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**CHECKLIST OF THE SHOREFISHES OF OUVÉA ATOLL,
NEW CALEDONIA**

BY

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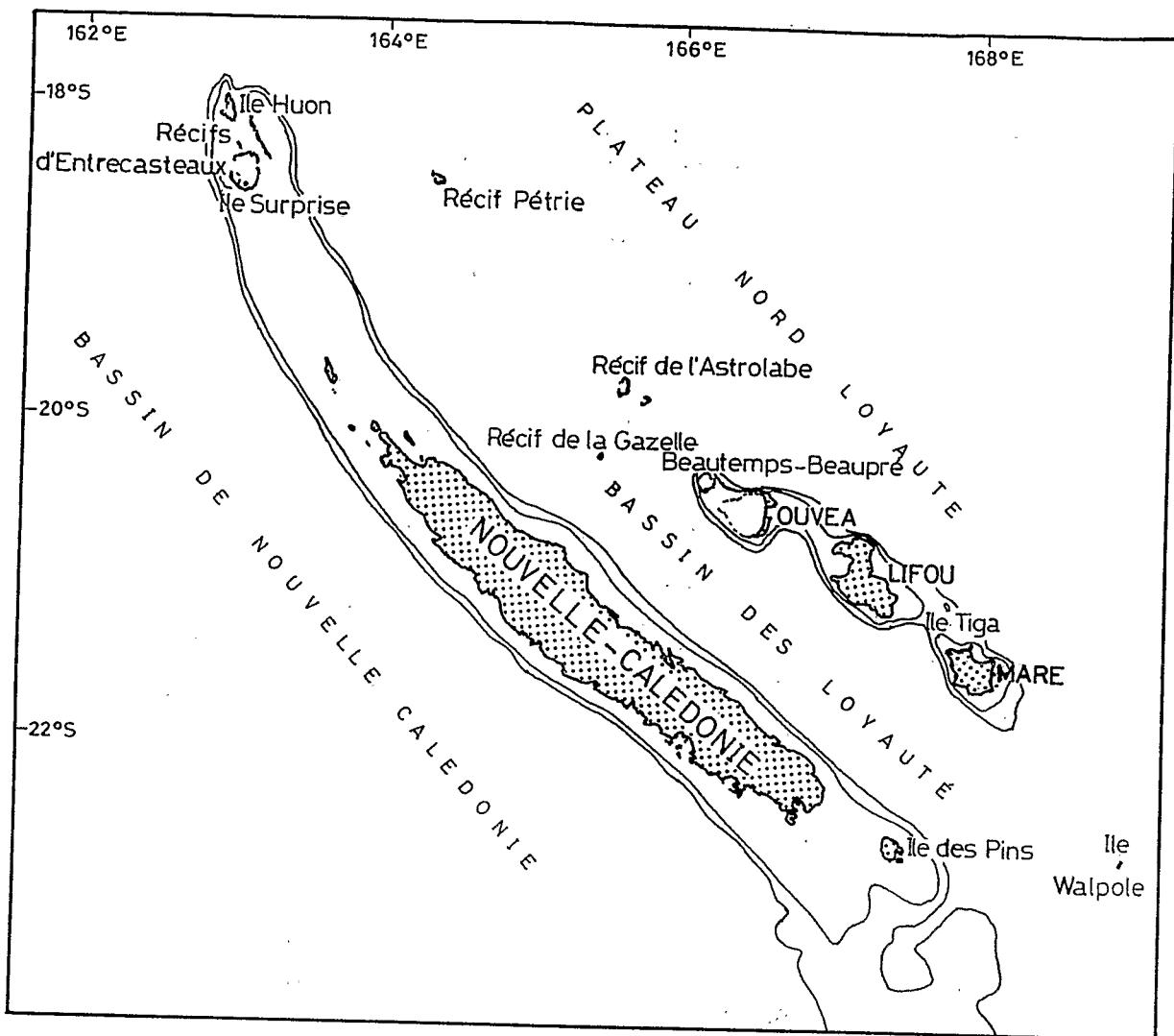


Figure 1. Map of New Caledonia and the Loyalty Islands showing the location of Ouvéa.

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ABSTRACT

The shorefishes of Ouvéa, an isolated atoll in the Loyalty Islands group of New Caledonia, had not been surveyed prior to 1990. An extensive survey was conducted by ORSTOM between 1991 and 1992 to obtain baseline information on the shorefishes. A total of 653 taxa among 72 families are now documented from this area. The most diverse families are the Labridae (69 species), Pomacentridae (58 species), Gobiidae (54 species), Serranidae (39 species), Chaetodontidae (31 species) and Apogonidae (28 species). The absence or very low diversity of some families (Clupeidae, Nemipteridae, Siganidae) or genera (*Abudefduf*, *Neopomacentrus*) is similar to findings for other isolated islands of the Coral Sea. Of the 653 species recorded from Ouvéa, 51 species have not been reported from New Caledonia, a large high island to the South. Only one endemic species, *Luzonichthys williamsi*, has been recognized among the shorefishes at Ouvéa. A number of Pacific Plate endemic species were recorded at Ouvéa, which is positioned on the Australasian Plate to the south of the edge of the Pacific Plate. *Antennarius duescus*, previously known from three specimens taken at the Hawaiian Islands, is recorded from a single specimen taken at Ouvéa. Another antitropical distribution pattern is exhibited by *Dinemictichthys riukiuensis*, which is known to occur at Fiji, Ouvéa and Queensland in the South and from Okinawa.

INTRODUCTION

Our knowledge of shorefishes in the Southwest Pacific has increased significantly in the last two decades with the publication of a number of checklists. Shorefishes of the Great Barrier Reef have been reported from several regions: Russell (1983) and Lowe and Russell (1990) for the southern part, Paxton et al. (1978) for Lizard Island, Allen (1989)

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for the Coral Sea, and Paxton et al. (1989: 1 volume, out of 3 announced, of an encyclopedia of the fishes of Australia, which covers shorefishes). The fish fauna of Lord Howe, Norfolk and Kermadec islands, the southern limit of shorefishes in the Southwest Pacific, was surveyed by Allen et al. (1976) and more recently by Francis (1993) and Francis and Randall (1993). Middleton Reef, a southern reef midway between Australia and New Caledonia, has been investigated by Hutchings (1988), and Kailola (1987 a,b; 1991) published a checklist of fishes from Papua New Guinea. Kailola's list is being updated by Allen. For New Caledonia there are two checklists, one for the main island (Rivaton et al., 1989) and one for the Chesterfield archipelago (Kulbicki et al., 1994; LeBorgne et al., 1994), a group of islands midway between the Great Barrier Reef and New Caledonia. A number of books are now available on the shorefishes of the Southwest Pacific region (Fourmanoir and Laboute, 1976, for New Caledonia and Vanuatu; Randall et al., 1990, for the Coral Sea; Allen and Swainston, 1992, for Papua New Guinea; Allen and Swainston, 1988, for Western Australia). Despite these recent efforts, the fish fauna of many areas of the Southwest Pacific remains poorly known. One such area is the Loyalty Islands, which comprise five islands, Maré, Tiga, Lifou, Ouvéa and Beautemps-Beaupré. The first three are high islands with very sparse coral reef development. The latter two are atolls, Ouvéa (900 km^2) being much larger than Beautemps-Beaupré (120 km^2). These atolls are located on the edge of the Australasian plate near its boundary with the Pacific plate between New Caledonia and Vanuatu (figure 1), and are the only true atolls within a 1500 km radius.

Only two scientific cruises conducted studies at Ouvéa prior to 1991. Allen, in June 1973, studied the Pomacentridae of Ouvéa. ORSTOM, a French scientific organization, organized a cruise to Ouvéa in November 1979, but issued no cruise report because a cyclone considerably limited their study. A few specimens were collected and sent to the Paris Museum and the Bishop Museum (Hawaii). We are unaware of any other samples taken from Ouvéa. Carpenter and Allen (1989) report that *Lethrinus* "sp.2" occurs at the Loyalty Islands, but they do not provide collection data for the material they examined.

In 1991, ORSTOM was asked to evaluate the fish resources of Ouvéa Atoll. During this survey, data were also collected on the atoll's physical characteristics (water masses, geomorphology, sedimentology), the plankton, and the benthos (Chevillon, 1994; Clavier et al., 1992; Clavier and Garrigue, 1993; Kulbicki et al., 1993a, 1993b, 1994; LeBouteiller et al., 1993). A summary of these works is also available (Kulbicki, 1995). The checklist of the shorefishes of Ouvéa Atoll presented here is compiled from data gathered during the 1973 and 1979 visits and the authors' sampling program conducted during their 1991 survey.

MATERIAL AND METHODS

Fish were visually censused along transects and/or collected using rotenone and SCUBA. Some specimens were caught with handlines. Visual censuses took place on the lagoon floor down to 25m, and on the outer reefs surrounding the atoll. No censuses or

collections were performed on the outer slope of the barrier reef or on the eastern side of the main island in the atoll. The locations of the stations are plotted on the map in figure 2. Thirteen collecting stations utilized rotenone (figure 2), the amount of rotenone used at each station was between 2 and 6 liters of solution containing 8% active rotenone.

