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CHAPTER 14

FISHES OF THE COCOS (KEELING) ISLANDS

BY

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ABSTRACT

Extensive fish collections were obtained at the Cocos (Keeling) Islands by the Academy of Natural Sciences of Philadelphia in 1973 and the Western Australian Museum in 1989. The combined collections document the occurrence of 533 species. For many Indo-west Pacific fishes (about 85 species), Cocos represents their westernmost limit of distribution. The faunal composition is typical of Indo-West Pacific coral reefs. Only 5 percent of the ichthyofauna consists of exclusively Indian Ocean species. The largest families are as follows (number of species in parentheses): Labridae (54), Gobiidae (51), Pomacentridae (38), Apogonidae (30), Serranidae (30), Acanthuridae (25), Muraenidae (24), Chaetodontidae (23), Blenniidae (21), Scaridae (20), and Holocentridae (20). Collectively these 11 families comprise 63 percent of the fauna. Little or no endemism is present.

INTRODUCTION

The first fishes collected at the Cocos (Keeling) Islands were taken by the crew of the Beagle and subsequently reported by Jenyns (1842), who listed 10 species. Numerous fish records were recorded in a series of papers by Pieter Bleeker (1854-1859) that were published in *Natuurkundig Tijdschrift voor Nederlandsch Indie*. Fish specimens were sent to Bleeker from the Cocos Islands by A. J. Anderson and G. Clunies-Ross. The Cocos fauna was summarised by Bleeker (1859) as consisting of approximately 104 species. Most of the fishes reported by Bleeker were eventually deposited in the Rijksmuseum in Leiden.

The only other major ichthyological collection from Cocos was made by C. A. Gibson-Hill, who visited the islands from January to November 1941. The fishes from this expedition were reported by Marshall (1950) and included 119 new records, thus raising the total species known from the island group to approximately 220. The Gibson-Hill collections are presently housed at the British Museum (Natural History).

In 1973 an expedition from the Academy of Natural Sciences of Philadelphia (ANSP) collected marine organisms at Cocos (Keeling) during February and March. Team members, including ichthyologists Patrick L. Colin and William Smith-Vaniz, collected fishes at 68 stations. A variety of collection methods were employed: rotenone

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(35 stations), explosives (17), quinaldine (14), angling (1), and spearing (31), usually as a supplemental means of collection. This effort resulted in a large fish collection containing 6,780 specimens in 1,443 lots. Approximately 425 species were obtained.

A team of biologists from the Western Australian Museum and Australian Institute of Marine Sciences conducted a faunal survey at Cocos (Keeling) during February 1989. Fishes were collected mainly with rotenone (24 stations), supplemented by spear and dipnets (1 station each). These efforts yielded a total of 1,814 specimens, including 465 lots and approximately 245 species. In addition, underwater observations were conducted in which the name of each species seen was written on a waterproof sheet. These "spot" identifications were based on the senior author's extensive experience in the Indo-Pacific region. Only fishes whose identity was absolutely certain were recorded. This method provided an additional 203 records, thus a total of 448 species was noted. The combined ANSP-Western Australian Museum collections (and observations) include a total of 533 species.

Many of the species reported by Bleeker (1859) and Marshall (1950) are junior synonyms or were based on misidentifications. It is beyond the scope of the present study to determine the current status of most of the species they listed. However, we estimate that only about 20 of their species represent additions not seen during the 1973 and 1989 visits. Therefore, the total known fish fauna of Cocos (Keeling) is approximately 550 species. The following species listed by Marshall (1950) almost certainly represent additions to the Cocos ichthyofauna: Albulidae - *Albula vulpes* (Linnaeus); Exocoetidae - *Cheilopogon atrisignis* (Jenkins) and *C. cyanopterus* (Valenciennes); Syngnathidae - *Hippocampus trimaculatus* Leach; Ostraciidae - *Lactoria cornuta* (Linnaeus).

Some authors have questioned the providence of material Bleeker reported as originating from Cocos (Keeling), including several new species he described from there. Dawson (1982) cited the type locality of *Micrognathus andersonii* (Bleeker) as "Novaselma, Kokos [Cocos] Is. [Indonesia]," and stated (p. 677) that Marshall's (1950) listing of the species (as *M. brevirostris*) from Cocos-Keeling is based on a "misidentification of the type-locality..." We do not agree with Dawson's assertion that Bleeker's material did not originate from Cocos-Keeling. In the introduction of his first paper Bleeker (1854a) gave the correct coordinates for "Kokos-eiland" and referred to J. C. Ross. (These islands were originally settled in 1827 by a Scottish sea captain named John Clunies-Ross.) In a later paper Bleeker (1858) thanked both Dr A. J. Anderson "geneesheer" [= physician] and J.G.C. Ross "tegeneewoordigen beheerde" [= present-day administrator] of Cocos Island.

Through the kindness of Dr. Tyson Roberts we received a copy of a letter signed by A. J. Anderson (original deposited in the RMNH archives), with the heading "Cocos - July -1860," and addressed to Dr. Bleeker, concerning specimens of "trepang fish" [= Carapidae] that had been sent to Batavia. In the same letter Anderson asked to have Bleeker's European address (Bleeker returned to the Netherlands in September 1860) "in the event of my attaining other interesting specimens." No additional correspondence in the RMNH Bleeker files apparently exists concerning Cocos Is. (T. Roberts, *in lit.*). Presumably much of Bleeker's correspondence while he was in Batavia did not survive. In the absence of any evidence to the contrary, we conclude that all Bleeker's material stated to have come from "Kokos-eiland" refers to Cocos-Keeling. Although we did not duplicate Bleeker's Cocos record of *Micrognathus andersonii*, it is a broadly distributed Indo-Pacific species and we have no reason to doubt its occurrence there.

SPECIES COMPOSITION AND ZOOGEOGRAPHY

The ichthyofauna of Cocos (Keeling) consists primarily of species that are associated with coral reefs. The largest families are summarised in Table 1. The eleven most speciose groups (Labridae, Gobiidae, Pomacentridae, Apogonidae, Serranidae, Acanthuridae, Muraenidae, Chaetodontidae, Blenniidae, Scaridae and Holocentridae) account for 63 percent of the total fauna. These families are typically abundant throughout the tropical Indo-Pacific region. Most of these 11 families contain fishes that are diurnally active which either dwell on or near the reef surface, or forage on plankton a short distance above it. Exceptions are the nocturnal apogonids and holocentrids, and the crevice-dwelling morays (muraenidae).

The fish fauna is similar to that of Christmas Island, the nearest land mass, lying about 850 km to the northeast. Allen and Steene (1987) recorded 575 species from Christmas, of which about 350 species also occur at the Cocos group. The approximately 175 species that are present at Cocos, but lacking at Christmas are primarily inhabitants of the lagoon, a habitat that does not occur at Christmas Island. It is more difficult to explain the occurrence of approximately 210 species of Christmas fishes that are apparently absent from Cocos (Keeling). Two of the most notable disparities are shown by the Serranidae and Blenniidae in which 25 and 14 species, respectively, and 7 genera in each family were found only at Christmas. Perhaps this anomaly can be at least partly be explained by the greater isolation of Cocos (Christmas Island is only about 290 km from Java).

Compared to other oceanic atolls the Cocos Group appears to have a relatively impoverished fish fauna. For example Randall and Randall (1988) and Winterbottom et al. (1989) recorded approximately 800 and 700 species, respectively, for the Marshall Islands in the central Pacific and Chagos Archipelago (incorporating several atolls) in the western Indian Ocean. There are probably several reasons for the diminished Cocos fauna including (1) its small physical size; (2) relative isolation and lack of surrounding "island stepping-stones;" and (3) lesser collecting activity. In addition, the extensive coral die-back at Cocos (Colin, 1977) may be responsible for the exclusion of some species.

