

Fifty new records of shore fishes from the Society Islands and Tuamotu Archipelago

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Abstract

The following species of fishes are here recorded from the Society Islands and/or the Tuamotu Archipelago: *Gymnothorax elegans*, *G. formosus*, *Monopenchelys acuta*, *Heteroconger hassi*, *Ophichthus altipennis*, *Synodus capricornis*, *Antennarius maculatus*, *A. scriptissimus*, *Minyichthys myersi*, *Beryx decadactylus*, *Myripristis chryseres*, *Sebastapistes galactacma*, *Plectranthias rubrifasciatus*, *Liopropoma tonstrinum*, *Belonoperca chabanaudi*, *Oxycirrhites typus*, *Apogon fukuii*, *Atule mate*, *Seriola rivoliana*, *Emmelichthys karnellai*, *Erythrocles scintillans*, *Aphareus rutilans*, *Etelis radiosus*, *Paracaesio xanthurus*, *Pristipomoides argyrogrammicus*, *P. auricilla*, *P. filamentosus*, *P. flavipinnis*, *Randallichthys filamentosus*, *Chaetodon tinkeri*, *Oxycheilinus arenatus*, *Polylepion russelli*, *Callionymus filamentosus*, *Diplogrammus goramensis*, *Bryaninops tigris*, *B. yongei*, *Gobiodon quinquestrigatus*, *Gobiopsis exigua*, *Paragobiodon modestus*, *Pleurosicya coerulea*, *P. micheli*, *Trimma taylori*, *T. unisquamis*, *Trimmatom nanus*, *Vanderhorstia ornatissima*, *Ptereleotris hanae*, *Naso thynnoides*, *Xanthichthys auromarginatus*, *Canthigaster leoparda*, and *C. ocellicineta*.

Zusammenfassung

Die nachfolgenden Fischarten werden erstmals von den Gesellschafts-Inseln und dem Tuamotu Archipel nachgewiesen: *Gymnothorax elegans*, *G. formosus*, *Monopenchelys acuta*, *Heteroconger hassi*, *Ophichthus altipennis*, *Synodus capricornis*, *Antennarius maculatus*, *A. scriptissimus*, *Minyichthys myersi*, *Beryx decadactylus*, *Myripristis chryseres*, *Sebastapistes galactacma*, *Plectranthias rubrifasciatus*, *Liopropoma tonstrinum*, *Belonoperca chabanaudi*, *Oxycirrhites typus*, *Apogon fukuii*, *Atule mate*, *Seriola rivoliana*, *Emmelichthys karnellai*, *Erythrocles scintillans*, *Aphareus rutilans*, *Etelis radiosus*,

Paracaesio xanthurus, *Pristipomoides argyrogrammicus*, *P. auricilla*, *P. filamentosus*, *P. flavipinnis*, *Randallichthys filamentosus*, *Chaetodon tinkeri*, *Oxycheilinus arenatus*, *Polylepion russelli*, *Callionymus filamentosus*, *Diplogrammus goramensis*, *Bryaninops tigris*, *B. yongei*, *Gobiodon quinquestrigatus*, *Gobiopsis exigua*, *Paragobiodon modestus*, *Pleurosicya coerulea*, *P. micheli*, *Trimma taylori*, *T. unisquamis*, *Trimmatom nanus*, *Vanderhorstia ornatissima*, *Ptereleotris hanae*, *Naso thynnoides*, *Xanthichthys auromarginatus*, *Canthigaster leoparda* und *C. ocellicineta*.

Résumé

Les espèces de poissons ci-dessous sont signalées dans les îles de la Société et/ou dans l'Archipel de Tuamotu: *Gymnothorax elegans*, *G. formosus*, *Monopenchelys acuta*, *Heteroconger hassi*, *Ophichthus altipennis*, *Synodus capricornis*, *Antennarius maculatus*, *A. scriptissimus*, *Minyichthys myersi*, *Beryx decadactylus*, *Myripristis chryseres*, *Sebastapistes galactacma*, *Plectranthias rubrifasciatus*, *Liopropoma tonstrinum*, *Belonoperca chabanaudi*, *Oxycirrhites typus*, *Apogon fukuii*, *Atule mate*, *Seriola rivoliana*, *Emmelichthys karnellai*, *Erythrocles scintillans*, *Aphareus rutilans*, *Etelis radiosus*, *Paracaesio xanthurus*, *Pristipomoides argyrogrammicus*, *P. auricilla*, *P. filamentosus*, *P. flavipinnis*, *Randallichthys filamentosus*, *Chaetodon tinkeri*, *Oxycheilinus arenatus*, *Polylepion russelli*, *Callionymus filamentosus*, *Diplogrammus goramensis*, *Bryaninops tigris*, *B. yongei*, *Gobiodon quinquestrigatus*, *Gobiopsis exigua*, *Paragobiodon modestus*, *Pleurosicya coerulea*, *P. micheli*, *Trimma taylori*, *T. unisquamis*, *Trimmatom nanus*, *Vanderhorstia ornatissima*, *Ptereleotris hanae*, *Naso thynnoides*, *Xanthichthys auromarginatus*, *Canthigaster leoparda*, et *C. ocellicineta*.

