

Illustrated list of additions to the ichthyofauna of Yaku-shima Island, Kagoshima Prefecture, southern Japan: 50 new records from the island

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ABSTRACT: Previous surveys of marine and estuarine fishes of Yaku-shima Island, Kagoshima Prefecture, southern Japan, have recorded a total of 958 species. Recent examinations of museum collections and newly-collected specimens during the present study resulted in an additional 29 species recorded from Yaku-shima Island for the first time, plus a further 21 species now represented by voucher specimens, having been previously recorded from Yaku-shima only by underwater observations and/or from photographs. Thus, the number of marine and estuarine fish species from Yaku-shima Island now totals 987, the second highest fish species diversity recorded from a single region in Japan. Of the 50 voucher-based species newly recorded in this study, 11 represented a northernmost range extension and one, a southernmost extension. Color photographs of most are provided.

INTRODUCTION

Yaku-shima Island is located at 30°20' N, 130°32' E, *ca.* 60 km south-southwest of Osumi Peninsula, Kagoshima Prefecture, southern Kyushu, Japan (Figure 1). Roughly circular in shape and with an area of *ca.* 505 km², including several mountains exceeding 1,000 m in height (highest 1,936 m), Yaku-shima is the largest island in the Osumi Islands group and the ninth largest in Japan (Motomura *et al.* 2010).

An annotated checklist of marine and estuarine fishes of Yaku-shima Island, compiled from field and literature surveys, was published by Motomura *et al.* (2010), who reported a total of 951 species (382 genera, 112 families, 24 orders), including 374 species that represented the first reliable records from the island on the basis of collected specimens. Although Motomura *et al.* (2010) examined all literature records, and more than 4,000 specimens collected from Yaku-shima Island, deposited in 12 museum collections, including the Kagoshima University Museum, the National Museum of Nature and Science, the California Academy of Sciences and the Smithsonian Institution National Museum of Natural History, as well as specimens collected during their 2008–2009 Yaku-shima Expeditions, they overlooked specimens deposited in the Coastal Branch of Natural History Museum and Institute, Chiba, Japan (CMNH).

Recently, Matsunuma *et al.* (2011), Ohashi and Motomura (2011), and Yoshida *et al.* (2011) recorded as first records from Yaku-shima Island, one scorpaenid, one soleid and five apogonids, respectively, on the basis of CMNH specimens. Examination of CMNH specimens during this study disclosed a further 44 species represented by voucher specimens from Yaku-shima Island for the first time. In addition, specimens of several additional species were found at museum collections or newly collected from

the island. In this study, 50 fish species, newly recorded from marine and estuarine waters of Yaku-shima Island on the basis of collected specimens, are listed and illustrated.

MATERIALS AND METHODS

The systematic arrangement of families follows Nelson (2006). Scientific names generally follow Nakabo (2002) and Eschmeyer and Fricke (2011), with some modifications following recently published or unpublished taxonomic studies. Within families, species are arranged in alphabetical order. Standard Japanese names generally follow Nakabo (2002), having been transliterated using the Hepburn system. Each species record (including both marine and estuarine) was compiled from voucher specimens. Each voucher specimen, including registration number, number of specimens registered (if more than one), standard length (SL) and locality on Yaku-shima Island (see Motomura *et al.* 2010: fig. 2) is listed in Appendix 1. Specimens examined in this study include those deposited in collections of the Coastal Branch of Natural History Museum and Institute, Chiba, Japan (CMNH), the Kagoshima University Museum, Japan (KAUM) and the Kanagawa Prefectural Museum of Natural History, Japan (KPM).

RESULTS AND DISCUSSION

Examination of CMNH specimens during this study disclosed a further 44 species represented by voucher specimens from Yaku-shima Island for the first time (19 having previously been recorded on the basis of underwater observations and/or photographs only). Yaku-shima specimens of *Coryphaena hippurus* and *Pentapodus caninus*, recorded by Motomura *et al.* (2010) on the basis of underwater observation and photographs, respectively, were also found in the Kanagawa Prefectural

Museum of Natural History, Japan. In addition, three species (*Beryx decadactylus*, *Yongeichthys criniger* and *Acanthurus xanthopterus*) were collected for the first time from the island subsequent to the aforementioned publication. Twenty specimens of *Lepadichthys frenatus* reported by Motomura *et al.* (2010) are here shown to include a single specimen of *L. coccinotaenia*, another first record from the island. Thus, a total of 50 species (41 genera, 23 families) are listed here (Table 1; Appendix 1) with specimen photographs (Figures 2–6), all being first records from marine and estuarine waters of Yaku-shima Island supported by voucher specimens. It brings the total number of marine and estuarine fish species for Yaku-shima Island to 987, the second highest fish species diversity recorded from a single region in Japan [greatest fish species diversity recorded from Iriomote-jima Island, Yaeyama Islands, near Taiwan, with 1,082 species (Senou *et al.* 2006)].

The Kuroshio Current flows from east of the Philippines to the Pacific coast of southern Japan, via Taiwan (Motomura *et al.* 2010: fig. 1). West of the Ryukyu Islands, the northward flowing current turns to the east, flowing through the Tokara Islands (located between Yaku-shima and Amami-oshima Islands). The current then turns north toward the Pacific coasts of the islands of Kyushu, Shikoku and Honshu (the Japanese mainland). Two flow paths of the Kuroshio Current occur at the Tokara Islands (Figure 1), the more southerly route taking the current across the island chain from West to East around Nakano-shima Island, and the other, more northerly route, flowing along the southern coast of Yaku-shima Island. The current alternates between the two flow paths on a 30–50 day cycle (Chaen and Ichikawa 2001). Yaku-shima Island represented the northernmost distributional range of eleven of the 50 species recorded here (Table 1), the former having been most likely transported by the Kuroshio Current from Taiwan, China or the southern Ryukyu Islands.

A single Yaku-shima Island specimen (CMNH 10675, 15.8 mm SL; Figure 6B) of the gobiesocid *Propherallodus briggsi*, previously known only from Shizuoka and Nagasaki Prefectures on the Japanese mainland (Hayashi 2002), represents the southernmost record of the species. Although the Osumi Branch Current flows northeastward from Yaku-shima Island to Osumi Peninsula (southern tip of Japanese mainland) when the Kuroshio Current flows around Yaku-shima Island, the direction of the former is irregularly reversed toward the southwest when

the Kuroshio Current takes the more southerly route (Chaen and Ichikawa 2001). Thus, the occurrence of this primarily Japanese mainland species at Yaku-shima Island was probably due to accidental transportation from the Japanese mainland by the Osumi Branch Current.

