RAFFLES BULLETIN OF ZOOLOGY Supplement No. **30**: 203–219
Date of publication: 25 December 2014
http://zoobank.org/urn:lsid:zoobank.org:pub:FC9B91DA-9B0D-4CFB-9A0D-27F4F467DADA

Fishes of the Cocos (Keeling) Islands: new records, community composition and biogeographic significance

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Abstract. The Cocos (Keeling) Islands comprise the most isolated oceanic atoll in the tropical Indian Ocean and are situated 1000 km south-west of Indonesia. The remoteness of the islands has shaped the composition of marine communities but also limited scientific research. This study summarises field research on the marine fishes of the Cocos (Keeling) Islands over the last 14 years (2001–2014). Sixty-seven new records (from 28 families) are described and raise the total number of known fishes to 602 species from 84 families. New records span a variety of body sizes (3 cm TL *Gobiodon unicolor* to 500 cm TL *Rhincodon typus*), were observed in all major habitats, and found at both the Southern Atoll and at North Keeling Island. Notable new records include first records for the families Alopiidae, Coryphaenidae, Eleotridae, Gempylidae, Istiophoridae, Molidae, Polymixiidae, Rhincodontidae, Sillaginidae and Xiphiidae. Sampling from pelagic and deepwater (60–300 m) reef environments significantly increased the number of species described from these habitats. New records include species that have dispersed more than 2500 km (*Centropyge acanthops*) and dispersal ability appears to explain the lack of syngnathids and the high representation of acanthurids and holocentrids in the community. Some of the Indian Ocean species that have colonised the Cocos (Keeling) Islands now co-occur with their Pacific Ocean sister species, increasing the potential for hybridisation. Although the fish community of the Cocos (Keeling) Island resembles that of the Indo-West Pacific, the isolation and co-occurrence of Indian and Pacific Ocean species distinguishes it from all other locations.

Key words. coral reef fish, colonisation, dispersal, Indo-Pacific biogeographic border, North Keeling Island, vagrants

INTRODUCTION

The Cocos (Keeling) Islands (12°12’S, 96°54’E) lie atop of an isolated oceanic coral atoll situated in the northeast Indian Ocean approximately 1000 km southwest of Java (Indonesia). Although these islands are located in the Indian Ocean, the marine faunal assemblage that has been surveyed to date largely resembles the tropical Indo-West Pacific (Allen & Smith-Vaniz, 1994; Woodroffe & Berry, 1994). For many Indo-West Pacific species, the Cocos (Keeling) Islands represent the western-most edge of their geographic range (Allen & Smith-Vaniz, 1994). The mixing of Indian and Pacific Ocean sister species at the eastern and western edge (respectively) of their geographic range makes the Cocos (Keeling) Islands an important marine biogeographic border (Hobbs et al., 2012).

Approximately 550 species of fish have previously been recorded at the Cocos (Keeling) Islands (Allen & Smith-Vaniz, 1994). Fish collections began when the HMS Beagle visited the Cocos (Keeling) Islands in 1836 and were added to through several small-scale collections up to 1973 (reviewed by Allen & Smith-Vaniz, 1994). The current list of fish species is largely based on two dedicated survey expeditions: one in 1973 by the Academy of Natural Sciences of Philadelphia and the second in 1989 by the Western Australian Museum and Australian Institute of Marine Sciences (Allen & Smith-Vaniz, 1994). Surveys and collections were conducted on the main atoll (South Keeling Atoll), whilst North Keeling Island has received little research. Fishes were identified by underwater observations from experienced icthyologists and from collections using ichthyocides and spears (Allen & Smith-Vaniz, 1994). Further surveys have been limited by the remoteness of the islands. The relatively low number of recorded fish species is probably due to under-sampling, as well as the small size and isolation of the islands (Allen & Smith-Vaniz, 1994; Hobbs et al., 2012). The aim of this study was to extensively survey the fish fauna of the Cocos (Keeling) Islands in an attempt to identify new records. This includes surveying locations and habitats that have received little attention: North Keeling Island and the deeper waters (>60 m) and the southern coastline of the South Keeling

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ISSN 2345-7600 (electronic) | ISSN 0217-2445 (print)

Atoll. From this list of species obtained, we examine the community structure and biogeographic significance of the Cocos (Keeling) Islands fish community.

MATERIAL AND METHODS

The fish fauna of the Cocos (Keeling) Islands were surveyed during a series of 11 trips from 2001 to 2014. The outer reef habitats on all four sides (North, South, East and West) of the South Keeling Atoll were surveyed, along with the lagoon. Due to the prevailing south-easterly winds and southerly swells, more surveys were conducted in the northern half of the atoll. Reef fishes were surveyed using underwater observations made whilst snorkelling in the shallow waters (0–5 m) and SCUBA diving in deeper waters (5–70 m). Pelagic and deepwater (60–300 m) reef habitats were sampled with the assistance of local anglers using line-fishing methods (trolling and bottom fishing). Some lagoonal fishes were identified after floating ashore following fish kill events (Hobbs & McDonald, 2010; Hobbs & Macrae, 2012). Species were only recorded where visual identification was certain. Where identity was uncertain, photographs and/or specimens were provided to the relevant taxonomic experts for identification. We have also included new records whose identification is clear from underwater photographs taken by local divers and anglers. Information about these sightings were communicated to us by the diver or angler who took the photograph. The majority of the 533 species recorded by Allen & Smith-Vaniz (1994) have specimens lodged in the Academy of Natural Sciences in Philadelphia and/or Western Australian Museum. However, specimens could not be lodged for the majority of new records observed on trips from 2001–2014 because of their large size, rarity and/or desire by anglers to retain the fish. North Keeling Island, situated 24 km north of the main atoll (South Keeling Atoll), was surveyed on one day during November 2002 (SCUBA diving on the west coast, 0–25 m depth), one day in June 2008 (snorkelling around entire island, 0–15 m depth) and one day in March 2010 (snorkelling west coast, 0–15 m depth).

The phylogenetic sequence of families appearing in the checklist (Table 1) follows Eschmeyer (2014) with slight modifications that reflect recent taxonomic studies. In accordance with recent molecular work, the parrotfishes are placed within the family Labridae as scarine labrids (Westneat & Alfaro, 2005; Choat et al., 2012). Similarly, Smith & Craig (2007) employed mitochondrial and nuclear DNA sequence data to resolve the relationships among serranid fishes and raised the subfamily Epinephelinae to the monophyletic family Epinephelidae. The revised systematics of the Epinephelidae is also described in Craig et al. (2011). To describe the characteristics of the fish community at the Cocos (Keeling) Islands, information was gathered on geographic distributions and habitat use (Allen & Smith-Vaniz, 1994; Allen et al., 2007; Eschmeyer, 2014; Froese & Pauly, 2014). Habitat use of fishes was broadly classed into five categories: 1, shallow water – species that obtain their greatest abundance on shallow water (<60 m) reefs and adjacent sand habitats; 2, deepwater – species that obtain their greatest abundance on reefs deeper than 60 m; 3, pelagic; 4, intertidal; and 5, freshwater and brackish. The composition of the fish community at the Cocos (Keeling) Islands was compared to that of its nearest neighbours, Indonesia (Allen & Adrim, 2003) and Christmas Island (Allen et al., 2007; Hobbs et al., this issue).

Abbreviation used: TL = total length, measured from tip of upper jaw to distal tip of caudal fin.

RESULTS

New records. 67 new records (from 28 families) were identified in this study. The new records cover fishes from a broad range of habitats, with shallow and deepwater reef fishes accounting for 58% and 28% (respectively) of new records. New records from a variety of sizes were identified, ranging from fish as small as 3 cm TL (Gobiidae – *Gobiodon unicolor*) to the 500 cm TL whale shark (Rhincodontidae – *Rhincodon typus*) and 200 cm TL sunfish (Molidae – *Mola mola*). Notable new records include first records for the families Alopiidae, Coryphaenidae, Eleotridae, Gempylidae, Istiophoridae, Molidae, Polymixiidae, Rhincodontidae, Sillaginidae and Xiphiidae.Other notable records include *Centropyge acanthops*, a western Indian Ocean species with the nearest population at the Chagos Archipelago—nearly 3000 km away. The island Gregory (*Stegastes insularis*), which is endemic to Christmas Island (Indian Ocean) and Marcus Island (Pacific Ocean). Indian Ocean species, such as *Chaetodon falcula* and *Hipposcarus harid* are now co-occurring with their Pacific Ocean sister species at the Cocos (Keeling) Islands. The gudgeon (*Ophiocara porocephala*) that was found in the shallow (1–2 m) bay of the North Lagoon (West Island) is the first record for the family Eleotridae, a group that predominately inhabits fresh and brackish waters.