Sommario

Nelle Isole della Società e/o dell'Arcipelago delle Tuamotu viene registrata per la prima volta la presenza delle seguenti specie di pesci: *Gymnothorax elegans*, *G. formosus*, *Monopenchelys acuta*, *Hetero-*

conger hassi, *Ophichthus altipennis*, *Synodus capricornis*, *Antennarius maculatus*, *A. scriptissimus*, *Minyichthys myersi*, *Beryx decadactylus*, *Myripristis chryseres*, *Sebastapistes galactacma*, *Plectranthias rubrifasciatus*, *Liopropoma tonstrinum*, *Belonoperca chabanaudi*, *Oxycirrhites typus*, *Apogon fukuii*, *Atule mate*, *Seriola rivoliana*, *Emmelichthys karnellai*, *Erythrocles scintillans*, *Aphareus rutilans*, *Etelis radiosus*, *Paracaesio xanthurus*, *Pristipomoides argyrogrammicus*, *P. auricilla*, *P. filamentosus*, *P. flavipinnis*, *Randallichthys filamentosus*, *Chaetodon tinkeri*, *Oxycheilinus arenatus*, *Polylepion russelli*, *Callionymus filamentosus*, *Diplogrammus goramensis*, *Bryaninops tigris*, *B. yongei*, *Gobiodon quinquestrigatus*, *Gobiopsis exigua*, *Paragobiodon modestus*, *Pleurosicya coerulea*, *P. micheli*, *Trimma taylori*, *T. unisquamis*, *Trimmatom nanus*, *Vanderhorstia ornatissima*, *Ptereleotris hanae*, *Naso thynnoides*, *Xanthichthys auromarginatus*, *Canthigaster leoparda*, and *C. ocellincta*.

Introduction

Randall (1973) made a compilation of the Tahitian names of fishes, along with a preliminary checklist of the fishes of the Society Islands; his list included 616 species. In 1985 he published a checklist of all the fishes known for the islands of French Polynesia. The localities within French Polynesia were recorded as **A** for the Austral Islands, **M** for the Marquesas, **R** for Rapa, **S** for the Society Islands, and **T** for the Tuamotu Archipelago. The total species count was 800. Of the island groups, the well-collected Society Islands had the largest number of species, 633.

Overlooked in the 1985 list were the carangid *Caranx lugubris*, the large lethrinid *Lethrinus olivaceus* (though both were included in the 1973 list, the latter as *L. miniatus*, the name used at that time), *Scarus tricolor* (Bleeker) (*S. cyanognathus*, terminal male and *S. sexvittatus*, initial phase of Bagnis *et al.*, 1972), and *Medusablennius chani* Springer, 1966.

Randall *et al.* (1990) reported on the fish collections from Rapa, French Polynesia; they recorded 268 species. Randall and Earle (2000) updated the list of shore fishes for the Marquesas Islands.

They documented 49 new records and raised the total for this island group to 415 species.

The present new records for the Society Islands and Tuamotu Archipelago have resulted from recent visits by Randall, underwater photographs taken by Bacchet, a collection of fishes made by Winterbottom in 1993, chiefly in Moorea, and deposited in the Royal Ontario Museum, Toronto (ROM), and specimens obtained by Wrobel, principally from fishermen handlining at depths greater than usually reached by scuba divers. She sent specimens to the Bernice P. Bishop Museum, Honolulu (BPBM) and some, especially lutjanids, to the Grice Marine Biological Laboratory in Charleston (GMBL) to further research by William D. Anderson, Jr.

We regard as shore fishes those known to occur at depths of this, or less. Some of our new records of fishes from French Polynesia are from depths greater than 200 m, but we include them when the species are known to occur in less than 200 m at other localities. Inshore pelagic fishes such as jacks (Carangidae) are included in our new records, but not offshore pelagic species such as the flyingfishes, billfishes, dolphins (*Coryphaena*), and most of the tunas.

The new records are presented in phylogenetic sequence under family headings, with comments, especially on distribution. The length of specimens is given as standard length (SL) or for eels as total length (TL).

Muraenidae (moray eels)

***Gymnothorax elegans* Bliss, 1883.** This slender, white-spotted moray was described from Mauritius; it is known from only a few scattered Indo-Pacific localities from East Africa to the Hawaiian Islands. It is probably more common than its few records indicate because of its predilection for deeper water than most morays. Our two Society Islands specimens are from Moorea: BPBM 31610, 645 mm TL, caught by hook and line off Temae in 300 m, and BPBM 37146, 420 mm TL, from the north shore (17°31'N, 149°56'6"W) taken in a trap at 150 m by Joseph Poupin. Castle and McCosker in Smith and Heemstra (1986) reported 141 vertebrae for a specimen of *G. elegans*. Our two Moorea specimens have 146 and 149 vertebrae.

***Gymnothorax formosus* Bleeker, 1865.** This species was identified for us by the late Eugenia B. Böhlke. We have a single lot of four specimens, ROM 59951: 190-467 mm TL, from the slope of the reef top and an associated sandy gutter in 9-14 m just south of Haura at the northwest tip of Moorea. The specimens have 4-5 pre-dorsal, 56-57 pre-anal and 133-135 total vertebrae. Colour pattern of a 190 mm specimen: large, irregular dark brown blotches (smaller ventrally) on a reticulate yellow background, margins of median fins yellow, head plain yellow with a dark brown 'mask' over eye and post-orbital region, a dark spot at the rictus. Distribution uncertain; rare in museum collections.

***Monopenchelys acuta* (Parr, 1930).** Previously recorded from the Caribbean, Ascension Island, Hawaii, and the western Indian Ocean (Comoro Islands, Seychelles, and Agalega Islands). Here reported from the Society Islands based on six specimens (ROM 60019, 66-152 mm TL) from 18-24 m on a reef slope of coral rubble with some live coral off the north-west coast of Moorea. Our specimens fall within the range of characters given by Böhlke and McCosker (1982), and have 68-72 pre-dorsal, 51-53 pre-anal, 127-132 total vertebrae. Overall coloration

light brown with a broad, diffuse, reddish band from the tip of the snout through the eye, grading into the background colour at about the end of the skull.

