostata* (Sowerby, 1833)	118
Family Carditidae	444. *Cardites laticostata* (Sowerby, 1833)	118
	445. *Strophocardia megastropha* (Gray, 1825)	118
Family Chamidae	446. *Chama squamuligera* Pilsbry & Lowe, 1932	118
	447. *Pseudochama clarionensis* Willett, 1938	118
Family Condylocardiidae	448. *Condylocardia hippopus* (Mörch, 1861)	118
Family Lasaeidae	**449. *Amerycina colpoica* (Dall, 1913)**	118
	450. *Solecardia eburnea* Conrad, 1849	118
Family Lucinidae	451. *Codakia distinguenda* (Tryon, 1872)	118
	452. *Ctena clarionensis* Hertlein & Strong, 1946	118
	453. *Divalinga eburnea* (Reeve, 1850)	118
	454. *Divalinga perparvula* (Dall, 1901)	118
Family Neoleptonidae	455. *Neolepton* (*Neolepton*) *subtrigonum* (Carpenter, 1857)	118
Family Semelidae	456. *Semele* (*Amphidesma*) *formosa* (Sowerby, 1833)	118
	457. *Semele* (*Amphidesma*) *purpurascens* (Gmelin, 1791)	118
	458. *Semele* (*Elegantula*) *rupium* (Sowerby, 1833)	118
	459. *Semele jamesi* Coan, 1988	118
Family Tellinidae	**460. *Tellina* (*Elliptotellina*) *pacifica* Dall, 1900**	118
	461. *Tellina* (*Laciolina*) *ochracea* Carpenter, 1864	118
	462. *Tellina* (*Moerella*) *coani* Keen, 1971	118
	463. *Tellina* (*Tellinella*) *cumingii* Hanley, 1844	118
Family Ungulinidae	464. *Diplodonta subquadrata* Carpenter, 1856 as *D.* (*Diplodonta*) *subquadrata*	70
Family Veneridae	465. *Globivenus isocardia* (Verrill, 1870)	118
	466. *Pitar* (*Hyphantosoma*) *hertleini* Olsson, 1961	118
Order Myoida, Family Corbulidae	467. *Corbula* (*Caryocorbula*) *nasuta* Sowerby, 1833	118
Family Thraciidae	**468. *Bushia galapagana* (Dall, 1915)**	118
Order Septibranchida, Family Verticordiidae	**469. *Haliris aequacostata* (Howard, 1950)**	118
Class CEPHALOPODA, Order Octopoda, Family Octopodidae	**470. *Muusoctopus januarii* (Hoyle, 1885) as *Polypus januarii***	102
	471. *Octopus pusillus* Gould, 1852 as *Polypus pusellus*	102
Undefined generic placement	472. *"Octopus" alecto* Berry, 1953	99
Order Oegopsida, Family Argonautidae	473. *Argonauta argo* Linnaeus, 1758	102
	474. *Argonauta cornutus* Conrad, 1854	99
	475. *Argonauta nouryi* Lorois, 1852	99
	476. *Argonauta pacifica* Dall, 1871	99
Family Cranchiidae	**477.** *Galiteuthis pacifica* (Robson, 1948) as *Taonidium pacificum*	98
	478. *Helicocranchia beebei* Robson, 1948	98
	479. *Liocranchia reinhardti* (Steenstrup, 1856)	98

	Species	Ref.[1]
Family Enoploteuthidae	**480.** *Pterygioteuthis giardi hoylei* (Pfeffer, 1912) as *Pyroteuthis giardi*	98
Family Octopoteuthidae	**481. *Octopoteuthis neilseni* Robson, 1948**	98
Family Ommastrephidae	**482. *Abraliopsis hoylei* (Pfeffer, 1884)**	98
	483. *Dosidicus gigas* (Orbigny, 1835)	99
	484. *Ommastrephes bartrami* (LeSueur, 1821)	99
	485. *Sthenoteuthis oualaniensis* (Lesson, 1830)	99
Family Onychoteuthidae	486. *Onychoteuthis banksi* (Leach, 1817)	99
	487. *Onykia* sp.	98
Family Thysanoteuthidae	488. *Thysanoteuthis rhombus* Troschel, 1857	99
Order Teuthida, Family Loliginidae	489. *Lolliguncula* (*Loliolopsis*) *diomedeae* (Hoyle, 1904)	99
Order Vampyromorpha, Family Vampyroteuthidae	490. *Vampyroteuthis infernalis* Chun, 1903 as *Melanoteuthis beebei*	98
Phylum SIPUNCULA, Class PHASCOLOSOMATIDEA		
Order ASPIDOSIPHONIFORMES, Family Aspidosiphonidae	1. *Aspidosiphon elegans* Chimisso & Eysenhardt, 1821	65
	2. *Aspidosiphon gracilis schnehageni* (W. Fischer, 1913)	65
	3. *Aspidosiphon misakiensis* Ikeda, 1904	65
	4. *Aspidosiphon* (*Paraspidosiphon*) *laevis* de Quatrefages 1865	65
	5. *Aspidosiphon* (*Paraspidosiphon*) *fischeri* ten Broeke, 1925	65
Class PHASCOLOSOMATIDEA, Order Phascolosomatiformes, Family Phascolosomatidae	6. *Antillesoma antillarum* (Grube & Oersted 1858)	65
	7. *Phascolosoma agassizii* Keferstein, 1866	65
	8. *Phascolosoma nigrescens* (Keferstein, 1865)	65
	9. *Phascolosoma scolops* Selenka and de Man, 1883	65
	10. *Phascolosoma* sp.	65
Class SIPUNCULIDEA, Order Sipunculiformes, Family Sipunculidae	**11. *Sipunculus norvegicus* Danielssen 1869**	65
Phylum ECHIURIDA, CLASS ECHIUROIDEA		
Order Echiurida, Family Echiuridae	1. *Thalassema steinbecki* Fisher, 1946	65
Phylum ANNELIDA, Class POLYCHAETA, Subclass ACICULATA, Order Amphinomida,		
Suborder Aphroditiformia, Family Amphinomidae	**1. *Chloeia entypa* Chamberlin, 1919**	63, 67
	2. *Chloeia* cf. *pinnata* Moore, 1911	67
	3. *Chloeia viridis* Schmarda, 1861	63, 67
	4. *Eurythoe complanata* (Pallas, 1776)	63, 67
	5. *Linopherus canariensis* Langerhans, 1881	67
	6. *Notopygos crinita* Grube, 1855	63
	7. *Notopygos ornata* Grube, 1856	67, 160
	8. *Pareurythoe paupera* (Grube, 1856)	67
	9. *Pareurythoe spirocirrata* (Essenberg, 1917)	67
Family Chrysopetalidae	**10. *Chrysopetalum occidentale* Johnson, 1897**	67
Family Pisionidae	**11. *Pisione* cf. *galapagoensis* Westheide, 1974**	67
Subclass ACICULATA, Order Eunicida,		
Family Dorvilleidae	**12. *Dorvillea* (*Dorvillea*) *cerasina* (Ehlers, 1901)**	67, 160
Family Eunicidae	**13. *Eunice aphroditois* (Pallas, 1788)**	67
	14. *Eunice biannulata* Moore, 1904	67

	Species	Ref.[1]
	15. *Eunice mutilata* Webster, 1884	67
	16. *Lysidice* sp.	67
	17. *Nematonereis unicornis* (Grube, 1840)	67, 160
	18. *Palola* cf. *siciliensis* (Grube, 1840)	67
Family Lumbrineridae	**19. *Lumbrineris annulata* Hartmann-Schröder, 1960**	67
	20. *Scoletoma tetraura* (Schmarda, 1861)	67
Family Oenonidae	**21. *Arabella* (*Arabella*) *protomutans* Orensanz, 1990**	67
	22. *Drilonereis longa* Webster, 1879	67
	23. *Oenone fulgida* (Savigny *in* Lamarck, 1818)	67
Family Onuphidae	24. *Mooreonuphis elsiae* de León-González, 1994	67
Subclass ACICULATA, Order PHYLLODOCIDA, Suborder Aphroditiformis, Family Acoetidae	**25. *Polyodontes panamensis* Chamberlin, 1919**	67
Family Polynoidae	**26. *Harmothoe imbricata* (Linnaeus, 1767)**	67
	27. *Harmothoe* sp.	67, 160
	28. *Iphione ovata* Kinberg, 1855	64, 67, 160
	29. *Lepidasthenia gigas* (Johnson, 1897)	67
	30. *Lepidasthenia ornata* Treadwell, 1937	67
	31. *Lepidasthenia picta* Treadwell, 1928	67
	32. *Lepidonotus furcillatus* (Ehlers, 1901)	98
	33. *Subadyte* cf. *mexicana* Fauchald, 1972	67
Family Sigalionidae	**34. *Psammolyce spinosa* Hartman, 1939**	63
	35. *Sigalion lewisii* Berkely & Berkely, 1939	63, 67
	36. *Sigalion spinosus* (Hartman, 1939) as *Eusigalion spinosus*	92
	37. *Sthenelais fusca* Johnson, 1897	98
Subclass ACICULATA, Order Phyllodocida, Suborder Nereidiformia, Family Hesionidae	**38. *Hesione* cf. *intertexta* Grube, 1878**	67, 160
	39. *Microphthalmus indefatigatus* Westheide, 1974	67
	40. *Podarkeopsis brevipalpa* Hartmann-Schröder, 1959	67
	41. *Psamathe ancuda* (Wesenberg-Lund, 1962)	67
Family Nereididae	**42. *Ceratonereis singularis* Treadwell, 1929**	67, 160
	43. *Laeonereis brunnea* Hartmann-Schröder, 1959	67
	44. *Neanthes acuminata* Ehlers, 1868	67
	45. *Neanthes* cf. *roosevelti* Hartman, 1939	67
	46. *Neanthes succinea* (Frey & Leuckart, 1847)	67
	47. *Nereis eugeniae* (Kinberg, 1866)	67
	48. *Nereis oligohalina* (Rioja, 1946)	67
	49. *Nereis panamensis* Fauchald, 1977	67
	50. *Perinereis helleri* (Grube, 1878)	63, 103
Family Pilargidae	**51. *Synelmis gorgonensis* (Monro, 1933)**	67
Family Syllidae	**52. *Branchiosyllis exilis* (Gravier, 1900)**	67
	53. *Branchiosyllis* sp. Grube, 1857	67
	54. *Eusyllis lamelligera* Marion & Bobretzky, 1875	67
	55. *Exogone* (*Exogone*) *breviantennata* Hartmann-Schröder, 1959	67, 160
	56. *Myrianida multidenticulata* (Westheide, 1974)	67
	57. *Odontosyllis fulgurans dolerus* Westheide, 1974	67, 160
	58. *Opisthodonta mitchelli* Kudenov & Harris, 1995	67
	59. *Opisthodonta* sp.	67