North Keeling Island. In three days of surveys, 201 fish species from 41 families were identified. Interestingly, 6 species (3% of the North Keeling fish list) were new records and have not been previously observed at the South Keeling Atoll despite more intensive research at the southern atoll. The lagoon entrance at North Keeling Island has recently closed (circa 2005). In the past this lagoon was reportedly teeming with fish; however, only one species of fish (Chanidae – *Chanos chanos*) was encountered during two hours of surveying the lagoon.

Community composition. 602 fish species from 84 families have now been recorded at the Cocos (Keeling) Islands. Approximately 78% of these species are widespread Indo-Pacific species, 9% are Western Pacific species at the western edge of their geographic range, and 6% are Indian Ocean species at the eastern edge of their range. The majority (93%) of recorded fishes are shallow water (<60 m depth) species. Deep reef and pelagic species represented 5% and 2% (respectively) of the fish community. The families with the greatest species richness are (in descending order): Labridae (84 species), Gobiidae (54), Pomacentridae (39), Epinephelidae (37), Apogonidae (30), Chaetodontidae (28), Muraenidae (25), Acanthuridae (25),

Blenniidae (21) and Holocentridae (19). These ten families account for 59% of all fish species observed at the Cocos (Keeling) Islands. With the exception of Acanthuridae and Holocentridae, all of these families are in the top ten species-rich families found in neighbouring Indonesia. The two families not in the Indonesian top ten were Lutjanidae (12th), which was slightly lower than its Indonesian rank (10th), and Syngnathidae (ranked 23rd). The only difference in the top ten families between Christmas Island and the Cocos (Keeling) Islands was that the 10th ranked family at Christmas Island was Serranidae and at the Cocos (Keeling) Islands it was Holocentridae. Although the fish communities at these two locations are broadly similar in terms of family composition and species richness, 28% (167/602) of the fishes at the Cocos (Keeling) Islands have not been recorded at Christmas Island.

DISCUSSION

The 67 new records reported in this study increase the total number of reported fish species at the Cocos (Keeling) Islands to 602.The new records were found at both North Keeling Island and the Southern Atoll and are taxonomically diverse, span a broad range of body sizes and were found in all major habitats. The total number of fishes recorded at the Cocos (Keeling) Islands is lower than other Indian Ocean locations; however, this is expected given the relatively small size of available habitat (reviewed by Hobbs et al., 2012). Although the Cocos (Keeling) Islands are in the Indian Ocean, the composition of the fish community resembles that of the Indo-West Pacific. However, there are notable unique elements, particularly the presence of species that are restricted to the Indian Ocean, that distinguish the Cocos fish community from other Indo-West Pacific communities.

New records. To address the lack of research on fishes inhabiting the deepwater reefs (60–300 m) and pelagic environment around the Cocos (Keeling) Islands, we worked with local anglers to sample these environments using line-fishing methods (hook-and-line, and trolling). This resulted in a substantial increase in the number of fishes recorded from deepwater reefs (from 13 to 32 species) and pelagic (from 4 to 11 species) environments. Many of these new records are considered good for eating (*Etelis* and *Pristipomoides* spp.) and are targeted by recreational fishers at the Cocos (Keeling) Islands. Although no commercial fisheries exist for food fish at the Cocos (Keeling) Islands, these species support commercial fisheries elsewhere (Newman & Dunk, 2003; Williams et al., 2012; Newman et al., 2013a; 2013b). However, on oceanic islands, the limited available habitat and the life history characteristics of these species make them vulnerable to overfishing (Newman & Dunk, 2003; Andrews et al., 2011; Williams et al., 2012). The gear used (hook-and-line) to sample the deepwater fishes in this study is highly selective and future research using traps (e.g., Newman et al., 2011), camera equipment (e.g., Harvey et al., 2012) and specialised deepwater diving equipment to enable sampling with ichthyocides and nets (Pyle, 2000) will likely reveal many more new records in this deepwater habitat.

The majority of the shallow water new records were easily recognised and had low abundance. Although *Stegastes insularis* is rare at the Cocos (Keeling) Islands, its presence at both North Keeling and South Keeling Atoll is important because it increases the number of populations for this restricted range species (previously known only from Christmas and Marcus Islands: Allen & Emery, 1985). Some of the new records may be recent colonists to the Cocos (Keeling) Islands. For example, *Centropyge acanthops* is a conspicuous species and one juvenile (approximately 4 cm TL) was observed near Direction Island on the southern atoll. *Centropgye* angelfish have been a focus of surveys (Hobbs JP) and collections (by researchers and commercial aquarium-trade divers) for the last 14 years (Hobbs et al., 2010a), and despite this attention *Centropyge acanthops* has not been sighted elsewhere around the atoll. To colonise the Cocos (Keeling) Islands, this western Indian Ocean species would have travelled at least 2500 km (the nearest population is the Chagos Archipelago). Another vagrant, the gudgeon *Ophiocara porocephala*, was a surprise new record. This species, which usually inhabits brackish and freshwater rivers, has dispersed at least 1000 km through the open ocean to inhabit a lagoon of a coral atoll that has no brackish or freshwater rivers. These new records illustrate that to successfully colonise the Cocos (Keeling) Islands requires a 1000 km oceanic dispersal event and the ability to use the limited number of habitats available. While long-distance dispersal is crucial to colonisation, maintaining a population at the Cocos (Keeling) Islands will probably be largely dependent on self-recruitment (Gaither et al., 2011; Hobbs et al., 2011, 2013).

North Keeling Island. The remoteness and difficulties accessing North Keeling Island (and no permanent habitation) has limited research on the local fish community. Understanding this community is important because the waters around this island is the only part of the Cocos (Keeling) Islands marine environment that is protected by a national park (Pulu Keeling National Park). The number of species recorded in three days of surveys (201) is one-third the species recorded to date on South Keeling Atoll. Although the marine habitat at North Keeling Island is much smaller (<5%) than the South Keeling Atoll, it is difficult to predict the total number of species present at North Keeling Island given the large discrepancy in sampling effort between the two locations. Given the similarity in the type of marine habitats between the two locations, the small distance between the locations (24 km of open ocean), and the greater sampling effort at South Keeling Atoll, it is surprising that there are some species present at North Keeling Island that have not been recorded at South Keeling Atoll. Further research is needed to determine if North Keeling Island supports a distinct community of reef fishes (and other marine species), which has important implications to the management of Pulu Keeling National Park.

Community composition. The Cocos (Keeling) Islands are oceanic and located more than 1000 km from the nearest landmass (Christmas Island and Indonesia), and therefore the community represents an accumulation of colonising

species that have arrived through long-distance dispersal. The proportion of acanthurid and holocentrid species in the Cocos (Keeling) fish community was higher than expected given the relative proportions of these families in neighbouring Indonesia, while syngnathids were underrepresented in the Cocos (Keeling) community. Many syngnathid species have a very limited dispersive larval stage and their under representation in the Cocos (Keeling) Islands community probably reflects the inability of poor dispersers to colonise isolated locations (Hobbs et al., 2012). The relative high proportion of acanthurids and holocentrids is probably due to their ability for long-distance larval dispersal as evidenced by high levels of gene flow between distant populations (Craig et al., 2007; Klanten et al., 2007; Horne et al., 2008).

The Cocos (Keeling) Islands fish community is distinguished from other Indo-West Pacific communities by the presence of species that are restricted to the Indian Ocean. The unique co-occurrence of Indian and Pacific Ocean species reflects the biogeographic position of the Cocos (Keeling) Islands at the junction of the Indian and Pacific Ocean bioregions. Dispersal between the Indian and Pacific Ocean was restricted during Pleistocene sea level changes due to the formation of the Sunda Shelf Barrier (Indonesia) and this caused some species to diverge in allopatry (Randall, 1998; Rocha et al., 2007). Contemporary sea level conditions allow for dispersal through Indonesia and between the Indian and Pacific Oceans. Given the large expanse of open ocean between the central Indian Ocean and Indonesia, the Cocos (Keeling) Islands (and Christmas Island) provide important stepping stones for coral reef species dispersing between the Indian and Pacific Oceans (Hobbs et al., 2010b). Furthermore, secondary contact and cohabitation of Indian and Pacific Ocean species at the Cocos (Keeling) Islands (Hobbs & Salmond, 2008) has resulted in widespread hybridisation (Hobbs et al., 2009; Hobbs & Allen, this issue) with varying taxonomic consequences (Marie et al., 2007; Montanari et al., 2012, 2014).