As mentioned in detail in Motomura *et al.* (2010: 240–242), the water currents around Yaku-shima Island are complex, the flow rates and current directions changing with seasons, water temperatures and winds, thereby resulting in an unique ichthyofauna. Further surveys are needed to fully understand the fish species diversity of Yaku-shima Island.

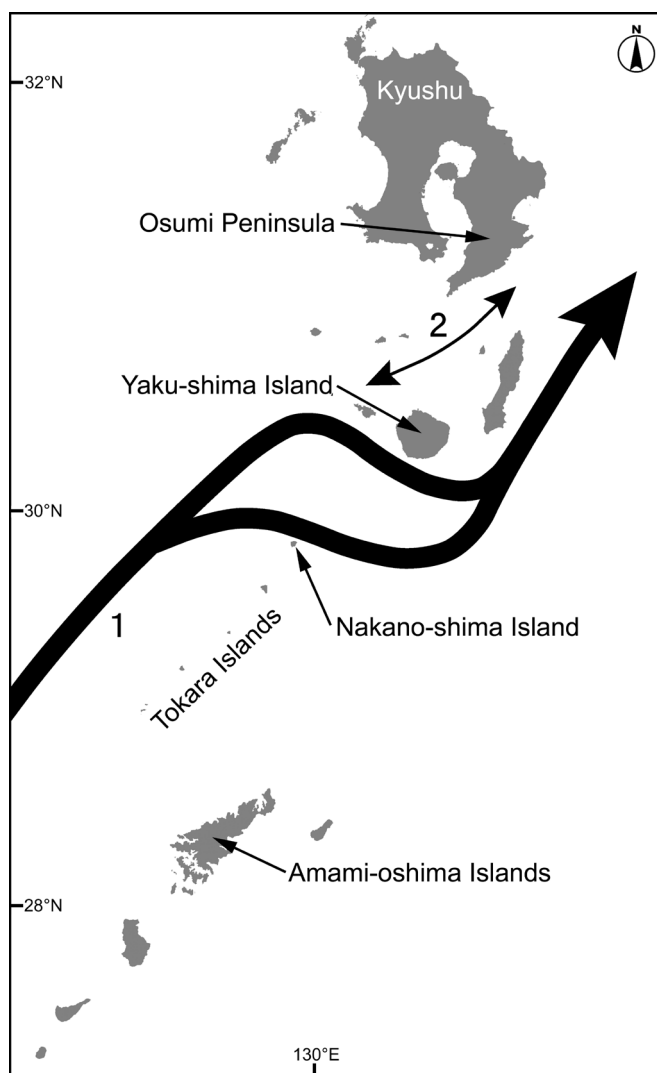


FIGURE 1. Map of Kagoshima Prefecture, southern Japan. 1, Kuroshio Current; 2, Osumi Branch Current.