Although we believe the ichthyofauna of Cocos has been reasonably well sampled (except for epipelagic fishes), we certainly did not collect all of the species of shorefishes that occur there. That the fauna may not be as well sampled as we would like to believe is suggested by the fact that a number of shallow-water, cryptic species were taken at only one of our combined 59 rotenone stations. Scorpaenids are cryptic bottom dwellers (except *Pterois* spp.) yet, inexplicably, only 2 of 16 species we report from Cocos were collected or observed by both museum expeditions.

A zoogeographic analysis of the Cocos fauna is presented in Table 2. The majority of fishes have distributions that cover relatively wide areas in the Indo-Pacific region. There is a much greater affinity to the Western Pacific than to the Indian Ocean region. Indeed, only about 5.1 percent of the species are Indian Ocean forms. There is no endemism in the Cocos fish fauna, although one anglefish, *Centropyge joculator*, is known only from Cocos and Christmas Island and an undescribed goby of the genus *Trimma* may have the same distribution. The Indian Ocean coasts of Java and Sumatra are poorly sampled, however, and it is likely that one or both species will be found there eventually. *Scorpaenoides keelingensis* Marshall which, as the name suggests, Marshall (1950) believed to be endemic to the Cocos group is almost certainly a junior synonym of *Scorpaenoides kelloggi* (Jenkins) (W. N. Eschmeyer, pers. comm.). Nearly all of the reef

fishes found at Cocos are characterised by a pelagic larval stage of up to several weeks duration. Hence, the widespread nature of the individual species distributions.

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CHECKLIST OF COCOS (KEELING) FISHES

The following list includes fishes that were either collected or observed during the 1973 and 1989 surveys. Asterisk or numbers preceding species names indicate the following distributional data: * = also known from Christmas Island; 1 = widespread Indo-Pacific or Indo-west Pacific; 2 = West Pacific species that reach their western distributional limit at Cocos (Keeling); 3 = Indian Ocean species (may include western extremity of west Pacific); 4 = Circumtropical or cosmopolitan; 5 = uncertain extralimital distribution; Square brackets appearing after each species citation indicate that specimens are deposited at the Academy of Natural Sciences, Philadelphia [P], the Western Australian Museum [W], or were observed only [O].

Sphyrnidae - Hammerhead sharks

- 4 **Sphyrna lewini* (Griffith and Smith, 1834) [O]

Carcharhinidae - Requiem sharks

- | | |
|--|-----|
| 1 * <i>Carcharhinus amblyrhynchos</i> (Bleeker, 1856) | [P] |
| 1 * <i>C. melanopterus</i> (Quoy and Gaimard, 1824) | [O] |
| 4 * <i>Galeocerdo cuvier</i> (Peron and LeSueur, 1822) | [O] |
| 1 * <i>Triaenodon obesus</i> (Rüppell, 1837) | [O] |

Mobulidae - Manta rays

- 4 **Manta birostris* (Donndorff, 1798) [O]

Moringuidae - Worm eels

- | | |
|--|-------|
| 1 <i>Moringua ferruginea</i> Bliss, 1883 | [W] |
| 1 * <i>M. javanica</i> (Kaup, 1856) | [W] |
| 1 * <i>M. microchir</i> Bleeker, 1853 | [P,W] |

Chlopsidae - False morays

- 3 **Kaupichthys* n. sp. [K. Tighe, pers. comm., 1993] [P,W]

Muraenidae - Moray eels

- | | |
|---|-------|
| 2 <i>Anarchias cantonensis</i> (Schultz, 1943) | [P] |
| 1 * <i>A. seychellensis</i> Smith, 1962 | [P,W] |
| 1 * <i>Echidna nebulosa</i> (Ahl, 1789) | [P] |
| 1 * <i>E. polyzona</i> (Richardson, 1844) | [P] |
| 2 * <i>Enchelycore bayeri</i> (Schultz, 1953) | [W] |
| 1 * <i>E. pardalis</i> (Temminck and Schlegel, 1842) | [P,W] |
| 2 * <i>Enchelynassa canina</i> (Quoy and Gaimard, 1824) | [P] |
| 1 * <i>Gymnothorax enigmaticus</i> McCosker and Randall, 1982 | [W] |
| 1 * <i>G. bueroensis</i> (Bleeker, 1857) | [P] |
| 1 <i>G. fimbriatus</i> (Bennett, 1831) | [P,W] |
| 1 * <i>G. flavimarginatus</i> (Rüppell, 1830) | [P,W] |
| 1 * <i>G. javanicus</i> (Bleeker, 1859) | [O] |
| 1 * <i>G. margaritophorus</i> Bleeker, 1865 | [P,W] |
| 1 * <i>G. melatremus</i> Schultz, 1953 | [P] |
| 1 <i>G. monochrous</i> Bleeker, 1864 | [P] |
| 1 * <i>G. monostigma</i> (Regan, 1909) | [P] |
| 1 * <i>G. rueppelliae</i> (McClelland, 1845) | [P,W] |
| 1 <i>G. undulatus</i> (Lacepède, 1803) | [P,W] |
| 1 * <i>G. zonipectus</i> Seale, 1906 | [P,W] |

1 * <i>Siderea picta</i> (Ahl, 1789)	[P,W]
1 * <i>S. thrysoidea</i> (Richardson, 1845)	[P,W]
1 * <i>Uropterygius concolor</i> (Rüppell, 1838)	[W]
1 * <i>U. marmoratus</i> (Lacepède, 1803)	[W]
1 * <i>U. xanthopterus</i> Bleeker, 1859	[P,W]

Ophichthidae - Snake eels

2 <i>Callechelys catostomus</i> (Bloch and Schneider, 1801)	[W]
1 * <i>Leiuranus semicinctus</i> (Lay and Bennett, 1839)	[P,W]
2 <i>Muraenichthys brevis</i> Günther, 1876	[P]
1 * <i>M. laticaudata</i> (Ogilby, 1897)	[W]
1 <i>M. macropterus</i> Bleeker, 1857	[W]
2 <i>Schultzidia johnstonensis</i> (Schultz and Woods, 1949)	[W]

Congidae - Conger eels

1 * <i>Conger cinereus</i> Rüppell, 1830	[W]
3 <i>Gorgasia maculata</i> Klausewitz and Eibl-Eibesfeldt, 1959	[P,W]
1 * <i>Heteroconger hassi</i> (Klausewitz and Eibl-Eibesfeldt, 1959)	[P,W]

Clupeidae - Herrings

1 <i>Sardinella melanura</i> (Cuvier, 1829)	[P]
1 <i>Spratelloides delicatulus</i> (Bennett, 1831)	[P,W]

Synodontidae - Lizardfishes

1 * <i>Saurida gracilis</i> (Quoy and Gaimard, 1824)	[P,W]
1 * <i>Synodus englemani</i> Schultz, 1953	[P]

Chanidae - Milkfishes

1 <i>Chanos chanos</i> (Forsskål, 1775)	[O]
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Ophidiidae - Cusk-eels

1 * <i>Brotula multibarbata</i> Temminck and Schlegel, 1846	[P,W]
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Bythitidae - Viviparous brotulas

1 * <i>Brosmophyciops pautzkei</i> Schultz, 1960	[P,W]
5 * <i>Ogilbia</i> sp.	[P,W]

Antennariidae - Anglerfishes

1 * <i>Antennarius coccineus</i> (Lesson, 1831)	[P,W]
1 <i>A. doreensis</i> Bleeker, 1859	[P,W]