Although the fish community at the Cocos (Keeling) Islands resembles the Indo-West Pacific, it is the unique characteristics of the community that highlight the importance of the Cocos (Keeling) Islands. The isolation of the islands provides insights into the dispersal and colonisation abilities of reef fishes (and other species) and how isolated communities are structured. The position of the islands is of biogeographic and phylogeographic importance because it facilitates inter-ocean dispersal (and gene flow) of reef fishes and other tropical marine species. In addition, the islands represent a zone of secondary contact between Indian and Pacific Ocean sister species that often results in hybridisation with broader taxonomic implications.

ACKNOWLEDGEMENTS

The fieldwork was funded by the Fisheries Resources Research Fund, James Cook University, The University of Western Australia and Envirofund. We thank the staff of Parks Australia who provided excellent logistical support, particularly with surveying North Keeling Island. We thank the Cocos (Keeling) Islands community for assisting our research especially Geof Christie, John Clunies-Ross, Dieter Gerhard and Karen Willshaw. Thanks to Charlie Arkrie, Subur Manija and Hisham Macrae for sampling pelagic and deepwater fishes. We also thank Kendall Clements, Jay Hender, Christian McDonald and Joseph Neilson for valuable assistance with fieldwork. Thanks to Helen Larson, Sue Morrison and Yukio Iwatsuki for assistance with identification.

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Table 1. Checklist of fishes from the Cocos (Keeling) Islands (CI = Christmas Island and the asterisk (*) indicates that their presence is also known from Christmas Island; NR = new record (# = North Keeling Island only); GD = geographical distribution with each of the numbers indicating the following distributional data: 1 = widespread Indo-Pacific or Indo-west Pacific; 2 = West Pacific species that reach their western distributional limit at the Cocos (Keeling) Islands; 3 = Indian Ocean species; 4 = circumtropical or cosmopolitan; 5 = uncertain extralimital distribution; 6 = endemic and near endemic species or morphs.

Family	Genus/Species/Authority	CI	NR	GD	Source
Rhincodontidae	*Rhincodon typus* Smith, 1828	*	NR	4	Communicated to authors
Carcharhinidae	*Carcharhinus amblyrhynchos* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Carcharhinidae	*Carcharhinus falciformis* (Müller & Henle, 1839)	*	NR	4	Author's observations
Carcharhinidae	*Carcharhinus melanopterus* (Quoy & Gaimard, 1824)			1	Allen & Smith-Vaniz, 1994
Carcharhinidae	*Galeocerdo cuvier* (Péron & Lesueur, 1822)	*		4	Allen & Smith-Vaniz, 1994
Carcharhinidae	*Triaenodon obesus* (Rüppell, 1837)	*		1	Allen & Smith-Vaniz, 1994
Sphyrnidae	*Sphyrna lewini* (Griffith & Smith, 1834)	*		4	Allen & Smith-Vaniz, 1994
Alopiidae	*Alopias pelagicus* Nakamura, 1935	*	NR	4	Identified from photograph
Myliobatidae	*Manta birostris* (Walbaum, 1792)	*		4	Allen & Smith-Vaniz, 1994
Albulidae	*Albula* sp.			5	Author's observations and photographs
Moringuidae	*Moringua ferruginea* Bliss, 1883			1	Allen & Smith-Vaniz, 1994
Moringuidae	*Moringua javanica* (Kaup, 1856)	*		1	Allen et al., 2007
Moringuidae	*Moringua microchir* Bleeker, 1853			1	Allen & Smith-Vaniz, 1994
Muraenidae	*Anarchias cantonensi*s (Schultz, 1943)			1	Allen & Smith-Vaniz, 1994
Muraenidae	*Anarchias seychellensis* Smith, 1962	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Uropterygius concolor* Rüppell, 1838	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Uropterygius marmoratus* (Lacepède, 1803)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Uropterygius xanthopterus* Bleeker, 1859	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Echidna nebulosa* (Ahl, 1789)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Echidna polyzona* (Richardson, 1845)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Enchelycore bayeri* (Schultz, 1953)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Enchelycore pardalis* (Temminck & Schlegel, 1846)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Enchelynassa canina* (Quoy & Gaimard, 1824)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax buroensis* (Bleeker, 1857)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax enigmaticus* McCosker & Randall, 1982	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax fimbriatus* (Bennett, 1832)			1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax flavimarginatus* (Rüppell, 1830)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax javanicus* (Bleeker, 1859)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax margaritophorus* Bleeker, 1865	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax melatremus* Schultz, 1953	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax monochrous* Bleeker, 1856			1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax monostigma* (Regan, 1909)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax pictus* (Ahl, 1789)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax rueppeliae* (McClelland, 1844)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax undulatus* (Lacépède, 1803)			1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax zonipectis* Seale, 1906	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Gymnothorax thrysoideus* (Richardson, 1845)	*		1	Allen & Smith-Vaniz, 1994
Muraenidae	*Rhinomuraena quaesita* Garman, 1888	*	NR	1	Author's observations
Ophichthidae	*Scolecenchelys breviceps* (Günther, 1876)			5	Allen & Smith-Vaniz, 1994
Ophichthidae	*Scolecenchelys laticaudata* (Ogilby, 1897)	*		1	Allen & Smith-Vaniz, 1994
Ophichthidae	*Scolecenchelys macroptera* (Bleeker, 1857)			1	Allen & Smith-Vaniz, 1994
Ophichthidae	*Schultzidia johnstonensis* (Schultz & Woods, 1949)			1	Allen & Smith-Vaniz, 1994
Ophichthidae	*Callechelys catostoma* (Schneider, 1801)			1	Allen & Smith-Vaniz, 1994
Ophichthidae	*Leiuranus semicinctus* (Lay & Bennett, 1839)	*		1	Allen & Smith-Vaniz, 1994
Ophichthidae	*Myrichthys colubrinus* (Boddaert, 1781)		NR	1	Author's observations
Congridae	*Conger cinereus* Rüppell, 1830	*		1	Allen & Smith-Vaniz, 1994
Congridae	*Gorgasia maculata* Klausewitz & Eibl-Eibesfeldt, 1959			1	Allen & Smith-Vaniz, 1994