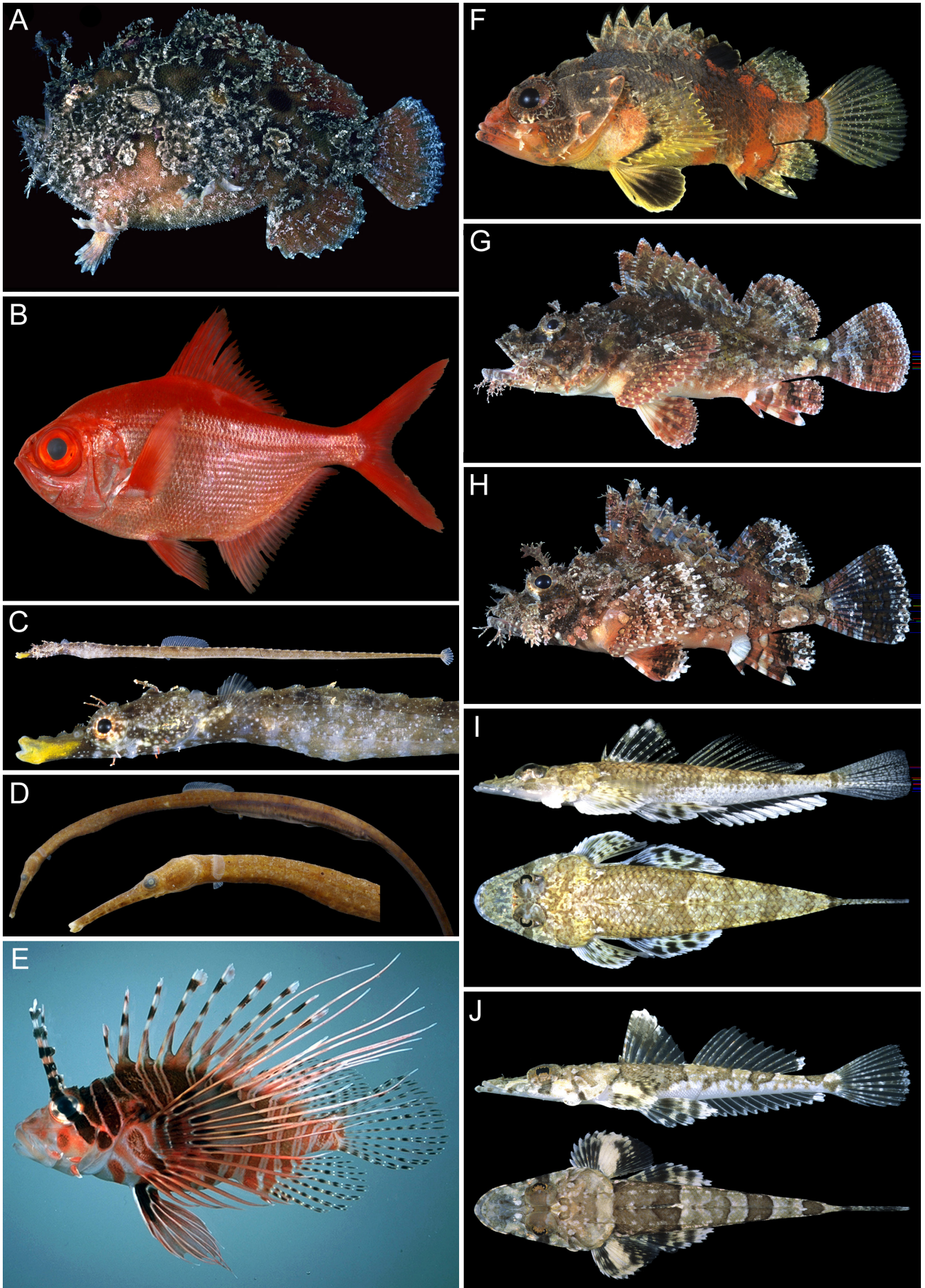


FIGURE 2. A, *Antennarius nummifer*, CMNH 13927, 31.4 mm SL; B, *Beryx decadactylus*, KAUM-I. 29102, 333.4 mm SL; C, *Halicampus brocki*, CMNH 13934, 66.5 mm SL; D, *Trachyrhamphus bicoarctatus*, CMNH 10661, 332.5 mm SL; E, *Pterois antennata*, CMNH 10643, 71.9 mm SL; F, *Scorpaenodes varipinnis*, CMNH 13864, 34.2 mm SL; G, *Scorpaenopsis papuensis*, CMNH 15452, 111.7 mm SL; H, *Scorpaenopsis venosa*, CMNH 15849, 44.0 mm SL; I, *Onigocia bimaculata*, CMNH 13964, 67.1 mm SL; J, *Thysanophrys chiltonae*, CMNH 13870, 51.5 mm SL.

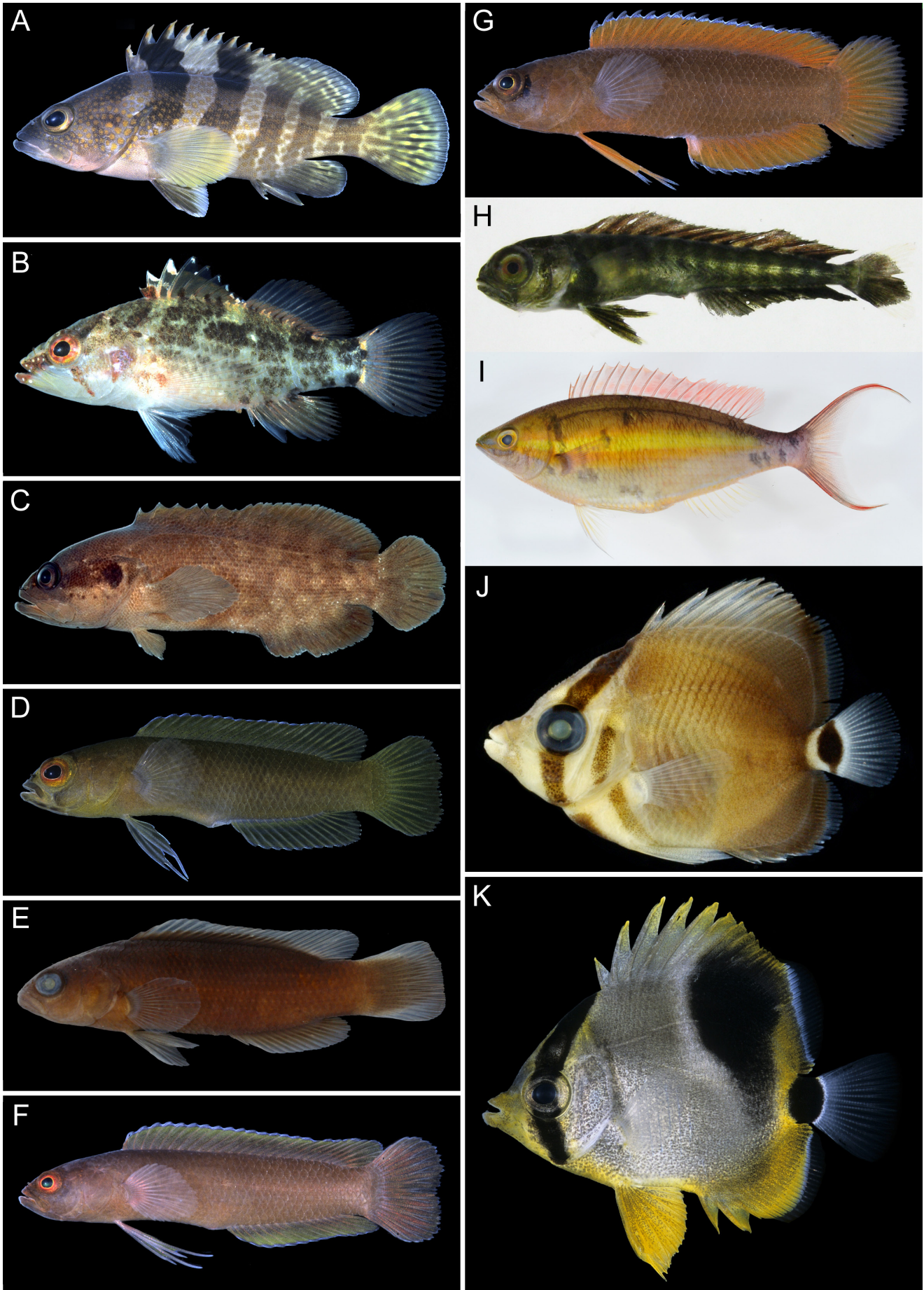


FIGURE 3. A, *Epinephelus awoara*, CMNH 15851, 70.8 mm SL; B, *Plectranthias longimanus*, CMNH 13829, 18.2 mm SL; C, *Pseudogramma polyacanthum*, CMNH 10709, 50.3 mm SL; D, *Amsichthys knighti*, CMNH 15399, male, 25.0 mm SL; E, *Pseudochromis tapeinosoma*, CMNH 13759, 44.7 mm SL; F, *Pseudoplesiops rosae*, CMNH 13984, 27.2 mm SL; G, *Pseudoplesiops* sp., CMNH 15400, male, 21.3 mm SL; H, *Coryphaena hippurus*, KPM-NI 24780, 27.0 mm SL; I, *Pentapodus caninus*, KPM-NI 24665, 174.5 mm SL; J, *Chaetodon baronessa*, CMNH 14199, 17.4 mm SL (preserved specimen); K, *Chaetodon ephippium*, CMNH 15320, 21.4 mm SL.