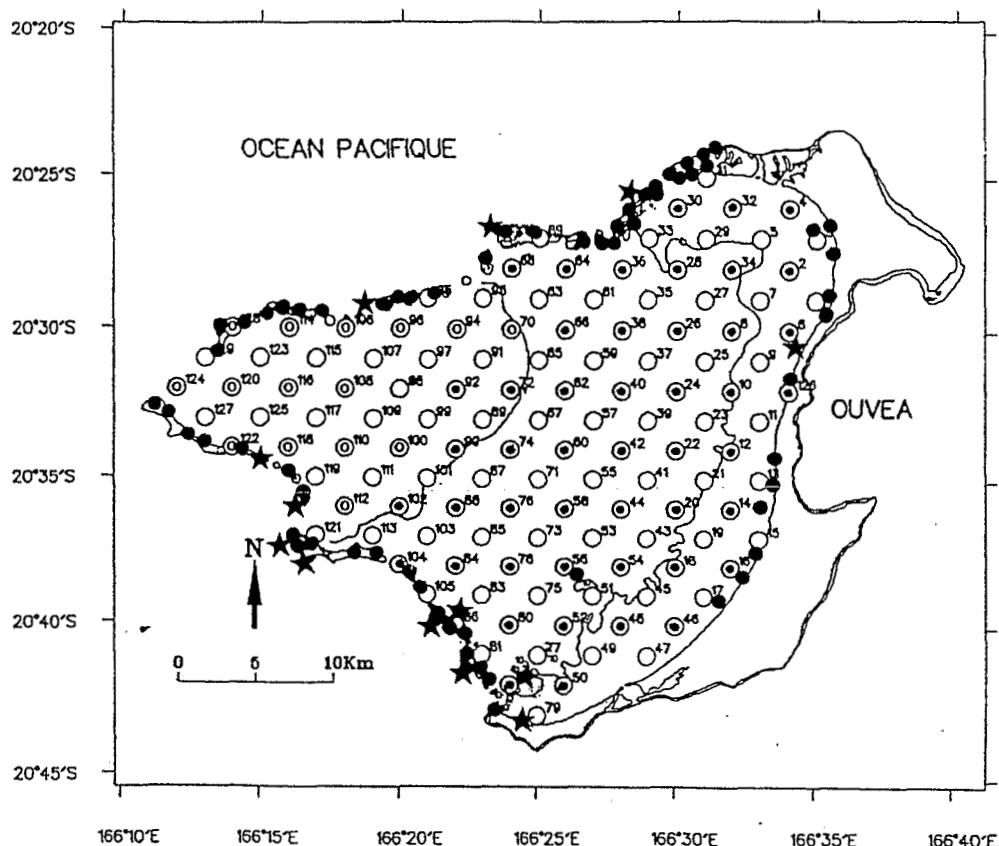


Figure 2. Location of sampling sites (open circles = handline fishing; dark circles = dives; stars = rotenone).

RESULTS AND DISCUSSION

A checklist, totaling 653 taxa distributed among 72 families, is presented in Table 1. There are about 300 fewer species known from Ouvéa than from nearby New Caledonia, where more than 950 reef-fish species have been recorded (Rivaton et al., 1989). The number of taxa known from Ouvéa is closer to the 795 species recorded from the Chesterfield archipelago (Kulbicki et al., 1994), another isolated area at a similar latitude, than to the 425 species recorded from Rotuma (Zug et al., 1989), a small cluster of islands about 450 km north of the Fiji Islands. Because our sampling (only 13 rotenone stations) at Ouvéa is limited and we have not sampled the eastern side of the atoll, we believe the total number of shorefish species may actually be as high as 800-900 species.

Most of the species in this list have been reported from nearby New Caledonia, however 51 taxa have not been recorded from New Caledonia. *Serranocirrhitus latus* has not been listed in the New Caledonian checklists, but was reported from New Caledonian reefs and the Loyalty Islands as "Dactylanthias mcmichaeli" by Fourmanoir and Laboute (1976). Most of the new records are Anguilliformes, Scorpaenidae or Gobiidae, which are usually taken only in rotenone collections. There are specimens in the Ouvéa collections representing 33 taxa that could not be identified to species. Many of these are juveniles, but 15 of these taxa are currently known to be undescribed species. Most of the 15 undescribed species are known from other localities. Their descriptions, thus, will not greatly increase the number of endemic species known from the Loyalty Islands. The only endemic species described from Ouvéa is *Luzonichthys williamsi* (Serranidae, Anthiinae).

One specimen of *Antennarius duescus* was taken at Ouvéa. This distinctive species is unique in having the opercular opening situated halfway between the base of the pectoral lobe and the origin of the anal fin. It was previously known from only three specimens from the Hawaiian Islands (Pietsch and Grobecker, 1987). Its presence in the Loyalty Islands is possibly indicative of an antitropical distribution pattern. *Trimma unisquamis* and *Gymnothorax eurostus* have a similar antitropical distribution pattern, with a northern population at Hawaii. *Dinematicthys riukiensis* exhibits an antitropical distribution pattern, but has its northern population at Okinawa and its southern population at the Great Barrier Reef, Ouvéa, and Fiji.

A number of Pacific plate endemic species (Springer, 1982) are recorded herein from Ouvéa. These records could be described as plate margin occurrences. Pacific plate endemics taken at Ouvéa include the following taxa: *Minysynchiropus laddi*, *Myripristis amoenus*, *Schismorhynchus labialis*, *Brotula townsendi*, *Centropyge nigriocellus*, and *Centropyge loriculus*.

Two species, *Alticus sertatus* and *Neoglyphidodon carlsoni*, were previously thought to be Fijian endemics. The presence of *Alticus sertatus* at Ouvéa provides the first record of this species west of the Fiji Islands. An undescribed species of *Alticus* occurs at New Caledonia, but was not collected at Ouvéa. Likewise, *Alticus sertatus* has not been collected from New Caledonia. The occurrence of *Neoglyphidodon carlsoni* at Ouvéa is the first record outside of Fijian waters.

A comparison of the diversity of the major families within several areas of the southwestern Pacific is given in Table 2. An interesting analogy with the Chesterfield archipelago (LeBorgne et al., 1994) and Rotuma (Zug et al., 1989) is the low number or lack of *Abudefduf* spp., *Neopomacentrus* spp., Clupeidae and Siganidae (Table 2). A preliminary list of fishes from Osprey Reef, off the Great Barrier Reef, based on the fish collection at the Australian Museum (Leis, pers. communication) entirely lacks these genera and families. Similarly, Norfolk, Lord Howe and Kermadec islands also have few or no members of these taxa, but have five species of *Abudefduf*. A survey of Elizabeth

And Middleton Reefs (Hutchings, 1988), located further south in the Coral Sea, indicates the presence of 3 species of *Abudefduf*, one species of Siganidae, but no *Neopomacentrus* or Clupeidae. These genera and families are well represented elsewhere in the Coral Sea and New Caledonia (Table 2). At Ouvéa, the lack of suitable habitat is not a likely reason for the low number of these species, except possibly for the Clupeidae. Indeed, the habitats where these species are found in New Caledonia are apparently present at Ouvéa (Kulbicki et al., 1993a). The early life history traits (type of egg, length of larval life, shape of the larvae, size of the larvae at recruitment on reefs) of *Abudefduf* and *Neopomacentrus* (Table 3) do not differ significantly from those of other Pomacentridae that are present at Ouvéa, Rotuma, the Chesterfield Islands, or Osprey Reef. Victor (1991), in a review on settlement strategies and biogeography, noted that duration of the larval stage rarely accounted for the geographic range of a species. The short distance between Ouvéa and the main island of New Caledonia (60 km) and the direction of the major surface currents (Kulbicki et al., 1993a; Kulbicki, 1995) would not seem to present a major obstacle to the colonization of Ouvéa by species from New Caledonia (figure 3).

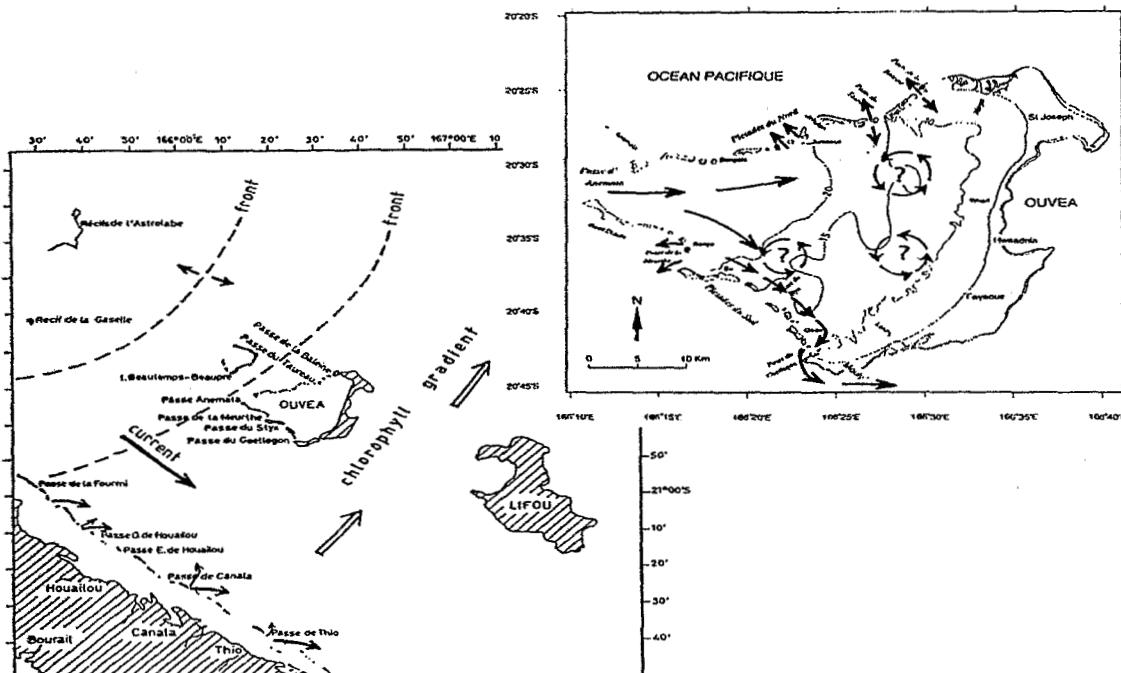


Fig. 3. Major currents in the vicinity of Ouvéa (from Kulbicki et al., 1993a).

