Fishes of Yaku-shima Island

**A World Heritage Island in the Osumi Group,
Kagoshima Prefecture, Southern Japan**

Cover image: *Platax teira*, off Isso, Yaku-shima Island (photo by S. Harazaki)
Right image: tide-pool at Kurio, Yaku-shima Island (photo by H. Motomura)

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Edited by Hiroyuki Motomura and Keiichi Matsuura

National Museum of Nature and Science, Tokyo

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DTP by Hiroyuki Motomura, Kagoshima University Museum

Preface

The Kuroshio Current, originating in the tropical western North Pacific Ocean east of the Philippines, flows northward towards the main islands of Japan via the Ryukyu Islands. Senou et al. (2006) studied the fish faunas of the Ryukyus and other islands in southern Japan by using observation records of fishes stored in a fish image database, FishPix (http://fishpix.kahaku.go.jp/fishimage-e/index.html). Their analysis clearly showed two major roles for the Kuroshio Current, firstly as a conveyor for fishes being transported from the tropics to southern Japan and secondly as a strong barrier that makes it difficult for warm-temperate fishes living along the coasts of Honshu, Shikoku, Kyushu and associated small islands to move southward to the Ryukyu Islands. However, their conclusion needs to be corroborated by detailed studies that utilize morphological and genetic analyses of local populations of fishes.

In April 2007, 11 ichthyologists, Keiichi Matsuura, Hiromitsu Endo, Yukio Iwatsuki, Yoshiaki Kai, Seishi Kimura, Izumi Kinoshita, Hiroyuki Motomura, Mutsumi Nishida, Takashi Minami, Hiroshi Senou and Tetsuo Yoshino, joined forces to study further the influence of the Kuroshio Current on fish faunas in southern Japan. This research, called the Kuroshio Project, was supported for three years by Grant-in-Aids for Scientific Research (A: 19208019) by the Japan Society for the Promotion of Science (JSPS). This team studied several groups of fishes (e.g., atherinids, carangids, gobiids, serranids and sparids), occurring both in temperate and tropical waters, to determine the two major roles of the Kuroshio Current by using DNA analysis with additional morphological data (these studies will be published elsewhere). During the Kuroshio Project, fishes of Yaku-shima Island were heavily studied by this team of ichthyologists because fishes of this island have been poorly studied in terms of zoogeography and taxonomy, and the fish fauna of this island comprises temperate and tropical elements. Accordingly, the number of observation records of fishes from Yaku-shima Island in Senou et al. (2006) was relatively smaller than those from another 11 sites from southern Japan. Yaku-shima Island is located at an interesting point in terms of the zoogeography of Japanese fishes. The Kuroshio Current courses northward along the East China Sea side of the Ryukyu Islands and then flows into the Tokara Straits and returns to the Pacific side immediately south of Yaku-shima Island. This suggests that a study on fishes of Yaku-shima Island may provide a good opportunity to clarify how the Kuroshio Current affects fish faunas in southern Japan.

The JSPS project team sent two expeditions to Yaku-shima Island in the summers of 2008 and 2009. Their collection and analysis of shallow-water fishes around the Island resulted in this book that comprises six papers about the fishes of Yaku-shima Island. Although the JSPS Kuroshio Project produced many interesting zoogeographical and taxonomical findings on fishes, it also demonstrated the need for further studies on fishes and marine invertebrates in order to clarify the influence of the Kuroshio Current on marine faunas in southern Japan. As the current Kuroshio Project will expire at the end of March 2010, a new research team was organized in April 2009 to focus on fishes, marine invertebrates and marine microfossils. This new Kuroshio Project will continue for four more years to study the role of the Kuroshio Current with respect to the zoogeography, taxonomy and phylogeography of major groups of marine organisms in southern Japan.

Senou, H., K. Matsuura and G. Shinohara. 2006. Checklist of fishes in the Sagami Sea with zoogeographical comments on shallow water fishes occurring in the coasts under the influence of the Kuroshio Current. Memoirs of the National Science Museum, Tokyo, (41):389–542.

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Cephalopholis sonnerati, off Isso, Yaku-shima Island (photo by S. Harazaki)

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Pentapodus aureofasciatus, off Isso, Yaku-shima Island (photo by S. Harazaki)

First records of a triplefin (Tripterygiidae), *Enneapterygius hemimelas*, from Japan

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Abstract Four male specimens (19.4–21.8 mm standard length) of *Enneapterygius hemimelas* (Kner and Steindachner, 1867) (Tripterygiidae) were collected from Yaku-shima Island, Kagoshima Prefecture, Kyushu, Japan. Because previous Japanese records of *E. hemimelas* were based on mis-identifications of *E. bahasa* or *E. flavoccipitis*, and the northernmost record of *E. hemimelas* was Taiwan, the Yaku-shima Island specimens examined in this study represent the first records of *E. hemimelas* from Japan and the northernmost record for the species.

Key words: Tripterygiidae, *Enneapterygius hemimelas*, distribution, Yaku-shima Island, Japan.

Introduction

The triplefin genus *Enneapterygius* Rüppell, 1835 (Perciformes: Tripterygiidae) in the western and central Pacific Ocean was reviewed by Fricke (1997), then Fricke (2009) recognized 42 valid species in the region. In addition, *E. sheni* and *E. shaoi* were described by Chiang and Chen (2008) as new species from Taiwan. Three species originally described by Shen (1994), *E. erythrosomus*, *E. hsiojenae*, and *E. leucopunctatus*, were synonymized by Fricke (1997) with *E. rubicauda* Shen, 1994, *E. vexillarius* Fowler, 1946, and *E. vexillarius* respectively. However, Chiang and Chen (2008) redescribed *E. erythrosomus*, *E. hsijenae*, and *E. leucopunctatus* as valid species. Furthermore, although Fricke (1997) regarded *E. rubicauda* as a valid species, Chiang and Chen (2008) considered it a junior synonym of *E. flavoccipitis* Shen, 1994. Thus, a total of 46 species has currently been recognized as valid members of *Enneapterygius* in the western and central Pacific Ocean.

Enneapterygius, the most speciose genus among the Tripterygiidae, has been defined by a discontinuous lateral line with an anterior series of 6–22 pored scales and a posterior series of 13–27 notched scales, a first dorsal fin with 3 spines, an anal fin with 1 spine, a pelvic fin with 1 spine and 2 soft rays, and the head, opercle, pectoral-fin base and abdomen naked (Fricke, 1997). However, synapomorphies for the genus have not been defined, and further investigation at the generic level is therefore necessary (Motomura et al., 2005).

Enneapterygius hemimelas was originally described by Kner and Steindachner (1867) as *Tripterygium hemimelas* from the Samoa Islands, and Fricke (1994) designated a male specimen (USNM 220068, 20.6 mm SL, Fagasa Bay, Tutuila Island, American Samoa) as the neotype for the species. *Enneapterygius hemimelas* is currently known from Taiwan, the Philippines, and Indonesia east to Samoa (Fricke, 2009). Previous Japanese records of *E. hemimelas* were, in fact, mis-identifications of *E. bahasa* Fricke, 1997 or *E. flavoccipitis* (see Remarks).

During ichthyofaunal surveys of Yaku-shima Island, Kagoshima Prefecture, Kyushu, Japan (Motomura et al., 2010), four male specimens of *E. hemimelas* were collected from the southern coast of the island. These specimens are described herein as the first records of *E. hemimelas* from Japan and the northernmost record for the species.

Fig. 1. *Enneapterygius hemimelas* from Yaku-shima Island, Kagoshima Prefecture, Japan (KAUM–I. 11353, male, 19.5 mm SL). **A** and **B** indicate fresh and preserved specimens respectively.

Materials and methods

Counts and measurements follow Hubbs and Lagler (1947), Fricke (1994, 1997) and Motomura et al. (2005), with the mandibular-pore formula following Fricke (1997). Measurements were made to the nearest 0.1 mm with needle-point calipers under a dissecting microscope. Standard length is abbreviated as SL. Specimens of *E. hemimelas* examined in this study are deposited at the Kagoshima University Museum, Kagoshima, Japan (KAUM) and the Museum Support Center, Smithsonian Institution National Museum of Natural History, Suitland, USA (USNM).

Enneapterygius hemimelas (Kner and Steindachner, 1867)
[English name: Halfblack Triplefin]
[New Japanese name: Akegoromo-hebigimpo]
(Figs. 1–3; Table 1)

Tripterygium hemimelas Kner and Steindachner, 1867: 371 (type locality: Fagasa Bay, Tutuila Island, American Samoa, based on neotype).