Notocheiridae [=Isonidae] - Surf spites

3 <i>Iso natalensis</i> Regan, 1919	[P]
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Hemirhamphidae - Halfbeaks

1 <i>Hyporhamphus affinis</i> (Günther, 1866)	[P,W]
1 <i>H. dussumieri</i> (Valenciennes, 1847)	[P]
2 <i>Zenarchopterus dispar</i> (Valenciennes, 1847)	[W]

Belonidae - Needlefishes

1 <i>Platybelone argalus platyura</i> (Bennett, 1831)	[W]
1 * <i>Tylosurus crocodilus</i> (Peron and LeSueur, 1821)	[P]

Holocentridae - Squirrelfishes

1	<i>Myripristis adusta</i> Bleeker, 1853	[P,W]
1	* <i>M. berndti</i> Jordan and Evermann, 1903	[W]
1	<i>M. chryseres</i> Jordan and Evermann, 1903	[P]
1	* <i>M. kuntee</i> Cuvier, 1831	[W]
1	* <i>M. murdjan</i> (Forsskål, 1775)	[P]
1	* <i>M. parvidens</i> Cuvier, 1829	[P]
1	<i>M. pralinia</i> Cuvier, 1829	[W]
1	* <i>M. vittata</i> Valenciennes, 1831	[W]
1	<i>M. violaceus</i> Bleeker, 1851	[O]
1	<i>Neoniphon argenteus</i> (Valenciennes, 1831)	[P,W]
1	<i>N. opercularis</i> (Valenciennes, 1831)	[O]
1	<i>N. sammara</i> (Forsskål, 1775)	[P,W]
1	* <i>Plectrypops lima</i> (Valenciennes, 1831)	[P,W]
1	* <i>Sargocentron diadema</i> (Lacepède, 1801)	[P,W]
3	* <i>S. lepros</i> (Allen and Cross, 1983)	[W]
1	* <i>S. microstoma</i> (Günther, 1859)	[W]
1	* <i>S. caudimaculatum</i> (Rüppell, 1838)	[W]
1	* <i>S. punctatissimum</i> (Cuvier, 1829)	[P]
1	* <i>S. tiere</i> (Cuvier, 1829)	[P]
1	<i>S. spiniferum</i> (Forsskål, 1775)	[P]

Aulostomidae - Trumpetfishes

1	* <i>Aulostromus chinensis</i> (Linnaeus, 1766)	[P]
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Fistulariidae - Cornetfishes

1	* <i>Fistularia commersonii</i> Rüppell, 1838	[O]
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Syngnathidae - Pipefishes

1	* <i>Choeroichthys sculptus</i> (Günther, 1870)	[P,W]
1	<i>Corythoichthys flavofasciatus</i> (Rüppell, 1838)	[P,W]
1	* <i>Cosmocampus banneri</i> (Herald and Randall, 1972)	[W]
1	* <i>Doryrhamphus excisus excisus</i> Kaup, 1856	[P,W]
2	* <i>Micrognathus brevirostris pygmæus</i> Fritzsche, 1981	[W]
1	<i>Phoxocampus belcheri</i> (Kaup, 1856)	[W]

Scorpaenidae - Scorpionfishes

1	<i>Parascorpaena mossambica</i> (Peters, 1855)	[P]
1	* <i>Pterois antennata</i> (Bloch, 1787)	[W]
1	* <i>P. radiata</i> Cuvier, 1829	[P,W]
2	* <i>P. volitans</i> (Linnaeus, 1758)	[W]
	[We follow Schultz (1986) in recognizing <i>Pterois miles</i> Bennett as an Indian Ocean species distinct from the Pacific <i>P. volitans</i> .]	
1	* <i>Scorpaenodes albailensis</i> (Evermann and Seale, 1907)	[P]
1	* <i>S. guamensis</i> (Quoy and Gaimard, 1824)	[P]
1	* <i>S. hirsutus</i> (Smith, 1957)	[P,W]
1	<i>S. kelloggi</i> (Jenkins, 1903)	[P]
1	<i>S. littoralis</i> (Tanaka, 1917)	[P]
1	<i>S. minor</i> (Smith, 1958)	[P]
1	* <i>S. parvipinnis</i> (Garrett, 1863)	[P]
1	* <i>Scorpaenopsis diabolus</i> (Cuvier, 1829)	[O]
1	* <i>Sebastapistes cyanostigma</i> (Bleeker, 1856)	[P]
1	* <i>S. strongia</i> (Cuvier, 1829)	[P,W]

5 <i>Sebastapistes</i> sp.	[P]
1 * <i>Synanceia verrucosa</i> Bloch and Schneider, 1801	[P]
Platycephalidae - Flatheads	
1 * <i>Thysanophrys otaitensis</i> (Cuvier, 1829)	[P]
Caracanthidae - Orbicular velvetfishes	
2 * <i>Caracanthus maculatus</i> (Gray, 1831)	[P]
1 * <i>C. unipinna</i> (Gray, 1831)	[P]
Serranidae - Sea basses	
[We follow Baldwin and Johnson (1993) in including the Grammistidae and Pseudogrammidae in this family.]	
1 * <i>Anpyerodon leucogrammicus</i> (Valenciennes, 1828)	[P]
1 * <i>Cephalopholis argus</i> Bloch and Schneider, 1801	[P,W]
1 * <i>C. leopardus</i> (Lacepède, 1801)	[P,W]
1 * <i>C. polleni</i> (Bleeker, 1868)	[P]
1 * <i>C. spiloparaea</i> (Valenciennes, 1828)	[P,W]
1 * <i>C. urodetata</i> (Valenciennes, 1828)	[P,W]
[Randall (1991 p.70) noted that this species consists of two allopatric color forms, the western Indian Ocean <i>C. nigripinnis</i> (Valenciennes) and the nominal Pacific form; he regarded them as conspecific because Christmas Is. specimens have somewhat intermediate color patterns. The color pattern of Cocos specimens agrees well with the Pacific form.]	
3 <i>Epinephelus faveatus</i> (valenciennes, 1828)	[W]
1 <i>E. fuscoguttatus</i> (Forsskål, 1775)	[O]
1 * <i>E. hexagonatus</i> (Bloch and Schneider, 1801)	[W]
2 <i>E. maculatus</i> Bloch, 1790	[O]
1 * <i>E. merra</i> Bloch, 1793	[P,W]
1 <i>E. macrospilus</i> (Bleeker, 1855)	[P]
[Randall (1991 p.187) noted that this species consists of two allopatric color forms, the western Indian Ocean <i>E. cylindricus</i> Günther said to differ from the Pacific and eastern Indian Ocean <i>E. macrospilos</i> by larger and more closely spaced spots. Because only spot size appeared to distinguish the two forms they were considered to be conspecific.]	
1 <i>E. microdon</i> (Bleeker, 1856)	[P]
1 * <i>E. spilotoceps</i> Schultz, 1953	[P,W]
1 * <i>E. tauvina</i> (Forsskål, 1775)	[P,W]
1 * <i>Gracila albomarginata</i> (Fowler and Bean, 1930)	[P]
1 * <i>Grammistes sexlineatus</i> (Thunberg, 1792)	[P,W]
5 * <i>Luzonichthys</i> sp.	[O]
2 * <i>Plectranthias nanus</i> Randall, 1980	[P,W]
1 <i>Plectropomus areolatus</i> Rüppell, 1828	[P]
2 <i>P. leopardus</i> (Lacepède, 1802)	[P]
2 <i>P. maculatus</i> (Bloch, 1790)	[P]
1 <i>Pseudanthias cooperi</i> (Regan, 1902)	[P,W]
3 * <i>P. evansi</i> Smith, 1954	[P,W]
2 * <i>P. smithvanizi</i> (Randall and Lubbock, 1981)	[P,W]
5 <i>Pseudanthias</i> sp.	[P]
[Winterbottom et al. (1989) give color photographs (plates IVE,F) of this species, which they report as <i>Anthias</i> sp. from the Chagos Archipelago.]	
2 <i>Pseudogramma bilinearis</i> (Schultz, 1943)	[P]
1 * <i>P. polyacantha</i> (Bleeker, 1856)	[P,W]