One possible reason for the lack of certain species at Ouvéa could be related to its being a low island and New Caledonia a high island. Causal factors leading to the absence of certain taxa at Ouvéa remain speculative.

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Table 1. List of the shorefish taxa known from Ouvéa atoll. Taxa which were not previously known from New Caledonia are marked by * and are in bold typeface. Families are ordered according to Eschmeyer (1990). The letters used in the column "Method" mean the following:

V: visual census R: rotenone L: line fishing A: Allen (1975 and pers. comm.) O:1979ORSTOM cruise

Scientific name	Author and date	Method
GINGLYMOSMATIDAE		
<i>Nebrius ferrugineus</i>	(Lesson, 1830)	VL
CARCHARHINIDAE		
<i>Carcharhinus albimarginatus</i>	(Rüppell, 1837)	VL
<i>Carcharhinus amblyrhinchos</i>	(Bleeker, 1856)	VL
<i>Carcharhinus melanopterus</i>	(Quoy & Gaimard, 1824)	V
<i>Galeocerdo cuvier</i>	(Peron & LeSueur, 1822)	VL
<i>Triaenodon obesus</i>	(Rüppell, 1837)	VL
DASYATIDAE		
<i>Dasyatis kuhlii</i>	(Müller & Henle, 1841)	VL
MORINGUIDAE		R
<i>Moringua species</i>		R
CHLOPSIDAE		
<i>Kaupichthys species</i>		R
*Kaupichthys atronasus	Schultz, 1953	R
<i>Kaupichthys hyoproroides</i>	(Stromann, 1896)	R
MURAENIDAE		
*Anarchias cantonensis	(Schultz, 1943)	R
<i>Echidna polyzona</i>	(Richardson, 1844)	R
*Echidna unicolor	Schultz, 1953	R
<i>Gymnothorax bueroensis</i>	(Bleeker, 1857)	R
<i>Gymnothorax chilosipilus</i>	Bleeker, 1865	R
<i>Gymnothorax eurostus</i>	(Abbott, 1861)	R
<i>Gymnothorax fuscomaculatus</i>	(Schultz, 1953)	R
<i>Gymnothorax javanicus</i>	(Bleeker, 1859)	V
<i>Gymnothorax margaritophorus</i>	Bleeker, 1865	R
*Gymnothorax marshallensis	(Schultz, 1953)	R
<i>Gymnothorax melatremus</i>	(Schultz, 1953)	R
<i>Gymnothorax pindae</i>	Smith, 1962	RO
<i>Gymnothorax rueppelliae</i>	(McClelland, 1845)	R
<i>Gymnothorax thyrsoides</i>	(Richardson, 1845)	R
<i>Gymnothorax zonipectis</i>	Seale, 1906	R
<i>Uropterygius fuscoguttatus</i>	Schultz, 1953	R
*Uropterygius makatei	Gosline, 1958	R
OPHICHTHIDAE		
<i>Leiuranus semicinctus</i>	(Lay & Benett, 1839)	R
*Muraenichthys gymnotus	Bleeker, 1850	R
<i>Muraenichthys sp.</i>		O
*Schismorhynchus labialis	(Seale, 1917)	R
*Schultzia johnstonensis	(Schultz & Woods, 1949)	R
CONGRIDAE		
<i>Conger cinereus</i>	(Rüppell, 1828)	R
<i>Heteroconger hassi</i>	(Klausewitz & Eibl-Eibesfeldt, 1959)	R
CLUPEIDAE		

<i>Herklotischthys quadrimaculatus</i>	(Rüppell, 1837)	VR
<i>Spratelloides delicatulus</i>	(Bennett, 1831)	VR
CHANIDAE		
<i>Chanos chanos</i>	(Forsskal, 1775)	V
SYNODONTIDAE		
<i>Saurida gracilis</i>	(Quoy & Gaimard, 1824)	R
<i>Synodus binotatus</i>	Schultz, 1953	R
<i>Synodus dermatogenys</i>	Fowler, 1912	VR
<i>Synodus jaculum</i>	Russell & Cressey, 1979	R
<i>Synodus hoshinonis</i>	Tanaka, 1917	V
<i>Synodus variegatus</i>	(Lacépède, 1803)	VRO
OPHIDIIDAE		
<i>Brotula multibarbata</i>	Temminck & Schlegel, 1846	R
* <i>Brotula townsendi</i>	Fowler, 1900	R
BYTHITIDAE		
<i>Brosmophyciops pautzkei</i>	Schultz, 1960	R
* <i>Dinemichtys randalli</i>	Machida, 1994	R
* <i>Dinemichtys riukiuensis</i>	Aoyagi, 1952	R
ANTENNARIIDAE		
<i>Antennarius coccineus</i>	(Lesson, 1831)	R
* <i>Antennarius duescus</i>	Snyder, 1904	R
<i>Antennarius nummifer</i>	(Cuvier, 1817)	R
GOBIESOCIDAE		
<i>Diademichthys lineatus</i>	(Sauvage, 1883)	R
<i>Discotrema crinophila</i>	Briggs, 1976	R
* <i>Pherallodichthys species</i>		R
* <i>Pherallodus species</i>		R
ATHERINIDAE		
* <i>Atherinomorus duodecimalis</i>	(Valenciennes, 1835)	R
<i>Atherinomorus lacunosus</i>	(Schneider, 1801)	VR
* <i>Atherion elymus</i>	Jordan & Starks, 1901	R
<i>Hypoatherina barnesi</i>	Schultz, 1953	R
HOLOCENTRIDAE		
<i>Myripristis amaena</i>	(Castelnau, 1873)	V
<i>Myripristis berndti</i>	Jordan & Evermann, 1903	R
<i>Myripristis kuntee</i>	Cuvier, 1831	VR
<i>Myripristis murdjan?</i>	(Forsskal, 1775)	V
<i>Myripristis pralinia</i>	Cuvier, 1829	VR
<i>Myripristis violacea</i>	Bleeker, 1851	R
<i>Neoniphon argenteus</i>	(Valenciennes, 1831)	V
<i>Neoniphon opercularis</i>	(Valenciennes, 1831)	V
<i>Neoniphon sammara</i>	(Forsskal, 1775)	VR
<i>Plectrypops lima</i>	(Valenciennes, 1831)	R
<i>Sargocentron caudimaculatum</i>	(Rüppell, 1835)	VR
<i>Sargocentron diadema</i>	(Lacépède, 1801)	VR
<i>Sargocentron melanospilos</i>	(Bleeker, 1858)	R
<i>Sargocentron punctatissimum</i>	(Cuvier, 1829)	R
<i>Sargocentron rubrum</i>	(Forsskal, 1775)	V
<i>Sargocentron spiniferum</i>	(Forsskal, 1775)	VRL
<i>Sargocentron tiere</i>	(Cuvier, 1829)	R
<i>Sargocentron violaceum</i>	(Bleeker, 1853)	V
AULOSTOMIDAE		
<i>Aulostomus chinensis</i>	(Linnaeus, 1758)	VR
FISTULARIIDAE		

<i>Fistularia commersonii</i>	Rüppell, 1838	V
CENTRICIDAE		
<i>Aeoliscus strigatus</i>	(Günther, 1860)	V
SYNGNATHIDAE		
<i>Corythoichthys amplexus</i>	Dawson & Randall, 1975	R
<i>Corythoichthys nigripectus</i>	Herald, 1953	R
<i>Corythoichthys schultzi</i>	Herald, 1953	R
<i>Doryrhamphus dactyliophorus</i>	(Bleeker, 1853)	R
<i>Doryrhamphus excisus excisus</i>	Kaup, 1856	R
* <i>Phoxocampus diacanthus</i>	(Schultz, 1943)	R
SCORPAENIDAE		
<i>Dendrochirus brachypterus</i>	(Cuvier, 1829)	V
<i>Dendrochirus species</i>		V
<i>Pterois antennata</i>	(Bloch, 1787)	R
<i>Pterois radiata</i>	Cuvier, 1829	R
<i>Scorpaena species</i>		R
<i>Scorpaenodes albaiensis</i>	(Evermann & Seale, 1907)	R
* <i>Scorpaenodes corallinus</i>	Smith, 1957	R
* <i>Scorpaenodes hirsutus</i>	(Smith, 1957)	R
<i>Scorpaenodes kelloggi</i>	(Jenkins, 1903)	R
<i>Scorpaenodes parvipinnis</i>	(Garrett, 1863)	R
<i>Scorpaenodes scaber</i>	(Ramsay & Ogilby, 1886)	R
<i>Scorpaenopsis species</i>		R
<i>Scorpaenopsis gibbosa</i>	(Schneider, 1801)	R
<i>Scorpaenopsis neglecta</i>	(Temminck & Schlegel, 1844)	R
<i>Sebastapistes species</i>		R
<i>Sebastapistes cyanostigma</i>	(Bleeker, 1856)	R
* <i>Sebastapistes mauritiana</i>	(Cuvier, 1829)	R
<i>Sebastapistes strongia</i>	(Cuvier, 1829)	R
<i>Sebastapistes tinckhami</i>	(Fowler, 1946)	R
<i>Setarches species</i>		R
CARACANTHIDAE		
<i>Caracanthus maculatus</i>	(Gray, 1831)	R
<i>Caracanthus unipinna</i>	(Gray, 1831)	R
APLOACTINIDAE		
* <i>Neoaploactis tridorsalis</i>	Eschmeyer & Allen, 1978	R
SERRANIDAE		
<i>Anyperodon leucogrammicus</i>	(Valenciennes, 1828)	VR
<i>Aporops bilinearis</i>	Schultz, 1943	R
<i>Belonoperca chabanaudi</i>	Fowler & Bean, 1930	O
<i>Cephalopholis argus</i>	Bloch and Schneider, 1801	V
<i>Cephalopholis miniata</i>	(Forsskal, 1775)	VRL
<i>Cephalopholis sonneratii</i>	(Valenciennes, 1828)	VLR
<i>Cephalopholis urodetta</i>	(Schneider, 1801)	VR
<i>Epinephelus caeruleopunctatus</i>	(Bloch, 1790)	V
<i>Epinephelus coioides</i>	(Hamilton, 1822)	V
<i>Epinephelus cyanopodus</i>	(Richardson, 1846)	VL
<i>Epinephelus fasciatus</i>	(Forsskal, 1775)	VLR
<i>Epinephelus hexagonatus</i>	(Forster, 1801)	VR
<i>Epinephelus macrospilos</i>	(Bleeker, 1855)	VL
<i>Epinephelus maculatus</i>	(Bloch, 1790)	VLR
<i>Epinephelus merra</i>	Bloch, 1793	VLR
<i>Epinephelus polyphekadion</i>	(Bleeker, 1849)	VL
<i>Epinephelus rivulatus</i>	(Valenciennes, 1830)	L