Congridae (conger eels and garden eels)

***Heteroconger hassi* (Klausewitz & Eibl-Eibesfeldt, 1959).** The most widely distributed of the garden eels of the subfamily Heterocongrinae, *H. hassi* is known from Sodwana Bay, South Africa to the Samoa Islands and Line Islands; in the western Pacific from the Ryukyu Islands to the Great Barrier Reef and New Caledonia (Castle and Randall, 1999: fig. 11). Our record from the Society Islands is based on the photo in Fig. 1, taken in a gently sloping sandy area on the outer reef off the west coast of Tahiti in 25-30 m. The eel was in a mixed group of this species and *H. lentiginosus* Böhlke and Randall. In addition to the numerous small black spots, *H. hassi* has three large black spots, the one surrounding the gill opening and pectoral fin as seen in the photograph, one about halfway along the side of the trunk (was seen by the second author before he took the photograph), and the third around the anus.



Fig. 1. *Heteroconger hassi*, Tahiti. Photo by P. Bacchet.

Ophichthidae (snake eels)

***Ophichthus altipennis* (Kaup, 1856).** Previously known from the Maldive Islands, Western Australia, Indonesia (type locality, Ambon), Thailand, the Philippines, Guam [Myers, 1999: fig. 1 i, as *Pisodonophis cancrivorus*], New Caledonia [Laboute and Grandperin, 2000: 118, as *Pisodonophis boro*], and American Samoa (Wass, 1984: 6, from a specimen collected by Randall at Aunu'u Island). This eel lives in sand, generally near reefs, often with just the front of its head protruding vertically from the sand as seen in Fig. 2, which shows an eel from the lagoon in Tahiti. This species is reported to reach 120 cm. McCosker and Randall (in press) have shown that *O. melanochir* Bleeker is a synonym of *O. altipennis*.



Fig. 2. *Ophichthus altipennis*, Tahiti. Photo by P. Bacchet.

Synodontidae (lizardfishes)

***Synodus capricornis* Cressey & Randall, 1978.** Collections off the north coast of Moorea yielded eight specimens of this species (ROM 61220-23: 58-81 mm SL). They were collected from the reef slopes with sand and rubble channels in 15-35 m. The species was described from specimens collected at Easter Island and the Pitcairn Islands, and has most recently been reported from Hawaii (Waples and Randall, 1988).

Antennariidae (frogfishes)

***Antennarius maculatus* (Desjardins, 1840).** When Bacchet reported he had photographed *Antennarius maculatus* in Tahiti, Randall commented that the fish was probably the similar *A. pictus*, the type locality of which is Tahiti. *A. maculatus* is not reported east of the Solomon Islands (Pietsch and Grobecker, 1987). However, as shown in Fig. 3, the fish is *maculatus*, a noteworthy range extension. The prominent wart-like protuberances on the head and body of this



Fig. 3. *Antennarius maculatus*, Tahiti. Photo by P. Bacchet.

species readily distinguish it from *A. pictus*. There is also a broad gap in the range of *A. maculatus* westward from Indonesia to Mauritius.

***Antennarius scriptissimus* Jordan in Jordan & Sindo, 1902.** This species was reported as *A. sarasa* Tanaka by Pietsch and Grobecker (1987), who stated that it is known from only five specimens, 90-280 mm SL, from off Tokyo, the Philippines (173-185 m), New Zealand (73 m), and Réunion. However, Theodore W. Pietsch (pers.comm.) informed us that *sarasa* is a junior synonym of *scriptissimus*, the type locality of which is the entrance to Tokyo Bay. Our specimen from Tahiti, BPBM 31702, 252 mm SL, was caught in an estimated 350 m.

Syngnathidae (pipefishes)

***Minyichthys myersi* (Herald & Randall, 1972).** A single specimen of this species (ROM 60689, 48 mm SL) was collected from the reef slope off the north-west coast of Moorea in 18-24 m. Dorsal rays 27, pectoral fin rays 13, trunk scutes 19, caudal scutes 39. The previous distribution was at St. Brandon's Shoals north of Mauritius, the eastern part of the Philippine/New Guinea region, and Guam (Dawson, 1985).

Berycidae (alfonsinos)

***Beryx decadactylus* Cuvier, 1829.** A circumglobal species except for the northeast Pacific; known from 180 to at least 1000 m (Paxton in Carpenter and Niemi, 1999). It is reported in the Hawaiian Islands from 180 to 760 m (Chave and Mundy, 1994). The juveniles are pelagic, whereas the adults are benthopelagic, ranging above the bottom at night. The species attains a total length of about 60 cm. We have two specimens from Tahiti, BPBM 31648, 184 mm SL, from Papenoo in 250 m, and BPBM 31642, 60 mm SL, taken from the stomach of *Etelis carbunculus* caught in 350 m off Punaauia.

Holocentridae (squirrelfishes and soldierfishes)

***Myripristis chryseres* Jordan & Evermann, 1903.** This yellow-finned soldierfish occurs in deeper water than most species of the genus. Chave and Mundy (1994) noted the depth range in the Hawaiian Islands as 12-240 m; it is rarely seen in less than 30 m. Other localities include American Samoa, Mariana Islands, the Ogasawara Islands, Mauritius, Réunion, and Natal, South Africa (Randall and Greenfield, 1996). Two specimens, BPBM 31665, 158-161 mm SL, were caught by hook and line between 150 and 200 m off Mehetia. Yves Lefevre photographed it underwater in 75 m at Rangiroa Atoll, Tuamotu Archipelago, and Bacchet has observed it in Tahiti in 47 m and more.