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Congridae	*Heteroconger hassi* (Klausewitz & Eibl-Eibesfeldt, 1959)	*		1	Allen & Smith-Vaniz, 1994
Clupeidae	*Sardinella melanura* (Cuvier, 1829)			1	Allen & Smith-Vaniz, 1994
Clupeidae	*Spratelloides delicatulus* (Bennett, 1832)			1	Allen & Smith-Vaniz, 1994
Chanidae	*Chanos chano*s (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Synodontidae	*Synodus variegatus* (Lacepède, 1803)	*		1	Allen et al., 2007
Synodontidae	*Saurida gracilis* (Quoy & Gaimard, 1824)	*		1	Allen & Smith-Vaniz, 1994
Polymixiidae	*Polymixia berndti* Gilbert, 1905		NR	1	Identified from photograph
Ophidiidae	*Brotula multibarbata* Temminck & Schlegel, 1847	*		1	Allen & Smith-Vaniz, 1994
Bythitidae	*Brosmophyciops pautzkei* Schultz, 1960	*		1	Allen & Smith-Vaniz, 1994
Bythitidae	*Dinematichthys trilobatus* Møller & Schwarzhans, 2008	*		6	Allen & Smith-Vaniz, 1994; Møller & Schwarzhans, 2008
Bythitidae	*Ogilbia* sp.	*		6	Allen & Smith-Vaniz, 1994
Antennariidae	*Antennarius coccineus* (Lesson, 1830)	*		1	Allen & Smith-Vaniz, 1994
Antennariidae	*Antennarius dorehensis* Bleeker, 1859			1	Allen & Smith-Vaniz, 1994
Notocheiridae	*Iso natalensis* Regan, 1919			3	Allen & Smith-Vaniz, 1994
Belonidae	*Platybelone argalus* (Lesueur, 1821)	*		4	Allen & Smith-Vaniz, 1994
Belonidae	*Tylosurus crocodilus* (Péron & Lesueur, 1821)	*		4	Allen & Smith-Vaniz, 1994
Hemiramphidae	*Hyporhamphus affinis* (Günther, 1866)			1	Allen & Smith-Vaniz, 1994
Hemiramphidae	*Hyporhamphus dussumieri* (Valenciennes, 1847)			1	Allen & Smith-Vaniz, 1994
Zenarchopteridae	*Zenarchopterus dispar* (Valenciennes, 1847)			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Neoniphon argenteus* (Valenciennes, 1831)			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Neoniphon opercularis* (Valenciennes, 1831)			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Neoniphon sammara* (Forsskal, 1775)			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron caudimaculatum* (Rüppell, 1838)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron diadema* (Lacépède, 1802)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron lepros* (Allen & Cross, 1983)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron microstoma* (Günther, 1859)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron punctatissimum* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron spiniferum* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Sargocentron tiere* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis adusta* Bleeker, 1853			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis berndti* Jordan & Evermann, 1905	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis chryseres* Jordan & Evermann, 1905			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis kuntee* Valenciennes, 1831	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis murdjan* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis pralinia* Cuvier, 1829	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis violacea* Bleeker, 1851			1	Allen & Smith-Vaniz, 1994
Holocentridae	*Myripristis vittata* Valenciennes, 1831	*		1	Allen & Smith-Vaniz, 1994
Holocentridae	*Plectrypops lima* (Valenciennes, 1831)	*		1	Allen & Smith-Vaniz, 1994
Aulostomidae	*Aulostomus chinensis* (Linnaeus, 1766)	*		1	Allen & Smith-Vaniz, 1994
Fistulariidae	*Fistularia commersonii* Rüppell, 1838	*		1	Allen & Smith-Vaniz, 1994
Syngnathidae	*Choeroichthys sculptus* (Günther, 1870)	*		1	Allen & Smith-Vaniz, 1994
Syngnathidae	*Corythoichthys flavofasciatus* (Rüppell, 1838)			1	Allen & Smith-Vaniz, 1994
Syngnathidae	*Cosmocampus banneri* (Herald & Randall, 1972)	*		1	Allen & Smith-Vaniz, 1994
Syngnathidae	*Doryrhamphus melanopleura* (Bleeker, 1858)	*		1	Dawson, 1981
Syngnathidae	*Micrognathus pygmaeus* Fritzsche, 1981	*		2	Allen & Smith-Vaniz, 1994
Syngnathidae	*Phoxocampus belcheri* (Kaup, 1856)			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Parascorpaena mossambica* (Peters, 1855)			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes albaiensis* (Evermann & Seale, 1907)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes guamensis* Quoy & Gaimard, 1824	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes hirsutus* (Smith, 1957)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes kelloggi* (Jenkins, 1903)			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes littoralis* (Tanaka, 1917)			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes minor* (Smith, 1958)			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenodes parvipinnis* (Garrett, 1864)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Scorpaenopsis diabolus* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994

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Scorpaenidae	*Sebastapistes cyanostigma* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Sebastapistes* sp.			1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Sebastapistes strongia* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Taenianotus triacanthus* Lacépède, 1802	*	NR	1	Identified from photograph
Scorpaenidae	*Caracanthus maculatus* (Gray, 1831)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Caracanthus unipinna* (Gray, 1831)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Pterois antennata* (Bloch, 1787)	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Pterois radiata* Cuvier, 1829	*		1	Allen & Smith-Vaniz, 1994
Scorpaenidae	*Pterois volitans* (Linnaeus, 1758)	*		2	Allen & Smith-Vaniz, 1994
Synanceiidae	*Synanceia verrucosa* Bloch & Schneider, 1801	*		1	Allen & Smith-Vaniz, 1994
Platycephalidae	*Sunagocia otaitensis* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Aethaloperca rogaa* (Forsskål, 1775)	*	NR	1	Author's observations
Epinephelidae	*Anyperodon leucogrammicus* (Valenciennes, 1828)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Cephalopholis argus* Bloch & Schneider, 1801	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Cephalopholis leopardus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Cephalopholis miniata* (Forsskal, 1755)	*	NR	1	Author's observations
Epinephelidae	*Cephalopholis nigripinnis* (Valenciennes, 1828)	*		3	Author's observations
Epinephelidae	*Cephalopholis polleni* (Bleeker, 1868)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Cephalopholis sonnerati* (Valenciennes, 1828)	*	NR	1	Author's observations and photographs
Epinephelidae	*Cephalopholis spiloparaea* (Valenciennes, 1828)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Cephalopholis urodeta* (Forster, 1801)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus caeruleopunctatus* (Bloch, 1790)		NR	1	Identified from photograph
Epinephelidae	*Epinephelus faveatus* (Valenciennes, 1828)			3	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus fuscoguttatus* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus hexagonatus* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus lanceolatus* (Bloch, 1790)	*	NR	1	Identified from photograph
Epinephelidae	*Epinephelus macrospilos* (Bleeker, 1855)			1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus maculatus* (Bloch, 1790)			2	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus merra* Bloch, 1793	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus morrhua* (Valenciennes, 1833)	*	NR	1	Author's observations and photographs
Epinephelidae	*Epinephelus ongus* (Bloch, 1790)		NR	1	Identified from photograph
Epinephelidae	*Epinephelus polyphekadion* (Bleeker, 1849)			1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus retouti* Bleeker, 1868	*	NR	1	Author's observations and photographs
Epinephelidae	*Epinephelus spilotoceps* Schultz, 1953	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Epinephelus tauvina* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Gracila albomarginata* (Fowler & Bean, 1930)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Plectropomus areolatus* (Rüppell, 1830)			1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Plectropomus laevis* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Plectropomus leopardus* (Lacépède, 1802)			2	Allen & Smith-Vaniz, 1994
Epinephelidae	*Plectropomus maculatus* (Bloch, 1790)			2	Allen & Smith-Vaniz, 1994
Epinephelidae	*Saloptia powelli* Smith, 1964	*	NR	2	Author's observations and photographs
Epinephelidae	*Variola albimarginata* Baissac, 1953	*	NR	1	Author's observations and photographs
Epinephelidae	*Variola louti* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Grammistes sexlineatus* (Thunberg, 1792)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Pogonoperca punctata* (Valenciennes, 1830)	*	NR	1	Author's observations
Epinephelidae	*Aporops bilinearis* Schultz, 1943			1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Pseudogramma polyacanthus* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Epinephelidae	*Suttonia lineata* Gosline, 1960	*		1	Allen & Smith-Vaniz, 1994
Serranidae	*Luzonichthys* sp.	*		1	Allen & Smith-Vaniz, 1994
Serranidae	*Plectranthias nanus* Randall, 1980	*		2	Allen & Smith-Vaniz, 1994
Serranidae	*Pseudanthias* sp.			5	Allen & Smith-Vaniz, 1994
Serranidae	*Pseudanthias cooperi* (Regan, 1902)			1	Allen & Smith-Vaniz, 1994