<i>Epinephelus tauvina</i>	(Forsskal, 1775)	V
<i>Gracila albomarginata</i>	(Fowler & Bean, 1930)	V
<i>Grammistes sexlineatus</i>	(Thünberg, 1792)	V
<i>Liopropoma susumi</i>	(Jordan & Seale, 1906)	RO
<i>Liopropoma tonstrinum</i>	Randall & Taylor, 1988	R
<i>Luzonichthys waitei</i>	(Fowler, 1931)	R
<i>Luzonichthys williamsi</i>	Randall & McCosker, 1992	R
<i>Plectranthias longimanus</i>	(Weber, 1913)	R
* <i>Plectranthias nanus</i>	Randall, 1980	R
<i>Plectranthias winniensis</i>	(Tyler, 1966)	RO
<i>Plectropomus laevis</i>	(Lacépède, 1801)	V
<i>Plectropomus leopardus</i>	(Lacépède, 1802)	VL
<i>Pseudanthias ventralis ventralis</i>	(Randall, 1979)	O
<i>Pseudanthias hypselosoma</i>	Bleeker, 1878	VR
<i>Pseudanthias lori</i>	(Lubbock & Randall, 1976)	R
<i>Pseudanthias pascalus</i>	(Jordan & Tanaka, 1927)	VR
<i>Pseudanthias pictilis</i>	(Randall & Allen, 1978)	R
* <i>Pseudanthias rubrizonatus</i>	(Randall, 1983)	R
<i>Pseudanthias squamipinnis</i>	(Peters, 1855)	VR
<i>Pseudogramma polyacantha</i>	(Bleeker, 1856)	R
<i>Serranocirrhitus latus</i>	Watanabe, 1949	RO
<i>Variola louti</i>	(Forsskal, 1775)	VL
PSEUDOCHROMIDAE		
<i>Cypho purpurascens</i>	(De Vis, 1884)	RO
<i>Pseudochromis species</i>		R
<i>Pseudochromis cyanotaenia</i>	Bleeker, 1857	R
<i>Pseudochromis jamesi</i>	Schultz, 1943	R
<i>Pseudoplesiops species</i>		R
<i>Pseudoplesiops howensis</i>	Allen, 1987	R
<i>Pseudoplesiops multisquamatus</i>	Allen, 1987	R
<i>Pseudoplesiops rosae</i>	Schultz, 1943	R
PLESIOPIDAE		
<i>Plesiops coeruleolineatus</i>	Rüppell, 1835	R
ACANTHOCLINIDAE		
<i>Belonepterygion fasciolatum</i>	(Ogilby, 1889)	R
KUHLIIDAE		
<i>Kuhlia mugil</i>	(Bloch & Schneider, 1801)	R
PRIACANTHIDAE		
<i>Heteropriacanthus cruentatus</i>	(Lacépède, 1801)	R
<i>Priacanthus hamrur</i>	(Forsskal, 1775)	V
APOGONIDAE		
<i>Apogon species</i>		R
<i>Apogon angustatus</i>	(Smith & Radcliffe, 1911)	R
<i>Apogon apogonides</i>	(Bleeker, 1856)	V
<i>Apogon aureus</i>	(Lacépède, 1802)	VR
* <i>Apogon caudicinctus</i>	Randall & Smith, 1988	R
<i>Apogon coccineus</i>	Rüppell, 1838	R
<i>Apogon cyanosoma</i>	Bleeker, 1853	VR
* <i>Apogon diversus</i>	(Smith & Radcliffe, 1911)	R
<i>Apogon doderleini</i>	Jordan & Snyder, 1901	VR
<i>Apogon doryssa</i>	(Jordan & Seale, 1906)	R
<i>Apogon erythrinus</i>	Snyder, 1904	R
<i>Apogon exostigma</i>	(Jordan & Starks, 1906)	V
<i>Apogon fraenatus</i>	Valenciennes 1832	VR

<i>Apogon fuscus</i>	Quoy & Gaimard, 1824	R
<i>Apogon kallopterus</i>	Bleeker, 1856	VR
<i>Apogon nigrofasciatus</i>	Lachner, 1953	RO
<i>Apogon novemfasciatus</i>	Cuvier, 1828	VR
<i>Apogon trimaculatus</i>	Cuvier, 1828	V
<i>Apogonichthys ocellatus</i>	(Weber, 1913)	R
<i>Cheilodipterus macrodon</i>	(Lacépède, 1802)	VR
<i>Cheilodipterus quinquelineatus</i>	Cuvier, 1828	VR
<i>Fowleria abocellata</i>	Goren & Karplus, 1980	R
<i>Fowleria marmorata</i>	Alleyne & Macleay, 1877	R
<i>Gymnapogon urospilotus</i>	Lachner, 1953	R
<i>Pseudamiops gracillicauda</i>	(Lachner, 1953)	R
<i>Rhabdamia cypselurus</i>	Weber, 1909	VR
<i>Rhabdamia gracilis</i>	(Bleeker, 1856)	R
<i>Siphonia species</i>		R
SILAGINIDAE		
<i>Sillago species</i>		V
MALACANTHIDAE		
<i>Malacanthus brevirostris</i>	(Guichenot, 1848)	V
<i>Malacanthus latovittatus</i>	(Lacépède, 1801)	V
ECHENEIDAE		
<i>Echeneis naucrates</i>	Linnaeus, 1758	L
CARANGIDAE		
<i>Alectes indicus</i>	(Rüppell, 1830)	V
<i>Carangoides chrysophrys</i>	(Cuvier, 1833)	L
<i>Carangoides ferdau</i>	(Forsskal, 1775)	V
<i>Carangoides fulvoguttatus</i>	(Forsskal, 1775)	VL
<i>Caranx lugubris</i>	Poey, 1860	V
<i>Caranx melampygus</i>	Cuvier, 1833	VL
<i>Caranx sexfasciatus</i>	Quoy & Gaimard, 1824	VL
<i>Decapterus russelli</i>	(Rüppell, 1830)	VL
<i>Elagatis bipinnulatus</i>	(Quoy & Gaimard, 1825)	V
<i>Gnathanodon speciosus</i>	(Forsskal, 1775)	V
<i>Scomberoides tol</i>	(Cuvier, 1832)	V
<i>Trachinotus bailloni</i>	(Lacépède, 1801)	V
<i>Trachinotus blochii</i>	(Lacépède, 1801)	V
LUTJANIDAE		
<i>Aphareus furca</i>	(Lacépède, 1802)	VL
<i>Aprion virescens</i>	Valenciennes, 1830	VL
<i>Lutjanus argentimaculatus</i>	(Forsskal, 1775)	V
<i>Lutjanus bohar</i>	(Forsskal, 1775)	VLR
<i>Lutjanus fulviflamma</i>	(Forsskal, 1775)	VL
<i>Lutjanus fulvus</i>	(Bloch & Schneider, 1801)	V
<i>Lutjanus gibbus</i>	(Forsskal, 1775)	VL
<i>Lutjanus kasmira</i>	(Forsskal, 1775)	VLO
<i>Lutjanus lutjanus</i>	Bloch, 1790	L
<i>Lutjanus quinquelineatus</i>	(Bloch, 1790)	VL
<i>Lutjanus rivulatus</i>	(Cuvier, 1828)	VL
<i>Lutjanus russelli</i>	(Bleeker, 1849)	VL
<i>Lutjanus vitta</i>	(Quoy & Gaimard, 1824)	VL
<i>Macolor niger</i>	(Forsskal, 1775)	V
CAESIONIDAE		
<i>Caesio caerulea</i>	Lacépède, 1801	V
<i>Caesio cuning</i>	(Bloch, 1791)	V