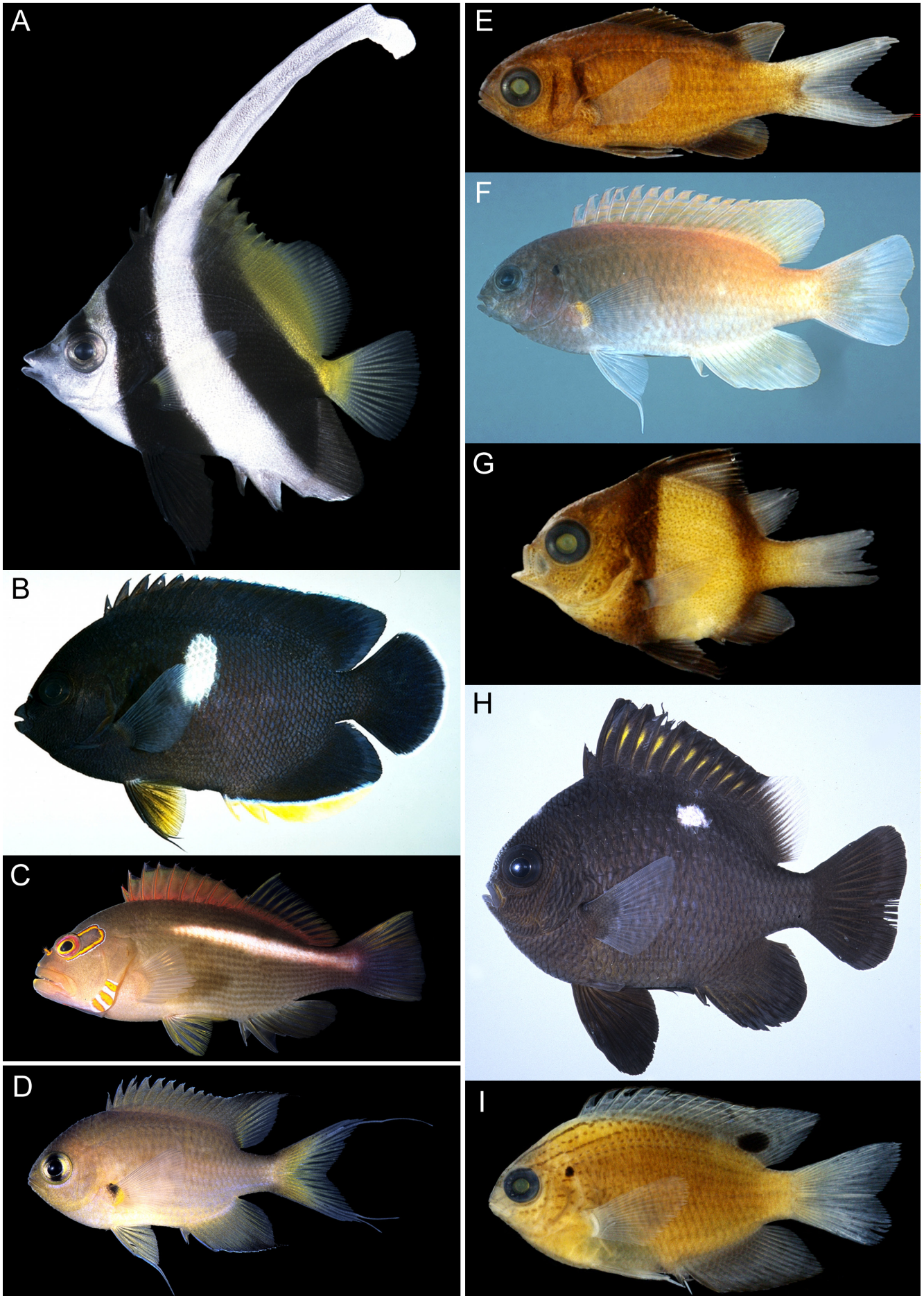


FIGURE 4. A, *Heniochus acuminatus*, CMNH 15319, 29.3 mm SL; B, *Centropyge tibicen*, CMNH 10743, 49.3 mm SL; C, *Paracirrhites arcatus*, CMNH 13825, 57.1 mm SL; D, *Chromis atripes*, CMNH 15858, 26.2 mm SL; E, *Chromis xanthura*, CMNH 10749, 20.4 mm SL (preserved specimen); F, *Chrysiptera rex*, CMNH 10700, 53.6 mm SL; G, *Dascyllus reticulatus*, CMNH 14198, 11.8 mm SL (preserved specimen); H, *Dascyllus trimaculatus*, CMNH 12140, 83.6 mm SL; I, *Pomacentrus vaiuli*, CMNH 13930, 31.5 mm SL (preserved specimen).