	Species	Ref.[1]
	60. *Opisthosyllis brunnea* Langerhans, 1879	67
	61. *Paraehlersia articulata* (Kudenov & Harris 1995)	67, 160
	62. *Syllis bella* Chamberlin, 1919	67
	63. *Syllis beneliahuae* (Campoy & Alquezar, 1982)	67
	64. *Syllis garciai* (Campoy, 1982)	67
	65. *Syllis gracilis* Grube, 1840	67
	66. *Syllis* cf. *hyalina* Grube, 1863	67
	67. *Syllis magna* (Westheide, 1974)	67
	68. *Syllis valida* (Grube, 1857)	67, 160
	69. *Syllis variegata* (Grube, 1860) as *S. variagata*	67
	70. *Trypanosyllis taeniaeformis* (Haswell, 1886)	67, 160
	71. *Westheidesyllis heterocirrata* (Hartmann-Schröder, 1959)	67, 160
Subclass ACICULATA, Order Phyllodocida,		
Family Alciopidae	**72. *Alciopina parasitica* Claparède & Panceri, 1867**	106
Family Glyceridae	**73. *Glycera brevicirris* Grube, 1870**	67
	74. *Hemipodia pustatula* (Friedrich, 1956)	67, 160
Family Lopadorrhynchidae	**75. *Pelagobia longicirrata* Gravier, 1911**	106
Family Phyllodocidae	**76. *Nereiphylla castanea* (Marzeneller, 1879)**	67, 160
	77. *Phyllodoce madeirensis* Langerhans, 1880	67, 160
	78. *Phyllodoce medipapillata* Moore, 1909	67
	79. *Sige* cf. *bifoliata* (Moore, 1909)	67, 160
Family Polynoidae	**80. *Drieschia pellucida* Moore, 1903**	106
Family Tomopteridae	**81. *Tomopteris nationalis* Apstein, 1900**	106
	82. *Tomopteris nisseni* Rosa, 1908	63
Family Typhloscolecidae	**83. *Travisiopsis dubia* Støp-Bowitz, 1948**	106
	84. *Typhloscolex muelleri* Busch, 1851	106
Subclass CANALIPALPATA, Order Sabellida,		
Family Sabellariidae	**85. *Gesaia* sp.**	67
Family Sabellidae	**86. *Bispira melanostigma* Schmarda, 1861**	67
	87. *Branchiomma costaricensis* Tovar-Hernández & Dean, 2010	67, 160, 170
	88. *Megalomma pacifica* Johansson, 1927	67
Family Serpulidae	**89. *Vermiliopsis multiannulata* (Moore, 1923)**	67, 160
Subclass CANALIPALPATA, Order Spionida,		
Family Chaetopteridae	**90. *Chaetopterus aduncus* Nishi, Hickman & Baily-Brock, 2009**	67
	91. *Chaetopterus* cf. *galapagenis* Nishi, Hickman & Bailey-Brock, 2009	67
	92. *Chaetopterus* sp.	8
	93. *Mesochaetopterus alipes* Monro, 1933	67
	94. *Mesochaetopterus ecuadorica* (Nishi, 2009)	67
	95. *Spiochaetopterus costarum* (Claparéde, 1870)	67
Family Magelonidae	96. *Magelona californica* Hartman, 1944	67, 160
Family Spionidae	**97. *Aonides* cf. *glandulosa* Blake, 1996**	67
	98. *Aonides paucibranchiata* Southern, 1914	67
	99. *Laonice cirrata* (Sars, 1851)	67
	100. *Microspio microcera* (Dorsey, 1977)	67
	101. *Prionospio* (*Prionospio*) sp.	67
	102. *Rhynchospio glutaea* (Ehlers, 1897)	67

	Species	Ref.[1]
	103. *Scolelepis* (*Scolelepis*) *squamata* (Müller, 1806)	67
	104. *Spiophanes berkeleyorum* Pettibone, 1962	67
Subclass CANALIPALPATA, Order Terebellida, Suborder Cirratuliformia, Family Acrocirridae	**105. *Acrocirrus heterochaetus* Annenkova, 1934**	67
Family Cirratulidae	**106. *Dodecaceria* sp.**	67
Family Flabelligeridae	**107. *Pherusa inflata* (Treadwell, 1914)**	67
	108. *Pherusa papillata* (Johnson, 1901)	67
Subclass CANALIPALPATA, Order Terebellida, Suborder Terebellomorpha, Family Ampharetidae	**109. Unidentified species**	67
Family Terebellidae	**110. *Lanice conchilega* (Pallas, 1766)**	67
	111. *Polycirrus mexicanus* Rioja, 1947	67
	112. *Polycirrus* sp.	67
Family Trichobranchidae	**113. *Trichobranchus hancocki* (Hartman, 1955)**	67
Subclass SCOLECIDA (no assigned Order), Family Capitellidae	**114. *Notodasus kristiani* García-Garaz, Hernández-Valdez & de León-González, 2009**	67
	115. *Notomastus lineatus* Claparéde, 1870	67, 160
Family Opheliidae	116. *Armandia brevis* (Moore, 1906)	67
Family Orbiniidae	**117. *Naineris chilensis* (**Hartmann-Schröder, 1965)	67
	118. *Naineris setosa* (Verrill, 1900)	67
Family Paraonidae	**119. *Aricidea* (*Aricidea*) *rosea* Reish, 1968 as *A.* (*Acesta*) *rosea***	67
Polychaeta incertae sedis, Family Protodrilidae	**120. *Protodrilus infundibuliformis* Schmidt & Westheide, 1977**	67
Phylum ARTHROPODA, Subphylum CRUSTACEA **Class MALACOSTRACA**, Order Stomatopoda		
Family Coronididae	**1. *Coronida schmitti* Manning, 1976**	176
	2. *Neocoronida cocosiana* (Manning, 1972)	176
Family Gonodactylidae	3. *Neogonodactylus zacae* (Manning, 1972)	160, 176
Family Pseudosquillidae	4. *Pseudosquillisma adiastalta* Manning, 1964	176
Family Squillidae	5. *Crenatosquilla oculinova* (Glassell, 1942)	176
Family Tetrasquillidae	6. *Tetrasquilla mccullochae* (Schmitt, 1940)	177
Order Euphausiacea, Family Euphausiidae	7. Several unidentified species	130
Order Decapoda, Family Aethridae	8. *Aethra scutata* Smith, 1869	177
Family Albuneidae	**9. *Albunea lucacia* (de Saussure, 1853)**	177
Family Alpheidae	10. *Alpheus bellimanus* Lockington, 1877	177, 178
	11. *Alpheus canalis* Kim & Abele, 1988	177, 178
	12. *Alpheus galapagensis* Sivertsen, 1933	177, 178
	13. *Alpheus grahami* Abele, 1975	177, 178
	14. *Alpheus hebes* Kim & Abele, 1988	177, 178
	15. *Alpheus longiquus* Kim & Abele, 1988	177, 178
	16. *Alpheus lottini* Guérin-Méneville, 1829	177, 178
	17. *Alpheus pacificus* Dana, 1852	177, 178
	18. *Alpheus saxidomus* Holthuis, 1980	177, 178
	19. *Alpheus villus* Kim & Abele, 1988	177, 178
	20. *Automate dolichognatha* Dellan, 1888	177, 178
	21. *Synalpheus* sp.	177, 178
Family Atyidae	**22. *Archaeatya chacei* Villalobos, 1959**	177
Family Benthesicymidae	**23. *Benthesicymus tanneri* Faxon, 1893**	177

	Species	Ref.[1]
Family Calappidae	24. *Calappa convexa* Saussure, 1853	177, 178
	25. *Calappa saussurei* Rathbun, 1898	177, 178
	26. *Cryptosoma bairdii* Rathbun, 1898	177, 178
	27. *Osachila kaiserae* Zimmerman & Martin, 1999	177, 178
Family Coenobitidae	28. *Coenobita compressus* Milne Edwards, 1837	177
Family Crangonidae	**29. *Pontophillus gracilis occidentales* Faxon, 1893**	177
Family Daldorfiidae	30. *Daldorfia garthi* Glassell, 1940	177
Family Diogenidae	***31. *Allodardanus rugosus* Haig & Provenzano, 1965**	177, 178
	32. *Calcinus explorator* Boone, 1930	177, 178
	***33. *Cancellus tanneri* Faxon, 1893**	177, 178
	34. *Dardanus sinistripes* (Stimpson, 1859)	177, 178
	***35. *Paguristes fecundus* Faxon, 1893**	177, 178
Family Dorippidae	36. *Ethusa lata* Rathbun, 1893	177, 178
	37. *Ethusina smithiana* Faxon, 1893	177, 178
Family Dromiidae	38. *Hipoconcha panamensis* Smith, 1869	177
Family Dynomenidae	39. *Dynomene ursula* Stimpson, 1860	178
Family Gecarcinidae	40. *Cardisoma crassum* Smith, 1870	85
	***41. *Johngarthia cocoensis* Perger, Vargas & Wall, 2011**	136
Family Grapsidae	**42. *Armases angustum* (Smith, 1870)**	177, 178
	43. *Geograpsus lividus* (Milne Edwards, 1837)	177, 178
	44. *Grapsus grapsus* (Linnaeus, 1758)	177, 178
	45. *Pachygrapsus transversus* (Gibbes, 1850)	177, 178
	46. *Plagusia immaculata* Lamarck, 1818	177, 178
Family Hippidae	47. *Hippa pacifica* (Dana, 1852)	178
Family Hippolytidae	48. *Lysmata galapagensis* Schmitt, 1924	177, 178
	49. *Thor amboinensis* (De Man, 1888)	160, 177, 178
	50. *Thor cocoensis* Wicksten & Vargas, 2001	177, 178
Family Leucosiidae	**51. *Ebalia clarionensis* Rathbun, 1935**	178
Family Lithodidae	**52. *Neolithodes diomedeae* (Benedict, 1894)**	177, 178
	53. *Ericerodes longipes* Faxon, 1893 as *P. longipes*	177, 178
Family Majidae	54. *Euprognatha bifida* Rathbun, 1893	177, 178
	55. *Euprognatha granulata* Faxon, 1893	177, 178
	56. *Herbstia tumida* (Stimpson, 1871)	160, 177, 178
	57. *Lissa tuberosa* Rathbun, 1898	177, 178
	58. *Microphrys branchialis* Rathbun, 1892	177, 178
	59. *Mithrax denticulatus* Bell, 1835	177, 178
	60. *Mithrax spinipes* (Bell, 1835)	177, 178
	61. *Ericerodes hemphilli* (Lockington, 1877) as *Podochela hemphilli*	177, 178
	62. *Sphenocarcinus agassizi* Rathbun, 1893	177, 178
	63. *Stenocionops ovata* (Bell, 1835)	177, 178
	64. *Stenorhynchus debilis* (Smith, 1871)	177, 178
	65. *Teleophrys cristulipes* Stimpson, 1860	160, 177, 178
Family Munididae	66. *Munida perlata* Benedict, 1902	177, 178
	67. *Munida refulgens* Faxon, 1893	177, 178