<i>Cuesio teres</i>	Seale, 1906	R
* <i>Gymnoaesio gymnoptera</i>	(Bleeker, 1856)	R
* <i>Pterocaesio chrysozona</i>	(Cuvier, 1830)	R
<i>Pterocaesio digramma</i>	(Bleeker, 1865)	V
<i>Pterocaesio pisang</i>	(Bleeker, 1853)	V
* <i>Pterocaesio tessellata</i>	Carpenter, 1987	R
<i>Pterocaesio tile</i>	(Cuvier, 1830)	VR
<i>Pterocaesio trilineata</i>	Carpenter, 1987	VR
HAEMULIDAE		
<i>Diagramma pictum</i>	(Thünberg, 1792)	VL
<i>Plectrohinchus chaetodonoides</i>	Lacépède, 1800	V
<i>Plectrohinchus goldmanni</i>	(Bleeker, 1853)	V
<i>Plectrohinchus obscurum</i>	(Günther, 1871)	V
<i>Plectrohinchus picus</i>	(Cuvier, 1830)	V
LETHRINIDAE		
<i>Gnathodentex aurolineatus</i>	(Lacépède, 1802)	VR
<i>Gymnocranius euanus</i>	Günther, 1879	VL
<i>Gymnocranius grandoculis</i>	(Valenciennes, 1830)	VL
<i>Gymnocranius species</i>		VL
<i>Lethrinus atkinsoni</i>	Seale, 1909	VL
<i>Lethrinus genivittatus</i>	Valenciennes, 1830	VL
<i>Lethrinus harak</i>	(Forsskal, 1775)	V
<i>Lethrinus lentjan</i>	(Lacépède, 1802)	V
<i>Lethrinus miniatus</i>	(Bloch & Schneider, 1801)	V
<i>Lethrinus nebulosus</i>	(Forsskal, 1775)	VLO
<i>Lethrinus obsoletus</i>	(Forsskal, 1775)	VL
<i>Lethrinus olivaceus</i>	Valenciennes, 1830	VL
<i>Lethrinus rubrioperculatus</i>	Sato, 1978	VL
* <i>Lethrinus species</i>		LRO
<i>Lethrinus variegatus</i>	Valenciennes, 1830	V
<i>Lethrinus xanthochilus</i>	Klunzinger, 1870	VL
<i>Monotaxis grandoculis</i>	(Forsskal, 1775)	VL
NEMIPTERIDAE		
<i>Scolopsis bilineatus</i>	(Bloch, 1793)	V
<i>Scolopsis trilineatus</i>	Kner, 1868	V
MULLIDAE		
<i>Mulloides flavolineatus</i>	(Lacépède, 1801)	V
<i>Mulloides vanicolensis</i>	(Valenciennes, 1831)	V
<i>Parupeneus barberinoides</i>	(Lacépède, 1801)	V
<i>Parupeneus barberinus</i>	(Lacépède, 1801)	V
<i>Parupeneus bifasciatus</i>	(Lacépède, 1801)	V
<i>Parupeneus ciliatus</i>	(Lacépède, 1801)	V
<i>Parupeneus cyclostomus</i>	(Lacépède, 1801)	V
<i>Parupeneus heptacanthus</i>	(Lacépède, 1801)	V
<i>Parupeneus indicus</i>	(Shaw, 1803)	V
<i>Parupeneus multifasciatus</i>	(Quoy & Gaimard, 1825)	VR
<i>Parupeneus pleurostigma</i>	(Bennett, 1830)	V
<i>Parupeneus spilurus</i>	(Bleeker, 1854)	V
<i>Upeneus species (barbillon blanc)</i>		V
<i>Upeneus species (barbillon jaune)</i>		V
<i>Upeneus tragula</i>	Richardson, 1846	V
PEMPHERIDAE		
<i>Parapriacanthus ransonneti</i>	Steindachner, 1870	VR
<i>Pempheris oualensis</i>	Cuvier, 1831	VR

* <i>Pempheris swenckii</i>	Bleeker, 1855	R
KYPHOSIDAE		
<i>Kyphosus vaigiensis</i>	(Quoy & Gaimard, 1825)	V
CHAETODONTIDAE		
<i>Chaetodon auriga</i>	Forsskal, 1775	V
<i>Chaetodon baronessa</i>	Cuvier, 1831	V
<i>Chaetodon benetti</i>	Cuvier, 1831	V
<i>Chaetodon citrinellus</i>	Cuvier, 1831	VR
<i>Chaetodon ephippium</i>	Cuvier, 1831	V
<i>Chaetodon flavirostris</i>	Günther, 1873	VR
<i>Chaetodon kleinii</i>	Bloch, 1790	VR
<i>Chaetodon lineolatus</i>	Cuvier, 1831	V
<i>Chaetodon lunula</i>	(Lacépède, 1803)	V
<i>Chaetodon melanotus</i>	Bloch & Schneider, 1801	V
<i>Chaetodon mertensii</i>	Cuvier, 1831	VR
<i>Chaetodon ornatissimus</i>	Cuvier, 1831	V
<i>Chaetodon pelewensis</i>	Kner, 1868	VR
<i>Chaetodon plebeius</i>	Cuvier, 1831	V
<i>Chaetodon rafflesii</i>	Bennett, 1830	V
<i>Chaetodon reticulatus</i>	Cuvier, 1831	V
<i>Chaetodon speculum</i>	Cuvier, 1831	V
<i>Chaetodon trifascialis</i>	Quoy & Gaimard, 1824	V
<i>Chaetodon trifasciatus</i>	Park, 1797	V
<i>Chaetodon ulietensis</i>	Cuvier, 1831	V
<i>Chaetodon unimaculatus</i>	Bloch, 1787	V
<i>Chaetodon vagabundus</i>	Linnaeus, 1758	V
<i>Coradion altivelis</i>	McCulloch, 1916	V
<i>Forcipiger flavissimus</i>	Jordan & McGregor, 1898	VR
<i>Forcipiger longirostris</i>	(Broussonet, 1782)	V
<i>Hemitaurichthys polylepis</i>	(Bleeker, 1857)	R
<i>Heniochus acuminatus</i>	(Linnaeus, 1758)	VR
<i>Heniochus chrysostomus</i>	Cuvier, 1831	VR
<i>Heniochus monoceros</i>	Cuvier, 1831	V
<i>Heniochus singularis</i>	Smith & Radcliffe, 1911	V
<i>Heniochus varius</i>	(Cuvier, 1829)	V
POMACANTHIDAE		
<i>Centropyge bicolor</i>	(Bloch, 1787)	VR
<i>Centropyge bispinosus</i>	(Günther, 1860)	VR
<i>Centropyge flavissimus</i>	(Cuvier, 1831)	VR
<i>Centropyge heraldi</i>	Woods & Schultz, 1953	V
* <i>Centropyge loriculus</i>	(Günther, 1874)	V
<i>Centropyge multifasciatus</i>	(Smith & Radcliffe, 1911)	R
<i>Centropyge nigriocellus</i>	Woods & Schultz, 1953	R
<i>Centropyge tibicen</i>	(Cuvier, 1831)	V
<i>Centropyge vrolicki</i>	(Bleeker, 1853)	VR
<i>Pomacanthus imperator</i>	(Bloch, 1787)	V
<i>Pomacanthus semicirculatus</i>	(Cuvier, 1831)	V
<i>Pomacanthus sexstriatus</i>	(Cuvier, 1831)	V
<i>Pygoplites diacanthus</i>	(Boddaert, 1772)	V
POMACENTRIDAE		
<i>Abudefduf sexfasciatus</i>	(Lacépède, 1802)	VRA
<i>Abudefduf vaigiensis</i>	(Quoy & Gaimard, 1825)	VA
<i>Amblyglyphidodon aureus</i>	(Cuvier, 1830)	A
<i>Amblyglyphidodon leucogaster</i>	(Bleeker, 1847)	VA

<i>Amphiprion akindynos</i>	Allen, 1972	VA
<i>Amphiprion clarkii</i>	(Bennett, 1830)	VA
<i>Amphiprion melanopus</i>	Bleeker, 1852	VRA
<i>Amphiprion perideraion</i>	Bleeker, 1855	VA
<i>Chromis acares</i>	Randall & Swerdloff, 1973	R
<i>Chromis agilis</i>	Smith 1960	VRA
<i>Chromis amboinensis</i>	(Bleeker, 1873)	RA
<i>Chromis analis</i>	(Cuvier, 1830)	VA
<i>Chromis atripeectoralis</i>	Welander & Schultz, 1951	VA
<i>Chromis atripes</i>	Fowler & Bean, 1928	VRA
<i>Chromis chrysura</i>	(Bliss, 1883)	VRA
<i>Chromis flavomaculata</i>	Kamohara, 1960	VRA
<i>Chromis fumea</i>	(Tanaka, 1917)	V
<i>Chromis iomelas</i>	Jordan & Seale, 1906	VR
<i>Chromis lepidolepis</i>	Bleeker, 1877	RA
<i>Chromis margaritifer</i>	Fowler, 1946	ROA
* <i>Chromis cf nitida</i>	(Whitley, 1928)	V
<i>Chromis retrofasciata</i>	Weber, 1913	RA
<i>Chromis ternatensis</i>	(Bleeker, 1856)	VA
<i>Chromis vanderbilti</i>	(Fowler, 1941)	VRA
<i>Chromis viridis</i>	(Cuvier, 1830)	VRA
<i>Chromis weberi</i>	Fowler & Bean, 1928	VRA
<i>Chromis xanthochiria</i>	(Bleeker, 1851)	R
<i>Chromis xanthura</i>	(Bleeker, 1854)	VA
<i>Chromis sp.</i>		A (deep)
<i>Chrysiptera biocellata</i>	(Quoy & Gaimard, 1824)	RA
<i>Chrysiptera leucopoma</i>	(Lesson, 1830)	VRA
<i>Chrysiptera rex</i>	(Snyder, 1909)	VA
<i>Chrysiptera rollandi</i>	(Whitley, 1961)	VRA
<i>Chrysiptera starki</i>	(Allen, 1973)	VRA
<i>Chrysiptera taupou</i>	(Jordan & Seale, 1906)	VRA
<i>Dascyllus aruanus</i>	(Linneaus, 1758)	VRA
<i>Dascyllus reticulatus</i>	(Richardson, 1846)	VRA
<i>Dascyllus trimaculatus</i>	(Rüppell, 1828)	VRA
<i>Lepidozygus tapeinosoma</i>	(Bleeker, 1856)	VRA
* <i>Neoglyphidodon carlsoni</i>	(Allen, 1975)	R
<i>Neopomacentrus cyanomos</i>	(Bleeker, 1856)	R
<i>Neopomacentrus violascens</i>	(Bleeker, 1848)	V
<i>Plectroglyphidodon dickii</i>	(Lienard, 1839)	VRA
<i>Plectroglyphidodon imparipennis</i>	(Vauvillant & Sauvage, 1875)	A
<i>Plectroglyphidodon johnstonianus</i>	Fowler & Ball, 1924	VRA
<i>Plectroglyphidodon lacrymatus</i>	(Quoy & Gaimard, 1824)	VRA
<i>Plectroglyphidodon leucozonus</i>	(Bleeker, 1859)	RA
* <i>Pomacentrus adelus</i>	Allen, 1991	A
<i>Pomacentrus amboinensis</i>	Bleeker, 1868	VRA
<i>Pomacentrus bankanensis</i>	Bleeker, 1853	VRA
<i>Pomacentrus brachialis</i>	Cuvier, 1830	A
<i>Pomacentrus chrysurus</i>	Cuvier, 1830	A
<i>Pomacentrus coelestis</i>	Jordan & Starks, 1901	VR
<i>Pomacentrus lepidogenys</i>	Fowler & Ball, 1928	VA
<i>Pomacentrus molluccensis</i>	Bleeker, 1853	VA
<i>Pomacentrus nagasakensis</i>	Tanaka, 1917	A
<i>Pomacentrus pavo</i>	(Bloch, 1787)	VRAO
<i>Pomacentrus philippinus</i>	Evermann & Seale, 1907	VA