Scorpaenidae (scorpionfishes)

***Sebastapistes galactacma* Jenkins, 1903.** Eschmeyer and Randall (1975) reported this small

scorpionfish only from the Hawaiian Islands. We now know that it is widespread in the central and western Pacific. The California Academy of Sciences has material from Pohnpei (Ponape), and the Bishop Museum from the Ogasawara Islands, Papua New Guinea, Kiritimati (Gilbert Islands), Pitcairn Islands, the Marquesas Islands, and Mangareva in the Tuamotu Archipelago (BPBM 13581, 23 mm SL).

Serranidae (groupers, basslets, and anthias)

***Plectranthias rubrifasciatus* Randall & Fourmanoir, 1979.** This anthiine fish was described from a single specimen (BPBM 22543, 49 mm) taken from a crab pot set in 100 m in Bulari Pass, New Caledonia. Joseph Poupin collected the present specimen (BPBM 35809, 69 mm) at Mururoa Atoll (21°51'54"S, 139°1'36"W), Tuamotu Archipelago in a trap from 200 m. The specimen is aberrant in having XI dorsal spines, but its other meristic data correspond with that of the holotype, as does the colour photograph provided by Mr. Poupin.

Liopropoma tonstrinum Randall & Taylor, 1988.

This cryptic basslet is reported only from scattered localities in Micronesia, Fiji, American Samoa, and Christmas Island in the eastern Indian Ocean. Three individuals were discovered by Bacchet in the dark recess of a cave at 27 m on the north coast of Tahiti, and one was photographed (Fig. 4).



Fig. 4. *Liopropoma tonstrinum*, Tahiti. Photo by P. Bacchet.

Belonoperca chabanaudi Fowler & Bean, 1930.

Randall *et al.* (1980) determined that this fish is a soapfish, first by noting the bitter taste of the skin mucus and later by demonstrating toxin-producing glands in the skin. It remains hidden in caves during the day and becomes active at dusk, but rarely ventures into the open. The yellow saddle-like spot on the caudal peduncle is usually noticed before the fish itself. It is widely distributed from the coast of East Africa to American Samoa where it is reported from

depths of 4-45 m. Bacchet has observed it in the Tuamotus and Marquesas as well as in the Society Islands where it was photographed (Fig. 5).



Fig. 5. *Belonoperca chabanaudi*, Tahiti. Photo by P. Bacchet.

Cirrhitidae (hawkfishes)

***Oxycirrhites typus* Bleeker, 1857.** The longnose hawkfish is a popular aquarium fish widely distributed from the Red Sea and Madagascar to the eastern Pacific where it ranges from the Gulf of California to the Galápagos Islands and Colombia. In the western Pacific it occurs from southern Japan to the Great Barrier Reef and New Caledonia. It is surprising that it is only now being recorded from French Polynesia. One reason is its predilection for deeper reefs; also it is often well-camouflaged by its cross-hatch pattern when it perches on black coral or gorgonians. It has not been observed in less than 38 m in Tahiti, and was seen by Bacchet off Manihi Atoll in the Tuamotus in more than 70 m. Our Society Islands record is based on a photograph (Fig. 6) taken in black coral at 49 m off Tahiti Iti.



Fig. 6. *Oxycirrhites typus*, Tahiti. Photo by P. Bacchet.

Apogonidae (cardinalfishes)

***Apogon fukuui* Hayashi, 1990.** This cardinalfish was first reported as *Apogon* sp. by Masuda *et al.* (1984: 146, pl. 130 M) from depths of 40-100 m. Winterbottom *et al.* (1987: 30, fig. 168) recorded it as *Apogon* sp. 1 from 40-43 m in the Chagos Archipelago. It was described from six specimens taken in 40-45 m from southern Japan by Hayashi (1990: 8, fig. 1). Randall *et al.* (1997: 25, pl. 7 B) listed it from the Ogasawara Islands. Joseph Poupin collected our one specimen, BPBM 37138, 72 mm, at Makemo Atoll (16°34'12" S, 143°27'6" W) in the Tuamotu Archipelago in a trap at 120 m.

Carangidae (Jacks)

***Atule mate* (Cuvier, 1833).** Our only record for the Society Islands is the photograph (Fig. 7) taken by Arsène Stein of the Service des Ressources Marines of a specimen caught off Raiatea. This carangid is a small (largest specimen recorded, 30 cm TL), wide-ranging species from East Africa to the Hawaiian Islands. In the South Pacific it was previously known eastward only to American Samoa (Wass, 1984).



Fig. 7. *Atule mate*, Raiatea. Photo by A. Stein.

***Seriola rivoliana* Valenciennes, 1833.** The Almaco Jack is circumtropical, and the juveniles are pelagic. It is surprising that it has not been reported previously from French Polynesia. It has probably been overlooked because of its similarity to the more common *Seriola dumerili* and because it generally occurs in deeper water than *S. dumerili*. Our only specimen, BPBM 31628, 350 mm SL, was caught from 250 m off Teahupoo, Tahiti. Bacchet has observed the species in 45 m off Tahiti, and Yves Lefevre has photographed it at depths greater than 40 m in the northern Tuamotus.

Emmelichthyidae (rovers)

***Emmelichthys karnellai* Hemstra & Randall, 1977.** This slender species was described from six specimens from the Hawaiian Islands from depths of

128-275 m and one specimen from Easter Island caught in 250 m. Our Society Islands record is based on one specimen, BPBM 31703, 230 mm SL, from 200 m off Raiatea.