	Species	Ref.[1]
Family Munidopsidae	**68. *Munidopsis aspera* (Henderson, 1885)**	177,178
	69. *Munidopsis ciliata* Wood-Mason, 1891	177,178
	70. *Munidopsis diomedeae* (Faxon, 1893)	177,178
	71. *Munidopsis nitida* (A. Milne Edwards, 1880)	177,178
	72. *Munidopsis vicina* Faxon, 1893	177,178
Family Nematocarcinidae	**73. *Nematocarcinus agassizzi* Faxon 1893**	177
	74. *Nematocarcinus ensifer* (Smith, 1882)	177
Family Ocypodidae	75. *Ocypode gaudichaudii* Milne Edwards & Lucas, 1843	177, 178
	76. *Uca brevifrons* (Stimpson, 1860)	177, 178
	77. *Uca panamensis* (Stimpson, 1859)	177, 178
	78. *Uca zacae* Crane, 1941	53
Family Oplophoridae	**79. *Meningodora mollis* Smith, 1882**	178
Family Paguridae	**80. *Catapagurus diomedeae* Faxon, 1893**	177, 178
	***81. *Enallopaguropsis janetae* McLaughlin, 1982**	177, 178
	82. *Iridopagurus occidentalis* Faxon, 1893	177, 178
	83. *Manucomplanus longimanus* (Faxon, 1893)	177, 178
	84. *Pagurus virgulatus* Haig & Harvey, 1991	177, 178
	85. *Phimochirus californiensis* (Benedict, 1892)	177, 178
	86. *Rhodochirus hirtimanus* (Faxon, 1893)	177, 178
Family Palaemonidae	87. *Brachycarpus biunguiculatus* (Lucas, 1849)	177, 178
	88. *Harpiliopsis depressa* (Stimpson, 1860)	177, 178
	89. *Macrobrachium americanum* Bate, 1868	177, 178
	***90. *Macrobrachium cocoensis* Abele & Kim, 1984**	1, 177
	91. *Macrobrachium hancocki* Holthuis, 1952	177, 178
	92. *Palaemon ritteri* Holmes, 1895	177, 178
Family Palicidae	**93. *Palicus fragilis* Rathbun, 1893**	177
Family Palinuridae	94. *Panulirus gracilis* Streets, 1871	177, 178
	95. *Panulirus penicillatus* Olivier, 1791	177, 178
Family Pandalidae	**96. *Heterocarpus hostilis* Faxon 1893**	178
Family Parapaguridae	**97. *Probeebei mirabilis* Boone, 1926**	178
Family Parthenopidae	98. *Celatopesia hassleri* (Rathbun, 1925)	177, 178
	99. *Parthenope exilipes* (Rathbun, 1893)	177, 178
	100. *Solenolambrus arcuatus* Stimpson, 1871	177, 178
	101. *Thyrolambrus verrucibrachium* Zimmerman & Martin, 1999	177, 178
	102. *Thyrolambrus glasselli* Garth, 1958	177, 178
Family Penaeidae	**103. *Pelagopenaeus balboae* (Faxon, 1893)**	177, 178
	104. *Hymenopenaeus doris* (Faxon, 1893)	177, 178
	105. *Hymenopenaeus nereus* (Faxon, 1893)	177, 178
Family Pinnotheridae	***106. *Parapinnixa cortesi* Thoma, Heard & Vargas, 2005**	169, 177
	107. *Tetrias scabripes* Rathbun, 1918	177
Family Polychelidae	**108. *Stereomastis nana* (Smith, 1884)**	178
Family Porcellanidae	109. *Pachycheles biocellatus* (Lockington, 1878)	177, 178
	110. *Pachycheles velerae* Haig, 1960	177, 178
	***111. *Petrolisthes cocoensis* Haig, 1960**	88, 177, 178
	112. *Petrolisthes edwardsii* (de Saussure, 1853)	177, 178
	113. *Petrolisthes glasselli* Haig, 1957	177, 178
	114. *Petrolisthes haigae* Chace, 1962	177, 178
	115. *Petrolisthes ortmanni* Nobili, 1901	177, 178

	Species	Ref.[1]
	116. *Petrolisthes tonsorius* Haig, 1960	177, 178
	117. *Porcellana cancrisocialis* Glassell, 1936	177, 178
	118. *Porcellana paguriconviva* Glassell, 1936	177, 178
Family Portunidae	119. *Arenaeus mexicanus* (Gerstaecker, 1856)	177, 178
	120. *Callinectes arcuatus* Ordway, 1863	177, 178
	121. *Euphylax dovii* Stimpson, 1860	177, 178
	122. *Portunus brevimanus* (Faxon, 1895)	177, 178
	123. *Portunus xantussi affinis* (Faxon, 1893)	177, 178
Family Processidae	124. *Processa peruviana* Wicksten, 1983	178
Family Raninidae	**125. *Ranilia fornicata* Faxon, 1893**	178
Family Sicyoniidae	126. *Sicyonia affinis* Faxon, 1893	177, 178
	127. *Sicyonia disedwardsi* (Burkenroad, 1934)	177, 178
Family Solenoceridae	128. *Hymenopenaeus doris* (Faxon, 1893)	177
	129. *Hymenopenaeus nereus* (Faxon, 1893)	177
Family Upogebiidae	***130. *Pomatogebia cocosia* (Williams, 1986)**	178, 184
Family Xanthidae	131. *Cycloxanthops vittatus* (Stimpson, 1860)	177, 178
	132. *Domencia hispida* Eydoux & Souleyet, 1842	177, 178
	133. *Eriphia squamata* Stimpson, 1859	177, 178
	134. *Liomera cinctimana* (White, 1847)	177, 178
	135. *Lophoxanthus lamellipes* (Stimpson, 1860)	177, 178
	136. *Microcassiope xantusii* (Stimpson, 1871)	177, 178
	137. *Nanocassiope polita* (Rathbun, 1893)	177, 178
	138. *Ozius perlatus* Stimpson, 1860	177, 178
	139. *Paractaea sulcata* (Stimpson, 1860)	160, 177, 178
	140. *Pilumnus gonzalensis* Rathbun, 1893	177, 178
	141. *Platyactaea dovii* (Stimpson, 1871)	177, 178
	142. *Quadrella nitida* Smith, 1869	177, 178
	143. *Trapezia digitalis* Latreille, 1828	177, 178
	144. *Trapezia ferruginea* Latreille, 1828	177, 178
	145. *Xanthodius sternberghii* Stimpson, 1859	177, 178
	146. *Xanthodius stimpsoni* (Milne Edwards, 1879)	177, 178
Order Isopoda, Family Argidae	**147. *Aega plebia* Hansen, 1897**	26
Family Cirolanidae	148. *Eurydice caudata* Richardson, 1899	25, 26
Family Cymothoidae	**149. *Nerocila excisa* (Richardson, 1901)**	26
Order Mysida, Family Mysidae	150. Several unidentified species	130
Order Tanaidacea, Family Leptocheliidae	**151. ?*Anatanais***	96
Order Amphipoda, Family Aoridae	**152. *Lembos schire* Barnard, 1979**	11
Family Brachyscelidae	**153. *Brachyscelus crusculum* Bate, 1861**	87
Family Isaeidae	***154. *Gammaropsis dubia* (Shoemaker, 1942)**	79
Family Lestrigonidae	155. *Hyperietta vosseleri* (Stebbing, 1904)	87
	156. *Hyperioides sibaginis* (Stebbing, 1888)	87
	157. *Lestrigonus bengalensis* Giles, 1887	87
	158. *Lestrigonus latissimus* (Bovallius, 1889)	87
	159. *Lestrigonus macrophthalmus* (Vosseler, 1901)	87
	160. *Lestrigonus schizogeneios* (Stebbing, 1888)	87
	161. *Lestrigonus shoemakeri* Bowman, 1973	87
	162. *Phronimopsis spinifera* Claus, 1879	87
Family Lycaeidae	163. *Simorhynchotus antennarius* (Claus, 1871)	87

	Species	Ref.[1]
Family Lycaepsoidae	**164. *Lycaeopsis themistoides* Claus, 1879**	87
	165. *Lycaeopsis zamboangae (Stebbing, 1888)*	87
Family Oxycephalidae	166. *Oxycephalus clausi* Bovallius, 1887	87
Family Paraphronimidae	167. *Paraphronima gracilis* Claus, 1879	87
Family Parascelidae	168. *Parascelus edwardsi* Claus, 1879	87
Family Phronimidae	**169. *Phronima bowmani* Shih, 1991**	87
Family Phrosinidae	170. *Phrosina semilunata* Risso, 1822	87
	171. *Primno brevidens* Bowman, 1978	87
Family Platyscelidae	172. *Amphithyrus sculpturatus* Claus, 1879	87
	173. *Tetrathyrus forcipatus* Claus, 1879	87
Family Pronoidae	**174. *Eupronoe armata* Claus, 1879**	87
Family Talitridae	***175. *Talorchestia fritzi* Stebbing, 1903**	79
Family Vibiliidae	**176. *Vibilia chuni* Behning & Woltereck, 1912**	87
Class CIRRIPEDIA, Order Lepadomorpha		
Family Lepadidae	177. *Conchoderma virgata* (Spengler, 1790)	173
	178. *Lepas anatifera* Linnaeus, 1758	173
	179. *Lepas anserifera* Linnaeus, 1767	173
Order Balanomorpha, Family Balanidae	**180. *Arossia panamensis* (Rogers, 1948)**	173
	181. *Megabalanus galapaganus* Pilsbry, 1916	173
	182. *Megabalanus peninsularis* (Pilsbry, 1916)	173
Family Chthamalidae	**183. *Chthamalus* cf. *anisopoma***	173
Family Coronulidae	184. *Chelonibia testudinaria* (Linnaeus, 1757)	173
	185. *Coronula diadema* Darwin, 1854	173
	186. *Coronula reginae* Darwin, 1854	173
	187. *Stomatolepas elegans* (Costa, 1838)	173
	188. *Xenobalanus globicipitis* Steenstrup, 1851	173
Family Tetraclitidae	**189. *Tetraclita milleporosa* Pilsbry, 1916**	173
	190. *Tetraclita stalactifera* (Lamarck, 1818)	173
Order Calanoida, Family Calanidae	191-196. Six species	130
Family Calocalanidae	197. One species	130
Family Centropagidae	198-201. Four species	130
Family Clausocalanidae	202. *Clausocalanus furcatus* (Brady, 1883)	130
Family Eucalanidae	203. *Rhincalanus nasutus* Giesbrecht, 1888	130
	204. *Subeucalanus subtenuis* (Giesbrecht, 1888)	130
	205, 206. Plus two more species	130
Family Euchaetidae	**207. *Euchaeta rimana* Bradford, 1974**	130
Family Mecynoceridae	208. One species	130
Family Metridinidae	209. One species	130
Family Paracalanidae	210. *Acrocalanus gracilis* Giesbrecht, 1888	130
	211. *Paracalanus aculeatus* Giesbrecht, 1888	130
	212, 213. Plus two more species	130
Family Phaennidae	214. One species	130
Family Pontellidae	**215. *Labidocera detruncata* (Dana, 1849)**	130
	216-218. Plus three more species	130
Family Scolecithricidae	**219. *Scolecthrix danae* Lubbock, 1856**	130
Class **MAXILLOPODA**, Subclass **COPEPODA**, Order Monstrilloida, Family Monstrillidae	***220. *Cymbasoma cocoense* Suárez-Morales & Morales-Ramírez, 2009**	167
	***221. *Monstrillopsis chathamensis* Suárez-Morales & Morales-Ramírez, 2009**	167