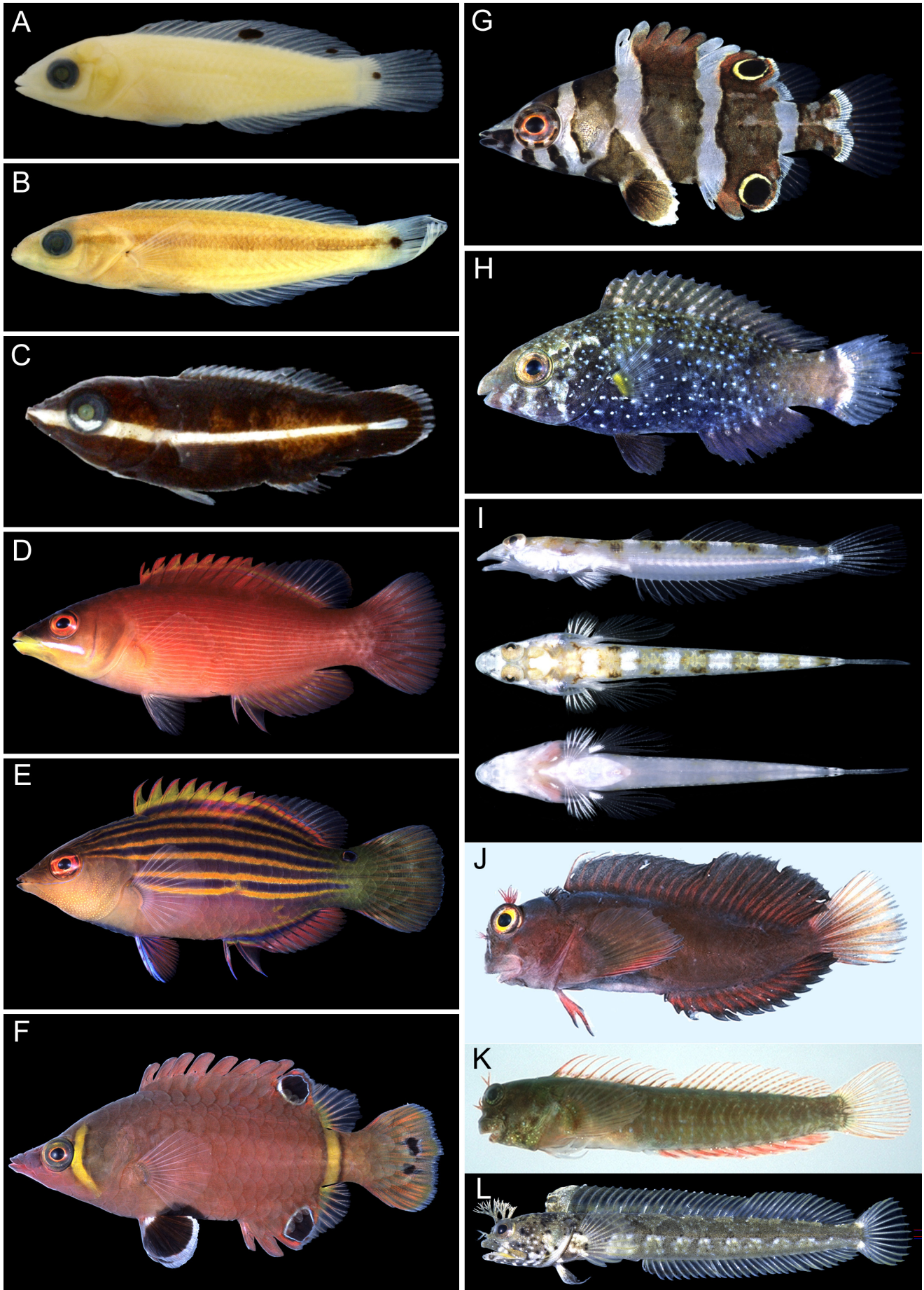


FIGURE 5. A, *Halichoeres chrysus*, CMNH 13796, 18.7 mm SL (preserved specimen); B, *Halichoeres hartzfeldii*, CMNH 14213, 41.6 mm SL (preserved specimen); C, *Labrichthys unilineatus*, CMNH 14197, 11.2 mm SL (preserved specimen); D, *Pseudocheilinus evanidus*, CMNH 13986, 48.7 mm SL; E, *Pseudocheilinus hexataenia*, CMNH 15873, 35.9 mm SL; F, *Wetmorella nigropinnata*, CMNH 13868, 41.4 mm SL; G, *Wetmorella nigropinnata*, CMNH 13988, 14.7 mm SL; H, *Scarus niger*, CMNH 13989, 30.2 mm SL; I, *Enigmapercis* sp., CMNH 13991, 17.6 mm SL; J, *Cirripectes castaneus*, CMNH 10715, 30.4 mm SL; K, *Nannosalarias nativitatus*, CMNH 10406, 33.3 mm SL; L, *Neoclinus okazakii*, CMNH 15422, 33.8 mm SL.