***Erythrocles scintillans* (Jordan & Thompson, 1912).** Heemstra and Randall (1977) reported this species from the Hawaiian Islands (Hilo, Hawaii is the type locality) from a depth range of 180-280 m, and from Okinawa. An Okinawa specimen was illustrated in colour by Masuda *et al.* (1984: pl. 145 F). Our specimens, BPBM 31634, 252 mm SL, and BPBM 31645, 289 mm SL, were caught off Tautira, Tahiti from a depth estimated at 350 m.

Lutjanidae (snappers)

***Aphareus rutilans* Cuvier, 1830.** Known by the common name rusty jobfish, this species is reported throughout the Indo-Pacific region east to the Hawaiian Islands and American Samoa. It is usually found at depths greater than 100 m, but Randall once observed it in 20 m off Western Australia, and Bacchet has seen it while diving off Tahiti. Our only specimen, BPBM 31641, caught off Paea, Tahiti in 200 m, is represented by just the head and caudal fin of an adult.

***Etelis radiosus* Anderson, 1981.** With the common name of pale snapper from its light red coloration, this fish is known from Sri Lanka (type locality) to American Samoa, north to Japan and south to New Caledonia. It is reported from rocky bottoms at depths of 90-200 m, but our specimen from Taunua, Tahiti (BPBM 32671, 379 mm SL) was taken at a depth estimated by the fisherman to be 350 m.

***Paracaesio xanthurus* (Bleeker, 1869).** The yellow-tail blue snapper is semipelagic in the Indo-Pacific region from the Red Sea and coast of East Africa to American Samoa where it forms small schools at depths of about 20-150 m (Allen, 1985). We have a specimen, BPBM 31675, 272 mm SL, taken in 250 m off Tautira, Tahiti.

***Pristipomoides argyrogrammicus* (Valenciennes, 1831).** This colourful species, silvery-pink with yellow and iridescent blue markings, is reported from depths of 70-300 m in the western Pacific east to the Samoa Islands and one Indian Ocean record from Mauritius (Allen, 1985). The range is extended to the Society Islands by two specimens, BPBM 31627, 225 mm SL, off Paea at 300 m, and GMBL 85-96, 205 mm SL at 350 m off Tautira, Tahiti.

***Pristipomoides auricilla* (Jordan, Evermann & Tanaka, 1927).** We have no specimens of this species from French Polynesia, but it is occasionally caught in the Society Islands by hand-lining. A photograph of one from off Mehetia (Fig. 8) provides the record of



Fig. 8. *Pristipomoides auricilla*, Mehetia. Photo by L. Wrobel.

this distinctively coloured snapper; the specimen was not retained. The published distribution of this species is from the Andaman Sea and Indonesia to the Hawaiian Islands and American Samoa; and in the western Pacific from southern Japan to New Caledonia.

***Pristipomoides filamentosus* (Valenciennes, 1830).** This snapper, a little more wide-ranging than the one above (from the Red Sea and East Africa to the Hawaiian Islands and Samoa Islands), is known from the depth range of 90-360 m. We have three specimens from Tahiti: BPBM 31596, 258 mm SL from Tautira, BPBM 31597, 228 mm SL, from Maiao, and GMBL 85-94, 235 mm SL, from Tautira, taken at depths of 150-200 m.

***Pristipomoides flavipinnis* Shinohara, 1963.** The fourth new record for the genus for the Society Islands, was previously known in the western Pacific from the Ryukyu Islands, throughout Indonesia, south to New Caledonia and east to the Samoa Islands. We report it from one specimen, GMBL 85-97, 203 mm SL, collected off Papenoo, Tahiti. Allen (1985) gave the same depth range, 90-360 m, as *P. filamentosus*.

***Randallichthys filamentosus* (Fourmanoir, 1970).** Allen (1985) noted that this lutjanid is known only from New Caledonia (the type locality), the Hawaiian Islands, and Okinawa, adding that it inhabits rocky bottoms in 150-300 m. We here extend the range to Tahiti with a specimen (BPBM 31597, 228 mm) caught in 200 m off Maiao. The currently recorded localities suggest an antitropical distribution, but this may be due to less deep-water handline fishing in more tropical areas.

Chaetodontidae (butterflyfishes)

***Chaetodon tinkeri* Schultz, 1951.** This deep-dwelling species, rarely seen in less than 40 m and reported from down to 183 m (Chave and Mundy,

1994), is known from the Hawaiian Islands (type locality), Johnston Island, the Marshall Islands, Rarotonga, and Tarawa Atoll, Kiribati. Hybrids have been reported at Tawara with two closely related species, *C. burgessi* Allen and Starck and *C. flavocoronatus* Myers (Allen *et al.*, 1998). Our record for French Polynesia is the photograph taken by Yves Lefevre outside the reef of Rangiroa Atoll, Tuamotu Archipelago in 70 m (Fig. 9).



Fig. 9. *Chaetodon tinkeri*, Rangiroa Atoll. Photo by Y. Lefevre.

Labridae (wrasses)

***Oxycheilinus arenatus* (Valenciennes, 1840).** Gill (1862) created the new genus *Oxycheilinus*, designating *Cheilinus arenatus* Valenciennes as the type species. This genus was largely ignored until Westneat (1993) revised the generic classification of the tribe Cheilini and shifted seven species from *Cheilinus* to *Oxycheilinus*. *O. arenatus*, with a type locality of Réunion, is otherwise known from only a few scattered localities from the Red Sea and Indonesia (*Cheilinus notophthalmus* Bleeker from Java is a synonym) to the Samoa Islands (Wass, 1984). Randall collected it in the Marshall Islands, Palau, and Tonga at depths of 40-52 m. The paucity of records is probably due to its occurrence in deeper water than most species of the tribe. Our one record from French Polynesia is the underwater photograph (Fig. 10) taken off the west coast of Tahiti by an escarpment in 46 m. *O. arenatus* is easily recognized by the blackish mid-lateral stripe not found in other species of the genus and the black spot on the lower half or more of the first two dorsal fin membranes.