		Species	Ref.[1]
Order Poecilostomatoida, Family Corycaeidae	222-231.	Ten species	130
Family Oncaeidae	232.	*Oncaea mediterranea* (Claus, 1883)	130
Family Sapphirinidae	233-242.	Ten species	130
Order Siphonostomatoida, Family Caligidae	**243.**	***Lepeophtheirus* sp. (see note (b) below)**	165
Other copepods	244-260.	Seventeen more species in 5 families	130
Class BRANCHIOPODA, Order CLADOCERA			
Family Podonidae	**261.**	***Evadne* sp.**	130
Class OSTRACODA, Order MYODOCOPIDA			
Family Cypridinidae	**262.**	***Cypridina americana* (Muller, 1880)**	130
Family Halocyprididae	**263.**	***Euchoncoecia* sp.**	130
Subphylum CHELICERATA, Class PYCNOGONIDA			
Order PANTOPODA, Family Ammotheidae	**264.**	***Ammothella symbius* Child, 1979**	9
	265.	***Tanystylum isthmiacum* Stock, 1955**	9
Subphylum HEXAPODA, Class INSECTA			
Order HEMIPTERA, Family Gerridae	266.	*Halobates sobrinus* White, 1883	162
Phylum CHAETOGNATHA, Class SAGITTOIDEA,			
Order APHARAGMOPHORA, Family Krohnittidae	**1.**	***Krohnitta pacifica* (Aida, 1897)**	41
Family Pterosagittidae	**2.**	***Pterosagitta draco* (Krohn, 1853)**	41
Family Sagittidae	**3.**	***Aidanosagitta neglecta* (Aida, 1897)**	41
	4.	***Ferosagitta robusta* (Doncaster, 1902)**	41
	5.	*Flaccisagtita enflata* (Grassi, 1881)	41, 130
	6.	*Serratosagitta pacifica* (Tokioka, 1940)	41, 130
	7.	***Zonosagitta bedoti* (Beraneck, 1895)**	41
	8.	***Zonosagitta pulchra* (Doncaster, 1902)**	41
Phylum BRYOZOA, Class STENOLAEMATA			
Order CYCLOSTOMATA, Family Oncousoeciidae	**1.**	***Proboscina major* (Johnston, 1847)**	135
Class GYMNOLAEMATA, Order CHEILOSTOMATA			
Family Adeonidae	2.	*Reptadeonella violacea* (Johnston, 1847) as *Adeona violacea*	51, 134
Family Bryocryptellidae	**3.**	***Porella patens* Osburn, 1952**	51, 134
Family Buffonellodidae	4.	*Aimulosia uvulifera* (Osburn, 1914)	51, 134, 160
Family Bugulidae	**5.**	***Bugula minima* (Waters, 1909)**	51, 133
Family Calloporidae	**6.**	***Aplousina filum* (Jullien & Calvet, 1903)**	51, 133
	7.	***Retevirgula areolata* (Canu & Bassler, 1923)**	98
	8.	***Copidozoum tenuirostre* (Hincks, 1880)**	98
	9.	*Parellisina curvirostris* (Hincks, 1862)	98
Family Candidae	**10.**	***Scrupocellaria bertholettii tenuirostris* Osburn, 1950**	133
Family Cellariidae	**11.**	***Cellaria veleronis* Osburn, 1950**	98
Family Celleporidae	**12.**	***Lagenipora marginata* (Canu & Bassler, 1930)**	51, 134
Family Chaperiidae	**13.**	***Chaperiopsis condylata* (Canu & Bassler, 1930) as *Chaperiella condylata***	98
Family Cleidochasmatidae	**14.**	***Cleidochasma contracta* (Waters, 1899)**	98
Family Crepidacanthidae	**15.**	***Crepidacantha poissoni* (Audouin, 1826)**	98
	16.	***Crepidacantha setigera* (Smitt, 1873)**	51, 134
Family Cribrilinidae	**17.**	***Colletosia radiata* Moll, 1803)**	98
Family Cupuladriidae	18.	*Discoporella umbellata* (Defrance, 1823)	98, 160
Family Exechonellidae	**19.**	***Triporula manica* (Canu & Bassler, 1930) as *Enantiosula manica***	51, 134

	Species	Ref.[1]
Family Hippothoidae	**20. *Trypostega venusta* (Norman, 1864)**	51, 134
Family Lacernidae	**21. *Arthropoma cecili* (Audouin, 1826)**	51, 134
	22. *Rogicka biserialis* (Hincks, 1885) as *Dakaria biserialis*	134
Family Lepraliellidae	**23. *Celleporaria brunnea* (Hincks, 1884) as *Holoporella brunnea***	98
Family Mamilloporidae	24. *Mamillopora cupula* Smitt, 1873	51, 134
Family Microporellidae	25. *Microporella ciliata* (Pallas, 1766)	98
	26. *Microporella marsupiata* (Busk, 1860)	98
Family Microporidae	**27. *Micropora coriacea inarmata* Soule, 1959**	98
Family Phidoloporidae	28. *Reteporellina denticulata* var. *gracilis* (Busk, 1884)	51, 134
Family Schizoporellidae	**29. *Hippodiplosia insculpta* (Hincks), 1882**	134
Family Tubuliporidae	**30. *Tubulipora flexuosa* (Pourtales, 1867)**	98
Family Watersiporidae	**31. *Watersipora biserialis* (Hincks, 1885)**	49
Phylum BRACHIOPODA, Class RHYNCHONELLATA		
Order Rhynchonellida, Family Basiliolidae	**1. *Neorhynchia strebeli* (Dall, 1908)**	71
Family Frieleiidae	***2. *Abyssirhynchia craneana* (Dall, 1895) as *Hispanirhynchia? craneana***	59, 98
Order Terebratulida, Family Terebratulidae	**3. *Gryphus clarkeana* (Dall, 1920) as *Liothyrella clarkeana***	71
	4. *Liothyrella moseleyi* (Davidson, 1878)	71
Family Zeilleriidae	**5. *Macandrevia americana* Dall, 1895 as *M. craniella***	71
	6. *Macandrevia diamantina* (Dall, 1895)	71
Phylum PHORONIDA	**1. *Phoronopsis albomaculata* Gilchrist, 1907**	66
Phylum ECHINODERMATA, Class CRINOIDEA		
Order Comatulida, Family Antedonidae	**1. *Fariometra parvula* (Hartlaub, 1895)**	7
Family Thalassometridae	**2. *Thalassometra agassizii* (Hartlaub, 1895)**	7
Class ASTEROIDEA, Order Paxillosida		
Family Astropectinidae	***3. *Astropecten benthophilus* Ludwig, 1905**	7
	4. *Astropecten sulcatus* Ludwig, 1905	7
	5. *Leptychaster inermis* (Ludwig, 1905)	7
	***6. *Persephonaster armiger* Ludwig, 1905**	7
Family Luidiidae	**7. *Luidia armata* Ludwig, 1905**	7
Family Porcellanasteridae	**8. *Eremicaster pacificus* (Ludwig, 1905)**	7
	9. *Porcellanaster ceruleus* Wyville-Thomson, 1877	7
Order Notomyotida, Family Bentopectinidae	**10. *Benthopecten spinuliger* (Ludwig, 1905) as *Parachaster spinuliger***	7, 159
	11. *Pectinaster agassizii* Ludwig, 1905	7
Order Valvatida, Family Acanthasteridae	12. *Acanthaster planci* (Linnaeus, 1758) also as ***A. ellisii***	5, 6, 7, 159
Family Asterodiscididae	**13. *Paulia horrida* Gray, 1840 *as Pauliella aenigma***	7, 119
Family Asteropseidae	14. *Asteropsis carinifera* (Lamarck, 1816)	6, 159
Family Goniasteridae	**15. *Mediaster elegans* Ludwig, 1905**	7
	16. *Nymphaster diomedeae* Ludwig, 1905	7
	17. *Pillsburiaster ernesti* (Ludwig, 1905)	7
Family Mithrodiidae	**18. *Mithrodia bradleyi* Verrill, 1867**	5, 6
Family Ophidiasteridae	**19. *Linckia columbiae* Gray, 1840**	5, 6, 7
	20. *Narcissia gracilis* A.H. Clark, 1916	5, 7
	21. *Phataria unifascialis* (Gray, 1840) as *Phataria* sp.	5, 7, 159
	22. *Tamaria obstipa* Ziesenhenne, 1942	5, 7, 159

	Species	Ref.[1]
Family Oreasteridae	23. *Nidorellia armata* (Gray, 1840)	5, 6, 7
	24. *Pentaceraster cumingi* (Gray, 1840) as *Oreaster occidentales*	5, 6, 7, 42, 159
Order Spinulosida, Family Pterasteridae	**25. *Hymenaster quadrispinosus* Fisher, 1905 as *H. purpureus***	7, 159
	26. *Pteraster cf. diaphanous* (Ludwig, 1905)	7, 159
Order Forcipulatida, Family Asteriidae	**27. *Coronaster marchenus* Ziesenhenne, 1942**	5, 7
	28. *Hydrasterias improvisus* (Ludwig, 1905) as *H. improvisa* and as *Pedicellaster improvisus*	7, 159
	29. *Sclerasterias alexandri* (Ludwig, 1905)	5, 7
	30. *Sclerasteias heteropaes* Fisher, 1924	7
	31. *Tarsaster cocosanus* (Ludwig, 1905)	7
Order Brisingida, Family Brisingidae	**32. *Astrolirus panamensis* (Ludwig, 1905)**	7
Class OPHIUROIDEA, Order Phrynophiurida		
Family Ophiomyxidae	**33. *Ophiomyxa panamensis* Lütken & Mortensen, 1899**	5, 7
Order Ophiurida, Family Amphiuridae	34. *Amphiodia tabogae* Nielsen, 1932	5, 7
	35. *Amphiodia violacea* (Lütken, 1856)	5, 7, 159
	36. *Amphiura arcystata* H.L. Clark, 1911	5, 7
	37. *Ophiophragmus marginatus* (Lütken, 1859)	5, 7
	38. *Ophiophragmus paucispinus* Nielsen, 1932	5, 7
	39. *Triplodia abdita* A.M. Clark, 1970 as *Triodia abdita*	5, 7
Family Hemieurylidae	**40. *Sigsbeia lineata* Lütken & Mortensen, 1899**	5, 7
Family Ophiactidae	41. *Ophiactis savignyi* (Müller & Troschel, 1842)	5, 7, 160
	42. *Ophiactis simplex* (Le Conte, 1851)	5, 7
Family Ophiocanthidae	**43. *Ophiocantha phragma* Ziesenhenne, 1940**	5, 7
	44. *Ophiotoma paucispina* (Lütken & Mortensen, 1899)	7
Family Ophiocomidae	45. *Ophiocoma aethiops* Lütken, 1859	5, 6, 7
	46. *Ophiocoma alexandri* Lyman, 1860	5, 6, 7
	47. *Ophiocomella sexradia* (Duncan, 1887)	5, 7
Family Ophiodermatidae	48. *Diopederma danianum* (Verrill, 1867)	5, 7
	49. *Ophiocrytus granulosus* Nielsen, 1932	5, 7
	50. *Ophioderma panamense* Lütken, 1859	5, 7
	51. *Ophioderma variegatum* Lütken, 1856	5, 7
Family Ophionereidae	**52. *Ophionereis albomaculata* E.A. Smith, 1877 as *O. nuda***	5, 7, 159
	53. *Ophionereis annulata* (Le Conte, 1851)	5, 7
	54. *Ophionereis eurybrachiplax* H.L. Clark, 1911	5, 7
Family Ophiotrichidae	55. *Ophiothrix spiculata* Le Conte, 1851	7
Family Ophiuridae	**56. *Amphiophiura abcisa* (Lütken & Mortensen, 1899)**	5, 7
	57. *Ophiocten hastatum* Lyman, 1878	5, 7, 159
	58. *Ophiomusium glabrum* Lütken & Mortensen, 1899 as *Ophiosphalma glabrum*	5, 7
	59. *Ophiomusium lymani* Thomson, 1873	5, 7
	60. *Ophiozonella alba* (Lütken & Mortensen, 1899)	5, 7
	61. *Ophiura nana* (Lütken & Mortensen, 1899)	5, 7
	62. *Ophiura* (*Ophiuroglypha*) *irrorata* (Lyman, 1878)	5, 7
Class ECHINOIDEA, Order Cidaroida		
Family Cidaridae	**63. *Centrocidaris doederleini* (A. Agassiz, 1898)**	5, 7
	64. *Eucidaris thouarsii* (Valenciennes, 1846)	5, 7
	65. *Eucidaris thouarsii galapagensis* Döderlein, 1887 as *E. galapagensis*	5, 7, 159