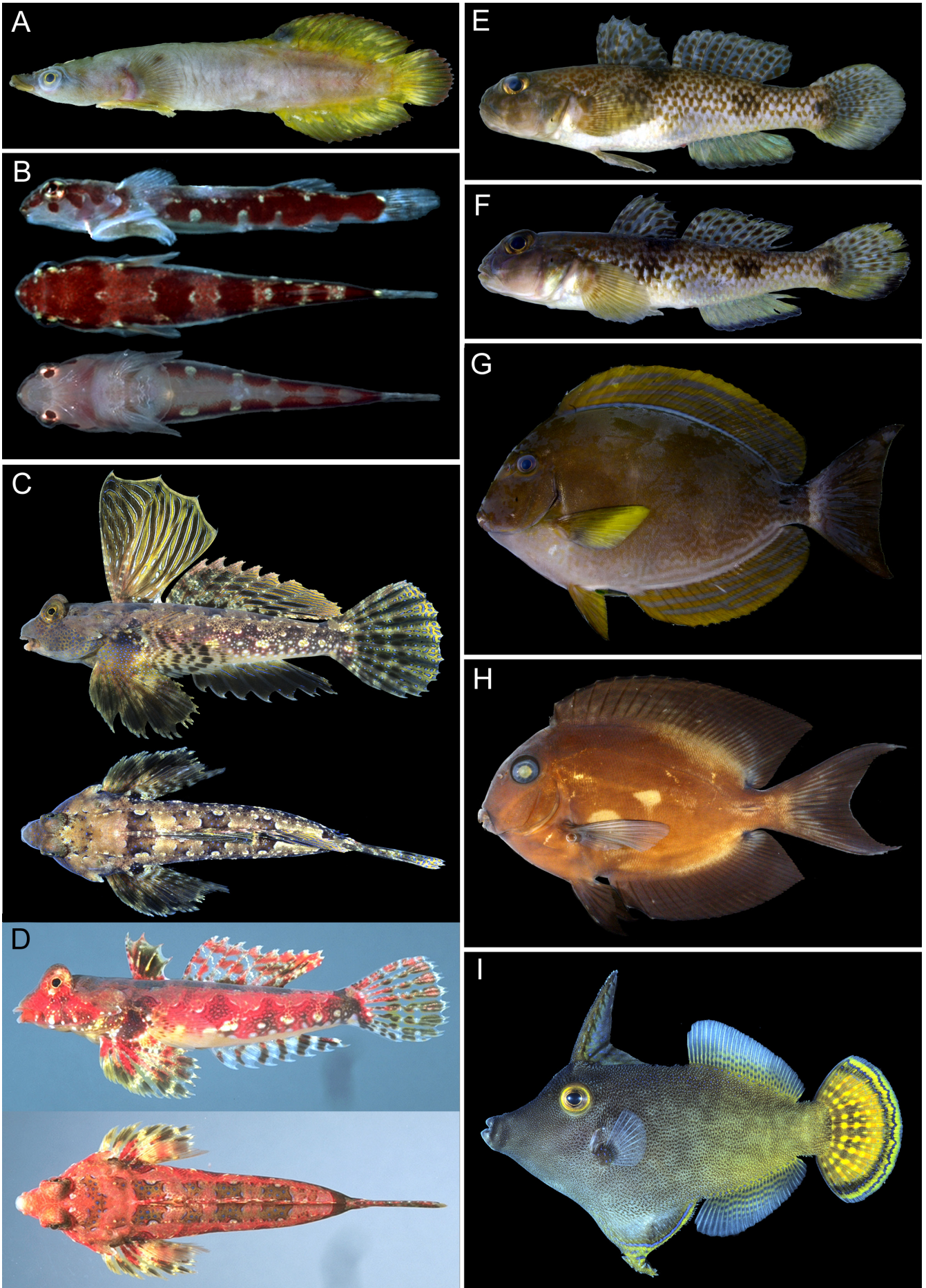


FIGURE 6. A, *Lepadichthys coccinotaenia*, KAUM-I. 11266, 51.1 mm SL; B, *Propherallodus briggsi*, CMNH 10675, 15.8 mm SL; C, *Neosynchiropus morrisoni*, CMNH 15460, male, 71.1 mm SL; D, *Neosynchiropus moyeri*, CMNH 10697, female, 36.7 mm SL; E, *Yongeichthys criniger*, KAUM-I. 29114, 102.8 mm SL; F, *Yongeichthys criniger*, KAUM-I. 29115, 84.6 mm SL; G, *Acanthurus xanthopterus*, KAUM-I. 29166, 147.6 mm SL; H, *Ctenochaetus binotatus*, CMNH 14020, 65.6 mm SL (preserved specimen); I, *Pervagor melanocephalus*, CMNH 13919, 54.2 mm SL.

TABLE 1. List of additional fishes, on the basis of voucher specimens, of Yaku-shima Island, Kagoshima Prefecture, Japan. Y, yes; N, no; ¹ Northernmost record based on collected specimens; ² Record from Yaku-shima Island by Motomura et al. (2010); ³ Recorded mainly from underwater observations, no voucher specimens collected; ⁴ Recorded from underwater photograph(s), no voucher specimens collected; ⁵ One of 20 specimens reported as *Lepadichthys frenatus* re-identified as *L. coccinotaenia*; ⁶ Southernmost record of the species.

SCIENTIFIC NAME	STANDARD JAPANESE NAME	EXTENSION OF NORTHERNMOST DISTRIBUTIONAL RANGE OF SPECIES ¹	PREVIOUS RECORD(S) ²	
			LISTED NAME ONLY ³	LISTED NAME WITH UNDERWATER PHOTOGRAPH(S) ⁴
ANTENNARIIDAE				
<i>Antennarius nummifer</i> (Cuvier, 1817)	Benikaeruanko	N	N	N
BERYCIDAE				
<i>Beryx decadactylus</i> Cuvier, 1829	Nan'yokimme	N	N	N
SYNGNATHIDAE				
<i>Halicampus brocki</i> (Herald, 1953)	Nokogiriumiyakko	Y	N	N
<i>Trachyrhamphus bicoarctatus</i> (Bleeker, 1857)	Wakayoji	N	N	N
SCORPAENIDAE				
<i>Pterois antennata</i> (Bloch, 1787)	Mettaiminokasago	N	Y	N
<i>Scorpaenodes varipinnis</i> Smith, 1957	Seboshiisokasago	N	N	N
<i>Scorpaenopsis papuensis</i> (Cuvier, 1829)	Urumakasago	N	N	N
<i>Scorpaenopsis possi</i> Randall and Eschmeyer, 2001	Mimitogeonikasago	N	N	N
<i>Scorpaenopsis venosa</i> (Cuvier, 1829)	Hyugakasago	N	N	N
PLATYCEPHALIDAE				
<i>Onigocia bimaculata</i> Knapp et al., 2000	Sehoshionigochi	Y	N	N
<i>Thysanophrys chiltonae</i> Schultz, 1966	Kuroshimagochi	N	N	N
SERRANIDAE				
<i>Epinephelus awoara</i> (Temminck and Schlegel, 1842)	Aohata	N	N	N
<i>Plectranthias longimanus</i> (Weber, 1913)	Chibihanadai	N	N	N
<i>Pseudogramma polyacanthum</i> (Bleeker, 1856)	Togemegisu	N	N	N
PSEUDOCHROMIDAE				
<i>Amsichthys knighti</i> (Allen, 1987)	Ometanabatamegisu	Y	N	N
<i>Pseudochromis tapeinosoma</i> Bleeker, 1853	Katsuironisesuzume	Y	N	N
<i>Pseudoplesiops rosae</i> Schultz, 1943	Tanabatamegisu	Y	N	N
<i>Pseudoplesiops</i> sp.	—	Y	N	N
CORYPHAENIDAE				
<i>Coryphaena hippurus</i> Linnaeus, 1758	Shiira	N	Y	N
NEMIPTERIDAE				
<i>Pentapodus caninus</i>	Kitsuneuo	N	N	Y
CHAETODONTIDAE				
<i>Chaetodon baronessa</i> Cuvier, 1829	Mikadochochouo	N	Y	N
<i>Chaetodon ephippium</i> Cuvier, 1831	Segurochochouo	N	Y	N
<i>Heniochus acuminatus</i> (Linnaeus, 1758)	Hatatatedai	N	Y	N
POMACANTHIDAE				
<i>Centropyge tibicen</i> (Cuvier, 1831)	Abayakko	N	Y	N
CIRRHITIDAE				
<i>Paracirrhites arcatus</i> (Cuvier, 1829)	Meganegombe	N	Y	N
POMACENTRIDAE				
<i>Chromis atripes</i> Fowler and Bean, 1928	Hiregurosuzumedai	N	N	Y
<i>Chromis xanthura</i> (Bleeker, 1854)	Monsuzumedai	N	N	Y
<i>Chrysiptera rex</i> (Snyder, 1909)	Remonsuzumedai	Y	N	Y
<i>Dascyllus reticulatus</i> (Richardson, 1846)	Futasujiryukyusuzumedai	N	N	Y
<i>Dascyllus trimaculatus</i> (Rüppell, 1829)	Mitsuboshikurosuzumedai	N	N	Y
<i>Pomacentrus vaiuli</i> Jordan and Seale, 1906	Kuromeganesusuzumedai	N	N	Y
LABRIDAE				

TABLE 1. CONTINUED.