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Serranidae	*Pseudanthias evansi* (Smith, 1954)	*		3	Allen & Smith-Vaniz, 1994
Serranidae	*Pseudanthias pulcherrimus* (Heemstra & Randall, 1986)			3	Allen & Smith-Vaniz, 1994
Serranidae	*Pseudanthias smithvanizi* (Randall & Lubbock, 1981)	*		1	Allen & Smith-Vaniz, 1994
Pseudochromidae	*Lubbockichthys multisquamatus* (Allen, 1987)	*		1	Allen & Smith-Vaniz, 1994
Pseudochromidae	*Pseudoplesiops* n. sp.			1	Allen & Smith-Vaniz, 1994
Plesiopidae	*Plesiops coeruleolineatus* Rüppell, 1835	*		1	Allen & Smith-Vaniz, 1994
Plesiopidae	*Plesiops corallicola* Bleeker, 1853	*		1	Allen & Smith-Vaniz, 1994
Kuhliidae	*Kuhlia mugil* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Priacanthidae	*Heteropriacanthus cruentatus* (Lacépède, 1801)	*		4	Allen & Smith-Vaniz, 1994
Apogonidae	*Apogon crassiceps* Garman, 1903	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Apogonichthyoides melas* (Bleeker, 1848)			2	Allen & Smith-Vaniz, 1994
Apogonidae	*Apogonichthys ocellatus* (Weber, 1913)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Apogonichthys perdix* Bleeker, 1854			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Cercamia eremia* (Allen, 1987)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Cheilodipterus macrodon* (Lacépède, 1802)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Cheilodipterus quinquelineatus* Cuvier, 1828	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Fowleria aurita* (Valenciennes, 1831)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Fowleria isostigma* (Jordan & Seale, 1906)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Fowleria variegata* (Valenciennes, 1832)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Neamia octospina* Smith & Radcliffe, 1912			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Nectamia bandanensis* (Bleeker, 1854)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Nectamia fusca* (Quoy & Gaimard, 1825)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Ostorhinchus angustatus* (Smith & Radcliffe, 1911)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Ostorhinchus cyanosoma* (Bleeker, 1853)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Ostorhinchus dispar* (Fraser & Randall, 1976)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Ostorhinchus novemfasciatus* (Cuvier, 1828)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Ostorhinchus taeniophorus* (Regan, 1908)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Pristiapogon exostigma* (Jordan & Starks, 1906)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Pristiapogon kallopterus* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Pristiapogon taeniopterus* (Bennett, 1836)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Rhabdamia gracilis* (Bleeker, 1856)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Siphamia majimai* Matsubara & Iwai, 1958			2	Allen & Smith-Vaniz, 1994
Apogonidae	*Siphamia tubifer* Weber, 1909			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Sphaeramia nematopterus* (Bleeker, 1856)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Zapogon evermanni* (Jordan & Snyder, 1904)	*		1	Allen & Smith-Vaniz, 1994
Apogonidae	*Zoramia leptacanthus* (Bleeker, 1856)			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Gymnapogon urospilotus* Lachner, 1953			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Pseudamia gelatinosa* Smith, 1955			1	Allen & Smith-Vaniz, 1994
Apogonidae	*Pseudamiops gracilicauda* (Lachner, 1953)	*		1	Allen & Smith-Vaniz, 1994
Sillaginidae	*Sillago sihama* (Forsskål, 1775)		NR	1	S. Newman ID from photo
Malacanthidae	*Malacanthus brevirostris* Guichenot, 1848	*		1	Allen & Smith-Vaniz, 1994
Malacanthidae	*Malacanthus latovittatus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Carangoides dinema* Bleeker, 1851		NR	1	Author's observations and photographs
Carangidae	*Carangoides ferdau* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Carangoides orthogrammus* (Jordan & Gilbert, 1882)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Caranx ignobilis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Caranx lugubris* Poey, 1860	*		4	Allen & Smith-Vaniz, 1994
Carangidae	*Caranx melampygus* Cuvier, 1833	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Caranx sexfasciatus* Quoy & Gaimard, 1825	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Decapterus macarellus* (Cuvier, 1833)	*		4	Allen & Smith-Vaniz, 1994
Carangidae	*Elagatis bipinnulata* (Quoy & Gaimard, 1825)	*		4	Allen & Smith-Vaniz, 1994
Carangidae	*Scomberoides lysan* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Seriola dumerili* (Risso, 1810)	*		4	Author's observations and photographs

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Carangidae	*Seriola rivoliana* Valenciennes, 1833			4	Author's observations and photographs
Carangidae	*Trachinotus baillonii* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Carangidae	*Trachinotus blochii* (Lacépède, 1801)			1	Allen & Smith-Vaniz, 1994
Carangidae	*Uraspis helvola* (Forster, 1801)		NR	4	Identified from photograph
Coryphaenidae	*Coryphaena hippurus* Linnaeus, 1758	*	NR	4	Author's observations and photographs
Bramidae	*Brama brama* (Bonnaterre, 1788)	*		4	Author's observations and photographs
Lutjanidae	*Aphareus furca* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Aphareus rutilans* Cuvier, 1830	*	NR	1	Author's observations and photographs
Lutjanidae	*Aprion virescens* Valenciennes, 1830	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Etelis carbunculus* Cuvier, 1828	*	NR	1	Author's observations and photographs
Lutjanidae	*Etelis coruscans* Valenciennes, 1862	*	NR	1	Author's observations and photographs
Lutjanidae	*Etelis marshi* (Jenkins, 1903)	*	NR	1	Author's observations and photographs
Lutjanidae	*Lutjanus bohar* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Lutjanus fulvus* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Lutjanus gibbus* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Lutjanus kasmira* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Lutjanus monostigma* (Cuvier, 1828)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Lutjanus rivulatus* (Cuvier, 1828)	*	NR#	1	Author's observations and photographs
Lutjanidae	*Macolor niger* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Lutjanidae	*Pristipomoides argyrogrammicus* (Valenciennes, 1831)		NR	1	Author's observations and photographs
Lutjanidae	*Pristipomoides auricilla* (Jordan, Evermann & Tanaka, 1927)	*	NR	1	Author's observations and photographs
Lutjanidae	*Pristipomoides filamentosus* (Valenciennes, 1830)	*	NR	1	Author's observations and photographs
Lutjanidae	*Pristipomoides zonatus* (Valenciennes, 1830)	*	NR	1	Author's observations and photographs
Caesionidae	*Caesio lunaris* Cuvier, 1830	*	NR#	1	Author's observations and photographs
Caesionidae	*Caesio teres* Seale, 1906	*		1	Allen & Smith-Vaniz, 1994
Caesionidae	*Caesio xanthonotus* Bleeker, 1853	*		3	Allen & Smith-Vaniz, 1994
Caesionidae	*Pterocaesio lativittata* Carpenter, 1987	*		1	Allen & Smith-Vaniz, 1994
Caesionidae	*Pterocaesio tile* (Cuvier, 1830)	*		1	Allen & Smith-Vaniz, 1994
Gerridae	*Gerres longirostris* (Lacépède, 1801)			1	Allen & Smith-Vaniz, 1994
Haemulidae	*Plectorhinchus chaetodonoides* Lacépède, 1801			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Gnathodentex aureolineatus* (Lacépède, 1802)	*		1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Gymnocranius grandoculis* (Valenciennes, 1830)			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus atkinsoni* Seale, 1910			2	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus erythropterus* Valenciennes, 1830	*	NR	1	Author's observations and photographs
Lethrinidae	*Lethrinus harak* (Forsskål, 1775)			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus lentjan* (Lacépède, 1802)			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus microdon* Valenciennes, 1830			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus obsoletus* (Forsskål, 1775)			1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Lethrinus rubrioperculatus* Sato, 1978	*	NR	1	Author's observations and photographs
Lethrinidae	*Lethrinus xanthochilus* Klunzinger, 1870	*		1	Allen & Smith-Vaniz, 1994
Lethrinidae	*Monotaxis grandoculis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Nemipteridae	*Scolopsis lineata* Quoy & Gaimard, 1824			1	Allen & Smith-Vaniz, 1994
Polynemidae	*Polydactylus sexfilis* (Valenciennes, 1831)			1	Allen & Smith-Vaniz, 1994
Mullidae	*Mulloidichthys flavolineatus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Mullidae	*Mulloidichthys vanicolensis* (Valenciennes, 1831)	*		1	Allen & Smith-Vaniz, 1994