Material examined. All specimens from Yaku-shima Island, Kagoshima, Japan: KAUM–I. 11353, male, 19.5 mm SL, east of Kamazeno-hana, Kurio, 30°16′03″N, 130°24′47″E, 0–3 m depth, hand net, coll. by KAUM fish team, 12 Aug. 2009; KAUM–I. 11354, male, 19.4 mm SL, same data as KAUM–I. 11353; KAUM–I. 11355, male, 21.5 mm SL, same data as KAUM–I. 11353; KAUM–I. 21659, male, 21.8 mm, south of Kamazeno-hana, Kurio, 30°15′57″N, 130°24′57″E, 0–2 m depth, hand net, coll. by G. Ogihara et al., 27 July 2009.

Diagnosis. A species of *Enneapterygius* with the following combination of characters: 12–14 second dorsal-fin spines; 15–18 + 17–19 lateral-line scales; 35 or 36 longitudinal scales rows; 1 symphyseal mandibular pore; mandibular pores usually 4 + 1 + 4 (rarely 6 + 1 + 5); blackish area on lower head of mature males separated into two parts, one extending from end of maxilla and near posteroventral margin of orbit onto middle and lower opercular margin and pectoral-fin base, and the other a narrow band, extending from front of upper lip to anteroventral margin of orbit; in mature males, two broad, black bands below third dorsal-fin base and caudal peduncle, the two bands joined ventrally; posterior half of anal fin black in mature males; caudal fin semitransparent white or yellow; caudal-fin base white; pectoral and pelvic fins and body (except for black areas) orange in mature males.

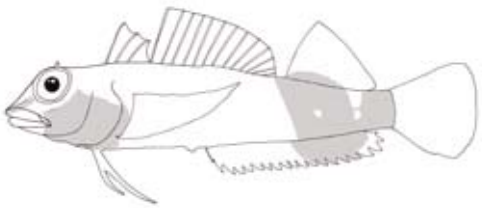

Fig. 2. Schematic depiction of melanistic male coloration of *Enneapterygius hemimelas*, based on three specimens (KAUM–I. 11353, KAUM–I. 11354, and KAUM–I. 21659) from Yaku-shima Island, Kagoshima Prefecture, Japan. Dotted areas indicate melanistic areas.

Description. Counts and measurements are given in Table 1. Cephalic sensory pore systems are illustrated in Figure 3. Body moderately elongate, slightly compressed anteriorly, progressively more compressed posteriorly; dorsal profile of snout moderately steep; anterior nostril a short

Table 1. Counts and measurements, expressed as percentages of standard length, of *Enneapterygius hemimelas*, including neotype, and non-types from Yaku-shima Island and the western Pacific.

	This study		Fricke (1997)
	Yaku-shima Island, Japan (non-types) Males $n = 4$	Tutuila Island, American Samoa (neotype) Male $n = 1$	Western Pacific (neotype and non-types) Males Females $n = 82$[1]
Standard length (mm)	19.4–21.8	21.3	6.0–40.0
Counts			
Second and third dorsal-fin rays	XII–XIV + 9–10	XII + 9	XI–XIV + 6–10
Pectoral-fin rays	ii–iii + 5–6 + vi–viii	iii + 5 + vii	i–iv + 4–8 + vi–viii
Anal-fin rays	I, 18–19	I, 18	I, 15–20
Longitudinal scales rows	35-36	35	32–37
Pored lateral-line scales	16–18	15–16[2]	13–20
Notched lateral-line scales	18–19	17–18[2]	16–22
Mandibular pore formula	4+1+4 or 6+1+5[3]	4+1+4	3–4+1–2+3–4
Measurements			
Body depth	19.5–20.3 (19.9)	19.6	17.8–24.4
Body width	18.5–19.3 (18.6)	17.5	11.9–17.2
Head length	26.4–27.6 (26.9)	26.4	24.0–30.2
Snout length	8.6–9.2 (8.9)	8.9	4.8–6.1 5.7–7.1
Orbit diameter	9.9–11.0 (10.4)	10.0	8.2–12.7
Interorbital width	2.4–3.0 (2.8)	2.9	2.4–4.2
Upper-jaw length	10.9–12.0 (11.4)	11.9	9.1–12.0
Postorbital length	11.6–13.6 (12.5)	12.3	—
Pre 1st dorsal-fin length	26.8–28.0 (27.2)	26.5	23.8–27.6
Pre 2nd dorsal-fin length	37.1–39.6 (37.9)	36.9	32.2–38.6
Pre 3rd dorsal-fin length	71.8–73.6 (72.3)	70.2	63.7–71.8
Preanal-fin length	48.8–51.4 (49.3)	47.2	47.3–55.3
Prepectoral-fin length	31.1–32.2 (31.4)	30.9	28.0–34.9
Prepelvic-fin length	21.9–23.0 (22.2)	21.5	20.9–25.6
Caudal-peduncle length	9.2–11.6 (10.5)	10.5	10.1–15.3
Caudal-peduncle depth	7.7–8.6 (8.0)	7.2	6.5–9.7
1st spine length of 1st dorsal fin	10.4–11.0 (10.6)	10.0	7.7–12.4 5.8–7.9
2nd spine length of 1st dorsal fin	9.3–10.2 (9.6)	9.1	6.7–11.6 8.3–9.4
3rd spine length of 1st dorsal fin	7.2–8.8 (8.0)	7.8	4.5–9.7
Longest spine length of 2nd dorsal fin	13.1–14.4 (13.9)	13.6	—
Longest ray length of 3rd dorsal fin	15.3–15.7 (15.5)	15.4	13.7–20.2
Pectoral-fin length	30.3–32.8 (31.7)	31.5	27.5–36.3
2nd ray length of pelvic fin	21.1–24.0 (23.3)	24.9	20.2–25.2

[1]Counts were based on 82 specimens, but the number of specimens measured was not indicated by Fricke (1997). [2]Counts included scales on right and left sides of the neotype. [3]Only one specimen had 6 + 1 + 5. Means in parentheses.

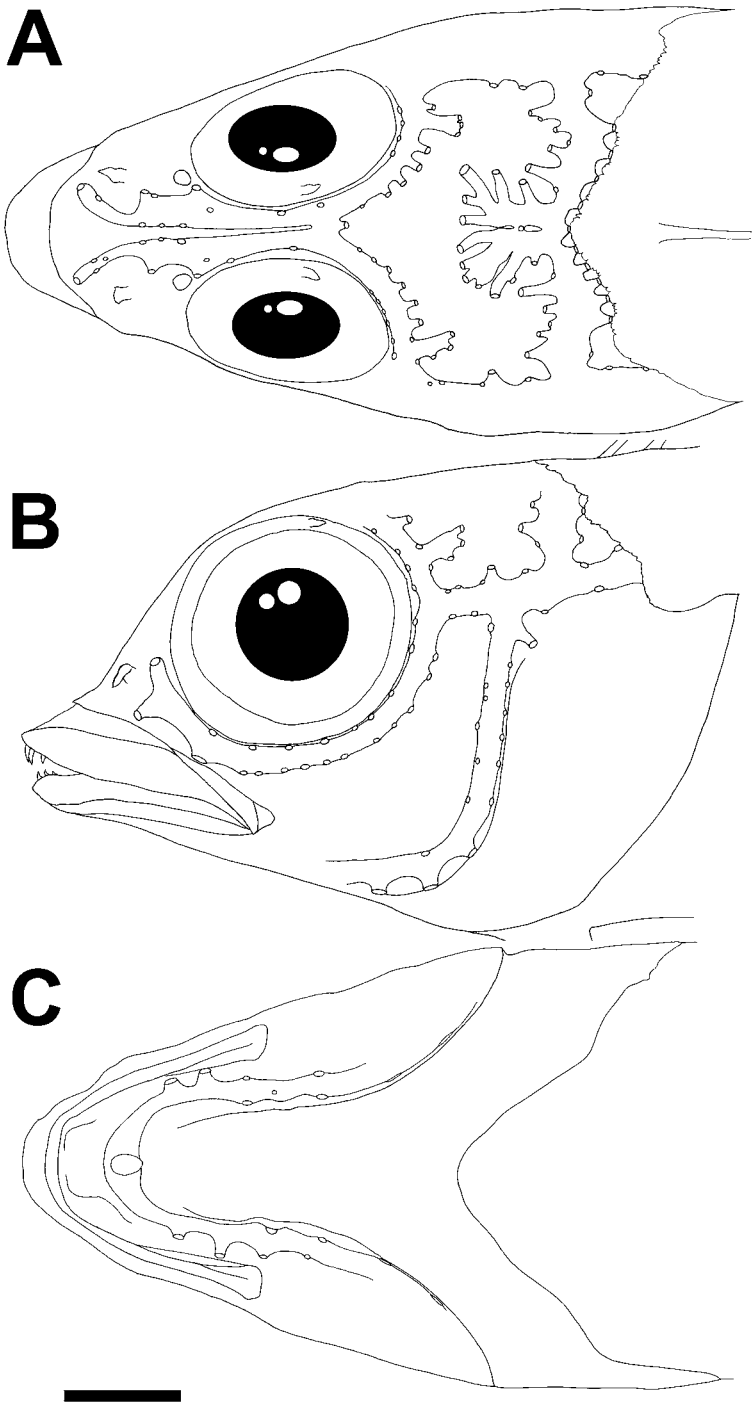

Fig. 3. Cephalic sensory pore systems of *Enneapterygius hemimelas* (KAUM–I. 11353, male, 19.5 mm SL, Yaku-shima Island, Kagoshima Prefecture, Japan). (**A**) Dorsal, (**B**) lateral, and (**C**) ventral views of head. Bar represents 1 mm.

membranous tube with an unbranched, thin tentacle; anterior nostril located at mid-level of eye; posterior nostril opening elliptic; eyes oriented dorsolaterally; a minute, simple tentacle on upper posterior part of eye; interorbital space very narrow, width less than pupil diameter; mouth slightly oblique; posterior margin of maxilla just short of, or extending slightly beyond, a vertical through anterior margin of pupil; uppermost anterior margin of upper jaw approximately level with lowermost margin of orbit.