SCIENTIFIC NAME	STANDARD JAPANESE NAME	EXTENSION OF NORTHERNMOST DISTRIBUTIONAL RANGE OF SPECIES ¹	PREVIOUS RECORD(S) ²	
			LISTED NAME ONLY ³	LISTED NAME WITH UNDERWATER PHOTOGRAPH(S) ⁴
<i>Halichoeres chrysus</i> Randall, 1981	Koganeakyusen	N	Y	N
<i>Halichoeres hartzfeldii</i> (Bleeker, 1852)	Kisujikyusen	N	N	N
<i>Labrichthys unilineatus</i> (Guichenot, 1847)	Kurobera	N	N	N
<i>Pseudocheilinus evanidus</i> Jordan and Evermann, 1903	Himenisemochinouo	N	Y	N
<i>Pseudocheilinus hexataenia</i> (Bleeker, 1857)	Nisemochinouo	N	Y	N
<i>Wetmorella nigropinnata</i> (Seale, 1901)	Hashinagabera	N	N	N
SCARIDAE				
<i>Scarus niger</i> Forsskål, 1775	Buchibudai	N	N	Y
PERCOPHIDAE				
<i>Enigmapercis</i> sp.	—	Y	N	N
BLENNIIDAE				
<i>Cirripectes castaneus</i> (Valenciennes, 1836)	Tategamikaeruuo	N	N	N
<i>Nannosalarias nativitatus</i> (Regan, 1909)	Hinagimpo	Y	N	Y
CHAENOPSIDAE				
<i>Neoclinus okazaki</i> Fukao, 1987	Araisokokegimpo	N	N	N
GOBIESOCIDAE				
<i>Lepadichthys coccinotaenia</i> Regan, 1921	Minamiubauo	Y	N	Y ⁵
<i>Propherallodus briggsi</i> Shioyaki and Dotsu, 1983	Himeubauo	N ⁶	N	N
CALLIONYMIDAE				
<i>Neosynchiropus morrisoni</i> (Schultz, 1960)	Sesokoteguri	N	N	N
<i>Neosynchiropus moyeri</i> (Zaiser and Fricke, 1985)	Miyaketeguri	N	N	N
GOBIIDAE				
<i>Yongeichthys criniger</i> (Valenciennes, 1837)	Tsumugihaze	N	N	N
ACANTHURIDAE				
<i>Acanthurus xanthopterus</i> Valenciennes, 1835	Kurohagi	N	N	N
<i>Ctenochaetus binotatus</i> Randall, 1955	Kokutensazanamihagi	N	Y	N
MONACANTHIDAE				
<i>Pervagor melanocephalus</i> (Bleeker, 1853)	Nuriwakekawahagi	Y	Y	N

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APPENDIX 1. Data for specimens from Yaku-shima Island examined in this study. Most specimens collected by Y. Ikeda, M. Aizawa and T. Matsumoto, unless otherwise stated. Localities on Yaku-shima Island (e.g., Isso, Shitoko and Kurio) given in Motomura *et al.* (2010: fig. 2).

ANTENNARIIDAE – *Antennarius nummifer*: CMNH 13927, 31.4 mm SL, Shitoko, 30 Oct. 2005.

BERYCIDAE – *Beryx decadactylus*: KAUM-I. 29102, 333.4 mm SL, Kurio, 3 May 2010, H. Motomura.

SYNGNATHIDAE – *Halicampus brocki*: CMNH 13934, 66.5 mm SL, Shitoko, 30 Oct. 2005; CMNH 14247, 89.4 mm SL, Isso, 31 Oct. 2005; CMNH 15548, male, 98.4 mm SL, Isso, 11 July 2006. *Trachyrhamphus bicoarctatus*: CMNH 10661, male, 332.5 mm SL, Isso, 10 May 2004.

SCORPAENIDAE – *Pterois antennata*: CMNH 10643, 71.9 mm SL, Shitoko, 9 May 2004. *Scorpaenodes varipinnis*: CMNH 13864, 34.2 mm SL, Isso, 28 Oct. 2005; CMNH 13952, 49.4 mm SL, Shitoko, 30 Oct. 2005; CMNH 13953, 35.2 mm SL, Shitoko, 30 Oct. 2005; CMNH 13954, 32.3 mm SL, Shitoko, 30 Oct. 2005; CMNH 13955, 32.1 mm SL, Shitoko, 30 Oct. 2005. *Scorpaenopsis papuensis*: CMNH 10660, 128.9 mm SL, Isso, 10 May 2004; CMNH 13757, 100.0 mm SL, Isso, 27 Oct. 2005; CMNH 15452, 111.7 mm SL, Isso, 13 July 2006. *Scorpaenopsis possi*: CMNH 15643, 85.8 mm SL, Isso, 11 July 2006. *Scorpaenopsis venosa*: CMNH 15848, 40.4 mm SL, Isso, 25 Sept. 2006; CMNH 15849, 44.0 mm SL, Isso, 25 Sept. 2006.

PLATYCEPHALIDAE – *Onigocia bimaculata*: CMNH 13964, 67.1 mm SL, Shitoko, 30 Oct. 2005. *Thysanophrys chiltonae*: CMNH 13870, 51.5 mm SL, Isso, 28 Oct. 2005; CMNH 13963, 66.2 mm SL, Shitoko, 30 Oct. 2005.

SERRANIDAE – *Epinephelus awoara*: CMNH 15851, 70.8 mm SL, Isso, 25 Sept. 2006. *Plectranthias longimanus*: CMNH 13828, 13.4 mm SL, Isso, 27 Oct. 2005; CMNH 13829, 18.2 mm SL, Isso, 27 Oct. 2005; CMNH 13830, 22.2 mm SL, Isso, 27 Oct. 2005; CMNH 15539, 12.9 mm SL, Isso, 11 July 2006. *Pseudogramma polyacanthum*: CMNH 10681, 33.8 mm SL, Shitoko, 9 May 2004; CMNH 10708, 34.3 mm SL, Isso, 12 May 2004; CMNH 10709, 50.3 mm SL, Isso, 12 May 2004; CMNH 12139, 51.3 mm SL, Isso, 12 May 2004; CMNH 13856, 37.8 mm SL, Isso, 28 Oct. 2005; CMNH 13857, 34.8 mm SL, Isso, 28 Oct. 2005; CMNH 14016, 52.1 mm SL, Shitoko, 30 Oct. 2005; CMNH 14234, 11.8 mm SL, Isso, 28 Oct. 2005; CMNH 15698, 13.4 mm SL, Isso, 13 July 2006.

PSEUDOCROMIDAE – *Amsichthys knighti*: CMNH 15399, male, 25.0 mm SL, Isso, 11 July 2006. *Pseudochromis tapeinosoma*: CMNH 13759, 44.7 mm SL, Isso, 27 Oct. 2005. *Pseudoplesiops rosae*: CMNH 10647, 24.5 mm SL, Isso, 10 May 2004; CMNH 10706, 23.3 mm SL, Isso, 12 May 2004; CMNH 13771, 25.8 mm SL, Isso, 27 Oct. 2005; CMNH 13984, 27.2 mm SL, Isso, 31 Oct. 2005; CMNH 15699, 27.0 mm SL, Isso, 13 July 2006. *Pseudoplesiops* sp.: CMNH 15400, male, 21.3 mm SL, Isso, 11 July 2006.