	Species	Ref.[1]
	66. *Hesperocidaris dubia* (H.L. Clark, 1907) as *Stylocidaris dubia*	5, 7, 159
	67. *Hesperocidaris panamensis* (A. Agassiz, 1898)	5, 7
Order Echinothurioida, Family Echinothuriidae	**68. *Tromikosoma hispidum* (A. Agassiz, 1898)**	5, 7
Order Diadematoida, Family Aspidodiadematidae	**69. *Plesiodiadema horridum* (A. Agassiz, 1898)**	5, 7
Family Diadematidae	70. *Astropyga pulvinata* (Lamarck, 1816)	159
	71. *Centrostephanus coronatus* (Verrill, 1867)	5, 7
	72. *Diadema mexicanum* A. Agassiz, 1863	5, 6, 7, 160
	73. *Echinothrix calamaris* (Pallas, 1774)	5, 6, 7
	74. *Echinothrix diadema* (Linnaeus, 1758)	5, 6, 7, 113
Order Salenioida, Family Saleniidae	**75. *Salenocidaris miliaris* (A. Agassiz, 1898)**	5, 7
Order Temnopleuroida, Family Toxopneustidae	**76. *Lytechinus pictus* (Verrill, 1867)**	5, 7
	77. *Toxopneustes roseus* (A. Agassiz, 1863)	5, 6, 7
	78. *Tripneustes depressus* A. Agassiz, 1863	5, 6, 7
Order Echinoida, Family Echinometridae	**79. *Echinometra oblonga* (Blainville, 1825)**	5, 6, 7
	80. *Echinometra vanbrunti* A. Agassiz, 1863	5, 6, 7
Order Clypeasteroida, Family Clypeasteridae	81. *Clypeaster europacificus* H.L. Clark, 1914	5, 7, 159
	82. *Clypeaster ochrus* H.L. Clark, 1914	5, 7, 159
	83. *Clypeaster rotundus* (A. Agassiz, 1863)	5, 7
	84. *Clypeaster speciosus* Verrill, 1870	5, 7
Family Mellitidae	***85. *Encope cocosi* H.L. Clark, 1948**	5, 7
	86. *Encope micropora* L. Agassiz, 1841	5, 7
Order Spatangoida, Family Aeropsidae	**87. *Aeropsis fulva* (A. Agassiz, 1898)**	5, 7
Family Asterostomatidae	**88. *Argopatagus aculeata* (Agassiz, 1898)**	5, 7
Family Brissidae	89. *Brissopsis pacifica* (A. Agassiz, 1898)	5, 7, 159
	90. *Meoma ventricosa grandis* Gray, 1851	5, 7, 159
	91. *Rhabdobrissus pacificus* H.L. Clark, 1940 as *Plagiobrissus pacificus*	5, 7, 159
Family Loveniidae	**92. *Homolampas hastata* A. Agassiz, 1879**	5, 7
	93. *Lovenia cordiformis* A. Agassiz, 1872	5, 7
Class HOLOTHUROIDEA, Order Dendrochirotida		
Family Psolidae	94. *Lissothuria ornata* Verrill, 1867 as *Thyonepsolus beebi*	5, 7, 159
	95. *Psolus diomedeae* Ludwig, 1894	5, 7
Family Cucumariidae	**96. *Abyssocucumis abyssorum* (Théel, 1886)**	159
Order Dactylochirotida, Family Ypsilothuriidae	**97. *Ypsilothuria bitentaculata* (Ludwig, 1893)**	5, 7
Order Aspidochirotida, Family Holothuriidae	**98. *Holothuria* (*Cystipus*) *casoae* Laguarda-Figueras & Solís-Marín, 2009**	110
	99. *Holothuria* (*Cystipus*) *inhabilis* Selenka, 1867	5, 7
	100. *Holothuria* (*Halodeima*) *atra* (Jaeger, 1833)	5, 6, 7
	101. *Holothuria* (*Halodeima*) *kefersteini* (Selenka, 1867)	5, 6, 7
	102. *Holothuria* (*Lessonothuria*) *pardalis* Selenka, 1867	5, 7
	103. *Holothuria* (*Mertensiothuria*) *fuscocinerea* (Jaeger, 1833)	5, 7
	104. *Holothuria* (*Mertensiothuri*) *hilla* Lesson, 1830	5, 6, 7, 159
	105. *Holothuria* (*Mertensiothuria*) *leucospilota* (Brandt, 1835)	5, 7
	106. *Holothuria* (*Platyperona*) *difficilis* Semper, 1868	5, 7, 159
	107. *Holothuria* (*Selenkothuria*) *theeli* (Deichmann, 1938)	5, 7
	108. *Holothuria* (*Semperothuria*) *imitans* Ludwig, 1875	5, 7

	Species	Ref.[1]
	109. *Holothuria* (*Theelothuria*) *paraprinceps* Deichmann, 1937	5, 7
	110. *Holothuria* (*Thymiosycia*) *arenicola* Semper, 1868	5, 7
	111. *Holothuria* (*Thymiosycia*) *impatiens* (Forskål, 1775)	5, 7
	112. *Labidodemas americanum* Deichmann, 1938	5, 7
Family Stichopodidae	113. *Isostichopus fuscus* (Ludwig, 1875)	5, 6, 7
	114. *Stichopus horrens* Selenka, 1867	5, 6, 7
Family Synallactidae	**115. *Mesothuria* (*Mesothuria*) *multipes* Ludwig, 1894 as *M. multiples***	5, 7, 159
	116. *Pseudostichopus macdonaldi* (Ludwig, 1894)	5, 7
	117. *Pseudostichopus mollis* Théel, 1886	5, 7
Order Apodida, Family Chiridotidae	**118. *Chiridota pacifica* Heding, 1928**	5, 7
Order Elasipodida, Family Deimatidae	**119. *Deima validum pacificum* Ludwig, 1894**	5, 7
Family Elpidiidae	**120. *Peniagone vitrea* Théel, 1882**	5, 7
Family Pelagothuridae	**121. *Pelagothuria natatrix* Ludwig, 1894**	5, 7
Family Psychropotidae	**122. *Benthodytes sanguinolenta* Théel, 1882**	5, 7
Order MOLPADIDA, Family Molpadidae	**123. *Molpadia musculus* Risso, 1826**	159
Phylum CHORDATA, Class APPENDICULARIA		
Family Oikopleuridae	**1. *Oikopleura cophocerca* (Gegenbaur, 1855)**	41
	2. *Oikopleura dioica* Fol, 1872	41
	3. *Oikopleura fusiformis* Fol, 1872	41, 130
	4. *Oikopleura gracilis* (Lohmann, 1896)	41
	5. ***Oikopleura longicauda* (Vogt, 1854)**	41
	6. *Oikopleura rufescens* Fol, 1872	41, 130
	7. *Stegosoma magnum* (Langerhans, 1880)	41
Family Fritillariidae	**8. *Fritillaria formica* (Lohmann in Lohmann & Büchmann, 1926)**	41
	9. *Fritillaria haplostoma* (Fol, 1872; emend. Fol, 1874)	41
Class THALIACEA, Order SALPIDA		
Family Salpidae	**10. *Salpa* sp.**	130
	11. *Doliolum* sp.	130
Orden PYROSOMATIDA	**12. One species**	130
Class LEPTOCARDII, Order AMPHIOXIFORMES		
Family Branchiostomidae	**13. *Asymmetron lucayanum* Andrews, 1893**	158
Class ELASMOBRANCHII		
Order Carcharhiniformes,		
Family Carcharhinidae	14. *Carcharhinus albimarginatus* (Rüppell, 1837)	34, 35
	15. *Carcharhinus falciformis* (Müller & Henle, 1839)	34, 35, 163
	16. *Carcharhinus galapagensis* (Snodgrass & Heller, 1905)	34, 35
	17. *Carcharhinus limbatus* (Muller & Henle, 1839)	34, 35
	18. *Carcharhinus longimanus* (Poey, 1861)	143
	19. *Carcharhinus melanopterus* (Quoy & Gaimard, 1824)	116
	20. *Galeocerdo cuvier* (Peron & Lesueur en Lesueur, 1822)	34, 35
	21. *Prionace glauca* (Linnaeus, 1758)	142
	22. *Rhizoprionodon longurio* (Jordan & Gilbert, 1882)	34, 35
	23. *Triaenodon obesus* (Rüppell, 1837)	34, 35
Family Lamnidae	**24. *Carcharodon carcharias* (Linnaeus, 1758)**	35
Family Sphyrnidae	25. *Sphyrna lewini* (Griffith & Smith, 1834)	34, 35, 163

	Species	Ref.[1]
	26. *Sphyrna mokarran* (Rüppell, 1837)	34, 35
	27. *Sphyrna tiburo* (Linnaeus, 1758)	142
Order Chimaeriformes, Family Chimaeridae	**28. *Hydrolagus* sp.**	122
Order Lamniformes, Family Alopiidae	29. *Alopias vulpinus* (Bonnaterre, 1788)	35
Family Lamnidae	**30. *Isurus oxyrinchus* Rafinesque, 1810**	142
Family Odontaspididae	31. *Odontaspis ferox* (Risso, 1810)	47, 52
Family Pseudocarchariidae	**32. *Pseudocarcharias kamoharai* (Matsubara, 1936)**	142
Order Orectolobiformes, Family Rhincodontidae	33. *Rhincodon typus* Smith, 1828	35, 52
Order rajiformes, Family Dasyatidae	34. ***Dasyatis* sp.**	52
	35. *Pteroplatytrygon violacea* (Bonaparte, 1832)	142
	36. *Taeniura meyeni* Muller & Henle, 1841	35, 52
Family Mobulidae	37. *Manta birostris* (Walbaum, 1792)	34, 35, 52
	38. *Mobula japanica* (Müller & Henle, 1841)	142
	39. *Mobula munkiana* Notabartolo di Sciara, 1987	34, 35
	40. *Mobula tarapacana* (Philippi, 1893)	35, 52, 163
Family Myliobatidae	41. *Aetobatus narinari* (Euphrasen, 1790)	34, 35, 52
	42. *Myliobatis peruvianus* Garman, 1913	122
	43. *Rhinoptera steindachneri* Evermann & Jenkins, 1892	34, 35
Family Rajidae	**44. *Bathyraja spinosissima* (Beebe & Tee-Van, 1941)**	122
	45. *Raja equatorialis* Jordan & Bollman, 1890	142
Family Rhinobatidae	46. *Rhinobatos planiceps* Garman, 1880	34, 35
Order Squaliformes, Family Echinorhinidae	47. *Echinorhinus cookei* Pietschmann, 1928	35, 47, 52, 115, 122
Order Torpediniformes, Family Torpedinidae	**48. *Torpedo peruana* Chirichigno, 1963**	52
Class ACTINOPTERYGII, Order Anguilliformes		
Family Congridae	49. *Ariosoma gilberti* (Ogilby, 1898)	34, 35
	50. *Bathycongrus varidens* (Garman, 1899)	163
	51. *Heteroconger klausewitzi* (Eibl-Eibesfeldt & Köster, 1983)	34, 35, 122
	52. *Ophisoma* sp.	122
	53. *Paraconger californiensis* Kanazawa, 1961	34, 35
Family Muraenidae	54. *Anarchias galapagensis* (Seale, 1940)	34, 35
	55. *Echidna nebulosa* (Ahl, 1789)	3, 34, 35
	56. *Echidna nocturna* (Cope, 1872)	34, 35
	57. *Enchelycore octaviana* (Myers & Wade, 1941)	34, 35
	58. *Gymnomuraena zebra* (Shaw, 1797)	34, 35
	59. *Gymnothorax angusticeps* (Hildebrand & Barton, 1949)	122
	60. *Gymnothorax buroensis* (Bleeker, 1857)	34, 35
	61. *Gymnothorax castaneus* (Jordan & Gilbert, 1883)	34, 35
	62. *Gymnothorax* dovii (Günther, 1870)	34, 35
	63. *Gymnothorax eurostus* (Abbott, 1860)	140
	64. *Gymnothorax flavimarginatus* (Rüppell, 1830)	34, 35
	65. *Gymnothorax javanicus* (Bleeker, 1859)	34, 35
	66. *Gymnothorax meleagris* (Shaw & Nodder, 1795)	34, 35
	67. *Gymnothorax panamensis* (Steindachner, 1876)	34, 35
	68. *Gymnothorax pictus* (Ahl, 1789)	84
	69. *Muraena argus* (Steindachner, 1870)	34, 35
	70. *Muraena clepsydra* Gilbert, 1898	34, 35