2 * <i>Suttonia lineata</i> Gosline, 1960	[W]
1 * <i>Variola louti</i> (Forsskål, 1775)	[P]
Pseudochromidae - Dottybacks	
1 <i>Pseudoplesiops</i> n. sp.	[P,W]
2 <i>P. multisquamatus</i> Allen, 1987	[P]
Plesiopidae - Longfins	
1 * <i>Plesiops coeruleolineatus</i> Rüppell, 1835	[P,W]
2 * <i>P. corallicola</i> Bleeker, 1853	[P,W]
Kuhliidae - Flagtails	
1 * <i>Kuhlia mugil</i> (Bloch and Schneider, 1801)	[P,W]
Priacanthidae - Bigeyes	
1 * <i>Heteropriacanthus cruentatus</i> (Lacepède, 1801)	[P,W]
Apogonidae - Cardinalfishes	
1 * <i>Apogon angustatus</i> (Smith and Radcliffe, 1911)	[P,W]
2 <i>A. bandanensis</i> Bleeker, 1854	[P,W]
1 <i>A. crassiceps</i> Garman, 1903	[P,W]
1 <i>A. cyanosoma</i> Bleeker, 1853	[P,W]
2 <i>A. dispar</i> Fraser and Randall, 1976	[P]
1 * <i>A. evermanni</i> Jordan and Snyder, 1904	[P]
1 <i>A. exostigma</i> (Jordan and Starks, 1906)	[P,W]
1 <i>A. guamensis</i> Valenciennes, 1832	[P,W]
1 * <i>A. kallopterus</i> Bleeker, 1856	[P,W]
1 <i>A. leptacanthus</i> Bleeker, 1856	[P]
2 <i>A. melas</i> Bleeker, 1848	[W]
2 * <i>A. novemfasciatus</i> Cuvier, 1828	[P,W]
1 * <i>A. taeniophorus</i> Regan, 1908	[P,W]
1 * <i>A. taeniopterus</i> (Bennett, 1835)	[P]
1 * <i>Apogonichthys ocellatus</i> (Weber, 1913)	[P,W]
1 <i>A. perdix</i> Bleeker, 1854	[P]
1 * <i>Cercamia eremia</i> (Allen, 1987)	[P,W]
1 <i>Cheilodipterus lineatus</i> Cuvier, 1828	[W]
2 * <i>C. macrodon</i> (Lacepède, 1802)	[P,W]
1 * <i>C. quinquelineatus</i> Cuvier, 1828	[P,W]
1 * <i>Fowleria aurita</i> (Valenciennes, 1831)	[P,W]
1 <i>F. isostigma</i> (Jordan and Seale, 1906)	[P]
1 <i>F. variegata</i> (Valenciennes, 1832)	[W]
2 <i>Gymnapogon urospilotus</i> Lachner, 1953	[P]
1 <i>Neamia octospina</i> Smith and Radcliffe, 1912	[P]
1 <i>Pseudamia gelatinosa</i> Smith, 1955	[P,W]
2 * <i>Pseudamiops gracilicauda</i> (Lachner, 1953)	[P,W]
1 <i>Rhabdamia gracilis</i> (Bleeker, 1856)	[O]
2 <i>Siphamia majimae</i> Matsubara and Iwai, 1959	[P,W]
2 <i>Sphaeramia nematoptera</i> (Bleeker, 1856)	[P]
Malacanthidae - Tilefishes	
1 * <i>Malacanthus brevirostris</i> Guichenot, 1848	[P]
1 * <i>M. latovittatus</i> (Lacepède, 1801)	[P]

Carangidae - Trevallies

1 * <i>Carangoides ferdau</i> (Forsskål, 1775)	[P]
1 * <i>C. orthogrammus</i> (Jordan and Gilbert, 1882)	[P]
1 * <i>Caranx ignobilis</i> (Forsskål, 1775)	[O]
4 * <i>C. lugubris</i> Poey, 1860	[P]
1 * <i>C. melampygus</i> Cuvier, 1833	[P]
1 * <i>C. sexfasciatus</i> Quoy and Gaimard, 1825	[P]
4 * <i>Decapterus macarellus</i> (Cuvier, 1833)	[P]
4 * <i>Elagatis bipinnulatus</i> (Quoy and Gaimard, 1825)	[P]
1 * <i>Scomberoides lysan</i> (Forsskål, 1775)	[P]
1 * <i>Trachinotus bailloni</i> (Lacepède, 1801)	[P]
1 <i>T. blochii</i> (Lacepède, 1801)	[P]

Lutjanidae - Snappers

1 * <i>Aphareus furca</i> (Lacepède, 1802)	[P]
1 * <i>Aprion virescens</i> Valenciennes, 1830	[O]
1 * <i>Lutjanus bohar</i> (Forsskål, 1775)	[P]
1 * <i>L. fulvus</i> (Bloch and Schneider, 1801)	[P,W]
1 * <i>L. gibbus</i> (Forsskål, 1775)	[P]
1 * <i>L. kasmira</i> (Forsskål, 1775)	[P]
1 <i>L. monostigma</i> (Cuvier, 1828)	[P,W]
1 * <i>Macolor niger</i> (Forsskål, 1775)	[P]

Caesionidae - Fusiliers

1 * <i>Caesio teres</i> Seale, 1906	[P]
1 <i>C. xanthonota</i> Bleeker, 1853	[P]
1 * <i>Pterocaesio lativattata</i> Carpenter, 1987	[P]
1 * <i>P. tile</i> (Cuvier, 1830)	[P,W]

Haemulidae - Sweetlips

2 <i>Plectorhinchus chaetodontoides</i> Lacepède, 1800	[P,W]
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Lethrinidae - Emperors

1 * <i>Gnathodentex aureolineatus</i> (Lacepède, 1802)	[P,W]
1 <i>Gymnocranius grandoculis</i> (Valenciennes, 1830)	[O]
2 <i>Lethrinus atkinsoni</i> Seale, 1909	[P]
1 <i>L. harak</i> (Forsskål, 1775)	[P,W]
1 <i>L. hypselopterus</i> Bleeker, 1873	[P]
1 <i>L. lentjan</i> (Lacepède, 1802)	[P]
1 <i>L. microdon</i> Valenciennes, 1830	[W]
1 <i>L. obsoletus</i> (Forsskål, 1775)	[P,W]
1 <i>L. xanthochilus</i> Klunzinger, 1870	[W]
1 * <i>Monotaxis grandoculis</i> (Forsskål, 1775)	[P]

Nemipteridae - Threadfin breams

2 <i>Scolopsis lineatus</i> (Quoy and Gaimard, 1824)	[P,W]
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Gerreidae - Mojarras

1 <i>Gerres acinaces</i> Bleeker, 1854	[W]
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Mullidae - Goatfishes

1 * <i>Mulloidess flavolineatus</i> (Lacepède, 1801)	[P,W]
1 * <i>M. vanicolensis</i> (Valenciennes, 1831)	[P]