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Mullidae	*Parupeneus barberinus* (Lacépède, 1801)			1	Allen & Smith-Vaniz, 1994
Mullidae	*Parupeneus cyclostomus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Mullidae	*Parupeneus macronemus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Mullidae	*Parupeneus multifasciatus* (Quoy & Gaimard, 1825)	*		2	Allen & Smith-Vaniz, 1994
Mullidae	*Parupeneus pleurostigma* (Bennett, 1831)	*		1	Allen & Smith-Vaniz, 1994
Pempheridae	*Pempheris oualensis* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Kyphosidae	*Kyphosus cinerascens* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Kyphosidae	*Kyphosus vaigiensis* (Quoy & Gaimard, 1825)	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon auriga* Forsskål, 1775	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon bennetti* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon citrinellus* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon decussatus* Cuvier, 1831	*	NR#	1	Author's observations and photographs
Chaetodontidae	*Chaetodon ephippium* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon guttatissimus* Bennett, 1833	*		3	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon kleinii* Bloch, 1790	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon lineolatus* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon lunula* (Lacépède, 1802)	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon madagaskariensis* Ahl, 1923	*		3	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon melannotus* Bloch & Schneider, 1801	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon meyeri* Bloch & Schneider, 1801	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon mitratus* Günther, 1860	*		3	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon ornatissimus* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon punctatofasciatus* Cuvier, 1831	*	NR	1	Author's observations and photographs
Chaetodontidae	*Chaetodon rafflesii* Bennett, 1830	*	NR	1	Author's observations and photographs
Chaetodontidae	*Chaetodon semeion* Bleeker, 1855	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon trifascialis* Quoy & Gaimard, 1825	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon trifasciatus* Park, 1797	*		3	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon ulietensis* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994, JP Hobbs photo
Chaetodontidae	*Chaetodon unimaculatus* Bloch, 1787	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Chaetodon vagabundus* Linnaeus, 1758	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Forcipiger flavissimus* Jordan & McGregor, 1898	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Forcipiger longirostris* (Broussonet, 1782)	*	NR	1	Identified from photograph
Chaetodontidae	*Hemitaurichthys polylepis* (Bleeker, 1857)	*		2	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Hemitaurichthys zoster* Bennett, 1831		NR	3	Author's observations and photographs
Chaetodontidae	*Heniochus chrysostomus* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Chaetodontidae	*Heniochus monoceros* Cuvier, 1831	*		1	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Apolemichthys trimaculatus* (Cuvier, 1831)	*		1	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Centropyge acanthops* Norman, 1922		NR	3	Author's observations and photographs
Pomacanthidae	*Centropyge bicolor* (Bloch, 1787)	*		1	Hobbs et al., 2007
Pomacanthidae	*Centropyge bispinosa* (Günther, 1860)	*		1	Author's observations
Pomacanthidae	*Centropyge eibli* Klausewitz, 1963	*	NR	1	Author's observations
Pomacanthidae	*Centropyge fisheri* (Snyder, 1904)	*	NR	1	Author's observations
Pomacanthidae	*Centropyge flavissima* (Cuvier, 1831)	*		6	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Centropyge joculator* Smith-Vaniz & Randall, 1974	*		6	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Centropyge tibicen* (Cuvier, 1831)	*	NR	2	Author's observations
Pomacanthidae	*Centropyge vrolikii* (Bellker, 1853)	*	NR	2	Author's observations
Pomacanthidae	*Centropyge colini* Smith-Vaniz & Randall, 1974	*		1	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Genicanthus bellus* Randall, 1975	*		2	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Paracentropyge multifasciatus* (Smith & Radcliffe, 1911)	*		1	Allen & Smith-Vaniz, 1994
Pomacanthidae	*Pomacanthus imperator* (Bloch, 1787)	*		1	Allen & Smith-Vaniz, 1994

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Pomacanthidae	*Pygoplites diacanthus* (Boddaert, 1772)	*	NR	1	Author's observations and photographs
Cirrhitidae	*Amblycirrhitus bimacula* (Jenkins, 1903)	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Cirrhitichthys oxycephalus* (Bleeker, 1855)	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Cirrhitus pinnulatus* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Oxycirrhites typus* Bleeker, 1857	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Paracirrhites arcatus* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Paracirrhites forsteri* (Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Cirrhitidae	*Paracirrhites hemistictus* (Günther, 1874)	*		2	Allen & Smith-Vaniz, 1994
Mugilidae	*Crenimugil crenilabis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Mugilidae	*Liza vaigiensis* (Quoy & Gaimard, 1825)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Abudefduf notatus* (Day, 1870)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Abudefduf septemfasciatus* (Cuvier, 1830)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Abudefduf sordidus* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Abudefduf vaigiensis* (Quoy & Gaimard, 1825)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Amblyglyphidodon aureus* (Cuvier, 1830)	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Amblyglyphidodon curacao* (Bloch, 1787)			2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Amphiprion clarkii* (Bennett, 1830)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Amphiprion perideraion* Bleeker, 1855	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis alpha* Randall, 1988	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis amboinensis* (Bleeker, 1873)	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis atripes* Fowler & Bean, 1928	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis caudalis* Randall, 1988	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis delta* Randall, 1988	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis fieldi* Randall & DiBattista, 2013	*		3	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis elerae* Fowler & Bean, 1928	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis lepidolepis* Bleeker, 1877	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis margaritifer* Fowler, 1946	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis nigrura* Smith, 1960	*		3	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis opercularis* (Günther, 1867)	*		3	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis ternatensis* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis viridis* (Cuvier, 1830)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chromis xanthura* (Bleeker, 1854)	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chrysiptera biocellata* (Quoy & Gaimard, 1825)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Chrysiptera glauca* (Cuvier, 1830)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Dascyllus aruanus* (Linnaeus, 1758)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Dascyllus reticulatus* (Richardson, 1846)	*		2	Allen & Smith-Vaniz, 1994
Pomacentridae	*Dascyllus trimaculatus* (Rüppell, 1829)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon dickii* (Liénard, 1839)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon imparipennis* (Sauvage, 1875)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon johnstonianus* Fowler & Ball, 1924	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon lacrymatus* (Quoy & Gaimard, 1825)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon leucozonus* (Bleeker, 1859)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Plectroglyphidodon phoenixensis* (Schultz, 1943)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Pomacentrus pavo* (Bloch, 1787)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Stegastes albifasciatus* (Schlegel & Müller, 1839)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Stegastes fasciolatus* (Ogilby, 1889)	*		1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Stegastes insularis* Allen & Emery, 1985	*	NR	6	Author's observations and photographs
Pomacentridae	*Stegastes punctatus* (Quoy & Gaimard, 1825)			1	Allen & Smith-Vaniz, 1994
Pomacentridae	*Stegastes nigricans* (Lacépède, 1802)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Anampses caeruleopunctatus* Rüppell, 1829	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Anampses meleagrides* Valenciennes, 1840	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Anampses twistii* Bleeker, 1856	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Bodianus anthioides* (Bennett, 1832)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Bodianus axillaris* (Bennett, 1832)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Bodianus diana* (Lacépède, 1801)			3	Allen & Smith-Vaniz, 1994

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Labridae	*Cheilinus chlorourus* (Bloch, 1791)			1	Allen & Smith-Vaniz, 1994
Labridae	*Cheilinus fasciatus* (Bloch, 1791)			1	Allen & Smith-Vaniz, 1994
Labridae	*Cheilinus trilobatus* Lacépède, 1801	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Cheilinus undulatus* Rüppell, 1835	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Cheilio inermis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Cirrhilabrus exquisitus* Smith, 1957	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Cirrhilabrus rubrimarginatus* (Randall, 1992)			2	Allen & Smith-Vaniz, 1994
Labridae	*Coris aygula* Lacépède, 1801	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Coris dorsomacula* Fowler, 1908	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Coris gaimard* (Quoy & Gaimard, 1824)	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Cymolutes praetextatus* (Quoy & Gaimard, 1834)			1	Allen & Smith-Vaniz, 1994
Labridae	*Epibulus insidiator* (Pallas, 1770)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Gomphosus varius* Lacépède, 1801	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres chloropterus* (Bloch, 1791)			2	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres claudia* Randall & Rocha, 2009	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres hortulanus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres marginatus* Rüppell, 1835	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres melasmapomus* Randall, 1981	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres scapularis* (Bennett, 1832)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Halichoeres trimaculatus* (Cuvier, 1834)	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Hemigymnus fasciatus* (Bloch, 1792)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Hemigymnus melapterus* (Bloch, 1791)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Hologymnosus annulatus* (Lacépède, 1801)	*	NR#	1	Author's observations and photographs
Labridae	*Hologymnosus doliatus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Iniistius aneitensis* (Günther, 1862)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Iniistius pavo* (Valenciennes, 1840)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Labrichthys unilineatus* (Guichenot, 1847)	*	NR#	1	Author's observations and photographs
Labridae	*Labroides bicolor* Fowler & Bean, 1928	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Labroides dimidiatus* (Valenciennes, 1839)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Labroides pectoralis* Randall & Springer, 1975	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Labropsis xanthonota* Randall, 1981	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Macropharyngodon meleagris* (Valenciennes, 1839)			1	Allen & Smith-Vaniz, 1994
Labridae	*Novaculichthys taeniourus* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Novaculoides macrolepidotus* (Bloch, 1791)			1	Allen & Smith-Vaniz, 1994
Labridae	*Oxycheilinus bimaculatus* (Valenciennes, 1840)			1	Allen & Smith-Vaniz, 1994
Labridae	*Oxycheilinus unifasciatus* (Streets, 1877)	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Pseudocheilinus hexataenia* (Bleeker, 1857)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Pseudocheilinus octotaenia* Jenkins, 1901	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Pseudocoris aurantiofasciatus* Fourmanoir, 1971	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Pseudodax moluccanus* (Valenciennes, 1840)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Stethojulis bandanensis* (Bleeker, 1851)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Stethojulis strigiventer* (Bennett, 1832)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma amblycephalum* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma hardwicke* (Bennett, 1829)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma jansenii* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma lunare* (Linnaeus, 1758)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma lutescens* (Lay & Bennett, 1839)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma purpureum* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma quinquevittatum* (Lay & Bennett, 1839)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Thalassoma trilobatum* (Lacépède, 1801)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Bolbometopon muricatum* (Valenciennes, 1840)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Cetoscarus bicolor* (Rüppell, 1829)	*	NR	1	Author's observations and photographs
Labridae	*Chlorurus sordidus* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994