Lateral line discontinuous, with an anterior series of pored scales and a posterior series of notched scales; pored scale series ending below membrane between last spine of second dorsal fin and body; notched scale series beginning below last or penultimate pored scale and ending at caudal-fin base; one vertical scale row between posteriormost pored scale and notched lateral line; body covered with ctenoid scales; size of scales above and below lateral lines subequal; head (including maxilla, interorbital space, preopercle and opercle), pectoral-fin base, pre- and inter pelvic region and abdomen naked; no scales between head and first spine of first dorsal fin; fins naked, except caudal-fin base.

First dorsal-fin origin above middle of opercle, first spine longest, third spine shortest (1.2–1.5 in first spine); distal margin of first dorsal-fin membrane notched; second dorsal-fin origin above fifth pored lateral-line scale, second to fourth spine longest (longer than first spine of first dorsal fin); third dorsal-fin origin above fifth or sixth notched lateral-line scale; first or second soft ray longest; pelvic-fin origin anterior to first dorsal-fin origin; uppermost pectoral-fin ray origin below second or third spine of first dorsal fin; pectoral fin pointed, posterior tip of longest ray below twelfth to fourteenth spine of second dorsal fin, not reaching to level of third dorsal-fin origin; anal-fin origin below sixth spine of second dorsal fin; posterior margin of caudal fin slightly rounded.

Color of mature males when fresh. Based on color photographs of KAUM–I. 11353 (Fig. 1A), KAUM–I. 11354, KAUM–I. 11355, and KAUM–I. 21659, all from Yaku-shima Island. Schematic depiction of melanistic male coloration is given in Figure 2. Head reddish orange with a black narrow band, its width less than pupil diameter, from front of upper lip to anteroventral margin of orbit, and black area extending from posterior margin of maxilla and near posteroventral margin of orbit to middle and lower opercular margin; body reddish orange with several indistinct blackish and whitish blotches mid-laterally below first and second dorsal fins, and two broad, black bands below third dorsal fin and caudal peduncle, the two bands joined ventrally; pectoral fin orange or yellow, with black base; pelvic fin yellowish orange or white; dorsal fins semitransparent with poorly defined yellow, white and blackish blotches, especially on first dorsal fin; anal fin reddish orange anteriorly, black posteriorly; caudal fin semitransparent white or yellow, white basally.

Color of preserved male specimens. Head white with a black narrow band from front of upper lip to anteroventral margin, and black area extending behind posterior margin of maxilla and posteroventral margin of orbit to middle and lower opercular margin; body white with several indistinct blackish blotches mid-laterally below first and second dorsal fins, and a broad black band from posterior end of second dorsal fin to caudal-fin base; pectoral fin semitransparent, with black base; pelvic fin white; first and second dorsal fins semitransparent; anal fin semitransparent anteriorly, black posteriorly; caudal fin semitransparent with white base.

Distribution. The species is currently known from the western Pacific, with reliable records from Yaku-shima Island (this study), Taiwan, Hainan Island, Philippines, Indonesia, Phoenix Island, American Samoa (type locality), Tonga, Marianas, Marshall Islands, and Australia (Schultz et al., 1960; Myers, 1999; Matsuura et al., 2001; Allen and Adrim, 2003; Randall, 2005; Fricke, 2009). The Yaku-shima Island specimens were collected from rocky tidepools in depths of less than 3 m. In the western Pacific, most specimens were collected from reef flats or tidepools in depths of less than 5 m (Randall, 2005).

Remarks. The *Enneapterygius hemimelas* group was defined by Fricke (1997) as having the following combination of characters: a small to medium sized body; a relatively long anterior lateral-line series, with 13–23 pore scales; a rela-

tively low first dorsal-fin ray in both sexes; caudal peduncle without black narrow vertical bars or blotches; lower half of head black in mature males; usually at least some parts of body and unpaired fins black in mature males; and 1 or 2 vertical scale rows between posteriormost pored lateral-line scale and notched lateral line. This group comprises *E. atriceps* (Jenkins, 1903), *E. bahasa*, *E. clea* Fricke, 1997, *E. hemimelas*, *E. namarrgon* Fricke, 1997, *E. nigricauda* Fricke, 1997, *E. signicauda* Fricke, 1997, and *E. similis* Fricke, 1997.

The four male specimens from Yaku-shima Island were identified as belonging to the *E. hemimelas* group in having the aforesaid characters, and characters of the specimens agreed with description of *E. hemimelas* given by Fricke (1997). However, there are some differences between morphometric data for *E. hemimelas* given by Fricke (1997) and this study (Table 1), although measurement methods are the same between the two. Fricke (1997) gave body width as 11.9–17.2% of SL [vs. 18.5–19.3% (mean 18.6%) in this study], and snout length in males 4.8–6.1% of SL [vs. 8.6–9.2% (8.9%)]. The neotype of the species (male) was examined by both of Fricke (1997) and this study, and data for the neotype are consistent with those of non-type specimens of *E. hemimelas* given by this study. So Fricke's (1997) morphometric data are most likely to be erroneous.

Enneapterygius hemimelas can be separated from the remaining six species in the group by the number of symphyseal mandibular pores and mature male coloration (Fricke, 1997). *Enneapterygius hemimelas* is easily distinguished from *E. bahasa* by having a single symphyseal mandibular pore (vs. 2–8 pores in the latter; Fricke, 1997). The blackish area on the lower head of mature males of *E. hemimelas* is separated into two parts: one extending from the end of the maxilla and near the posteroventral margin of the orbit onto the middle and lower opercular margin (and onto pectoral-fin base); and the other is a narrow band, extending from the front of the upper lip to the anteroventral margin of the orbit (Fricke, 1997; Figs. 1–2). However, the blackish area on the lower head of males of all other species in the *E. hemimelas* group is not separated (Fricke, 1997). In addition, *E. hemimelas* has a distinct color pattern on the posterior portion of the body. It is distinguished from *E. bahasa*, *E. clea*, *E. nigricauda*, *E. similis*, and *E. signicauda* by having a semitransparent whitish or yellowish caudal fin in mature males (vs. fin entirely black in the first four species, and only basal half of fin black in *E. signicauda*; Fricke, 1997). Although mature males of *E. atriceps* and *E. namarrgon* have a semitransparent caudal fin, they differ from *E. hemimelas* in lacking black markings on the anal fin (vs. posterior half of fin black in the latter; Figs. 1–2). The anal-fin coloration (black posterior half of fin) of mature male *E. hemimelas* is unique among the *E. hemimelas* group (tips of last one or two anal-fin rays in male *E. clea* being black).

Enneapterygius hemimelas was originally described by Kner and Steindachner (1867) from the Samoa Islands. Fricke (1994) regarded *E. fuligicauda* (Fowler, 1946) and *E. macrobrachium* (Fowler, 1946), both originally described from Aguni-jima Island, Japan, as junior synonyms of *E. hemimelas*. However, Fricke (1997) re-considered *E. fuligicauda* and *E. macrobrachium* to be junior synonyms of *E. philippinus* (Peter, 1869) and *E. rubicauda*, respectively, and identified Masuda et al.'s (1984) *E. hemimelas* (Japanese name: Gomafu-hebigimpo) from the Ryukyu Islands as *E. rubicauda*. Recently, Chiang and Chen (2008) synonymized *E. rubicauda* with *E. flavoccipitis*; thus, Masuda et al.'s (1984) *E. hemimelas* is identified as *E. flavoccipitis*. The Japanese name "Gomafu-hebigimpo" (for *E. hemimelas* in Masuda et al., 1984) has been applied to *E. bahasa* since Shimojyo and Hayashi (2000).

Myer (1989) included the Ryukyu Islands in the distributional range of *E. hemimelas*, but he might have simply cited Masuda et al.'s *E. hemimelas* (= *E. flavoccipitis*), and not based the record on any other information or specimens. Hayashi (2002) reported and illustrated a male and female of *E. hemimelas* from the Ryukyu Islands. However, Hayashi's (2002) *E. hemimelas* is identified here as *E. bahasa* in having three symphyseal mandibular pores and a black caudal peduncle and fin (anal fin and trunk below anterior portion of third dorsal-fin base not black).