***Polylepion russelli* (Gomon & Randall, 1975).** This pink- and yellow-striped species was described briefly in the genus *Bodianus* from the holotype collected in 240 m off Oahu, Hawaiian Islands and two paratypes, one from the Honolulu fish market and the second from Okinawa (depth reported only as over 100 m). Gomon (1977) placed *B. russelli* in the new genus *Polylepion*. The species was described more com-

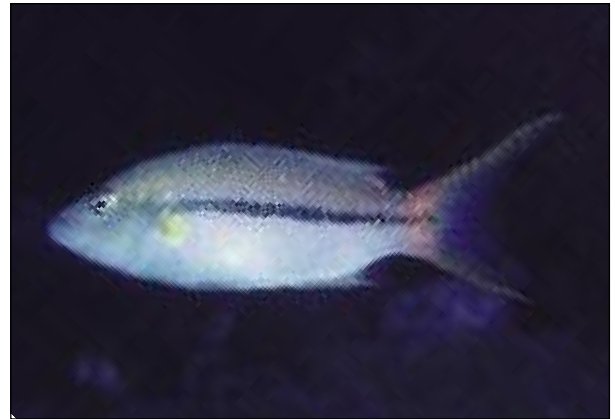


Fig. 10. *Oxycheilinus arenatus*, Tahiti. Photo by P. Bacchet.

pletely and illustrated in colour by Gomon and Randall (1978). Randall *et al.* (1985) recorded it from Johnston Island to the south-west of the Hawaiian Islands in 240-315 m. We here report it from Moorea from a specimen (BPBM 31609, 245 mm SL) caught off Temae in 300 m.

Callionymidae (dragonets)

***Callionymus filamentosus* Valenciennes, 1837.** Our only specimen of this dragonet (ROM 61193, 21 mm SL) was collected by Winterbottom and colleagues at Cook's Bay, Moorea from a patch reef on silty sand and rubble in 14-20 m. We also have an underwater photograph (Fig. 11) taken in the lagoon of the east coast of Tahiti in 4-5 m on flat, silty sand bottom. The species was described from the distinctive male form that has an isolated prolonged first dorsal spine and two elongate middle caudal rays. It is known from the Red Sea (and has immigrated to the eastern Mediterranean via the Suez Canal) and East Africa to the western Pacific where it ranges from Taiwan to Papua New Guinea (Fricke, 1993). That the first record for Oceania is the Society Islands is surprising.



Fig. 11. *Callionymus filamentosus*, Tahiti. Photo by P. Bacchet.

***Diplogrammus goramensis* (Bleeker, 1858).** This little callionymid has previously only been reported in the Pacific Ocean from the Philippines and Viet Nam south to the southern Great Barrier Reef and east to the Marshall Islands and the Cook Islands (where it was described as *Callionymus cookii* by Jordan and Seale, 1906). Our record for the Society Islands is the photograph (Fig. 12) taken at Huahine of a male-female pair; the male is erecting its first dorsal fin in courtship display.



Fig. 12. *Diplogrammus goramensis*, Huahine. Photo by P. Bacchet.

Gobiidae (gobies)

***Bryaninops tigris* Larson, 1985.** Described from specimens from the Great Barrier Reef (type locality, Lizard Island), Solomon Islands, Chagos Archipelago, Gulf of Thailand, and the Hawaiian Islands, all from antipatharians of the genus *Antipathes* (popularly known as black coral). With such a wide distribution, the discovery of this species in the Society Islands is not very surprising. Our record is based on the photograph (Fig. 13) taken by Bacchet on a wall off the south coast of Tahiti Iti in 49 m. Three individuals were seen on a colony of *Antipathes*, sharing it with the

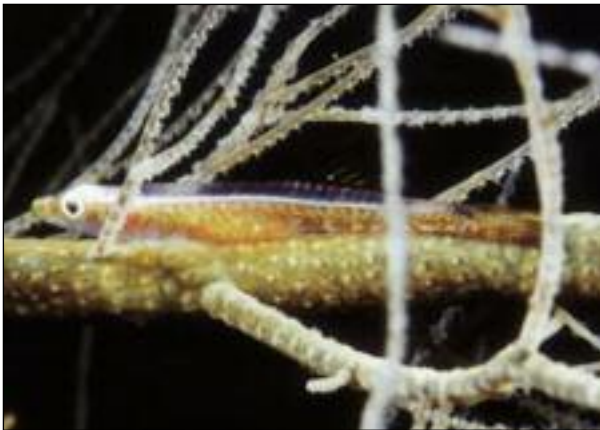


Fig. 13. *Bryaninops tigris*, Tahiti. Photo by P. Bacchet.

longnose hawkfish (*Oxycirrhites typus*). The identification of the goby was confirmed by Helen K. Larson.

***Bryaninops yongei* (Davis & Cohen, 1969).** This fish is known as the whip goby for its occurrence on the antipatharian sea whip *Cirrhopathes anguina*. Larson (1985) recorded it from scattered localities in the Indo-Pacific from the Seychelles to the Hawaiian Islands and Rapa (from a Bishop Museum specimen). Randall and Earle (2000) reported it from the Marquesas. Larson noted that it is found at depths of 3-45 m, usually with one male-female pair per sea whip, sometimes with one to several juveniles as well. Fig. 14 represents the first record for Tahiti where the species is usually found deeper than 35 m.