1	<i>Parupeneus barberinus</i> (Lacepède, 1801)	[P,W]
1	* <i>P. bifasciatus</i> (Lacepède, 1801)	[P,W]
1	* <i>P. cyclostomus</i> (Lacepède, 1801)	[P]
1	* <i>P. macronemus</i> (Lacepède, 1801)	[O]
2	* <i>P. multifasciatus</i> (Quoy and Gaimard, 1824)	[P,W]
1	* <i>P. pleurostigma</i> (Bennett, 1831)	[P,W]

Kyphosidae - Rudderfishes

1	* <i>Kyphosus cinerascens</i> (Forsskål, 1775)	[P]
1	<i>K. vaigiensis</i> (Quoy and Gaimard, 1825)	[O]

Pempheridae - Sweepers

1	* <i>Pempheris oualensis</i> Cuvier, 1831	[P,W]
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Ephippidae - Batfishes

1	* <i>Platax orbicularis</i> (Forsskål, 1775)	[O]
1	* <i>P. teira</i> (Forsskål, 1775)	[P]

Chaetodontidae - Butterflyfishes

1	* <i>Chaetodon auriga</i> (Forsskål, 1775)	[P,W]
1	<i>C. bennetti</i> Cuvier, 1831	[P]
1	* <i>C. citrinellus</i> Cuvier, 1831	[P,W]
1	<i>C. ephippium</i> Cuvier, 1831	[P,W]
3	* <i>C. guttatissimus</i> Bennett, 1831	[P]
1	* <i>C. kleinii</i> Bloch, 1790	[P]
1	* <i>C. lineolatus</i> Cuvier, 1830	[P]
1	* <i>C. lunula</i> (Lacepède, 1803)	[P,W]
3	* <i>C. madagaskariensis</i> Ahl, 1923	[P]
1	* <i>C. melanotus</i> Bloch and Schneider, 1801	[P]
1	* <i>C. meyeri</i> Bloch and Schneider, 1801	[P]
3	* <i>C. mitratus</i> Günther, 1860	[P,W]
1	* <i>C. ornatissimus</i> Cuvier, 1831	[P]
1	* <i>C. semeion</i> Bleeker, 1855	[P]
1	* <i>C. trifascialis</i> Quoy and Gaimard, 1824	[P]
1	* <i>C. trifasciatus</i> Park, 1797	[P,W]
2	<i>C. ulietensis</i> Cuvier, 1831	[P,W]
1	* <i>C. unimaculatus</i> Bloch, 1787	[P]
1	* <i>C. vagabundus</i> Linnaeus, 1758	[P,W]
1	* <i>Forcipiger flavissimus</i> Jordan and McGregor, 1898	[P,W]
2	* <i>Hemitaurichthys polylepis</i> (Bleeker, 1857)	[P]
1	<i>Heniochus chrysostomus</i> Cuvier, 1831	[P]
1	* <i>H. monoceros</i> Cuvier, 1831	[P]

Pomacanthidae - Angelfishes

1	* <i>Apolemichthys trimaculatus</i> (Lacepède, 1831)	[P]
2	<i>Centropyge colini</i> Smith-Vaniz and Randall, 1974	[P]
1	* <i>C. flavissimus</i> (Cuvier, 1831)	[P,W]
3	* <i>C. joculator</i> Smith-Vaniz and Randall, 1974	[P,W]
2	<i>C. multifasciatus</i> (Smith and Radcliffe, 1911)	[P]
2	<i>Genicanthus bellus</i> Randall, 1975	[P,W]
1	* <i>Pomacanthus imperator</i> (Bloch, 1787)	[P]

Pomacentridae - Damselfishes

1 * <i>Abudefduf notatus</i> (Day, 1869)	[P]
1 * <i>A. septemfasciatus</i> (Cuvier, 1830)	[O]
1 * <i>A. sordidus</i> (Forsskål, 1775)	[P]
1 * <i>A. vaigiensis</i> (Quoy and Gaimard, 1825)	[O]
2 * <i>Amblyglyphidodon aureus</i> (Cuvier, 1830)	[P]
2 <i>A. curacao</i> (Bloch, 1787)	[P]
1 * <i>Amphiprion clarkii</i> (Bennett, 1830)	[P]
2 * <i>A. periderion</i> Bleeker, 1855	[P]
2 * <i>Chromis alpha</i> Randall, 1988	[P]
2 * <i>C. amboinensis</i> (Bleeker, 1873)	[P,W]
2 * <i>C. atripes</i> Fowler and Bean, 1928	[W]
2 * <i>C. caudalis</i> Randall, 1988	[O]
2 * <i>C. delta</i> Randall, 1988	[O]
3 * <i>C. dimidiata</i> (Klunzinger, 1871)	[O]
1 * <i>C. elerae</i> Fowler and Bean, 1928	[P]
1 * <i>C. lepidolepis</i> Bleeker, 1877	[P,W]
2 * <i>C. margaritifer</i> Fowler, 1946	[P,W]
3 * <i>C. nigrura</i> Smith, 1960	[P,W]
3 * <i>C. opercularis</i> (Günther, 1867)	[P,W]
1 * <i>C. ternatensis</i> (Bleeker, 1856)	[P,W]
1 <i>C. viridis</i> (Cuvier, 1830)	[P,W]
2 * <i>C. xanthura</i> (Bleeker, 1854)	[P]
1 <i>Chrysiptera biocellata</i> (Quoy and Gaimard, 1824)	[P,W]
1 * <i>C. glauca</i> (Cuvier, 1830)	[P,W]
1 <i>Dascyllus aruanus</i> (Linnaeus, 1758)	[P,W]
2 * <i>D. reticulatus</i> (Richardson, 1846)	[P]
1 * <i>D. trimaculatus</i> (Rüppell, 1828)	[P]
1 * <i>Plectroglyphidodon dickii</i> (Liénard, 1839)	[P,W]
1 * <i>P. imparipennis</i> (Vallant and Sauvage, 1875)	[P,W]
1 * <i>P. johnstonianus</i> Fowler and Ball, 1924	[P]
1 * <i>P. lacrymatus</i> (Quoy and Gaimard, 1825)	[P,W]
1 * <i>P. leucozonus</i> (Bleeker, 1859)	[P,W]
1 * <i>P. phoenixensis</i> (Schultz, 1943)	[P]
1 <i>Pomacentrus pavo</i> (Bloch, 1787)	[P,W]
1 * <i>Stegastes albifasciatus</i> (Schlegel and Müller, 1839)	[P,W]
1 * <i>S. fasciolatus</i> (Ogilby, 1889)	[P,W]
1 <i>S. lividus</i> (Bloch and Schneider, 1801)	[P,W]
1 <i>S. nigricans</i> (Lacepède, 1802)	[P,W]

Cirrhitidae - Hawkfishes

1 * <i>Amblycirrhitus bimacula</i> (Jenkins, 1903)	[P,W]
2 <i>Cirrhitichthys aprinus</i> (Cuvier, 1829)	[P]
1 * <i>C. oxycephalus</i> (Bleeker, 1855)	[P]
1 * <i>Cirrhitus pinnulatus</i> (Schneider, 1801)	[P]
1 * <i>Oxycirrhites typus</i> Bleeker, 1857	[P]
1 * <i>Paracirrhites arcatus</i> (Cuvier, 1829)	[P]
1 * <i>P. forsteri</i> (Schneider, 1801)	[P,W]
2 * <i>P. hemistictus</i> (Günther, 1874)	[P]

Mugilidae - Mullets

1 * <i>Crenimugil crenilabis</i> (Forsskål, 1775)	[P,W]
1 <i>Liza vaigiensis</i> (Quoy and Gaimard, 1824)	[W]