Thus, the Yaku-shima Island specimens examined during this study represent the first record of *E. hemimelas* from Japan and the northernmost record for the species.

Comparative material examined. *Enneapterygius hemimelas*: USNM 220068, neotype of *Tripterygium hemimelas*, male, 20.6 mm SL, Fagasa Bay, Tutuila Island, American Samoa, 0–3 m depth, 7 Oct. 1975, coll. by R. Wass.

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New records of a triplefin, *Enneapterygius leucopunctatus*, from southern Japan (Perciformes: Tripterygiidae)

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Abstract *Enneapterygius leucopunctatus* Shen, 1994 (Tripterygiidae), known only from Taiwan, is recorded for the first time from Yaku-shima Island, Kagoshima Prefecture, and Tosa Bay, Kochi Prefecture, southern Japan. Seventeen Japanese specimens (25.2–36.1 mm in standard length) were identified as *E. leucopunctatus* based on the following combination of characters: second dorsal-fin spines 12–13; third dorsal-fin soft rays 9–11; anal-fin soft rays 17–19; mandibular pore formula mostly 4+1+4; pored and notched lateral-line scales 15–18+16–19; simple dermal flap of anterior nostril; 2 white oblique bands on shoulder girdle; 8 dark saddle markings and 5–6 small ring-like white markings on lateral body; inconspicuous sexual dichromatism.

Key words: Tripterygiidae, *Enneapterygius leucopunctatus*, Yaku-shima Island, Tosa Bay, Japan.

Introduction

The blennioid family Tripterygiidae is composed of 32 genera and 164 species, inhabiting coral reefs and rocky substratum in tropical to cold seas (Fricke, 2009). The genus *Enneapterygius* Rüppell, 1835, the largest group in the family, is diagnosed by having a discontinuous lateral line with 6–22 pored scales anteriorly and 13–27 notched scales posteriorly; the following combination of fin rays—dorsal: III, IX–XVI, 7–12; anal: I, 15–22; pelvic: I, 2; and a body with ctenoid scales except for naked head, operculum, abdomen, and pectoral-fin base (the last two areas covered with cycloid scales in some species) (Fricke, 1997; Holleman, 2005; Chiang and Chen, 2008). In the western and central Pacific, 46 species of the genus are known (Meguro and Motomura, 2010). Of 4 species described by Shen (1994), Chiang and Chen (2008) regarded *E. rubicauda* Shen, 1994 as a junior synonym of *E. flavoccipitis* Shen, 1994, and *E. hsiojenae* Shen, 1994 and *E. leucopunctatus* Shen, 1994 as valid species, not junior synonyms of *E. vexillarius* Fowler, 1946 as asserted by Fricke (1997). Around Japan, 15 species have been recorded (e.g., Shimojyo and Hayashi, 2000; Hayashi, 2002; Yoshigou and Yoshino, 2002; Shibukawa et al., 2004; Motomura et al., 2005).

During surveys of fish faunas along the coasts of Tosa Bay and Yaku-shima Island, many specimens of *Enneapterygius* were collected from rocky shores and tide-pools to 4 m depth. Some of these were identified as *E. leucopunctatus* based on counts of the fin rays and lateral-line scales, the mandibular pore pattern, and distinctive markings and coloration. Herein, we report this species from Japan for the first time.

Materials and methods

The specimens examined are deposited in the following institutions: Academy of Natural Sciences, Philadelphia, USA (ANSP); Laboratory of Marine Biology, Kochi University, Japan (BSKU); and Kagoshima University Museum, Japan (KAUM). Counts and measurements follow Hubbs and Lagler (1958). Measurements were made to the nearest 0.1 mm with dividers

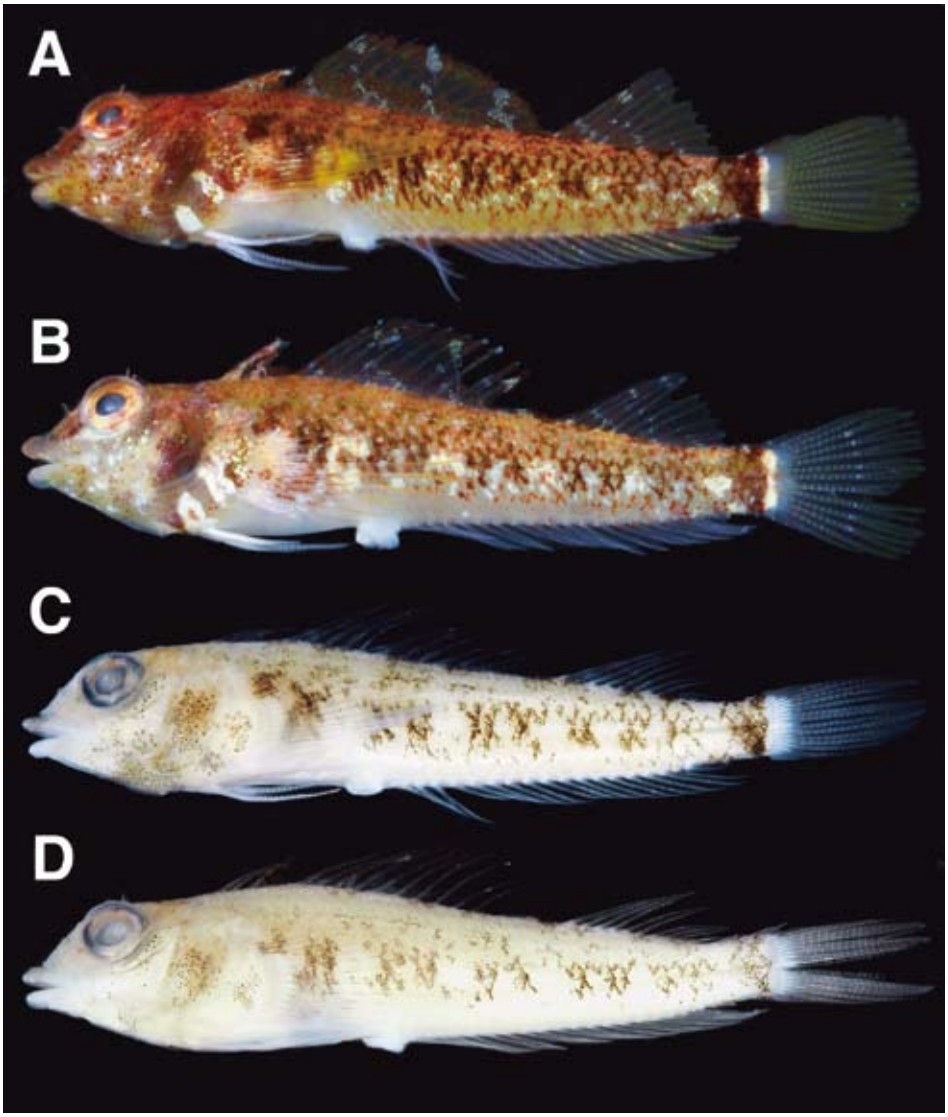

Fig. 1. *Enneapterygius leucopunctatus* from Yaku-shima Island, Kagoshima Prefecture (**A**, **C**: KAUM–I. 21838, male, 25.3 mm SL; **B**, **D**: KAUM–I. 21837, female, 26.4 mm SL). Fresh (**A**, **B**) and preserved (**C**, **D**) conditions.

and digital calipers under a binocular microscope. Terminology of the head lateral-line canals and mandibular pore formula follow Fricke (1997). Standard length and head length are abbreviated as SL and HL respectively. Fin rays and vertebrae were counted from radiographs. Observation of dentition, cephalic sensory tubes and pores, scales, and genital papillae were made using cyanine solution. To determine the sex, the gonads of each specimen were observed by partial dissection on the right side of the abdomen.

Enneapterygius leucopunctatus Shen, 1994
[New Japanese name: Hakuten-hebigimpo]
(Figs. 1, 2; Table 1)

Enneapterygius sp. 3: Shen, 1993: 491, 777, pls. 166-1, 166-2.

Enneapterygius leucopunctatus Shen, 1994: 12, fig. 8 (type locality: Taiwan); Chiang and Chen, 2008: 196, fig. 4i.

Enneapterygius vexillarius (not of Fowler, 1946): Fricke, 1997: 355 (in part); Randall and Lim, 2000: 632 (list; in part).