Fig. 14. *Bryaninops yongei*, Tahiti. Photo by P. Bacchet.

***Gobiodon quinquestrigatus* (Valenciennes, 1837).** Sixteen specimens of this species (seven ROM lots, 7.8-16.3mm SL) were collected on the outer reef slopes of Moorea in 3-33 m. The specimens have 10 dorsal rays, 8 anal rays, 18 or 19 pectoral rays, and no inter-opercular groove; the coloration is brown (almost always black at other locations) with a variable number of curved blue bars on the head, but always at least five (Fig. 15). The similar *G. rivulatus* (Rüppell) is distinguished by having numerous light wavy bars across the abdomen. Our largest specimen is less than half the length the species reaches elsewhere. Either the local population does not attain that size or we failed to collect fully-grown specimens. Previously known from the Comoro Islands to Tonga, Palau, and the eastern Caroline Islands.

***Gobiopsis exigua* (Lachner & McKinney, 1979).** Three specimens (ROM 60782, 60881, 18.2 and 13.5-31.4 mm SL) were collected from the outer reefs of Moorea in 3-24 m. They have 10 anal rays, 2-3 horizontal rows of papillae on cheek, sensory canal pores on head, a single pair of chin barbels, and three narrow dark transverse bands across the pre-



Fig. 15. *Gobiodon quinquestrigatus*, ROM 60778, 15.5 mm SL, Moorea. Photo by R. Winterbottom.

dorsal area (Fig. 16). Previously recorded from the Gilbert Islands (Kiribati), the Seychelles, and the Comoro Islands.



Fig. 16. *Gobiopsis exigua*, ROM 60880, 18.2 mm SL, Moorea. Photo by R. Winterbottom.

***Paragobiodon modestus* (Regan, 1908).** Eighteen specimens (BPBM 8304, 5: 14-24 mm; six ROM lots, 5.7-17 mm), were collected from Moorea in 1-26 m, mostly from outer reefs. This species is identified by its brown to reddish-brown head and dark brown to black body and fins (Fig. 17); in preservative the head is pale, the body brown and the fins darker brown; it has 20-23 pectoral rays, sparse short papillae dorsally on the head and similar papillae on the cheek below the eye which reach to less than a pupil diameter from the ventral rim of the orbit. Previous distribution was from the Comoro Islands to the western Pacific where it ranges from the Ryukyu Islands to Lord Howe Island, east to the Marshall Islands and Fiji; usually found among the branches of coral of the genus *Pocillopora*.

***Pleurosicya coerulea* (Larson, 1990).** Two specimens of this species (ROM 59128, 59129, both 12.0



Fig. 17. *Paragobiodon modestus*, ROM 60786, 15.5 mm SL, Moorea. Photo by R. Winterbottom.

mm SL) were collected from the lagoon of Moorea and from a pass on the north coast. It is distinguished by its broad head, fleshy upper lip, naked nape, and its colour, translucent bluish to blue-green with two reddish stripes on the head and usually a dusky spot medially on the nape; largest specimen recorded, 20 mm SL. Commensal on the blue "coral" (*Heliopora coerulea*). Our specimens were identified by Helen K. Larson who revised the genus in 1990. Previously recorded from the western Indian Ocean to New Caledonia and the islands of Micronesia.

***Pleurosicya micheli* Fourmanoir, 1971.** This tiny goby rarely exceeds 20 mm SL. It is transparent with a broad red to dusky red stripe on the lower side that continues onto the lower part of the caudal fin; a dark and white banded line may be seen dorsally on the vertebral column. The fish is solitary and is generally found on hard corals of various genera, usually at depths greater than 10 m. It was reported by Larson (1990) from the Seychelles, the Philippines, Okinawa, Palau, Tonga, Fiji, and Hawaii. Randall has underwater photographs of it from the Solomon Islands, Papua



Fig. 18. *Pleurosicya micheli*, Tahiti. Photo by P. Bacchet.

New Guinea, and Alor, Bali, and Sulawesi in Indonesia. Fig. 18 is a photograph taken in Tahiti.

***Trimma taylori* Lobel, 1979.** Also very small, this goby was described from the Hawaiian Islands. It has since proven to be a widespread species in the Indo-Pacific, with records from the Chagos Archipelago in the western Indian Ocean (Winterbottom, 1984, who re-described the species), the Maldives (Randall and Goren, 1993, who also reported it from Indonesia), and the Red Sea (Winterbottom, 1995). It is generally found at depths greater than 25 m in loose aggregations near the roof of caves, often swimming with its ventral surface toward the cave roof. The Society Islands record is an underwater photograph from Tahiti (Fig. 19).



Fig. 19. *Trimma taylori*, Tahiti. Photo by P. Bacchet.

***Trimma unisquamis* (Gosline, 1959).** Eight specimens (five ROM lots, 10.4-14.8 mm SL) were collected from 6-34 m on the outer reefs of the northern shore of Moorea. This species is readily distinguished from other species of *Trimma* by the black margins of



Fig. 20. *Trimma unisquamis*, ROM 59755, 14.6 mm SL, Moorea. Photo by R. Winterbottom.

both dorsal fins, a dark bar on the caudal peduncle (Fig. 20), and a single row of ctenoid scales lining the trough between the eyes. Wide-ranging in the Indo-Pacific from the Comoro Islands to the Hawaiian Islands (type locality) and Easter Island, hence one might expect to find it in the Society Islands.