Family	Genus/Species/Authority	CI	NR	GD	Source
Labridae	*Chlorurus capistratoides* (Bleeker, 1847)	*	NR	2	Author's observations and photographs
Labridae	*Chlorurus enneacanthus* (Lacepède, 1802)	*		5	Hobbs et al., 2010b
Labridae	*Chlorurus strongylocephalus* (Bleeker, 1855)	*		3	Hobbs et al., 2010b
Labridae	*Chlorurus troschelii* (Bleeker, 1853)		NR	1	Author's observations and photographs
Labridae	*Hipposcarus harid* (Forsskål, 1775)		NR#	3	Author's observations and photographs
Labridae	*Hipposcarus longiceps* (Valenciennes, 1840)			2	Allen & Smith-Vaniz, 1994
Labridae	*Scarus dimidiatus* Bleeker, 1859		NR	2	Author's observations and photographs
Labridae	*Scarus festivus* Valenciennes, 1840	*	NR	1	Author's observations and photographs
Labridae	*Scarus forsteni* (Bleeker, 1861)	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Scarus frenatus* Lacépède, 1802	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus ghobban* Forsskål, 1775	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus globiceps* Valenciennes, 1840			1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus niger* Forsskål, 1775	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus oviceps* Valenciennes, 1840	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus prasiognathos* Valenciennes, 1840	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus psittacus* Forsskål, 1775	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus rubroviolaceus* Bleeker, 1847	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus schlegeli* (Bleeker, 1861)	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Scarus spinus* (Kner, 1868)	*	NR	2	Author's observations and photographs
Labridae	*Scarus tricolor* Bleeker, 1847	*	NR	1	Author's observations and photographs
Labridae	*Scarus viridifucatus* (Smith, 1956)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Scarus xanthopleura* Bleeker, 1853	*		2	Allen & Smith-Vaniz, 1994
Labridae	*Calotomus carolinus* (Valenciennes, 1840)	*		1	Allen & Smith-Vaniz, 1994
Labridae	*Calotomus spinidens* (Quoy & Gaimard, 1824)			1	Allen & Smith-Vaniz, 1994
Labridae	*Leptoscarus vaigiensis* (Quoy & Gaimard, 1824)			1	Allen & Smith-Vaniz, 1994
Creediidae	*Chalixodytes tauensis* Schultz, 1943	*		2	Allen & Smith-Vaniz, 1994
Creediidae	*Limnichthys nitidus* Smith, 1958			1	Allen & Smith-Vaniz, 1994
Pinguipedidae	*Parapercis clathrata* Ogilby, 1910	*		1	Allen & Smith-Vaniz, 1994
Pinguipedidae	*Parapercis hexopthalma* (Cuvier, 1829)			3	Allen & Smith-Vaniz, 1994
Pinguipedidae	*Parapercis schauinslandii* (Steindachner, 1900)	*		1	Allen & Smith-Vaniz, 1994
Tripterygiidae	*Enneapterygius elegans* (Peters, 1876)	*		1	Allen & Smith-Vaniz, 1994
Tripterygiidae	*Enneapterygius tutuilae* Jordan & Seale, 1906	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Aspidontus dussumieri* (Valenciennes, 1836)			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Aspidontus taeniatus* Quoy & Gaimard, 1834	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Petroscirtes xestus* Jordan & Seale, 1906			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Plagiotremus rhinorhynchos* (Bleeker, 1852)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Plagiotremus tapeinosoma* (Bleeker, 1857)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Blenniella chrysospilos* (Bleeker, 1857)			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Blenniella periophthalmus* (Valenciennes, 1836)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Cirripectes castaneus* (Valenciennes, 1836)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Cirripectes gilberti* Williams, 1988	*		3	Allen & Smith-Vaniz, 1994
Blenniidae	*Cirripectes polyzona* (Bleeker, 1868)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Cirripectes quagga* (Fowler & Ball, 1924)			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Ecsenius bicolor* (Day, 1888)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Ecsenius midas* Starck, 1969	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Entomacrodus caudofasciatus* (Regan, 1909)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Entomacrodus epalzeocheilos* (Bleeker, 1859)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Entomacrodus striatus* (Valenciennes, 1836)			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Exallias brevis* (Kner, 1868)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Glyptoparus delicatulus* Smith, 1959			1	Allen & Smith-Vaniz, 1994
Blenniidae	*Istiblennius edentulus* (Forster & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994

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Blenniidae	*Istiblennius lineatus* (Valenciennes, 1836)	*		1	Allen & Smith-Vaniz, 1994
Blenniidae	*Stanulus seychellensis* Smith, 1959			1	Allen & Smith-Vaniz, 1994
Callionymidae	*Diplogrammus goramensis* (Bleeker, 1858)			2	Allen & Smith-Vaniz, 1994
Eleotridae	*Ophiocara porocephala* (Valenciennes, 1837)		NR	1	Author's observations and photographs
Gobiidae	*Gnatholepis anjerensis* (Bleeker, 1851)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Gnatholepis cauerensis* (Bleeker, 1853)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Amblygobius decussatus* (Bleeker, 1855)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Amblygobius nocturnus* (Herre, 1945)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Amblygobius phalaena* (Valenciennes, 1837)			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Amblygobius semicinctus* (Bennett, 1833)			3	Allen & Smith-Vaniz, 1994
Gobiidae	*Amblygobius tekomaji* (Smith, 1959)			3	Allen & Smith-Vaniz, 1994
Gobiidae	*Asterropteryx semipunctatus* Rüppell, 1830			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Bathygobius cocosensis* (Bleeker, 1854)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Bathygobius cyclopterus* (Valenciennes, 1837)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Bryaninops ridens* Smith, 1959			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Cabillus tongarevae* (Fowler, 1927)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Callogobius maculipinnis* (Fowler, 1918)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Callogobius sclateri* (Steindachner, 1880)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Callogobius* sp.			5	Allen & Smith-Vaniz, 1994
Gobiidae	*Discordipinna griessingeri* Hoese & Fourmanoir, 1978			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota lachdeberei* Giltay, 1933			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota latifasciata* Jewett & Lachner, 1983	*		2	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota melasma* Lachner & Karnella, 1980			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota prasina* (Klunzinger, 1871)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota* sp. 1	*		5	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota* sp. 2	*		5	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota* sp. 3	*		5	Allen & Smith-Vaniz, 1994
Gobiidae	*Eviota* sp. 4			5	Allen & Smith-Vaniz, 1994
Gobiidae	*Exyrias belissimus* (Smith, 1959)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Fusigobius duospilus* Hoese & Reader, 1985	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Fusigobius neophytus* (Günther, 1877)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Fusigobius* sp.			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Gnatholepis* sp.			5	Allen & Smith-Vaniz, 1994
Gobiidae	*Gobiodon okinawae* Sawada, Arai & Abe, 1972	*		2	Allen & Smith-Vaniz, 1994
Gobiidae	*Gobiodon rivulatus* (Rüppell, 1830)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Gobiodon unicolor* (Castlenau, 1873)		NR	1	Author's observations
Gobiidae	*Lotilia graciliosa* Klausewitz, 1960		NR	1	Identified from photograph
Gobiidae	*Oplopomops diacanthus* (Schultz, 1943)			3	Allen & Smith-Vaniz, 1994
Gobiidae	*Oplopomops* sp.			5	Allen & Smith-Vaniz, 1994
Gobiidae	*Oplopomus oplopomus* (Valenciennes, 1837)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Palutrus pruinosa* (Jordan & Seale, 1906)			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Paragobiodon echinocephalus* (Rüppell, 1830)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Priolepis cincta* (Regan, 1908)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Priolepis inhaca* (Smith, 1949)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Priolepis semidoliata* (Valenciennes, 1837)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Psilogobius prolatus* Watson & Lachner, 1985			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Sueviota lachneri* (Winterbottom & Hoese,1988)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma emeryi* Winterbottom, 1985	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma hoesei* (Winterbottom, 1984)			1	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma macrophthalma* (Tomiyama, 1936)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma* sp.	*		3	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma unisquamis* (Gosline, 1959)			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimma winchi* (Winterbottom, 1984)			3	Allen & Smith-Vaniz, 1994
Gobiidae	*Trimmatom sagma* (Winterbottom, 1989)			2	Allen & Smith-Vaniz, 1994
Gobiidae	*Valenciennea helsdingenii* (Bleeker, 1858)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Valenciennea sexguttata* (Valenciennes, 1837)	*		1	Allen & Smith-Vaniz, 1994
Gobiidae	*Valenciennea strigata* (Broussonet, 1782)	*		1	Allen & Smith-Vaniz, 1994