Materials examined. 17 specimens. Tosa Bay, Kochi (15 specimens): BSKU 55655, female, 35.6 mm SL, Shirano-hana, Tosa City, 4 Sept. 2001; BSKU 56266, female, 33.7 mm SL, Shirano-hana, Yokonami Peninsula, Tosa City, 2 Nov. 2001; BSKU 58044, female, 34.6 mm SL, Shirano-hana, Yokonami Peninsula, Tosa City, 23 May 2002; BSKU 65433, female, 28.9 mm SL, Karyougo, Nahari Town, 17 July 2003; BSKU 69833, female, 34.2 mm SL, Shioya Beach, Tei, Konan City, 9 Apr. 2004; BSKU 72857, female, 29.7 mm SL, Shirano-hana, Tosa City, 18 Sept. 2004; BSKU 73022, female, 28.8 mm SL, Ijiri, Tosa City, 5 June 2004; BSKU 73108, female, 26.2 mm SL, BSKU 73109, female, 26.6 mm SL, Shioya Beach, Tei, Konan City, 19 May 2004; BSKU 73162, female, 29.2 mm SL, BSKU 73163, female, 36.1 mm SL, Gyoudo-misaki, Muroto City, 26 May 2004; BSKU 73296, female, 30.1 mm SL, BSKU 73307, male, 27.4 mm SL, BSKU

Table1. Counts and measurements of *Enneapterygius leucopunctatus* from Japan and Taiwan. Mode of counts and mean of proportions in parentheses.

Locality	This study		Shen (1994)	Chiang and Chen (2008)
	Yaku-shima Island	Tosa Bay	Taiwan	Taiwan
	n = 2	*n* = 15	*n* = 9 (incl. 3 types)	*n* = 6
SL (mm)	25.2–26.4	26.2−36.1	26.6–34.8	23.7–29.1
Second dorsal-fin rays	XIII	XII–XIII	XIII–XIV (XIII)	XIII
Third dorsal-fin rays	10	9–11(10)	9–10	9–11
Anal-fin soft rays	18–19	17−19 (18)	18–20	18
Pectoral-fin rays	3+6+7	3–5+3–7+6−7 (3+6+7)	2–5+5−8+6–8 (3+6+7)	–
Principal caudal-fin rays	ii+9–10+ii	ii+9+ii	–	–
Pored latera-line scales	15–17	16−18 (18)	17–19 (18)	17−18
Notched lateral-line scales	19	16−18 (17)	17–19	17
Transverse scale rows	2.5–3.5+1+6.5	2.5−3+1+5.5−6.5 (2.5+1+5.5)	–	–
Madibular pore formula	4+1+4	4–5+1+4–6 (4+1+4)	4+1+4	4+1+4
In SL				
Head length	3.2−3.3	3.1−3.6 (3.3)	3.2–3.4	—
Body depth	4.5−4.6	4.2−5.0 (4.6)	4.6–5.0	—
Predorsal length	3.8−3.9	3.7−4.1 (3.8)	3.8–4.0	—
Dorsal-fin base	1.5	1.4−1.5 (1.5)	1.5–1.6	—
Anal-fin base	2.3	2.2−2.5 (2.4)	2.5–2.6	—
Caudal-peduncle length	8.4−8.8	7.5−8.7 (7.9)	8.1–8.5	—
In HL				
Snout length	3.0−3.3	2.9−3.6 (3.2)	3.5–3.8	—
Orbit diameter	3.3	2.8−3.6 (3.1)	3.2–3.6	—
Postorbital length	1.8−2.0	2.0−2.5 (2.2)	2.1–2.2	—
Upper-jaw length	2.8−2.9	2.4−2.8 (2.6)	2.7–3.1	—
In % of SL				
Head length	30.7–31.1	27.7−31.9 (30.4)	—	27.3−31.0 (29.1)
Body depth	21.7−22.1	20.2−23.7 (21.8)	—	20.6−22.4 (21.3)
Body width	18.3−21.3	14.7−20.2 (17.9)	—	20.4−21.6 (20.8)
Predorsal length	25.8−26.2	24.2−27.2 (26.3)	—	24.9−28.0 (26.4)
Dorsal-fin base	67.1−68.1	65.6−69.7 (67.4)	—	—
Anal-fin base	43.0−44.4	40.6−43.8 (42.5)	—	37.2−45.3 (41.4)
Caudal-peduncle length	11.3−11.9	11.4−13.4 (12.7)	—	8.9−12.8 (10.1)
Caudal-peduncle depth	7.5−8.4	7.7−10.1 (9.2)	—	8.7−10.3 (9.4)
1st spine length of 1st dorsal fin	10.6−11.1	8.1−12.9 (11.2)	—	8.7−10.9 (9.8)
1st spine length of 2nd dorsal fin	16.2−16.7	13.8−17.7 (15.8)	—	13.1−15.5 (14.2)
1st ray length of 3rd dorsal fin	17.6−18.0	14.6−20.2 (17.5)	—	—
Pectoral-fin length	31.6−34.5	28.6−34.9 (32.7)	—	28.8−32.8 (30.8)
2nd ray length of pelvic fin	22.7−25.0	18.3−24.8 (22.2)	—	22.2−25.4 (23.7)
Anal-fin spine length	6.9−7.3	5.7−8.5 (7.1)	—	—
1st ray length of anal fin	10.8−12.5	8.8−14.8 (10.6)	—	—
Caudal-fin length	23.4−25.8	20.6−26.2 (24.3)	—	—
In % of HL				
Snout length	30.3−33.8	27.0−34.7 (31.1)	—	25.4−33.2
Orbit diameter	29.9−30.3	28.1−36.2 (32.8)	—	29.5−34.7
Postorbital length	51.2−54.3	39.8−51.1 (46.5)	—	—
Upper-jaw length	34.3−36.0	35.3−41.3 (38.3)	—	34.4−38.2

73308, female, 30.2 mm SL, BSKU 73309, female, 29.4 mm SL, Kiragawa Town, Muroto City, 22 Apr. 2004.

Yaku-shima Island, Kagoshima: KAUM–I. 21837, female, 26.4 mm SL, KAUM–I. 21838, male, 25.2 mm SL, 30°16′03″N, 130°24′48″E, Kurio, west of Kamazeno-hana, hand-net, 0–4 m depth, coll. by KAUM fish team, 30 July 2009.

Diagnosis. A species of *Enneapterygius* with the following combination of characters: second dorsal-fin spines 12–13 (rarely 14); anal-fin soft rays 17–19 (rarely 20); pored lateral-line scales 16–19; notched lateral-line scales 17–19; 1–6 rows of small cycloid scales on boundary between abdomen and sides; simple, unbranched dermal flap of anterior nostril; simple dermal flap on orbit; 1 teeth row on prevomer; mandibular pore formula usually 4+1+4 (4–5+1+4–6); body pale reddish brown in male, pale yellowish brown in female; 2 oblique white markings on shoulder girdle, upper one anterior to pectoral-fin base and lower one above pelvic-fin base; 8 dark saddle markings on body; 1 row of 5–6 small, ring-like white markings laterally on body; 1 blackish band with posterior white margin on caudal peduncle.

Description. Counts and measurements are shown in Table 1. Body moderately elongate and compressed posteriorly. Head moderate in size, its length about 3.3 in SL. Snout moderate in length, dorsal contour somewhat gently sloping. Maxilla reaching posteriorly to vertical lines between anterior rims of eye and pupil. Anterior nostril forming short tube with an unbranced dermal flap. Supraorbital cirrus slender, unbranched. Occipital branch of supratemporal canal complex, dividing into two large branches (united in some specimens) and some sub-branches with pores laterally and distally (Fig. 2).

First dorsal fin much lower than second. All dorsal- and anal-fin soft rays simple. Pectoral fin with uppermost rays simple, middle rays branched, and lowermost rays simple. Posterior end of pectoral fin below tenth to thirteenth spines of second dorsal fin. Caudal fin relatively long with 13 principal rays: upper and lowermost 2 rays simple, other rays branched. Conical teeth on both jaws, much enlarged in outer row, sparse in inner row. Prevomer and palatines toothed, single row in the former. Gill-rakers on first arch 1+5–6.

Body covered with ctenoid scales except for head, pectoral-fin base, and ventral side of abdominal region from isthmus to anus. Lateral line discontinuous, composed of anterior pored scale row and posterior notched scale row, with one scale row between them. Anterior lateral line extending posteriorly to vertical line at twelfth or thirteenth spine of second dorsal fin. Posterior lateral-line origin below last pored scale, extending posteriorly to caudal-fin base. Longitudinal scale rows below first pored lateral line 30–36. 1–6 small cycloid scale rows located between naked area of abdomen and ctenoid scale rows on lateral body. Vertebrae 9–10+24–26.