Sphyraenidae - Barracudas

- 4 **Sphyraena barracuda* (Walbaum, 1792) [P,W]
 1 **S. flavicauda* Rüppell, 1838 [P]

Polynemidae - Threadfins

- 1 *Polydactylus sexfilis* (Valenciennes, 1831) [P]

Labridae - Wrasses

- 1 **Anampses caeruleopunctatus* Rüppell, 1829 [P]
 1 **A. meleagrides* Valenciennes, 1840 [P]
 1 **A. twistii* Bleeker, 1856 [P]
 1 **Bodianus anthioides* (Bennett, 1830) [P,W]
 1 **B. axillaris* (Bennett, 1831) [P]
 1 **B. diana* (Lacepède, 1801) [P]
 1 *Cheilinus bimaculatus* Valenciennes, 1840 [O]
 1 *C. chlorurus* (Bloch, 1791) [P,W]
 1 *C. fasciatus* (Bloch, 1791) [P]
 1 **C. trilobatus* Lacepède, 1801 [P]
 1 **C. undulatus* Rüppell, 1835 [P,W]
 2 **C. unifasciatus* Streets, 1877 [O]
 1 **Cheilio inermis* (Forsskål, 1775) [P]
 1 **Cirrhilabrus exquisitus* Smith, 1957 [P]
 2 *Cirrhilabrus rubrimarginatus* Randall, 1992 [P]
 1 **Coris aygula* Lacepède, 1801 [P]
 2 **C. dorsomacula* Fowler, 1908 [W]
 1 **C. gaimard* (Quoy and Gaimard, 1824) [P,W]
 1 *Cymolutes praetextatus* (Quoy and Gaimard, 1834) [P,W]
 1 **Epibulus insidiator* (Pallas, 1770) [P,W]
 2 **Gomphosus varius* Lacepède, 1801 [P,W]
 2 *Halichoeres chloropterus* (Bloch, 1791) [P]
 1 *H. hortulanus* (Lacepède, 1801) [P]
 1 **H. marginatus* Rüppell, 1835 [P,W]
 2 **H. melasmapomus* Randall, 1980 [P]
 2 **H. ornatissimus* (Garrett, 1863) [P,W]
 1 **H. scapularis* (Bennett, 1831) [O]
 2 **H. trimaculatus* (Quoy and Gaimard, 1834) [P,W]
 1 **Hemigymnus fasciatus* (Bloch, 1792) [P]
 1 **H. melapterus* (Bloch, 1791) [P]
 1 **Hologymnosus doliatius* (Lacepède, 1801) [P]
 1 **Labroides bicolor* Fowler and Bean, 1928 [P]
 1 **L. dimidiatus* (Valenciennes, 1839) [P,W]
 2 **L. pectoralis* Randall and Springer, 1975 [P]
 1 **Labropsis xanthonota* Randall, 1981 [P]
 2 *Macropharyngodon meleagris* (Valenciennes, 1839) [P,W]
 1 *Novaculichthys macrolepidotus* (Bloch, 1791) [W]
 1 **N. taeniourus* (Lacepède, 1801) [P,W]
 1 **Pseudocheilinus hexataenia* (Bleeker, 1857) [P,W]
 1 **P. octotaenia* Jenkins, 1900 [P,W]
 2 *Pseudocoris aurantifasciatus* Fourmanoir, 1971 [P]
 1 **Pseudodax moluccanus* (Valenciennes, 1839) [P]
 2 **Stethojulis bandanensis* (Bleeker, 1851) [P,W]
 1 **S. strigiventer* (Bennett, 1832) [P,W]
 1 **Thalassoma amblycephalum* (Bleeker, 1856) [P,W]

1 * <i>T. hardwickei</i> (Bennett, 1828)	[P,W]
1 * <i>T. jansenii</i> (Bleeker, 1856)	[W]
1 * <i>T. lunare</i> (Linnaeus, 1758)	[P]
1 * <i>T. lutescens</i> (Lay and Bennett, 1839)	[P,W]
1 * <i>T. purpureum</i> (Forsskål, 1775)	[P,W]
1 * <i>T. quinquevittatum</i> (Lay and Bennett, 1839)	[P,W]
1 * <i>T. trilobatum</i> (Lacepède, 1801)	[P]
2 <i>Xyrichtys aneitensis</i> (Günther, 1862)	[P]
1 * <i>X. pavo</i> Valenciennes, 1840	[P]

Scaridae - Parrotfishes

1 * <i>Bolbometopon muricatum</i> (Valenciennes, 1840)	[O]
1 <i>Calotomus carolinus</i> (Valenciennes, 1840)	[P]
1 <i>C. spinidens</i> (Quoy and Gaimard, 1824)	[P]
2 <i>Hipposcarus longiceps</i> (Valenciennes, 1840)	[P]
1 <i>Leptoscarus vaigiensis</i> (Quoy and Gaimard, 1824)	[P]
2 <i>Scarus atropectoralis</i> Schultz, 1958	[P]
3 <i>S. enneacanthus</i> Lacepède, 1802	[P,W]
2 * <i>S. forsteni</i> (Bleeker, 1861)	[O]
1 * <i>S. frenatus</i> Lacepède, 1802	[P]
1 * <i>S. ghobban</i> Forsskål, 1775	[P]
1 <i>S. globiceps</i> Valenciennes, 1840	[P]
1 * <i>S. niger</i> Forsskål, 1775	[O]
2 * <i>S. oviceps</i> Valenciennes, 1840	[P,W]
1 * <i>S. prasiognathos</i> Valenciennes, 1840	[P]
1 * <i>S. psittacus</i> Forsskål, 1775	[P]
1 * <i>S. rubroviolaceus</i> Bleeker, 1847	[O]
2 * <i>S. schlegeli</i> (Bleeker, 1861)	[P]
1 * <i>S. sordidus</i> Forsskål, 1775	[P,W]
3 <i>S. strongylocephalus</i> Bleeker, 1854	[P]
[This species, restricted to the Indian Ocean and Indonesia, has frequently been misidentified as <i>S. gibbus</i> Rüppell, a closely related Red Sea endemic.]	
3 <i>S. viridifuratus</i> (Smith, 1956)	[P]

Pinguipedidae - Sandperches

1 * <i>Parapercis clathrata</i> Ogilby, 1911	[P,W]
1 <i>P. hexophthalma</i> (Cuvier, 1829)	[P,W]
1 * <i>P. schauinslandi</i> (Steindachner, 1900)	[P]

Creediidae - Sandburrowers

2 * <i>Chalixodutes tauensis</i> Schultz, 1943	[P,W]
3 <i>Limnichthys nitidus</i> Smith, 1958	[P]

Tripterygiidae - Triplefins

3 * <i>Enneapterygius elegans</i> (Peters, 1876)	[P]
5 * <i>Enneapterygius tutuilae</i> Jordan & Seale, 1906	[W]
5 * <i>Enneapterygius</i> sp. 1	[W]
2 <i>Helcogramma capidata</i> Rosenblatt, 1960	[P]

Blenniidae - Blennies

1 <i>Aspidontus dussumieri</i> (Valenciennes, 1836)	[P]
1 * <i>A. taeniatus</i> Quoy and Gaimard, 1834	[P]
1 * <i>Cirripectes castaneus</i> (Valenciennes, 1836)	[P,W]