***Trimmatom nanus* Winterbottom & Emery, 1981.** Five specimens, (ROM 60779, 60780, 60900, 7.9-8.7 mm) in 6-26 m on the outer reef and pass between lagoon and outer reef on the northern shore of Moorea. These specimens differ from the type series from the central Indian Ocean in having 14 pectoral-fin rays. The specimens of the type series have 14-16 (modally 15) pectoral rays. This tiny fish is the shortest known vertebrate so far described (although a shorter, as yet undescribed species in a different genus is known from Japan). Previously known from Mauritius to Fiji. Winterbottom and Emery (1981) had no information on the live or fresh color pattern for their description of the species. Our photograph from Moorea (Fig. 21) is the first to be published of the fresh coloration.



Fig. 21. *Trimmatom nanus*, ROM 60780, 8.0 mm SL, Moorea. Photo by R. Winterbottom.

***Vanderhorstia ornatissima* Smith, 1959.** Lives in symbiotic association with alpheid shrimps. The shrimps (generally a pair) maintain the burrow in sand while the goby serves as the sentinel. Sometimes a pair of gobies share the same burrow. Recorded from East Africa to the Samoa Islands; in the western Pacific from southern Japan to the Great Barrier Reef and New Caledonia. We have specimens from Rangiroa Atoll in the Tuamotus (BPBM 38493, 7: 15-37 mm SL) and Raiatea (ROM 60781, 4: 27-38 mm; ROM 60782, 2: 36-40 mm), as well as underwater photographs from Moorea (Fig. 22).

Ptereleotridae (dartfishes)

The dartfishes were shifted from the Gobiidae to a sub-family of the Microdesmidae by Hoese (1984). Thacker (2000) has now elevated the group, which



Fig. 22. *Vanderhorstia ornatissima*, Moorea. Photo by P. Bacchet.

includes the genera *Ptereleotris*, *Nemateleotris*, *Pariglossus*, *Aioliops*, and *Oxymetopon*, to family status.

***Ptereleotris hanae* (Jordan & Snyder, 1901).** Like other dartfishes, this species feeds on zooplankton and takes refuge in a burrow. The burrow is not one it makes; it is often a shrimp goby burrow constructed by a symbiotic pair of alpheid shrimps. With the approach of danger, the dartfish retreats to a position near the burrow and hovers over it. When threatened further, it darts head first into the burrow. Often a pair will share the same burrow. *P. hanae* is usually seen over sand or sand and rubble in the vicinity of reefs. It occurs in Western Australia and in the western Pacific from southern Japan to New South Wales and Lord Howe Island; it is recorded east in Oceania to the Line Islands and American Samoa (Randall and Hoese, 1985). The long caudal filaments are found only on adults. The photograph of Fig. 23 was taken in 6 m in Moorea.



Fig. 23. *Ptereleotris hanae*, Moorea. Photo by P. Bacchet.

Acanthuridae (surgeonfishes)

***Naso thynnoides* (Valenciennes, 1835).** This unicornfish, distinct in having about 30 narrow dark bluish-grey bars along the midside of the body and a broad mid-lateral yellowish stripe, is a small (largest specimen recorded, 28.5 cm), semi-pelagic species that occurs in roving aggregations that feed on zooplankton. It lacks the rostral protuberance found on some species of the genus, and it has only a single fixed caudal spine (all but one of the other species of *Naso* have two). It ranges from East Africa to the islands of Micronesia except the Marshall Islands; in the western Pacific from the Ryukyu Islands to the Solomon Islands and Great Barrier Reef. Our only record for French Polynesia is the underwater photograph (Fig. 24) taken at Rangiroa Atoll in the Tuamotu Archipelago.



Fig. 24. *Naso thynnoides*, Rangiroa Atoll. Photo by J. E. Randall.

Balistidae (triggerfishes)

***Xanthichthys auromarginatus* (Bennett, 1831).** Like most species of the genus, *X. auromarginatus* is sexually dichromatic. The females (Fig. 25) have a dark reddish-brown margin on the median fins (except for the dark first dorsal), in contrast to the male (Fig. 26) in which the margin is bright yellow. In addition, the male has a large blue area on the ventral part of the head. This species occurs on outer reef slopes, usually below 30 m; it feeds on zooplankton, mainly calanoid copepods. These two photographs were taken in Tahiti at unusually shallow depths of 10-20 m. The previously known localities have all been oceanic islands or reefs, from the western Indian Ocean to the Hawaiian Islands and throughout the islands of Micronesia. In the South Pacific the species has been reported eastward as far as New Caledonia. This record is therefore a major range extension.

Tetraodontidae (puffers)

***Canthigaster leoparda* Lubbock & Allen, 1979.** This small spotted puffer was described from



Fig. 25. *Xanthichthys auromarginatus*, female, Tahiti. Photo by P. Bacchet.



Fig. 26. *Xanthichthys auromarginatus*, male, Tahiti. Photo by P. Bacchet.

specimens from the Mariana Islands, Philippines, Indonesia, and Christmas Island, Indian Ocean collected from depths of 33-45 m. The present specimen (BPBM 37142, 23 mm) was collected from a trap by Joseph Poupin in 120 m at Makemo Atoll (16°34'12"S, 143°27'6"W) in the Tuamotu Archipelago.

***Canthigaster ocellincta* Allen & Randall, 1977.**

This distinctively coloured small toby is very secretive and difficult to photograph underwater. It is usually found in caves on steep drop-offs, generally below 25 m. It has been reported from the Philippines, Indonesia, the Great Barrier Reef, Palau, the Solomon Islands, New Caledonia, and Fiji. Its discovery in Tahiti (Fig. 27) reveals another disjunct distribution. This does not mean, of course, that it is missing from intervening areas, only that it has probably been missed.



Fig. 27. *Canthigaster ocellincta*, Tahiti. Photo by P. Bacchet.

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