Color when fresh (Fig. 1A, B). No melanistic coloration in male. Ground color in male: head reddish-brown dorsally, pale reddish to yellowish-brown laterally and ventrally; body pale reddish-brown, abdomen whitish, and ventral side above anal fin yellowish. Ground color in female: head and body pale reddish to yellowish-brown dorsally and laterally; cheek and ventral side of head, abdomen, and ventral side above anal-fin base whitish. A pair of brown stripes on snout between upper lip and eye. Suborbitals white. Some white spots on cheek. A large dark brown blotch on opercular region. Two oblique white bands (ring-like in some specimens) on shoulder girdle; upper blotch anterior to lowermost pectoral-fin base and lower blotch above pelvic-fin base. Dark brown blotch partly covered with upper white blotch anterior to pectoral-fin base. Pectoral-fin base white with dark blotch, with white spots anteriorly. A dark brown band dorsally on nape to middle of first dorsal-fin base. Eight saddle markings dorsally and laterally on body dark to blackish brown (each pair closely arrayed forming an M-shape laterally); dorsal interspace between saddle markings whitish to yellowish. A row of 6 white ring-like markings on lateral body, obscure in some specimens. A broad band on posterior caudal peduncle blackish to dark brown. Narrow white band on caudal-fin base. Fin spines and soft rays reddish-orange to yellow, partly whitish to translucent, forming stripes, except for white pelvic-fin rays. Fin membranes generally translucent. First dorsal-fin membrane with white, reddish-orange

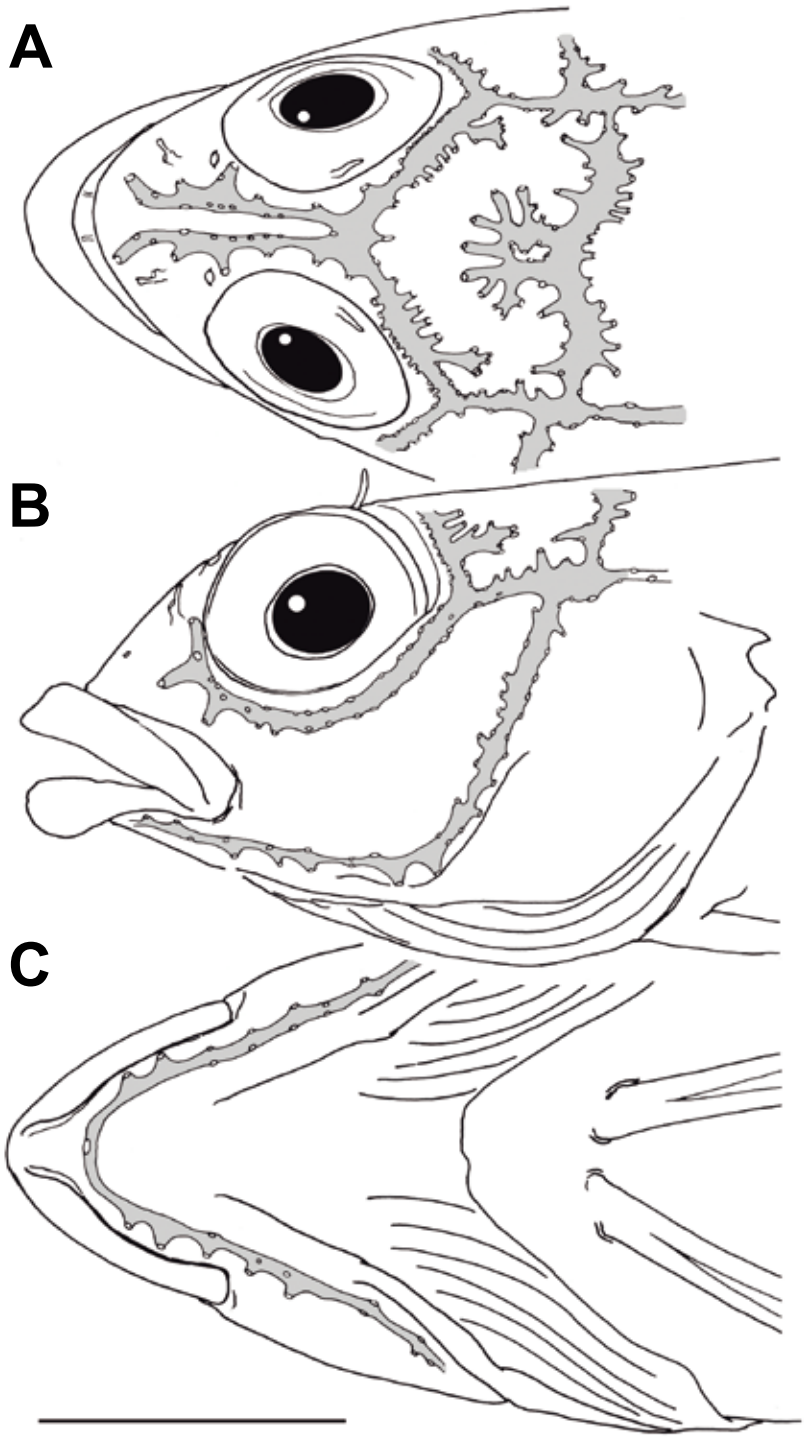

Fig. 2. Head lateral-line system of *Enneapterygius leucopunctatus* (KAUM–I. 21837, female, 8.2 mm HL, 26.4 mm SL, Yaku-shima Island, Kagoshima Prefecture). (**A**) dorsal view, (**B**) lateral view, and (**C**) ventral view. Scale bar indicates 3 mm. Drawn by E. Katayama.

Fig. 3. *Enneapterygius vexillarius* from Aguni-jima Island, Okinawa Prefecture, Japan (holotype, ANSP 72068, 30.1 mm SL).

and blackish pigments; second dorsal-fin membrane with two dark longitudinal bands on margin and near base, three oblique white bands generally interrupted; third dorsal-fin membrane with 3 to 4 oblique reddish-oragne bands. Anal-fin rays reddish-orange basally, yellowish distally. Caudal-fin rays pale yellow in male, light grayish with a whitish transverse band on middle in female; 1 to 3 upper and lowermost rays reddish with stripes (absent or faint in some specimens). Pectoral-fin rays pale yellow in male, pale reddish-orange in female, with a large white blotch near middle of base, white spots on middle of rays, and a small red blotch on 3 to 4 uppermost rays near base; its base whitish.

Color in alcohol (Fig. 1C, D). Ground color of head and body cream to yellowish-cream. White, yellow, and reddish-orange coloration in fresh specimens fades in preservative except the transverse band on the caudal fin in female becomes translucent. Red, brown, and dark brown to blackish coloration in fresh remain as melanophores: band on upper lip and snout, two blotches on opercular and anterior to pectoral-fin base, 3 to 4 uppermost pectoral-fin rays near base, dorsal band on nape and anterior of first dorsal fin, 8 saddle markings on body, caudal peduncle band, first dorsal fin, and two longitudinal bands on second dorsal fin. In addition, melanophores present partly on underside of head with unpigmented area, isthmus, and anterior to pelvic-fin base; head pigmentation somewhat dense in male but sparse in female.

Distribution. In Japan, known from rocky shores at depths of 0–4 m in Tosa Bay, Kochi Prefecture, and Yaku-shima Island, Kagoshima Prefecture; also Taiwan (Shen, 1994; Chiang and Chen, 2008).

Remarks. In the western and central Pacific, the present specimens belong to the *E. etheostomus* species-group (Fricke, 1997) being characterized by having: a large body size (33–54 mm SL); high numbers of second dorsal-fin spines (12–16), anterior lateral-line scales (15–23) and total scale rows (32–39); parts of the anterior head and body dark in males; males with a high first dorsal fin; and posterior lateral-line series continuing 2 rows below the anterior series. This species-group includes 6 species: *E. etheostoma* (Jordan and Snyder, 1902), *E. vexillarius*, *E. miyakensis* Fricke, 1987, *E. leucopunctatus*, *E. hsiojenae*, and *E. senoui* Motomura, Harazaki and Hardy, 2005. As mentioned above, Chiang and Chen (2008) regarded *E. leucopunctatus* and *E. hsiojenae* as valid species, clearly different from *E. vexillarius* by fresh coloration, the mandibular pore pattern (4+1+4 in *E. leucopunctatus*, 3+1+3 in *E. hsiojenae* and *E. vexillarius*), and the counts of second dorsal-fin spines (14 in *E. hsiojenae*, 13 in *E. leucopunctatus*, and 16 in *E. vexillarius*). Further, their molecular analysis of 11 *Enneapterygius* species from around Taiwan indicated that *E. hsiojenae* and *E. leucopunctatus* are separated from each other (*E. hsiojenae* forms a clade with *E. elegans*), although *E. vexillarius* was not included in the analysis. We confirmed that the holotype of *E. vexillarius* (ANSP 72068) has 16 second dorsal-fin spines, 14 pored lateral-line scales, 16 notched lateral-line scales, 2+1+4 transverse scale rows, no dermal flap above eye (but probably damaged), and maxillary end slightly beyond vertical line at anterior rim of pupil (Fig. 3). In addition, Fowler (1946) noted that *E. vexillarius* showed the following markings and coloration: anal fin reddish, with 10 transverse dark bars, most distinct along base of fin; caudal fin red, with 5 irregular transverse gray bars; ventral body uniformly red.