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Gobiidae	*Vanderhorstia ornatissima* Smith, 1959			1	Allen & Smith-Vaniz, 1994
Kraemeridae	*Kraemeria samoensis* (Steindachner, 1906)			1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Gunnellichthys monostigma* Smith, 1958	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Nemateleotris decora* Randall & Allen, 1973	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Nemateleotris magnifica* Fowler, 1938	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Ptereleotris evides* (Jordan & Hubbs, 1925)	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Ptereleotris heteroptera* (Bleeker, 1855)	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Ptereleotris microlepis* (Bleeker, 1856)	*		1	Allen & Smith-Vaniz, 1994
Microdesmidae	*Ptereleotris zebra* (Fowler, 1938)	*		1	Allen & Smith-Vaniz, 1994
Xenisthmidae	*Xenisthmus africanus* (Smith, 1958)			3	Allen & Smith-Vaniz, 1994
Xenisthmidae	*Xenisthmus clarus* (Jordan & Seale, 1906)			2	Allen & Smith-Vaniz, 1994
Ephippidae	*Platax orbicularis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Ephippidae	*Platax teira* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Siganidae	*Siganus argenteus* (Quoy & Gaimard, 1825)			1	Allen & Smith-Vaniz, 1994
Siganidae	*Siganus puellus* (Schlegel, 1852)			1	Allen & Smith-Vaniz, 1994
Siganidae	*Siganus punctatus* (Schneider & Forster, 1801)			2	Allen & Smith-Vaniz, 1994
Siganidae	*Siganus stellatus* (Forsskål, 1775)			3	Allen & Smith-Vaniz, 1994
Zanclidae	*Zanclus cornutus* (Linnaeus, 1758)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus blochii* Valenciennes, 1835	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus guttatus* Forster, 1801	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus leucosternon* Bennett, 1833	*		3	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus lineatus* (Linnaeus, 1758)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus maculiceps* (Ahl, 1923)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus mata* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus nigricans* (Linnaeus, 1758)	*		2	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus nigricauda* Duncker & Mohr, 1929	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus nigrofuscus* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus olivaceus* Bloch & Schneider, 1801	*		2	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus pyroferus* Kittlitz, 1834	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus thompsoni* (Fowler, 1923)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus triostegus* (Linnaeus, 1758)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Acanthurus xanthopterus* Valenciennes, 1835	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Ctenochaetus striatus* (Quoy & Gaimard, 1825)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Naso annulatus* (Quoy & Gaimard, 1825)	*	NR	1	Author's observations
Acanthuridae	*Naso brevirostris* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Naso hexacanthus* (Bleeker, 1855)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Naso lituratus* (Bloch & Schneider, 1801)	*		2	Allen & Smith-Vaniz, 1994
Acanthuridae	*Naso tuberosus* Lacepède, 1801		NR	1	Author's observations
Acanthuridae	*Naso unicornis* (Forsskål, 1775)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Naso vlamingii* (Valenciennes, 1835)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Paracanthurus hepatus* (Linnaeus, 1766)	*		1	Allen & Smith-Vaniz, 1994
Acanthuridae	*Zebrasoma desjardinii* (Bennett, 1836)	*		3	Allen & Smith-Vaniz, 1994
Acanthuridae	*Zebrasoma scopas* (Cuvier, 1829)	*		1	Allen & Smith-Vaniz, 1994
Sphyraenidae	*Sphyraena barracuda* (Edwards, 1771)	*		4	Allen & Smith-Vaniz, 1994
Sphyraenidae	*Sphyraena flavicauda* Rüppell, 1838	*		1	Allen & Smith-Vaniz, 1994
Gempylidae	*Ruvettus pretiosus* Cocco, 1829	*	NR	4	Identified from photograph
Scombridae	*Acanthocybium solandri* (Cuvier, 1832)	*		4	Allen & Smith-Vaniz, 1994
Scombridae	*Gymnosarda unicolor* (Rüppell, 1836)	*		1	Allen & Smith-Vaniz, 1994
Scombridae	*Katsuwonus pelamis* (Linnaeus, 1758)	*	NR	4	Author's observations
Scombridae	*Thunnus albacares* (Bonnaterre, 1788)	*		4	Allen & Smith-Vaniz, 1994
Xiphiidae	*Xiphias gladius* Linnaeus 1758		NR	4	Identified from photograph
Istiophoridae	*Istiompax indica* (Cuvi *Ophiocara* er, 1832)	*	NR	1	Identified from photograph
Bothidae	*Bothus mancus* (Broussonet, 1782)	*		1	Allen & Smith-Vaniz, 1994
Bothidae	*Bothus pantherinus* (Rüppell, 1830)	*		1	Allen & Smith-Vaniz, 1994
Soleidae	*Aseraggodes* sp. 1			3	Allen & Smith-Vaniz, 1994
Soleidae	*Aseraggodes* sp. 2			3	Allen & Smith-Vaniz, 1994
Balistidae	*Balistapus undulatus* (Park, 1797)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Balistoides viridescens* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994

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Balistidae	*Melichthys indicus* Randall & Klausewitz, 1973	*		3	Allen & Smith-Vaniz, 1994
Balistidae	*Melichthys niger* (Bloch, 1786)	*		4	Allen & Smith-Vaniz, 1994
Balistidae	*Melichthys vidua* (Richardson, 1845)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Odonus niger* (Rüppell, 1837)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Pseudobalistes flavimarginatus* (Rüppell, 1829)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Rhinecanthus aculeatus* (Linnaeus, 1758)			1	Allen & Smith-Vaniz, 1994
Balistidae	*Rhinecanthus rectangulus* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Sufflamen bursa* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Sufflamen chrysopterum* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Sufflamen fraenatum* (Latreille, 1804)			1	Allen & Smith-Vaniz, 1994
Balistidae	*Xanthichthys auromarginatus* (Bennett, 1832)	*		1	Allen & Smith-Vaniz, 1994
Balistidae	*Xanthichthys caeruleolineatus* Randall, Matsuura & Zama, 1978	*		1	Allen & Smith-Vaniz, 1994
Monacanthidae	*Aluterus scriptus* (Osbeck, 1765)	*		4	Allen & Smith-Vaniz, 1994
Monacanthidae	*Cantherhines dumerilii* (Hollard, 1854)	*		1	Allen & Smith-Vaniz, 1994
Monacanthidae	*Cantherhines pardalis* (Rüppell, 1837)	*		1	Allen & Smith-Vaniz, 1994
Monacanthidae	*Pervagor aspricaudus* (Hollard, 1854)	*		1	Allen & Smith-Vaniz, 1994
Ostraciidae	*Ostracion cubicus* Linnaeus, 1758	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Arothron caeruleopunctatus* Matsuura, 1994		NR	1	Author's observations
Tetraodontidae	*Arothron hispidus* (Linnaeus, 1758)	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Arothron nigropunctatus* (Bloch & Schneider, 1801)	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Canthigaster amboinensis* (Bleeker, 1864)	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Canthigaster bennetti* (Bleeker, 1854)	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Canthigaster janthinoptera* (Bleeker, 1855)	*		1	Allen & Smith-Vaniz, 1994
Tetraodontidae	*Canthigaster valentini* (Bleeker, 1853)	*		1	Allen & Smith-Vaniz, 1994
Diodontidae	*Diodon hystrix* Linnaeus, 1758	*		4	Allen & Smith-Vaniz, 1994
Molidae	*Mola mola* (Linnaeus, 1758)	*	NR	4	Communicated to authors