	Species	Ref.[1]
	71. *Muraena lentiginosa* Jenyns, 1842	34, 35
	72. *Scuticaria tigrina* (Lesson, 1828)	34, 35
	73. *Sideria picta* (Ahl, 1789)	34, 35
	74. *Uropterygius macrocephalus* (Bleeker, 1865)	31, 34, 35
	75. *Uropterygius versutus* Bussing, 1991	34, 35
Family Myrocongridae	76. *Myroconger nigrodentatus* Castle & Béarez, 1995	122, 163
Family Ophichthidae	77. *Bascanichthys bascanoides* Osborn & Nichols, 1916	34, 35
	78. *Callechelys eristigma* McCosker & Rosenblatt, 1972	34, 35, 121
	79. *Gordiichthys combibus* McCosker & Lavenberg, 2001	34, 35
	80. *Herpetoichthys fossatus* (Myers & Wade, 1941)	34, 35
	81. *Ichthyapus selachops* (Jordan & Gilbert, 1882)	34, 35
	82. *Myrichthys tigrinus* Girard, 1859	34, 35, 163
	83. *Myrichthys aspetocheiros* McCosker & Rosenblatt, 1993	34, 35
	84. *Ophichthus rugifer* Jordan & Bollman, 1890	34, 35, 122
	85. *Ophichthus triserialis* (Kaup, 1856)	142
	86. *Paraletharchus opercularis* (Myers & Wade, 1941)	122
	87. *Paraletharchus pacificus* (Osburn & Nichols, 1916)	34, 35
	88. *Quassiremus evionthas* (Jordan & Bollman, 1889)	34, 35, 122
	89. *Scytalichthys miurus* (Jordan & Gilbert, 1882)	34
Order Ateleopodiformes, Family Ateleopodidae	90. *Guentherus altivela* Osório, 1917	47, 163
Order Aulopiformes, Family Aulopidae	**91. *Aulopus bajacali* Parin & Kotlyar, 1984**	35
Family Chlorophthalmidae	92. *Chlorophthalmus mento* Garman, 1899	35, 163
Family Synodontidae	93. *Synodus lacertinus* Gilbert, 1890	35
Order Clupeiformes, Family Engraulidae	94. *Anchoa ischana* (Jordan & Gilbert, 1882)	142
Order Elopiformes, Family Elopidae	95. *Elops affinis* Regan, 1909	142
Order Gonorynchiformes, Family Chanidae	96. *Chanos chanos* (Forsskål, 1775)	34, 35
Order Gobiesociformes, Family Gobiesocidae	**97. *Arcos poecilophthalmos* (Jenyns, 1842)**	122
	98. *Arcos rhodospilus* (Günther, 1864)	34, 35
	99. *Gobiesox adustus* Jordan & Gilbert, 1882	142
	***100. *Gobiesox woodsi* (Schultz, 1944)**	24, 34, 35
	101. *Tomicodon chilensis* Brisout de Barneville, 1846	122
	102. *Tomicodon petersii* (Garman, 1875)	142
	***103. *Tomicodon vermiculatus* Briggs, 1955**	24, 34, 35
Order Lophiiformes, Family Antennariidae	104. *Antennarius avalonis* Jordan & Starks, 1907	34, 35
	105. *Antennarius coccineus* (Lesson, 1831)	34, 35
	106. *Antennarius commerson* (Latreille, 1804) as *A. commersoni*	34, 35
	107. *Antennarius sanguineus* Gill, 1863	35
	108. *Antennatus strigatus* (Gill, 1863)	142
Family Lophiidae	109. *Lophiodes caulinaris* (Garman, 1899)	34, 35
	110. *Lophiodes spilurus* (Garman, 1899)	47, 142, 163
Family Ogcocephalidae	**111. *Dibranchus erinaceus* (Garman, 1899)**	122
	***112. *Ogcocephalus porrectus* Garman, 1899**	19, 34, 35, 83
	113. *Zalieutes elater* (Jordan & Gilbert, 1882)	35, 47
Order Gadiformes, Family Macrouridae	114. *Caelorinchus canus* (Garman, 1899)	105
	115. *Mataeocephalus tenuicaudus* (Garman, 1899)	105
Family Merluciidae	116. *Merluccius angustimanus* Garman, 1899	35
Order Ophidiiformes, Family Bythitidae	***117. *Ogilbia cocoensis* Møller, Schwarzhans & Nielsen, 2005**	35, 127

	Species	Ref.[1]
Family Carapidae	118. *Carapus dubius* (Putnam 1874) as *Encheliophis dubius*	35
	119. *Encheliophis vermicularis* Müller, 1842	34, 35, 143
	120. *Echiodon exsilium* Rosenblatt, 1961	34, 35
Family Ophidiidae	121. *Brotula ordwayi* Hildebrand & Barton, 1949	163
	122. *Otophidium indefatigabile* Jordan & Bollman, 1890 as *O. indefatigable*	34, 35
	123. *Petrotyx hopkinsi* Heller & Snodgrass, 1903	34, 35
Order Beloniformes, Family Belonidae	124. *Ablennes hians* (Valenciennes, 1846)	142
	125. *Platybelone argalus pterura* (Osburn & Nichols, 1916)	34, 35
	126. *Strongylura exilis* (Girard, 1854)	34, 35
	127. *Tylosurus acus melanotus* (Bleeker, 1850)	142
	128. *Tylosurus acus pacificus* (Steindachner, 1876)	34, 35
	129. *Tylosurus crocodilus fodiator* Jordan & Gilbert, 1882	34, 35
Family Exocoetidae	**130. *Cheilopogon furcatus* (Mitchill, 1815)**	143
	131. *Cheilopogon spilonotopterus* (Bleeker, 1865)	143
	132. *Cheilopogon xenopterus* (Gilbert, 1890)	142
	133. *Exocoetus monocirrhus* Richardson, 1846	34, 35
	134. *Exocoetus volitans* Linnaeus, 1758	34, 35
	135. *Hirundichthys marginatus* (Nichols & Breder, 1928)	142
	136. *Hirundichthys rondeletii* (Valenciennes, 1847)	142
	137. *Hirundichthys speculiger* (Valenciennes, 1847)	34, 35
	138. *Oxyporhamphus micropterus* (Cuvier & Valenciennes, 1847)	84
	139. *Prognichthys sealei* Abe, 1955	34
	140. *Prognichthys tringa* Breder, 1928	34, 35
Family Hemiramphidae	141. *Euleptorhamphus viridis* (Van Hasselt, 1823)	34, 35
	142. *Hemiramphus saltator* Gilbert & Starks, 1904	142
	143. *Hyporhamphus rosae* (Jordan & Gilbert, 1880)	142
Order Atheriniformes, Family Atherinopsidae	144. *Atherinella eriarcha* (Jordan & Gilbert, 1881)	34, 35
	145. *Melanorhinus cyanellus* (Meek & Hildebrand, 1923)	34, 35
Order Beryciformes, Family Holocentridae	146. *Myripristis berndti* Jordan & Evermann, 1903	34, 35
	147. *Myripristis leiognathus* Valenciennes, 1846	34, 35
	148. *Plectrypops lima* (Valenciennes, 1831)	34, 35
	149. *Sargocentron suborbitalis* (Gill, 1863)	34, 35
Order Gasterosteiformes, Family Aulostomidae	150. *Aulostomus chinensis* (Linnaeus, 1766)	35
Family Fistulariidae	151. *Fistularia commersonii* Rüppell, 1838	35
Family Syngnathidae	152. *Bryx veleronis* Herald, 1940	34, 35
	153. *Cosmocampus arctus* (Jenkins & Evermann, 1889)	142
	154. *Doryrhamphus excisus* Kaup, 1856	34, 35
	155. *Hippocampus ingens* Girard, 1858	34, 35
Order Scorpaeniformes, Family Peristediidae	156. *Peristedion crustosum* Garman, 1899	34, 35
	***157. *Peristedion nesium* Bussing, 2010**	33
Family Scorpaenidae	158. *Pontinus clemensi* Fitch, 1955	34, 35
	159. *Pontinus sierra* Gilbert, 1890	34, 35
	160. *Pontinus strigatus* Heller & Snodgrass, 1903	34, 35, 122
	161. *Pontinus furcirhinus* Garman, 1899	142
	162. *Scorpaena afuerae* Hildebrand, 1946	34, 35
	163. *Scorpaena cocosensis* Motomura, 2004	122, 132
	164. *Scorpaena histrio* Jenyns, 1840	34, 35

	Species	Ref.[1]
	165. *Scorpaena mystes* Jordan & Starks en Jordan, 1895	34, 35
	166. *Scorpaena russula* Jordan & Bollman, 1890	34, 35
	167. *Scorpaena* new species	34, 35
	168. *Scorpaenodes rubrivinctus* Poss, McCosker & Baldwin 2010	122, 138, 163
	169. *Scorpaenodes xyris* (Jordan & Gilbert, 1882)	34, 35
Family Triglidae	170. *Bellator loxias* (Jordan, 1897)	34, 35, 163
	171. *Bellator* new species	34, 35
	172. *Prionotus* new species	34, 35
Order Perciformes, Family Acanthuridae	173. *Acanthurus nigricans* (Linnaeus, 1758)	34, 35
	174. *Acanthurus triostegus* Linnaeus, 1758	34, 35
	175. *Acanthurus xanthopterus* Valenciennes, 1835	34, 35
	176. *Ctenochaetus marginatus* (Valenciennes, 1835)	34, 35
	177. *Naso annulatus* (Quoy & Gaimard, 1825)	142
	178. *Naso hexacanthus* (Bleeker, 1855)	142
	179. *Prionurus laticlavius* (Valenciennes, 1846)	34, 35
Family Apogonidae	**180. *Apogon atradorsatus* Heller & Snodgrass, 1903**	34, 35, 122
	181. *Apogon dovii* Günther, 1861	34, 35
Family Blenniidae	182. *Entomacrodus chiostictus* (Jordan & Gilbert, 1882)	34, 35
	183. *Hypsoblennius brevipinnis* (Günther, 1861)	34, 35
	184. *Ophioblennius steindachneri* Jordan & Evermann, 1898	34, 35
	185. *Plagiotremus azaleus* (Jordan & Bollman, 1890)	34, 35
Family Bramidae	**186. *Brama dussumieri* Cuvier, 1831**	142
Family Callionymidae	187. *Synchiropus atrilabiatus* (Garman, 1899)	35
Family Carangidae	188. *Alectis ciliaris* (Bloch, 1787)	34, 35
	189. *Carangoides orthogrammus* Jordan & Gilbert, 1882	34, 35
	190. *Caranx caballus* (Günther, 1868)	34, 35
	191. *Caranx caninus* Günther, 1867	34, 35
	192. *Caranx lugubris* Poey, 1860	34, 35
	193. *Caranx melampygus* Cuvier, 1833	34, 35
	194. *Caranx sexfasciatus* Quoy & Gaimard, 1825	34, 35
	195. *Decapterus macarellus* (Cuvier, 1833)	34, 35
	196. *Elagatis bipinnulata* (Quoy & Gaimard, 1825)	34, 35
	197. *Gnathanodon speciosus* (Forsskål, 1775)	34, 35
	198. *Naucrates ductor* (Linnaeus, 1758)	34, 35
	199. *Selar crumenophthalmus* (Bloch, 1793)	34, 35
	200. *Seriola lalandi* Valenciennes, 1833	34, 35
	201. *Seriola peruana* Steindachner, 1881	34, 35
	202. *Seriola rivoliana* Valencienne, 1833	34, 35
	203. *Trachinotus rhodopus* Gill, 1863	142
	204. *Trachinotus stilbe* (Jordan & McGregor, 1898)	34, 35
	205. *Trachurus murphyi* Nichols, 1920	122
	206. *Uraspis helvola* (Forster, 1801)	34, 35
Family Centrolophidae	**207. *Seriolella violacea* Guichenot, 1848**	122
Family Chaenopsidae	***208. *Acanthemblemaria atrata* Hastings & Robertson, 1999**	34, 35, 95
	209. *Acanthemblemaria macrospilus* Brock, 1940	151
	210. *Chaenopsis* new species	34 ,35
	211. *Coralliozetus boehlkei* Stephens, 1963	34, 35
	212. *Coralliozetus springeri* Stephens & Johnson, 1966	34, 35