The present specimens are easily separable from *E. etheostoma* and *E. miyakensis* by the shape of the anterior nostril's dermal flap (unbranched vs. 2–3 branches in other two species), the number of transverse scale rows above anterior lateral line (2.5–3 vs. 5–6), overall markings and coloration, and nuptial coloration in male (inconspicuous vs. melanistic: Senou, 2009), from *E. senoui* by the counts of second dorsal-

fin spines (12–13 vs. 14–15), pored lateral-line scales (15–18 vs. 20–21), overall markings and coloration, and nuptial coloration (vs. melanistic in male and yellow anal fin in female: Motomura et al., 2005), from *E. vexillarius* and *E. hsiojenae* by the mandibular pore pattern (usually 4+1+4 vs. 3+1+3) and overall markings and coloration (Fowler, 1946; Shen, 1994; Chiang and Chen, 2008). Further, our specimens clearly differ from *E. vexillarius* by the count of second dorsal-fin spines (12–13 vs. 16) and pored lateral-line scales (15–18 vs. 14).

Our specimens conform to *E. leucopunctatus* in having 12–13 second dorsal-fin spines (13 in 15 specimens), 9–11 third dorsal-fin rays (9 or 10 in 15 specimens), 17–19 anal-fin soft rays (18 in 12 specimens), usually 3+6+7 pectoral-fin rays, 15–19 pored lateral-line scales, 16–19 notched lateral-line scales, and usually a 4+1+4 mandibular pore pattern (Table 1; Fig. 2). In addition, 2 white bands on the shoulder girdle, 6 ring-like markings and 8 dark brown saddle-like markings on the body, a dark band on the caudal peduncle, other white and blackish stripes on fin membranes, and inconspicuous dichromatism agree well with the color photographs of *E. leucopunctatus* by Shen (1994). We tentatively regard some differences of counts and proportions among the specimens from Taiwan (Shen, 1994; Chiang and Chen, 2008), Yaku-shima Island and Tosa Bay as variation within the species. Although the range of snout length in Japanese specimens is different from that in the original description (2.9–3.6 in HL vs. 3.5–3.8), the photographs of two paratypes and the present materials suggest that the snout proportions do not significantly differ from each other (Fig. 1; Shen, 1994: fig. 8). Further, the range in Japanese specimens is almost identical with that in Chiang and Chen (2008) (27.0–34.7 % HL vs. 25.4–33.2) (Table 1). The wide range of some proportional characters, however, may suggest that the materials include more than one species.

Enneapterygius leucopunctatus has been previously recorded only from Taiwan: Wen-tz-keng (type locality, east of Keelung, in northern Taiwan), Chenggong (central east coast) and Fengchui-sha (southern Taiwan) at depths of 2–12 m (Shen, 1994; Chiang and Chen, 2008). Hence, the present specimens represent the first records from outside Taiwan. Although the species' known range is extended to Yaku-shima Island and Tosa Bay, southern Japan, its occurrence around the Ryukyu Islands and Amami-ohshima Islands is still unknown. If this gap between Taiwan and Yaku-shima Island is confirmed by further investigation, the distributional pattern of *E. leucopunctatus* may support a hypothesis of the Kuroshio Current acting as a barrier related to the endemism of the fish fauna around the Ryukyu Islands as proposed by Senou et al. (2006).

The new Japanese name of *E. leucopunctatus*, "Hakuten-hebigimpo", meaning "white spotted triplefin", is based on the male specimen of KAUM–I. 21838 collected from Yaku-shima Island, Kagoshima.

Comparative material examined. *Enneapterygius vexillarius*: ANSP 72068, holotype, 30.1 mm SL, 39.0 mm in total length, Aguni-jima Island, Okinawa Islands, 27 July 1945.

Acknowledgments

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Distributional range extension of a scorpionfish, *Scorpaenodes quadrispinosus*, in the Indo–Pacific, and comments on synonymy of *S. parvipinnis* (Scorpaeniformes: Scorpaenidae)

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Abstract *Scorpaenodes quadrispinosus*, previously known only from type specimens from Fiji and the Marshall Islands, is reported here on the basis of 27 specimens from the eastern Indian Ocean (Christmas Island, Australia) and the Pacific Ocean (East Asia, Micronesia, Melanesia, Timor Sea, and Polynesia). Validity of diagnostic characters of *S. quadrispinosus* given in the original description is assessed and newly recognized diagnoses are provided. *Paronescodes asperrimus* is regarded here as a junior synonym of *S. parvipinnis*.

Key words: Scorpaenidae, *Scorpaenodes quadrispinosus*, *S. parvipinnis*, *Paronescodes asperrimus*.

Introduction

The shallow water scorpionfish, *Scorpaenodes quadrispinosus*, was originally described by Greenfield and Matsuura (2002) on the basis of five specimens (47.5–76.2 mm standard length) from Fiji (type locality) and the Marshall Islands. Subsequently, Randall (2005) based his account for this species on the original description without reference to additional specimens. No specimens of *S. quadrispinosus* have been reported since its original description.

Ongoing taxonomic studies of *Scorpaenodes* by the first author and colleagues (e.g., Motomura et al., 2009) revealed that *S. quadrispinosus*, previously known only from Fiji and the Marshall Islands, is in fact widely distributed in the eastern Indian Ocean and Pacific Ocean. The species is redescribed here on the basis of 27 new specimens, collected from Japan, Taiwan, Pohnpei, Marshall Islands, Solomon Islands, Papua New Guinea, Australia, and French Polynesia. The validity of diagnostic characters of *S. quadrispinosus* given by Greenfield and Matsuura (2002) is also assessed and newly recognized diagnostic characters are provided.

Scorpaenodes parvipinnis, originally described as *Scorpaena parvipinnis* by Garrett (1864) on the basis of a single specimen (deposited at CAS, but destroyed by fire in 1906; Eschmeyer, 1998) from the Hawaiian Islands, is closely related to *S. quadrispinosus* (see Greenfield and Matsuura, 2002; Randall, 2005). This similarity is supported by the fact that most of our 27 specimens of *S. quadrispinosus*, except for newly collected specimens from Yaku-shima Island, Japan, were registered as *S. parvipinnis* in museum collections.

Paronescodes asperrimus was originally described as a new genus and species by Smith (1958) on the basis of 19 specimens reported as *S. parvipinnis* by Smith (1957) from the Seychelles, Mozambique, and Tanzania. The only publication dealing with *P. asperrimus* since its original description is that of Eschmeyer (1986) in which it was regarded as a junior synonym of *S. parvipinnis* without giving reasons or examined specimens.

In their description of *Scorpaenodes quadrispinosus*, Greenfield and Matsuura (2002) did not discuss Eschmeyer's decision that *P. asperrimus* was a junior synonym of *S. parvipinnis*. To clarify this situation, we examined the 19 type specimens of *P. asperrimus* in this study and confirmed the validity of *S. quadrispinosus* and taxonomic status of *P. asperrimus* as a synonym.

Materials and methods

Counts and measurements follow Motomura et al. (2005a–c) and Greenfield and Matsuura (2002) respectively. The last two soft rays of the dorsal and anal fins are counted as single rays, each pair being associated with a single pterygiophore. Standard length is expressed as SL. Terminology of head spines follow Randall and Eschmeyer (2002: fig. 1) and Motomura (2004: fig. 1), with the following additions: the spine occurring at the base of the uppermost preopercular spine is referred to as the supplemental preopercular spine (Eschmeyer, 1965); the spine occurring at the lateral surface of the lacrimal bone is referred to as the lateral lacrimal spine (Motomura and Senou, 2008: fig. 2); the coronal and pretympanic (as an extra spine) spines are as figured in Chen (1981: fig. 1) and Motomura et al. (2004: fig. 14b) respectively; and the longitudinal ridge on the anterior portion of the lacrimal is referred to as the lacrimal ridge. The formula for configuration of the supraneural bones, anterior neural spines and anterior dorsal-fin pterygiophores follows Ahlstrom et al. (1976). The presence of a swimbladder was confirmed by dissection of the abdomen on the right side of KAUM–I. 11475. The osteological characters were confirmed from X-ray images taken of two specimens (YCM–P 34209, 34291). 'Description' is based only on specimens examined in this study, and 'Diagnosis' is based on this study and Greenfield and Matsuura (2002).

Specimens examined in this study have been deposited in the California Academy of Sciences, San Francisco (CAS); Fish Division, Field Museum of Natural History, Chicago (FMNH); Kagoshima University Museum, Kagoshima (KAUM); Kanagawa Prefectural Museum of Natural History, Odawara (KPM); South African Institute for Aquatic Biodiversity, National Research Foundation, Grahamstown (SAIAB); Museum Support Center, Smithsonian Institute, National Museum of Natural History, Suitland (USNM); Fish Department, Western Australian Museum of Natural Science, Welshpool (WAM); and Yokosuka City Museum, Yokosuka (YCM).