<i>Pomacentrus vaiuli</i>	Jordan & Seale, 1906	VRA
<i>Pomachromis richardsoni</i>	(Snyder, 1909)	OA
<i>Stegastes albifasciatus</i>	(Schlegel & Müller, 1839-44)	A
* <i>Stegastes cf. apicalis</i>	(De Vis, 1885)	VO
<i>Stegastes fasciolatus</i>	(Ogilby, 1889)	VRA
<i>Stegastes gascoynei</i>	(Whitley, 1964)	VRA
<i>Stegastes nigricans</i>	(Lacépède, 1802)	VA
CIRRHITIDAE		
<i>Amblycirrhitus bimacula</i>	Jenkins, 1903	R
<i>Cirrhitichthys falco</i>	Randall, 1963	VR
<i>Cyprinocirrhites polyactis</i>	(Bleeker, 1875)	V
<i>Paracirrhites arcatus</i>	(Cuvier, 1829)	VR
<i>Paracirrhites forsteri</i>	(Schneider, 1801)	VR
<i>Paracirrhites hemistictus</i>	(Günther, 1874)	V
OPISTOGNATHIDAE		
<i>Opistognathus new species</i>	Smith-Vaniz, in prep.	RO
LABRIDAE		
<i>Anampsese caeruleopunctatus</i>	Rüppell, 1829	V
<i>Anampsese geographicus</i>	Valenciennes, 1840	V
<i>Anampsese neoguinaicus</i>	Bleeker, 1878	VR
<i>Anampsese twistii</i>	Bleeker, 1856	V
<i>Bodianus anthoides</i>	(Bennett, 1830)	V
<i>Bodianus axillaris</i>	(Bennett, 1831)	VRO
<i>Bodianus bilunulatus?</i>	(Lacépède, 1801)	V?
<i>Bodianus diana</i>	(Lacépède, 1801)	V
<i>Bodianus loxozonus</i>	(Snyder, 1908)	V
<i>Bodianus perditio</i>	(Quoy & Gaimard, 1834)	VL
<i>Cheilinus bimaculatus</i>	Valenciennes, 1840	V
<i>Cheilinus chlorourus</i>	(Bloch, 1791)	V
<i>Cheilinus diagrammus</i>	(Lacépède, 1801)	VO
<i>Cheilinus trilobatus</i>	Lacépède, 1801	V
<i>Cheilinus undulatus</i>	Rüppell, 1835	V
<i>Cheilinus unifasciatus</i>	Streets, 1877	V
<i>Cheilo inermis</i>	(Forsskal, 1775)	V
<i>Cirrhilabrus laboutei</i>	Randall & Lubbock, 1982	V
<i>Cirrhilabrus punctatus</i>	Randall & Kuiter, 1989	VR
* <i>Cirrhilabrus species</i>		V (O?)
<i>Coris aygula</i>	Lacépède, 1801	V
<i>Coris dorsomacula</i>	Fowler, 1908	VR
<i>Coris gaimard</i>	(Quoy & Gaimard, 1824)	V
<i>Coris pictoides</i>	Randall & Kuiter, 1982	V
<i>Coris schroederi</i>	(Bleeker, 1858)	V
<i>Epibulus insidiator</i>	(Pallas, 1770)	VR
<i>Gomphosus varius</i>	Lacépède, 1801	VR
<i>Halichoeres biocellatus</i>	Schultz, 1960	VR
<i>Halichoeres chrysus</i>	Randall, 1981	VR
<i>Halichoeres hortulanus</i>	(Lacépède, 1801)	V
<i>Halichoeres margaritaceus</i>	(Valenciennes, 1839)	VR
<i>Halichoeres marginatus</i>	Rüppell, 1835	V
<i>Halichoeres melanurus</i>	(Bleeker, 1851)	V
<i>Halichoeres miniatus</i>	(Valenciennes, 1839)	R
<i>Halichoeres nebulosus</i>	(Valenciennes, 1839)	V
<i>Halichoeres prosopoeion</i>	(Bleeker, 1853)	V
<i>Halichoeres trimaculatus</i>	(Quoy & Gaimard, 1834)	VR

<i>Hemigymnus fasciatus</i>	(Bloch, 1792)	V
<i>Hemigymnus melapterus</i>	(Bloch, 1791)	V
* <i>Hologymnosus annulatus</i>	(Lacépède, 1801)	V
<i>Hologymnosus doliatus</i>	(Lacépède, 1801)	V
<i>Labrichthys unilineatus</i>	(Guichenot, 1847)	VR
<i>Labroides bicolor</i>	Fowler & Bean, 1928	V
<i>Labroides dimidiatus</i>	(Valenciennes, 1839)	VO
<i>Labroides pectoralis</i>	Randall & Springer, 1975	V
<i>Labropsis australis</i>	Randall, 1981	R
<i>Labropsis xanthonota</i>	Randall, 1981	VR
<i>Macropharyngodon meleagris</i>	(Valenciennes, 1839)	VR
<i>Macropharyngodon negrosensis</i>	Herre, 1932	V
<i>Novaculichthys taeniorus</i>	(Lacépède, 1801)	V
<i>Pseudocheilinus evanidus</i>	Jordan & Evermann, 1903	VR
<i>Pseudocheilinus hexataenia</i>	(Bleeker, 1857)	R
<i>Pseudocheilinus octotaenia</i>	Jenkins, 1900	VR
<i>Pseudocheilinus species</i>		R
<i>Pseudocoris yamashiroi</i>	(Schmidt, 1930)	RO
* <i>Pseudodax moluccanus</i>	(Valenciennes, 1839)	V?
<i>Pseudojuloides cerasinus</i>	(Snyder, 1904)	R
<i>Stethojulis bandanensis</i>	(Bleeker, 1851)	VR
<i>Stethojulis interrupta</i>	(Bleeker, 1851)	V
<i>Suezichthys gracilis</i>	(Steindachner & Doderlein, 1887)	V
<i>Thalassoma amblycephalum</i>	(Bleeker, 1856)	VR
<i>Thalassoma hardwicke</i>	(Bennett, 1828)	VR
<i>Thalassoma jansenii</i>	(Bleeker, 1856)	VR
<i>Thalassoma lunare</i>	(Linnaeus, 1758)	V
<i>Thalassoma lutescens</i>	(Lay & Bennett, 1839)	VR
<i>Thalassoma purpureum</i>	(Forsskal, 1775)	V
<i>Thalassoma quinquevittatum</i>	(Lay & Bennett, 1839)	VR
<i>Thalassoma trilobatum</i>	(Lacépède, 1801)	R
<i>Wetmorella nigropunctata</i>	(Seale, 1901)	RO
<i>Xyrichtys pavo</i>	Valenciennes, 1840	V
SCARIDAE		
<i>Bolbometopon muricatum</i>	(Valenciennes, 1840)	V
<i>Cetoscarus bicolor</i>	(Rüppell, 1829)	V
<i>Hipposcarus longiceps</i>	(Valenciennes, 1840)	V
<i>Scarus altipinnis</i>	(Steindachner, 1879)	V
<i>Scarus chameleon</i>	Choat & Randall, 1986	V
<i>Scarus flavipectoralis</i>	Schultz, 1958	V
<i>Scarus forsteni</i>	(Bleeker, 1861)	V
<i>Scarus frenatus</i>	Lacépède, 1802	V
<i>Scarus ghobban</i>	Forsskal, 1775	V
<i>Scarus globiceps</i>	Valenciennes, 1840	V
<i>Scarus longipinnis</i>	Randall & Choat, 1980	V
<i>Scarus microrhinos</i>	Bleeker, 1854	V
<i>Scarus niger</i>	Forsskal, 1775	V
<i>Scarus oviceps</i>	Valenciennes, 1840	V
<i>Scarus psittacus</i>	Forsskal, 1775	V
<i>Scarus rivulatus</i>	Valenciennes, 1840	V
<i>Scarus rubroviolaceus</i>	Bleeker, 1847	V
<i>Scarus schlegeli</i>	(Bleeker, 1861)	V
<i>Scarus sordidus</i>	Forsskal, 1775	V
<i>Scarus spinus</i>	(Kner, 1868)	V