3	<i>C. gilberti</i> Williams, 1988	[P]
1	* <i>C. polyzona</i> (Bleeker, 1868)	[P]
1	<i>C. quagga</i> (Fowler and Ball, 1924)	[P]
1	* <i>Escenius bicolor</i> (Day, 1888)	[P,W]
1	* <i>E. midas</i> Starck, 1969	[P]
2	* <i>Entomacrodus caudofasciatus</i> (Regan, 1909)	[P]
1	* <i>E. epalzeocheilus</i> (Bleeker, 1859)	[W]
1	<i>E. striatus</i> (Quoy and Gaimard, 1836)	[P,W]
1	* <i>Exallias brevis</i> (Kner, 1868)	[P]
1	<i>Glyptoparus delicatulus</i> Smith, 1959	[P]
2	* <i>Istiblennius chrysospilos</i> (Bleeker, 1857)	[P]
1	* <i>I. edentulus</i> (Schneider, 1801)	[P]
1	* <i>I. lineatus</i> (Valenciennes, 1836)	[W]
1	* <i>I. periophthalmus</i> (Valenciennes, 1836)	[P,W]
1	<i>Petroscirtes xestus</i> Jordan and Seale, 1906	[P,W]
1	* <i>Plagiotremus rhinorhynchos</i> (Bleeker, 1852)	[P,W]
1	* <i>P. tapeinosoma</i> (Bleeker, 1857)	[P]
1	<i>Stanulus seychellensis</i> Smith, 1959	[P]

Callionymidae - Dragonets

1	<i>Diplogrammus goramensis</i> (Bleeker, 1858)	[P]
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Gobiidae - Gobies

2	<i>Amblygobius decussatus</i> (Bleeker, 1855)	[P]
2	<i>A. phalaena</i> (Valenciennes, 1837)	[P]
3	<i>A. semicinctus</i> (Bennett, 1833)	[W]
3	<i>A. tekomaji</i> (Smith, 1959)	[W]
1	<i>Asterropteryx semipunctatus</i> Rüppell, 1830	[P,W]
1	* <i>Bathygobius cocosensis</i> (Bleeker, 1854)	[P,W]
1	* <i>B. cyclopterus</i> (Valenciennes, 1837)	[P]
1	<i>Bryaninops ridens</i> Smith, 1959	[P]
1	<i>Cabillus tongarevae</i> (Fowler, 1927)	[P]
1	<i>Callogobius maculipinnis</i> (Fowler, 1918)	[W]
1	* <i>C. sclateri</i> (Steindachneri, 1880)	[W]
5	<i>Callogobius</i> sp.	[P,W]
1	<i>Discordipinna griessingeri</i> Hoese and Fourmanoir, 1978	[P]
2	<i>Eviota lachdeberei</i> ? Giltay, 1933	[W]
2	<i>E. latifasciata</i> ? Jewett and Lachner, 1983	[W]
1	<i>E. melasma</i> Lachner and Karanella, 1980	[P,W]
1	<i>E. prasina</i> (Klunzinger, 1871)	[W]
5	* <i>Eviota</i> sp. 1	[W]
5	* <i>Eviota</i> sp. 2	[W]
5	* <i>Eviota</i> sp. 3	[W]
5	<i>Eviota</i> sp. 4	[W]
1	<i>Exyrias belissimus</i> (Smith, 1959)	[P,W]
1	<i>Fusigobius duospilus</i> Hoese and Reader, 1985	[W]
1	<i>F. neophytus</i> (Günther, 1877)	[P,W]
5	* <i>Fusigobius</i> sp.	[P,W]
1	<i>Gnatholepis anjerensis</i> (Bleeker, 1850)	[P,W]
3	<i>G. caurensis</i> (Bleeker, 1853)	[P,W]
5	<i>Gnatholepis</i> sp.	[W]
2	* <i>Gobiodon okinawe</i> Sawada, Arai, and Abe, 1973	[P]
1	* <i>G. rivulatus</i> (Rüppell, 1830)	[P]

5	<i>Oplopomops</i> sp.	[P,W]
1	<i>Oplopomus oplopomus</i> (Valenciennes, 1837)	[P]
1	<i>Palutrus pruinosus</i> (Jordan and Seale, 1906)	[P,W]
1	<i>Paragobiodon echocephalus</i> (Rüppell, 1830)	[P]
1	* <i>Priolepis cincta</i> (Regan, 1908)	[P]
1	<i>P. inhaca</i> (Smith, 1949)	[P]
1	* <i>P. semidoliatus</i> (Valenciennes, 1837)	[P,W]
2	<i>Psilogobius prolatus</i> Watson and Lachner, 1985	[P]
1	<i>Sueviota lachneri</i> Winterbottom and Hoese, 1988	[W]
1	* <i>Trimma emeryi</i> Winterbottom, 1985	[P,W]
1	<i>T. hoesei</i> Winterbottom, 1984	[W]
1	<i>T. macrophthalma</i> (Tomiyama, 1936)	[P,W]
1	* <i>T. taylori</i> Lobel, 1979	[P]
1	<i>T. undisquamis</i> (Gosline, 1959)	[W]
3	<i>T. winchi</i> Winterbottom, 1984	[P]
3	* <i>Trimma</i> sp.	[P,W]
2	* <i>Trimmaton sigma</i> Winterbottom, 1989	[P]
1	* <i>Valenciennea helsdingenii</i> (Bleeker, 1858)	[P]
1	* <i>V. sexguttata</i> (Valenciennes, 1837)	[P]
1	* <i>V. strigata</i> (Broussonet, 1872)	[P]
1	<i>Vanderhorstia ornatissima</i> Smith, 1959	[P,W]

Xenisthmidae - Sandfishes

3	<i>Xenisthus africanus</i> Smith, 1958	[P,W]
2	<i>X. clara</i> (Jordan and Seale, 1906)	[P,W]

Microdesmidae - Hovergobies

[We follow Randall and Hoese (1985) in including *Nemateleotris* and *Ptereleteotris* in this family.]

1	* <i>Gunnellichthys monostigma</i> Smith, 1958	[W]
1	* <i>Nemateleotris decora</i> Randall and Allen, 1973	[P]
1	* <i>N. magnifica</i> Fowler, 1938	[P]
1	* <i>Ptereleteotris evides</i> (Jordan and Hubbs, 1925)	[P]
1	* <i>P. heteroptera</i> (Bleeker, 1855)	[P]
1	* <i>P. microlepis</i> (Bleeker, 1856)	[P,W]
1	* <i>P. zebra</i> (Fowler, 1938)	[P]

Kraemeridae - Sand darts

1	<i>Kraemeria samoensis</i> Steindachner, 1906	[P]
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Acanthuridae - Surgeonfishes

1	* <i>Acanthurus blochii</i> Valenciennes, 1835	[O]
2	* <i>A. guttatus</i> Bloch and Schneider, 1801	[O]
2	* <i>A. leucosternon</i> Bennett, 1832	[P]
1	* <i>A. lineatus</i> (Linnaeus, 1758)	[O]
2	* <i>A. maculiceps</i> (Ahl, 1923)	[O]
1	* <i>A. mata</i> (Cuvier, 1829)	[P]
2	* <i>A. nigricans</i> (Linnaeus, 1758)	[P,W]
1	* <i>A. nigricauda</i> Duncker and Mohr, 1929	[O]
1	* <i>A. nigrofuscus</i> (Forsskål, 1775)	[W]
1	<i>A. nigroris</i> Valenciennes, 1835	[P]
2	* <i>A. olivaceus</i> Bloch and Schneider, 1801	[P]
1	* <i>A. pyroferus</i> Kittlitz, 1834	[O]