	Species	Ref.[1]
	213. *Ekemblemaria myersi* Stephens, 1963	142
	214. *Emblemaria nivipes* Jordan & Gilbert, 1883	34, 35, 160
	215. *Stathmonotus culebrai* Seale, 1940	142
Family Chaetodontidae	216. *Chaetodon humeralis* Günther, 1860	34, 35
	217. *Chaetodon lunula* (Lacepède, 1802)	34, 35
	218. *Forcipiger flavissimus* Jordan & McGregor, 1898	34, 35
	219. *Johnrandallia nigrirostris* (Gill, 1862)	34, 35
	220. *Prognathodes carlhubbsi* Nalbant, 1995	142
	221. *Prognathodes falcifer* (Hubbs & Rechnitzer, 1958)	34, 35
Family Cirrhitidae	222. *Cirrhitichthys oxycephalus* (Bleeker, 1855)	34, 35, 160
	223. *Cirrhitus rivulatus* Valenciennes, 1846	34, 35
Family Coryphaenidae	224. *Coryphaenoides anguliceps* (Garman, 1899)	104
	225. *Coryphaenoides boops* (Garman, 1899)	104
	226. *Coryphaenoides bucephalus* (Garman, 1899)	104
	227. *Coryphaena equiselis* Linnaeus, 1758	34, 35
	228. *Coryphaena hippurus* Linnaeus, 1758	34, 35
Family Dactyloscopidae	**229. *Dactyloscopus lacteus* (Myers & Wade, 1946)**	142
	230. *Dactyloscopus pectoralis fallax* Gill, 1861	34, 35
	***231. *Gillellus chathamensis* Dawson, 1977**	34, 35, 62
Family Echeneidae	232. *Echeneis naucrates* Linnaeus, 1758	142
	233. *Phtheirichthys lineatus* (Menzies, 1791)	142
	234. *Remorina albescens* (Temminck & Schlegel, 1850)	34, 35
	235. *Remora australis* (Bennett, 1840)	142
	236. *Remora brachyptera* (Lowe, 1839)	34, 35
	237. *Remora osteochir* (Cuvier, 1829)	34, 35
	238. *Remora remora* (Linnaeus, 1758)	34, 35, 163
Family Eleotridae	239. *Eleotris picta* Kner, 1863	34, 35
	240. *Gobiomorus maculatus* (Günther, 1859)	142
Family Gempylidae	241. *Gempylus serpens* Cuvier, 1829	142
	242. *Lepidocybium flavobrunneum* (Smith, 1843)	142
	243. *Nealotus tripes* Johnson, 1865	142
Family Gerreidae	244. *Eucinostomus currani* Zahuranec, 1980	35
Family Gobiidae	245. *Bathygobius ramosus* Ginsburg, 1947	34, 35
	***246. *Chriolepis atrimelum* Bussing, 1997**	32, 34, 35
	***247. *Chriolepis dialepta* Bussing, 1990**	29, 34
	248. *Coryphopterus urospilus* Ginsburg, 1938	34, 35
	249. *Elacatinus nesiotes* Bussing, 1990	29, 34
	250. *Gobulus crescentalis* (Gilbert, 1892)	142
	251. *Gobulus hancocki* Ginsburg, 1938	34, 35
	***252. *Lythrypnus alphigena* Bussing, 1990**	29, 34
	***253. *Lythrypnus cobalus* Bussing, 1990**	29, 34
	***254. *Lythrypnus lavenbergi* Bussing, 1990**	29, 34
	255. *Lythrypnus rhizophora* (Heller & Snodgrass, 1903)	34, 35, 122
	***256. *Sicydium cocoensis* (Heller & Snodgrass, 1903)**	34, 35
Family Haemulidae	257. *Anisotremus caesius* (Jordan & Gilbert, 1882)	34, 35
	258. *Anisotremus interruptus* (Gill, 1862)	34, 35
	259. *Anisotremus taeniatus* Gill, 1861	34, 35
Family Istiophoridae	**260. *Istiompax indica* (Cuvier, 1832)**	142
Family Kuhliidae	261. *Kuhlia mugil* (Forster, 1801)	35

	Species	Ref.[1]
Family Kyphosidae	262. *Kyphosus analogus* (Gill, 1862)	142
	263. *Kyphosus elegans* (Peters, 1869)	34, 35
	264. *Sectator ocyurus* (Jordan & Gilbert, 1882)	34, 35
Family Labridae	265. *Bodianus diplotaenia* (Gill, 1862)	34, 35
	266. *Decodon melasma* Gomon, 1974	28, 34, 35, 163
	267. *Halichoeres adustus* (Gilbert, 1890) as *Pseudojulis adustus*	28, 34, 35, 122
	268. *Halichoeres discolor* Bussing, 1983	27, 34, 35
	269. *Halichoeres dispilus* (Günther, 1864)	34, 35
	270. *Halichoeres nicholsi* (Jordan & Gilbert, 1882)	34, 35
	271. *Halichoeres notospilus* (Günther, 1864)	142
	272. *Halichoeres raisneri* Baldwin & McCosker, 2001	97
	***273. *Halichoeres salmofasciatus* Allen & Robertson, 2002**	4
	274. *Iniistius pavo* (Valenciennes, 1840)	34, 35
	275. *Novaculichthys taeniourus* (Lacepède, 1801)	34, 35
	276. *Polylepion cruentum* Gomon, 1977	34, 35
	277. *Stethojulis bandanensis* (Bleeker, 1851)	34, 35
	278. *Thalassoma grammaticum* Gilbert, 1890	34, 35
	279. *Thalassoma lucasanum* (Gill, 1862)	34, 35
	280. *Thalassoma purpureum* (Forsskål, 1775)	34
	281. *Xyrichtys victori* Wellington, 1992 as *Xyrichthys victori*	34, 35, 122
Family Labrisomidae	**282. *Dialommus fuscus* (Gilbert, 1891)**	122, 123
	283. *Paraclinus mexicanus* (Gilbert, 1904)	34, 35
	284. *Starksia* new species	34, 35
Family Lutjanidae	**285. *Aphareus furca* (Lacepède, 1801)**	34, 35
	286. *Hoplopagrus guentherii* Gill, 1862 as *H. guntheri*	34, 35
	287. *Lutjanus aratus* (Günther, 1864)	34, 35
	288. *Lutjanus argentiventris* (Peters, 1869)	34, 35
	289. *Lutjanus colorado* Jordan & Gilbert, 1882	142
	290. *Lutjanus guttatus* (Steindachner, 1869)	142
	291. *Lutjanus inermis* (Peters, 1869)	34, 35
	292. *Lutjanus jordani* (Gilbert, 1898)	34, 35
	293. *Lutjanus novemfasciatus* Gill, 1862	34, 35
	294. *Lutjanus viridis* (Valenciennes, 1846)	34, 35
Family Luvaridae	**295. *Luvarus imperialis* Rafinesque, 1810**	142
Family Malacanthidae	296. *Caulolatilus affinis* Gill, 1865	34, 35
	297. *Caulolatilus hubbsi* Dooley, 1978	34, 35
	298. *Caulolatilus princeps* (Jenyns, 1840)	142
	299. *Malacanthus brevirostris* Guichenot, 1848	34, 35
Family Microdesmidae	300. *Clarkichthys bilineatus* (Clark, 1936)	35
Family Mugilidae	301. *Agonostomus monticola* (Brancroft, 1834)	34, 35
	302. *Chaenomugil proboscideus* (Günther, 1861) as *C. proboscidens*	34, 35
	303. *Mugil cephalus* Linnaeus, 1758	142
	304. *Mugil curema* Valenciennes, 1836	34, 35
Family Mullidae	305. *Mulloidichthys dentatus* (Gill, 1862)	35
Family Nomeidae	**306. *Cubiceps pauciradiatus* Günther, 1872**	142
	307. *Nomeus gronovii* (Gmelin, 1789)	142

	Species	Ref.[1]
	308. *Psenes cyanophrys* Valenciennes, 1833	142
Family Opistognathidae	309. *Opistognathus panamaensis* Allen & Robertson, 1991	35
Family Polynemidae	310. *Polydactylus approximans* (Lay & Bennett, 1839)	35
Family Pomacanthidae	311. *Holacanthus passer* Valenciennes, 1846	34, 35
	312. *Pomacanthus zonipectus* (Gill, 1862)	34, 35
	313. *Abudefduf concolor* (Gill, 1862)	34, 35
	314. *Abudefduf troschelii* (Gill, 1862) as *A. troshelli*	34, 35
	315. *Chromis alta* Greenfield & Woods, 1980	34, 35
	316. *Chromis atrilobata* Gill, 1862	34, 35
	317. *Microspathodon bairdii* (Gill, 1862)	34, 35
	318. *Microspathodon dorsalis* (Gill, 1862)	34, 35
	319. *Stegastes acapulcoensis* (Fowler, 1944)	34, 35
	320. *Stegastes arcifrons* (Heller & Snodgrass, 1903)	34, 35
	321. *Stegastes beebei* (Nichols, 1924)	34, 35, 122
	322. *Stegastes flavilatus* (Gill, 1862)	34, 35
Family Priacanthidae	323. *Cookeolus japonicus* (Cuvier, 1829)	34, 35, 47
	324. *Heteropriacanthus cruentatus* (Lacepède, 1801)	34, 35
	325. *Pristigenys serrula* (Gilbert, 1891)	142
Family Scaridae	326. *Scarus rubroviolaceus* Bleeker, 1847	35
Family Sciaenidae	327. *Corvula macrops* (Steindachner, 1876)	142
	328. *Odontoscion eurymesops* (Heller & Snodgrass, 1903)	142
	329. *Umbrina galapagorum* Steindachner, 1878	142
	330. *Umbrina xanti* Gill, 1862	35
Family Scombridae	331. *Acanthocybium solandri* (Cuvier, 1832)	34, 35
	332. *Auxis rochei* (Risso, 1810)	34, 35
	333. *Auxis thazard* (Lacepède, 1800)	34, 35
	334. *Euthynnus lineatus* Kishinouye, 1920	34, 35
	335. *Katsuwonus pelamis* (Linnaeus, 1758)	34, 35
	336. *Sarda orientalis* (Temminck & Schlegel, 1844)	34, 35
	337. *Scomber japonicus* Houttuyn, 1782	142
	338. *Scomberomorus sierra* Jordan & Starks, 1895	34, 35
	339. *Thunnus albacares* (Bonnaterre, 1788)	34, 35
	340. *Thunnus obesus* (Lowe, 1839)	142
Family Serranidae	341. *Alphestes immaculatus* Breder, 1936	34, 35
	342. *Anthias noeli* Anderson & Baldwin, 2000	Retal12
	343. *Cephalopholis panamensis* (Steindachner, 1877)	34, 35
	344. *Cratinus agassizii* Steindachner, 1878	122
	345. *Dermatolepis dermatolepis* (Boulenger, 1895)	34, 35
	346. *Epinephelus cifuentesi* Lavenberg & Grove, 1993	34, 35, 47, 163
	347. *Epinephelus itajara* (Lichtenstein, 1822)	34, 35
	348. *Epinephelus labriformis* (Jenyns, 1840)	34, 35
	349. *Epinephelus niphobles* Gilbert & Starks, 1897	34, 35, 163
	350. *Liopropoma fasciatum* Bussing, 1980	142
	351. *Liopropoma longilepis* Garman, 1899	97
	352. *Mycteroperca olfax* (Jenyns, 1840)	34, 35, 122, 163
	353. *Paranthias colonus* (Valenciennes, 1846)	34, 35
	354. *Pronotogrammus eos* Gilbert, 1890	34, 35