CREEDIIDAE		
* <i>Chalixodtes chameleontoculis</i>	Smith, 1956	R
* <i>Chalixodtes tauensis</i>	Schultz, 1943	R
<i>Limnichthys donaldsoni</i>	Schultz, 1960	RO
PINGUIPEDIDÆ		
<i>Parapercis clathrata</i>	Ogilby, 1911	VR
<i>Parapercis cylindrica</i>	(Bloch, 1792)	VR
<i>Parapercis hexophtalma</i>	(Cuvier, 1829)	VR
<i>Parapercis millepunctata</i>	(Günther, 1860)	R
<i>Parapercis multiplicata</i>	Randall, 1984	VR
<i>Parapercis schauinslandi</i>	(Steindachner, 1900)	R
TRIPTERYGIIDAE		
<i>Ceratobregma helenae</i>	Holleman, 1987	R
<i>Ceratobregma striata</i>	Fricke, 1991	R
<i>Enneapterygius elegans</i>	(Peters, 1877)	R
<i>Enneapterygius flavoccipitis</i>	Shen & Wu, 1994	R
<i>Enneapterygius hemimelas</i>	(Kner & Steindachner, 1866)	R
<i>Enneapterygius nanus</i>	(Schultz, 1960)	R
<i>Enneapterygius niger</i>	Fricke, 1994	R
<i>Enneapterygius rufopileus</i>	(Waite, 1904)	R
<i>Enneapterygius tutuilae</i>	Jordan & Seale, 1906	R
<i>Helcogramma cf. ellioti</i>	(Herre, 1944)	R
<i>Norfolkia squamiceps</i>	(McCulloch & Waite, 1916)	R
<i>Norfolkia thomasi</i>	Whitley, 1964	R
<i>Springerichthys kulwickii</i>	Fricke & Randall, 1994	R
BLENNIIDAE		
* <i>Alticus sertatus</i>	(Garman, 1903)	R
<i>Aspidontus dussumieri</i>	(Valenciennes, 1836)	R
<i>Aspidontus taeniatus</i>	Quoy & Gaimard, 1834	R
<i>Blenniella chrysospilos</i>	(Bleeker, 1857)	R
<i>Cirripectes castaneus</i>	(Valenciennes, 1836)	R
<i>Cirripectes stigmaticus</i>	Strasburg & Schultz, 1953	R
<i>Ecsenius bicolor</i>	(Day, 1888)	VR
<i>Ecsenius fourmanoiri</i>	Springer, 1972	RO
<i>Ecsenius midas</i>	Starck, 1969	R
<i>Ecsenius nalolo</i>	Smith, 1959	O
<i>Entomacrodus caudofasciatus</i>	(Regan, 1909)	R
* <i>Entomacrodus decussatus</i>	(Bleeker, 1858)	R
<i>Entomacrodus striatus</i>	(Quoy & Gaimard, 1836)	R
<i>Exalias brevis</i>	(Kner, 1868)	V
<i>Istiblennius edentulus</i>	(Bloch, 1801)	VR
<i>Meiacanthus atrodorsalis</i>	(Günther, 1877)	VR
<i>Petroscirtes mitratus</i>	Rüppell, 1830	V
<i>Plagiotremus laudandus</i>	(Whitley, 1961)	R
<i>Plagiotremus rhinorhynchos</i>	(Bleeker, 1852)	VR
<i>Plagiotremus tapeinosoma</i>	(Bleeker, 1857)	VR
CALLIONYMIDAE		
<i>Diplogrammus goramensis</i>	(Bleeker, 1858)	R
* <i>Minysynchiropus laddi</i>	(Schultz, 1960)	R
<i>Synchiropus morrisoni</i>	Schultz, 1960	R
<i>Synchiropus ocellatus</i>	(Pallas, 1770)	R
ELEOTRIDIDAE		
<i>Calumia godeffroyi</i>	(Günther, 1877)	R
GOBIIDAE		

<i>Amblyeleotris steinitzi</i>	(Klausewitz, 1974)	VR
<i>Amblygobius phalaena</i>	(Valenciennes, 1837)	V
<i>Callogobius species</i>		R
<i>Callogobius maculipinnis</i>	(Fowler, 1918)	R
<i>Callogobius sclateri</i>	(Steindachner, 1880)	R
<i>Eviota species 1</i>		R
<i>Eviota species 2</i>		R
<i>Eviota aflelei</i>	Jordan & Seale, 1906	R
<i>Eviota albolineata</i>	Jewett & Lachner, 1983	R
<i>Eviota cometia</i>	Jewett & Lachner, 1983	R
* <i>Eviota fasciola</i>	Karnella & Lachner, 1981	R
* <i>Eviota latifasciata</i>	Jewett & Lachner, 1983	R
<i>Eviota melasma</i>	Lachner & Karnella, 1980	R
<i>Eviota monostigma</i>	Fourmanoir, 1971	R
<i>Eviota prasinia</i>	Klunzinger, 1871	O
<i>Eviota prasites</i>	Jordan & Seale, 1906	R
* <i>Eviota pseudostigma</i>	Lachner & Karnella, 1980	R
<i>Eviota sparsa</i>	Jewett & Lachner, 1983	R
<i>Eviota zebrina</i>	Lachner & Karnella, 1978	R
* <i>Eviota zonura</i>	Jordan & Seale, 1906	R
<i>Coryphopterus duospilos</i>	Hoege & Reader, 1985	R
<i>Coryphopterus neophytus</i>	(Günther, 1877)	R
<i>Gnatholepis cauerensis</i>	(Bleeker, 1853)	O
<i>Gnatholepis scapulostigma</i>	Herre, 1953	R
<i>Gobiodon citrinus</i>	(Rüppell, 1838)	R
<i>Gobiodon rivulatus</i>	(Rüppell, 1830)	R
<i>Gobiopsis species</i>		R
<i>Istigobius decoratus</i>	(Herre, 1927)	R
<i>Istigobius rigilius</i>	(Herre, 1953)	VR
<i>Macrodontogobius wilburi</i>	Herre, 1936	R
<i>Paragobiodon lacunicolus</i>	(Kendall & Goldsborough, 1911)	R
<i>Paragobiodon melanostomus</i>	(Bleeker, 1852)	R
<i>Paragobiodon xanthosomus</i>	(Bleeker, 1852)	R
<i>Pleurosicya species</i>		R
<i>Priolepis cincta</i>	(Regan, 1908)	R
* <i>Priolepis compita</i>	Winterbottom, 1985	R
<i>Priolepis fallacincta</i>	Winterbottom & Burridge, 1992	R
* <i>Priolepis kappa</i>	Winterbottom & Burridge, 1992	R
<i>Priolepis semidoliatus</i>	(Valenciennes, 1837)	R
* <i>Sueviota lachneri</i>	Winterbottom & Hoege, 1988	R
<i>Trimma 5 species</i>		R
<i>Trimma caesiura</i>	Jordan & Seale, 1906	RO
<i>Trimma okinawae</i>	(Aoyagi, 1949)	R
* <i>Trimma taylori</i>	Lobel, 1979	R
<i>Trimma tevegae</i>	Cohen & Davis 1969	O
<i>Trimma unisquamis</i>	(Gosline, 1959)	R
<i>Trimmatom eviotops</i>	(Schultz, 1943)	R
<i>Trimmatom nanus</i>	Winterbottom & Emery, 1981	R
<i>Valenciennea puellaris</i>	(Tomiyama, 1956)	VR
<i>Valenciennea strigata</i>	(Broussonet, 1782)	VR
KRAEMERIDAE		
* <i>Kraemeria samoensis</i>	Steindachner, 1906	R
MICRODESMIDAE		
<i>Nemateleotris magnifica</i>	Fowler, 1928	VR