CORYPHAENIDAE – *Coryphaena hippurus*: KPM-NI 24780, 27.0 mm SL, Kurio, 8 May 2009, M. Watai.

NEMIPTERIDAE – *Pentapodus caninus*: KPM-NI 24665, 174.5 mm SL, Hirauchi, 10 Sept. 2009, S. Ikeda.

CHAETODONTIDAE – *Chaetodon baronessa*: CMNH 14199, 17.4 mm SL,

Yudomari, 29 Oct. 2005. *Chaetodon ephippium*: CMNH 15320, 21.4 mm SL, Isso, 10 July 2006. *Heniochus acuminatus*: CMNH 15319, 29.3 mm SL, Isso, 10 July 2006.

POMACANTHIDAE – *Centropyge tibicen*: CMNH 10743, 49.3 mm SL, Isso, 12 May 2004.

CIRRHITIDAE – *Paracirrhites arcatus*: CMNH 13825, 57.1 mm SL, Isso, 27 Oct. 2005.

POMACENTRIDAE – *Chromis atripes*: CMNH 15858, 26.2 mm SL, Isso, 25 Sept. 2006. *Chromis xanthura*: CMNH 10749, 20.4 mm SL, Shitoko, 9 May 2004. *Chrysiptera rex*: CMNH 10700, 53.6 mm SL, Isso, 10 May 2004. *Dascyllus reticulatus*: CMNH 14198, 11.8 mm SL, Yudomari, 29 Oct. 2005. *Dascyllus trimaculatus*: CMNH 12140, 83.6 mm SL, Isso, 11 May 2004. *Pomacentrus vaiuli*: CMNH 13930, 31.5 mm SL, Shitoko, 30 Oct. 2005; CMNH 14145, 17.8 mm SL, Yudomari, 29 Oct. 2005.

LABRIDAE – *Halichoeres chrysus*: CMNH 13796, 18.7 mm SL, Isso, 27 Oct. 2005. *Halichoeres hartzfeldii*: CMNH 14213, 41.6 mm SL, Isso, 27 Oct. 2005; CMNH 14214, 26.9 mm SL, Isso, 27 Oct. 2005; CMNH 14215, 20.7 mm SL, Isso, 27 Oct. 2005; CMNH 14217, 20.2 mm SL, Isso, 28 Oct. 2005. *Labrichthys unilineatus*: CMNH 14197, 11.2 mm SL, Yudomari, 29 Oct. 2005. *Pseudocheilinus evanidus*: CMNH 13877, 30.7 mm SL, Isso, 28 Oct. 2005; CMNH 13986, 48.7 mm SL, Isso, 31 Oct. 2005. *Pseudocheilinus hexataenia*: CMNH 15873, 35.9 mm SL, Isso, 27 Sept. 2006. *Wetmorella nigropinnata*: CMNH 13868, 41.4 mm SL, Isso, 28 Oct. 2005; CMNH 13988, 14.7 mm SL, Isso, 31 Oct. 2005.

SCARIDAE – *Scarus niger*: CMNH 13989, 30.2 mm SL, Isso, 31 Oct. 2005.

PERCOPHIDAE – *Enigmapercis* sp.: CMNH 13991, 17.6 mm SL, Shitoko, 30 Oct. 2005.

BLENNIIDAE – *Cirripectes castaneus*: CMNH 10402, 43.7 mm SL, Shitoko, 7 May 2004; CMNH 10715, 30.4 mm SL, Isso, 12 May 2004. *Nannosalarias nativitatus*: CMNH 10406, 33.3 mm SL, Shitoko, 7 May 2004; CMNH 10881, 34.6 mm SL, Shitoko, 7 May 2004; CMNH 10882, 31.4 mm SL, Shitoko, 7 May 2004; CMNH 10883, 24.2 mm SL, Shitoko, 7 May 2004; CMNH 14182, 24.1 mm SL, Yudomari, 29 Oct. 2005.

CHAENOPSIDAE – *Neoclinus okazakii*: CMNH 10439, 25.5 mm SL, Isso, 8 May 2004; CMNH 15422, 33.8 mm SL, Isso, 12 July 2006; CMNH 15670, 30.5 mm SL, Isso, 12 July 2006.

GOBIESOCIDAE – *Lepadichthys coccinotaenia*: KAUM-I. 11266, 51.1 mm SL, Yudomari, 11 Aug. 2008, Motomura *et al.* *Propherallodus briggsi*: CMNH 10675, 15.8 mm SL, Shitoko, 7 May 2004.

CALLIONYMIDAE – *Neosynchiropus morrisoni*: CMNH 13872, female, 16.2 mm SL, Isso, 28 Oct. 2005; CMNH 15438, female, 62.1 mm SL, Isso, 12 July 2006; CMNH 15460, male, 71.1 mm SL, Isso, 13 July 2006; CMNH 15461, male, 68.6 mm SL, Isso, 13 July 2006. *Neosynchiropus moyeri*: CMNH 10697, female, 36.7 mm SL, Isso, 10 May 2004.

GOBIIDAE – *Yongeichthys criniger*: KAUM-I. 29114, 102.8 mm SL, Koseda, 4 May 2010, M. Matsunuma; KAUM-I. 29115, 84.6 mm SL, Koseda, 4 May 2010, M. Matsunuma.

ACANTHURIDAE – *Acanthurus xanthopterus*: KAUM-I. 29162, 161.4 mm SL, Ambo, 7 May 2010, M. Matsunuma and M. Meguro; KAUM-I. 29163, 144.7 mm SL, Ambo, 7 May 2010, M. Matsunuma and M. Meguro; KAUM-I. 29164, 149.4 mm SL, Ambo, 7 May 2010, M. Matsunuma and M. Meguro; KAUM-I. 29165, 172.9 mm SL, Ambo, 7 May 2010, M. Matsunuma and M. Meguro; KAUM-I. 29166, 147.6 mm SL, Ambo, 7 May 2010, M. Matsunuma and M. Meguro. *Ctenochaetus binotatus*: CMNH 14020, 65.6 mm SL, Shitoko, 30 Oct. 2005.

MONACANTHIDAE – *Pervagor melanocephalus*: CMNH 10742, 48.5 mm SL, Isso, 12 May 2004; CMNH 13919, 54.2 mm SL, Shitoko, 30 Oct. 2005.