	Species	Ref.[1]
	355. *Pronotogrammus multifasciatus* Gill, 1863	34, 35, 47, 163
	356. *Pseudogramma thaumasium* (Gilbert, 1900)	34, 35
	357. *Serranus aequidens* Gilbert, 1890	34, 35
	358. *Serranus tico* Meisler & Lavenberg in Allen & Robertson, 1998	34, 35, 126
	359. *Rypticus bicolor* Valenciennes, 1846	34, 35
Family Sphyraenidae	**360. *Sphyraena idiastes* Heller & Snodgrass, 1903**	35
Family Tripterygiidae	***361. *Axoclinus cocoensis* Bussing, 1991**	30, 35
Family Xiphiidae	362. *Istiophorus platypterus* (Shaw in Shaw & Nodder, 1792)	34, 35
	363. *Makaira indica* (Cuvier, 1832)	34
	364. *Makaira mazara* (Jordan & Snyder, 1901)	34, 35
	365. *Tetrapturus angustirostris* Tanaka, 1915	34
	366. *Tetrapturus audax* (Philippi, 1887)	34, 35
	367. *Xiphius gladius* Linnaeus, 1758	34
Family Zanclidae	368. *Zanclus cornutus* (Linnaeus, 1758)	34
Order Pleuronectiformes, Family Bothidae	369. *Bothus leopardinus* (Günther, 1862)	34, 35
	370. *Bothus mancus* (Broussonet, 1782)	34, 35
Family Cynoglossidae	371. *Symphurus atramentatus* Jordan & Bollman, 1890	142
	372. *Symphurus oligomerus* Mahadeva & Munroe, 1990	142
	373. *Symphurus varius* Garman, 1899	35
Family Paralichthyidae	**374. *Citharichthys platophrys* Gilbert, 1891**	142
	375. *Hippoglossina bollmani* Gilbert, 1890	34, 35
	376. *Syacium latifrons* (Jordan & Gilbert, 1882)	34, 35
	***377. *Syacium maculiferum* (Garmann, 1899)**	34, 35, 142
Family Soleidae	**378. *Aseraggodes herrei* Seale, 1940**	35
Order Tetraodontiformes, Family Balistidae	379. *Balistes polylepis* Steindachner, 1876	34, 35
	380. *Canthidermis maculata* (Bloch, 1786) as *C. maculatus*	34, 35
	381. *Melichthys niger* (Bloch, 1786)	34, 35
	382. *Melichthys vidua* (Richardson, 1845)	34, 35
	383. *Pseudobalistes naufragium* (Jordan & Starks, 1895)	34, 35
	384. *Sufflamen verres* (Gilbert & Starks, 1904)	34, 35
	385. *Xanthichthys caeruleolineatus* Randall, Matsuura & Zama, 1978	34, 35, 84
	386. *Xanthichthys mento* (Jordan & Gilbert, 1882)	34, 35
Family Diodontidae	387. *Chilomycterus reticulatus* (Linnaeus, 1758) as *C. reticulotus*	34, 35
	388. *Diodon eydouxii* Brisout de Barneville, 1846	142
	389. *Diodon holocanthus* Linnaeus, 1758	34, 35
	390. *Diodon hystrix* Linnaeus, 1758	34, 35
Family Molidae	391. *Mola mola* (Linnaeus, 1758)	143
	392. *Ranzania laevis* (Pennant, 1776)	143
Family Monacanthidae	393. *Aluterus monocerus* (Linnaeus, 1758)	34, 35
	394. *Aluterus scriptus* (Osbeck, 1765)	34, 35
	395. *Cantherhines dumerilii* (Hollard, 1854)	34, 35
Family Ostraciidae	396. *Ostracion meleagris* Shaw, 1796	35
Family Tetraodontidae	397. *Arothron hispidus* (Linnaeus, 1758)	34, 35
	398. *Arothron meleagris* (Lacepède, 1798)	34, 35
	399. *Canthigaster punctatissima* (Günther, 1870)	34, 35

	Species	Ref.[1]
	400. *Lagocephalus lagocephalus* (Linnaeus, 1758)	142
	401. *Sphoeroides angusticeps* (Jenyns, 1842)	34, 35
	402. *Sphoeroides lobatus* (Steindachner, 1870)	34, 35
Class REPTILIA, Order Testudinata		
Family Cheloniidae	403. *Lepidochelys olivacea* (Eschscholtz, 1829)	84
	404. *Eretmochelys imbricata* (Linné, 1766)	84
	405. *Chelonia agassizi* Bocourt, 1868	84
Family Dermochelyidae	406. *Dermochelys coriacea* (Vandellli, 1761)	84
Order Squamata, Family Elapidae	407. *Pelamis platurus* (Linné, 1766)	161
Class AVES, Order Procellariiformes, Family Diomedeidae	**408. *Phoebastria irrorata* (Salvin, 1883)**	128
Family Hydrobatidae	409. *Oceanodroma castro* (Harcourt, 1851)	12, 128
	410. *Oceanodroma leucorhoa* (Vieillot, 1818)	12, 128
	411. *Oceanodroma markhami* (Salvin, 1883)	12, 128
	412. *Oceanodroma melania* (Bonaparte, 1854)	12, 128
	413. *Oceanodroma tethys* (Bonaparte, 1852)	12, 128
	414. *Pelagodroma marina* (Latham, 1790)	12, 128
Family Procellariidae	**415. *Pterodroma phaeopygia* (Salvin, 1876)**	12, 128
	416. *Puffinus creatopus* Coues, 1864	12, 128
	417. *Puffinus lherminieri* Lesson, 1839	12, 128
	418. *Puffinus pacificus* (J.F. Gmelin, 1789)	12, 128
Order Pelecaniformes, Family Fregatidae	419. *Fregata magnificens* Mathews, 1914	12, 128
	420. *Fregata minor* (J.F. Gmelin, 1789)	12, 128
Family Pelecanidae	421. *Pelecanus occidentales* Linnaeus, 1766	12
Family Phaethontidae	**422. *Phaethon lepturus* Daudin, 1802**	12
Family Sulidae	**423. *Sula dactylatra* Lesson, 1831**	12, 128
	424. *Sula leucogaster* (Boddaert, 1783)	12, 128
	425. *Sula nebouxii* Milne-Edwards, 1882	12, 128
	426. *Sula sula* (Linnaeus, 1766)	12, 128
Order Charadriiformes, Family Charadriidae	427. *Charadrius semipalmatus* Bonaparte, 1825	12
	428. *Charadrius wilsonia* Ord, 1814	12
	429. *Pluvialis dominica* (Statius Müller, 1776)	12
	430. *Pluvialis squatarola* (Linnaeus, 1758)	12
Family Laridae	**431. *Anous minutus* Boie, 1844**	12, 128
	432. *Anous stolidus* (Linnaeus, 1758)	12, 128
	433. *Creagrus furcatus* (Neboux, 1846)	12, 128, 187
	434. *Gygis alba* (Sparrman, 1786)	12, 128
	435. *Larus argentatus* Pontoppidan, 1763	12, 128
	436. *Larus atricilla* Linnaeus, 1758	12, 128
	437. *Larus modestus* Tschudi, 1843	12, 128
	438. *Larus pipixcan* Wagler, 1831	12, 128
	439. *Onychoprion fuscatus* Linnaeus, 1766	12, 128
	440. *Thalasseus elegans* (Gambel, 1849)	12, 128
	441. *Thalasseus sandvicensis* Latham, 1787	12, 128
	442. *Xema sabini* (Sabine, 1819)	12, 128
Family Phalaropodidae	443. *Phalaropus fulicarius* (Linnaeus, 1758)	12
	444. ? *Steganopus tricolor* (Vieillot, 1819)	12
Family Scolopacidae	445. *Actitis macularia* (Linnaeus, 1766)	12
	446. *Arenaria interpres* (Linnaeus, 1758)	12

	Species	Ref.[1]
	447. *Calidris alba* (Pallas, 1764)	12
	448. *Calidris bairdii* (Coues, 1861)	12
	449. *Calidris fuscicollis* (Vieillot, 1819)	12
	450. *Calidris himantopus* (Bonaparte, 1826)	12
	451. *Calidris mauri* (Cabanis, 1857)	12
	452. *Calidris melanotos* (Vieillot, 1819)	12
	453. *Calidris minutilla* (Vieillot, 1819)	12
	454. *Calidris pusilla* (Linnaeus, 1766)	12
	455. *Catoptrophorus semipalmatus* (J.F. Gmelin, 1789)	12
	456. *Heteroscelus incanus* (J.F. Gmelin, 1789)	12
	457. *Numenius phaeopus* (Linnaeus, 1758)	12
	458. *Tringa flavipes* (J.F. Gmelin, 1789)	12
	459. *Tringa melanoleuca* (J.F. Gmelin, 1789)	12
	460. *Tringa solitaria* A. Wilson, 1813	12
Family Stercorariidae	461. *Stercorarius parasiticus* (Linnaeus, 1758)	12, 128
	462. *Stercorarius pomarinus* (Temminck, 1815)	12, 128
Class MAMMALIA, Order Carnivora		
Suborder Pinnipedia, Family Otariidae	463. *Zalophus californianus* Lesson, 1828	120, 129
	464. *Zalophus wollebaeki* Sivertsen, 1953	120, 129
Order Cetacea, Suboren Mysticeti,		
Family Balaenopteridae	**465. *Balaenoptera borealis* Lesson, 1828**	120
	466. *Balaenoptera edeni* Anderson, 1878	120
	467. *Balaenoptera physalus,* Linnaeus, 1758	120
	468. *Megaptera novaeangliae* Borowski, 1781	120
Suborder Odontoceti, Family Delphinidae	469. *Globicephala macrorhynchus* Gray, 1846	120
	470. *Grampus griseus* Cuvier, 1812	120
	471. *Orcinus orca* Linnaeus, 1758	120
	472. *Stenella longirostris* Gray, 1828	120
	473. *Stenella coeruleoalba* Meyen, 1833	120
	474. *Tursiops truncatus* Montagu, 1821	120
Family Physeteridae	**475. *Physeter macrocephalus* Linnaeus, 1766**	120
Family Ziphiidae	**476. *Mesoplodon densirostris* Blainville, 1817**	120
	477. *Mesoplodon* sp.	120
	478. *Ziphius cavirostris* Cuvier, 1823	120

(1) References are indicated by numbers according to the reference list
* = Endemic
Species/Genus in bold type = present at Isla del Coco but not on the Pacific coast of mainland Costa Rica
? = doubts about the identification
(a) Reported by Hertlein (1963) but not found in any database.
(b) Species described in: Suárez-Morales, E. & R. Gasca. 2012. A new *Lepeophtheirus* (Copepoda: Siphonostomatoida: Caligidae) from Isla del Coco, Costa Rica, Eastern Tropical Pacific. Rev. Biol. Trop. 60 (Suppl. 3): 235-242.