<i>Ptereleotris evides</i>	(Jordan & Hubbs, 1925)	VR
<i>Ptereleotris hanae</i>	(Jordan & Snyder, 1901)	V
SIGANIDAE		
<i>Siganus argenteus</i>	(Quoy & Gaimard, 1825)	V
<i>Siganus punctatus</i>	(Forster, 1801)	V
<i>Siganus spinus</i>	(Linnaeus, 1758)	V
ZANCLIDAE		
<i>Zanclus cornutus</i>	(Linnaeus, 1758)	V
ACANTHURIDAE		
<i>Acanthurus albipectoralis</i>	Allen & Ayling, 1987	V
<i>Acanthurus blochii</i>	Valenciennes, 1835	V
<i>Acanthurus dussumieri</i>	Valenciennes, 1835	V
<i>Acanthurus guttatus</i>	Forster, 1801	V
<i>Acanthurus lineatus</i>	(Linnaeus, 1758)	V
<i>Acanthurus mata</i>	Cuvier, 1829	V
<i>Acanthurus nigricans</i>	(Linnaeus, 1758)	V
<i>Acanthurus nigricauda</i>	Duncker & Mohr, 1929	VR
<i>Acanthurus nigrofasciatus</i>	(Forsskal, 1775)	VR
<i>Acanthurus olivaceus</i>	Forster, 1801	VR
<i>Acanthurus pyroferus</i>	Kittlitz, 1834	VR
<i>Acanthurus triostegus</i>	(Linnaeus, 1758)	V
<i>Acanthurus xanthopterus</i>	Valenciennes, 1835	VR
<i>Ctenochaetus binotatus</i>	Randall, 1955	VR
<i>Ctenochaetus striatus</i>	(Quoy & Gaimard, 1825)	VR
<i>Naso annulatus</i>	(Quoy & Gaimard, 1825)	V
<i>Naso brachycentron</i>	(Valenciennes, 1835)	V
<i>Naso brevirostris</i>	(Valenciennes, 1835)	V
<i>Naso hexacanthus</i>	(Bleeker, 1855)	V
<i>Naso lituratus</i>	(Forster, 1801)	V
<i>Naso tuberosus</i>	Lacépède, 1802	V
<i>Naso unicornis</i>	(Forsskal, 1775)	V
<i>Paracanthurus hepatus</i>	(Linnaeus, 1766)	V
<i>Zebrasoma scopas</i>	(Cuvier, 1829)	V
<i>Zebrasoma veliferum</i>	(Bloch, 1797)	V
SPHYRAENIDAE		
<i>Sphyraena barracuda</i>	(Walbaum, 1792)	VL
<i>Sphyraena forsteri</i>	Cuvier, 1829	L
<i>Sphyraena putnamiae</i>	Jordan & Seale, 1905	L
SCOMBRIDAE		
<i>Euthynnus affinis</i>	(Cantor, 1849)	VL
<i>Grammatocynus bicarinatus</i>	(Quoy & Gaimard, 1824)	VLR
<i>Gymnosarda unicolor</i>	(Rüppell, 1838)	VL
<i>Katsuwonus pelamis</i>	(Linnaeus, 1775)	VL
<i>Rastrelliger kanagurta</i>	(Cuvier, 1817)	V
<i>Scomberomorus commerson</i>	(Lacépède, 1800)	VL
BOTHIDAE		
<i>Bothus mancus</i>	(Broussonet, 1782)	VR
<i>Bothus pantherinus</i>	(Rüppell, 1828)	R
PLEURONECTIDAE		
<i>Samariscus triocellatus</i>	Woods, 1966	R
SOLEIDAE		
<i>Soleichthys heterorhinos</i>	(Bleeker, 1856)	VR
BALISTIDAE		
<i>Balistapus undulatus</i>	(Park, 1797)	VR

<i>Balistoides conspicillum</i>	(Bloch & Schneider, 1801)	V
<i>Balistoides viridescens</i>	(Bloch & Schneider, 1801)	VL
<i>Melichthys vidua</i>	(Solander, 1844)	V
<i>Pseudobalistes fuscus</i>	(Bloch & Schneider, 1801)	VL
<i>Rhinecanthus aculeatus</i>	(Linnaeus, 1758)	V
<i>Rhinecanthus rectangularis</i>	(Bloch & Schneider, 1801)	V
<i>Sufflamen bursa</i>	(Bloch & Schneider, 1801)	VR
<i>Sufflamen chrysopterus</i>	(Bloch & Schneider, 1801)	VR
<i>Sufflamen fraenatus</i>	(Latreille, 1804)	VL
MONACANTHIDAE		
<i>Amanses scopas</i>	Cuvier, 1829	V
<i>Cantherines dumerili</i>	(Hollard, 1854)	V
<i>Oxymonacanthus longirostris</i>	(Bloch & Schneider, 1801)	V
<i>Paralutereres prionurus</i>	(Bleeker, 1851)	R
<i>Pervagor janthinosoma</i>	(Bleeker, 1854)	VR
<i>Pervagor melanocephalus</i>	(Bleeker, 1853)	V
OSTRACIIDAE		
<i>Ostracion cubicus</i>	Linnaeus, 1758	VR
<i>Ostracion meleagris</i>	Shaw, 1796	V
<i>Tetrasoma gibbosus</i>	(Linnaeus, 1758)	V
TETRAODONTIDAE		
<i>Arothron hispidus</i>	(Linnaeus, 1758)	VL
<i>Arothron meleagris</i>	(Lacépède, 1798)	V
<i>Arothron nigropunctatus</i>	(Bloch & Schneider, 1801)	V
<i>Canthigaster bennetti</i>	(Bleeker, 1854)	V
<i>Canthigaster janthinoptera</i>	(Bleeker, 1855)	R
<i>Canthigaster valentini</i>	(Bleeker, 1853)	VR
<i>Lagocephalus scleratus</i>	(Forster, 1788)	L
DIODONTIDAE		
<i>Diodon hystrix</i>	Linnaeus, 1758	V

Table 2. Shallow water and reef fish species diversity of the major families at Ouvéa and other areas of the Western Pacific. (Footnote sources are in parentheses.)

Family	Ouvéa	New Caledonia	Chesterfield	South GBR	North GBR	PNG	Norfolk, Lord Howe, Kermadec	Fiji	Rotuma
		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Acanthuridae	25	33	26	25	36	33	13	23	12
Apogonidae	27	65	47	34	47	80	10	40	27
Balistidae	10 + 6	14+10	9+10	11+11	17+19	17+15	5+10	14+11	6+3
+Monacanthidae									
Blenniidae	20	43	22	40	50	63	20	38	32
Caesionidae (1)	10	9	6	4	7	11	2	8	3
Carangidae	13	25	12	32	45	53	23	28	7
Chaetodontidae	31	32	23	32	45	44	23	32	14
Clupeidae (2)	2	10	1	5	10	27	2	11	0
Gobiidae	54	84	55	104	153	161	27	na	54
Haemulidae	5	9	3	8	10	18	4	4	0
Holocentridae	18	21	20	11	25	25	6	22	17
Labridae	69	84	73	69	106	93+	56	64	28
Lethrinidae (3)	17	18	14	9	20	25	5	17	11
Lutjanidae (4)	14	19	10	14	24	31	8	20	22
Mullidae	15	15	12	7	16	14+	10	18	9
Muraenidae	17	25	19	23	30	40	17	24	8
Nemipteridae (5)	2	9	2	7	11	15	1	8	0
Platycephalidae	0	9	10	4	10	17+	1	2	2
Pomacanthidae	13	15	12	15	24	23	7	16	3
Pomacentridae (6)	58	82	54	69	106	105	35	67	37
<i>Abudefduf</i>	2	6	0	6	6	7	5	5	0
<i>Neopomacentrus</i>	2	6	0	2	6?	7	0	1	1
Scaridae	20	26	21	23	27	27	13	22+	3
Scorpaenidae	20	23	27	21	26	34	13	17	10
Serranidae (7)	39	47	29	32	88	73	22	42	23
Siganidae (8)	3	9	2	8	10	13	1	6	1
Syngnathidae (9)	7	29	16	12	18	45	6	32	9
Synodontidae	6	7	7	8	8	12	6	5	4
Tetraodontidae	7	19	10	11	14	23	9	13	5
Longitude (°E)	167	165	159	154	143	140	165	178	177
Latitude (°S)	20	21	19	22	18	10	30	17	12
Rank in Landmass	6	3	8	1	1	2	5	4	7

1: Carpenter 1987, 1988

2: Whitehead 1985; Whitehead et al., 1988 3: Carpenter and Allen, 1989

4: Allen and Talbot, 1985

5: Russell, 1990

6: Allen, 1991

7: Randall and Heemstra, 1991

8: Woodland, 1990

9: Dawson, 1985

10: Rivaton et al., 1989

11: LeBorgne et al., 1994

12: Russell, 1983; Lowe and Russell, 1990

13: Allen 1989; Randall et al., 1990, Paxton et al., 1978

14: Kailola, 1987a,b, 1991; Allen and Swainston, 1992

15: Francis, 1993

16: Carlson ms; Blaber et al., 1993

17: Zug et al., 1989

Table 3. Characteristics of the early life history traits of *Abudefduf* and *Neopomacentrus* spp. compared to other Pomacentridae.

Genus	Egg size (mm ³)	Larval duration (days)	Size at settlement (mm)
<i>Abudefduf</i>	.308-.450 (3)	23 (1); 17-20 (2); 22.1-24.2 (3)	10.4 (1); 11.2 (2)
<i>Chromis</i>	.091-.109 (3)	20-26 (1); 18-38 (2); 20.3-28.8 (3)	8.3 (1); 8-14.4 (2); 8.2-8.9 (3)
<i>Chrysiptera</i>	.347-.539 (3)	23-24 (1); 14-24 (2); 17.4-22.0 (3)	10.9 (1); 8.7-11.2 (2); 9.9-10.9 (3)
<i>Dascyllus</i>	.093-.181 (3)	20-28 (1); 16-30 (2); 22.4-24.2 (3)	7.0 (1); 6.4-10.1 (2); 7.0 (3)
<i>Neopomacentrus</i>		24 (1); 16-24 (2); 18.2 (3)	13.9 (1); 10.5 (2); 13.9 (3)
<i>Paraglyphidodon</i>	.850-.898 (3)	14-28 (2); 14.8 (3)	8.6-9.0 (2)
<i>Plectroglyphidodon</i>	.112-.180 (3)	19-33 (2); 24.3 (3)	
<i>Pomacentrus</i>	.210-.804 (3)	17-85 (1); 14-27 (2); 19.0-26.0 (3)	11.9-22.8 (1); 10.6-14.1 (2); 12.2-15.0 (3)
<i>Stegastes</i>	.112 (3)	19-39 (2); 32.0 (3)	9.5-13.6 (2)

1 - Brothers et al. 1983

2 - Wellington and Victor 1989

3 - Thresher and Brothers 1989