1 * <i>A. thompsoni</i> (Fowler, 1923)	[P]
1 * <i>A. triostegus</i> (Linnaeus, 1758)	[P]
1 * <i>A. xanthopterus</i> Valenciennes, 1835	[O]
1 * <i>Ctenochaetus striatus</i> (Quoy and Gaimard, 1825)	[P,W]
1 * <i>C. strigosus</i> (Bennett, 1828)	[P,W]
1 * <i>Naso brevirostris</i> (Valenciennes, 1835)	[P]
1 * <i>N. hexacanthus</i> (Bleeker, 1855)	[P]
1 * <i>N. lituratus</i> (Bloch and Schneider, 1801)	[P,W]
1 * <i>N. unicornis</i> (Forsskål, 1775)	[P,W]
1 * <i>N. vlaminghi</i> (Valenciennes, 1835)	[P]
1 * <i>Paracanthurus hepatus</i> (Linnaeus, 1766)	[P]
3 <i>Zebrasoma desjardinii</i> (Bennett, 1835)	[P]

[Most recent authors have recognized this Indian Ocean surgeonfish as a subspecies of the Pacific *Z. veliferum*. We follow Burgess (1973) in recognizing them both as distinct species, and note that in contrast to Cocos, Christmas Is. fish have the typical *veliferum* coloration.]

1 * <i>Z. scopas</i> (Cuvier, 1829)	[P,W]
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Zanclidae - Moorish Idols

1 * <i>Zanclus cornutus</i> (Linnaeus, 1758)	[P]
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Siganidae - Rabbitfishes

1 <i>Siganus argenteus</i> (Quoy and Gaimard, 1825)	[P]
2 <i>S. puillus</i> Schlegel, 1852	[P]
2 <i>S. punctatus</i> (Bloch and Schneider, 1801)	[P]
3 <i>S. stellatus</i> Forsskål, 1775	[O]

Scombridae - Tunas

4 * <i>Acanthocybium solandri</i> (Cuvier, 1831)	[O]
1 * <i>Gymnosarda unicolor</i> (Rüppell, 1836)	[O]
4 * <i>Thunnus albacares</i> (Bonnaterre, 1788)	[O]

Bothidae - Flounders

1 * <i>Bothus mancus</i> (Bonnaterre, 1782)	[P,W]
1 * <i>B. pantherinus</i> (Rüppell, 1830)	[W]

Soleidae - Soles

5 * <i>Aseraggodes</i> sp. 1	[P]
5 <i>Aseraggodes</i> sp. 2	[P]

Balistidae - Triggerfishes

1 * <i>Balistapus undulatus</i> (Park, 1797)	[P]
1 * <i>Balistoides viridescens</i> (Bloch and Schneider, 1801)	[O]
1 * <i>Melichthys indicus</i> Randall and Klausewitz, 1973	[P]
4 * <i>M. niger</i> (Bloch, 1786)	[P]
1 * <i>M. vidua</i> (Solander, 1844)	[P]
1 * <i>Odonus niger</i> (Rüppell, 1837)	[P]
1 <i>Pseudobalistes flavimarginatus</i> (Rüppell, 1829)	[P,W]
1 <i>Rhinocanthus aculeatus</i> (Linnaeus, 1758)	[P,W]
1 * <i>R. rectangulus</i> (Bloch and Schneider, 1801)	[P]
1 * <i>Sufflamen bursa</i> (Bloch and Schneider, 1801)	[P]
1 * <i>S. chrysopterus</i> (Bloch and Schneider, 1801)	[P]
1 <i>S. fraenatus</i> (Latreille, 1804)	[P]

1 * <i>Xanthichthys auromarginatus</i> (Bennett, 1831)	[P]
1 * <i>X. caeruleolineatus</i> Randall, Matsuura and Zama, 1978	[O]

Monacanthidae - Leatherjackets

4 * <i>Aluterus scriptus</i> (Osbeck, 1765)	[P]
1 * <i>Cantherines dumerili</i> (Hollard, 1854)	[P]
1 * <i>C. pardalis</i> (Rüppell, 1837)	[O]
1 * <i>Pervagor aspricaudus</i> (Hollard, 1854)	[P,W]

Ostraciontidae - Boxfishes

1 * <i>Ostracion cubicus</i> Linnaeus, 1758	[P,W]
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Tetraodontidae - Puffers

1 * <i>Arothron hispidus</i> (Linnaeus, 1758)	[P,W]
1 * <i>A. nigropunctatus</i> (Bloch and Schneider, 1801)	[P]
1 * <i>Canthigaster amboinensis</i> (Bleeker, 1865)	[P]
1 * <i>C. bennetti</i> (Bleeker, 1854)	[P]
1 * <i>C. janthinoptera</i> (Bleeker, 1855)	[P,W]
1 * <i>C. valentini</i> (Bleeker, 1853)	[P]

Diodontidae - Porcupinefishes

4 * <i>Diodon hystrix</i> Linnaeus, 1758	[P]
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Table 1. Comparison of total ichthyofauna¹ and selected families of fishes occurring at Cocos-Keeling (CK) or Christmas Island (CI); numbers in parentheses are percent of total fauna; data for Christmas Island based on slightly updated version of checklist given in Allen and Steene (1987).

Family	number of species CK (%)	CI (%)	shared spp.	CK only	CI only
Labridae	54 (10.2)	61 (10.8)	43	11	16
Gobiidae	51 (9.6)	36 (6.4)	18	33	18
Pomacentridae	38 (7.2)	44 (7.8)	31	7	11
Apogonidae	30 (5.7)	22 (3.9)	12	20	10
Serranidae	30 (5.7)	44 (7.8)	19	11	25
Acanthuridae	25 (4.7)	26 (4.6)	24	1	2
Muraenidae	24 (4.5)	34 (6.0)	20	4	14
Chaetodontidae	23 (4.3)	27 (4.8)	19	4	8
Blenniidae	21 (4.0)	28 (5.0)	14	7	14
Scaridae	20 (3.8)	15 (2.7)	11	9	6
Holocentridae	20 (3.8)	15 (2.7)	12	8	3
Scorpaenidae	16 (3.0)	19 (3.4)	11	5	8
Balistidae	14 (2.6)	12 (2.1)	11	3	1
Carangidae	11 (2.1)	13 (2.3)	10	1	2
Lethrinidae	10 (1.9)	2 (0.0)	2	8	0
Lutjanidae	8 (1.5)	15 (2.7)	7	1	8
Cirrihitidae	8 (1.5)	7 (1.2)	7	1	0
Mullidae	8 (1.5)	7 (1.2)	7	1	0
Pomacanthidae	7 (1.3)	12 (2.1)	4	3	8
Microdesmidae	7 (1.3)	7 (1.2)	7	0	0
Tetradontidae	6 (1.1)	9 (1.6)	6	0	3
Ophichthidae	6 (1.1)	7 (1.2)	2	4	5
Syngnathidae	6 (1.1)	7 (1.2)	4	2	3
Total fauna ¹	530	563	351	176	212

¹The following families of epipelagic fishes were unsampled or under-sampled at Cocos (Keeling) Island, and to make the above faunal comparisons more meaningful, species of these families are not included in the total fauna counts (percentages were also calculated using the adjusted totals): Rhincodontidae, Exocoetidae, Coryphaenidae, Gempylidae, Scombridae and Istiophoridae.

Table 2. Zoogeographic analysis of the Cocos (Keeling) fish fauna.

Distribution	No. species	percent of total fauna
Widespread Indo-Pacific or Indo-west Pacific	388	72.8
West Pacific & Cocos Is.	85	15.9
Indian Ocean	31	5.8
Circumtropical	12	2.3
Uncertain	17	3.2
total	533	100.0
Also known from Christmas Is.	354	66.4