Scorpaenodes quadrispinosus

Greenfield and Matsuura, 2002

[New English name: Furry Coral Scorpionfish]

[New Japanese name: Atsuhimesangokasago]

(Figs. 1–2; Table 1)

Scorpaenodes quadrispinosus Greenfield and Matsuura, 2002: 973, figs. 1, 2A (type locality: off Suva, Viti Levu Island, Fiji); Randall, 2005: 121 (color figure of Fijian specimen).

Material examined. 27 specimens, 27.3–99.8 mm SL. **JAPAN:** KAUM–I. 11469, 74.7 mm SL, Isso, Yaku-shima Island, Kagoshima, Japan, 30°27′23″N, 130°29′59″E, 0.1–5 m, KAUM fish team,13 Aug. 2008; KAUM–I. 11475, 79.6 mm SL, same data as KAUM–I. 11469; YCM–P 34209, 93.7 mm SL, Setouchi, Amami-oshima Island, Ryukyu Islands, Japan, 28 Aug. 1994; YCM–P 34291, 99.8 mm SL, Hamazaki, Setouchi, Kakeroma Island, Amami-oshima Island, Ryukyu Islands, Japan, 29 Aug. 1994. **TAIWAN:** USNM 361037, 2 specimens, 62.3–64.9 mm SL, Ch'uan-fan-shih, 21˚56′08″N, 120˚49′20″E, 5–6 m, V. Springer et al., 24 Apr. 1968; USNM 361042, 2 specimens, 58.5–81.2 mm SL, south of Chin-chiao-wan, 21˚55′15″N, 120˚49′45″E, 0–6 m, V. Springer and J. Choat, 8 May 1968. **POHNPEI:** USNM 224495, 3 specimens, 33.7–81.7 mm SL, Nanmatol, Ponape, 5˚51′N, 158˚20′E, 0–2 m, V. Springer et al., 3 Sept. 1980. **MARSHALL ISLANDS:** USNM 140488, 74.2 mm SL, Bikini Atoll, between Bikini and Amen Islands, V. Brock et al., 21 July 1947; USNM 140489, 2 specimens, 55.8–65.3 mm SL, Bikini Atoll, Eman Island, L. Schultz et al., 19 July 1947; USNM 140490, 64.0 mm SL, Bikini Atoll, Eman Island, L. Schultz et al., 17 July 1947; USNM 360997, 3 specimens, 72.1–74.4 mm SL, Bikar, Taka or Kwajalein Atolls, A. Amerson, 15 Oct.–11 Nov. 1964. **SOL-**

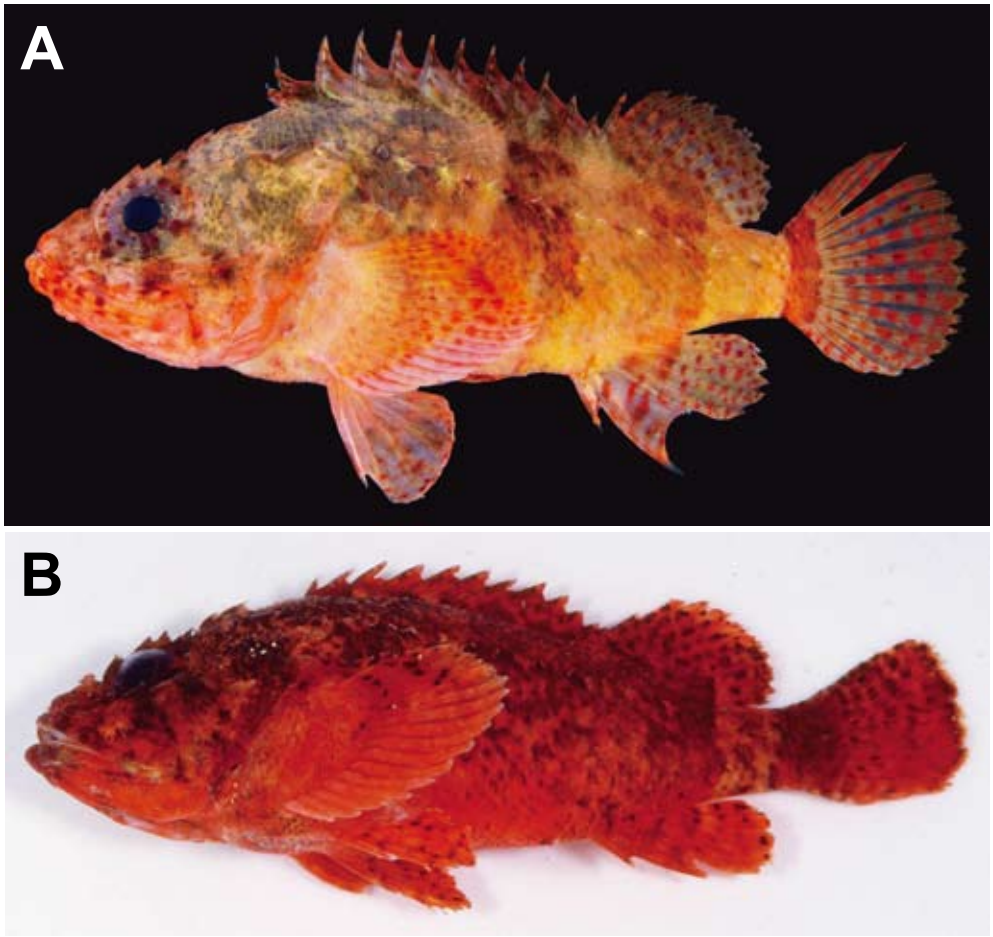

Fig. 1. Fresh specimens of *Scorpaenodes quadrispinosus* from Japan. **A**, KAUM–I. 11475, 79.6 mm SL, Yaku-shima Island, Kagoshima Prefecture; **B**, YCM–P 34209, 93.7 mm SL, Amami-oshima Island, Kagoshima Prefecture, photo by M. Hayashi.

OMON ISLANDS: USNM 391125, 76.3 mm SL, north end of Taumako Island, Duff Islands, Santa Cruz Islands, 9˚51′00″S, 167˚09′30″E, 0–8 m, J. Williams et al., 21 Sept. 1998. **PAPUA NEW GUINEA:** WAM P. 30624-028, 27.3 mm SL, Madang, 5˚09′00″S, 145˚50′00″E, 9–12 m, G. Allen et al., 28 Jan. 1993. **AUSTRALIA:** WAM P. 29061-007, 31.5 mm SL, Cartier Island, Northern Territory, 12˚31′S, 123˚33′E, 10–12 m, G. Allen, 20 Sept. 1986; WAM P. 29331-005, 2 specimens, 46.6–48.6 mm SL, Christmas Island, 10˚27′S, 105˚42′E, 0.1–3 m, G. Allen, 25 Feb. 1987. **FRENCH POLYNESIA:** USNM 379391, 4 specimens, 84.5–94.1 mm SL, east side of Isle Karapoo rahi, Rapa, 27˚38′53″S, 144˚19′49″W, 0–4 m, J. Williams et al., 1 Nov. 2002.

Diagnosis. A species of *Scorpaenodes* with the following combination of characters: 16–18 (usually 17) pectoral-fin rays; 39–47 (mode 45) scale rows in longitudinal series; 4 or 5 (5) gill rakers on upper limb, 7–9 (7) on lower limb, 11–13 (12) in total; anterior and posterior lacrimal spines simple, poorly developed; dorsal lacrimal bone with 1 (rarely 2) small, dorsally directed spine; no spine at lacrimal ridge; lateral lacrimal spine simple, well developed; 3 suborbital spines, first spine extending dorsally above ventral margin of orbit; an additional spine below second suborbital spine; interorbital and coronal spines usually present; no distinct black blotches on opercle or subopercle.

Description. Proportional measurements, as percentages of SL, are given in Table 1. Dorsal fin with 13 spines and 9 soft rays (8 rays in 1 specimen); anal fin with 3 spines and 5 soft rays (4 and 6 rays in 2 and 1 specimens respectively); pectoral fin usually with 17 rays on each side of body (18 rays on each side in 3 specimens; asymmetrically 16 and 17 in 2 specimens, 17 and 18 in 4 specimens); 42–47 (mode 45) scale rows in longitudinal series; 20–24 (23) pored lateral-line scales; 4–8 (6) scales above lateral line, 18–25 (21) below; 4–7 (5) scale rows between last dorsal-fin base and lateral line; 4 or 5 (5) gill rakers on upper limb, 7–9 (7) on lower limb, 0 on hypobranchial, 11–13 (12) in total; 4 dorsal series of caudal-procurrent rays, 4 ventral series; 2 dorsal series of segmented, unbranched caudal-fin rays, 3 ventral series; 6 dorsal series of branched caudal-fin rays, 5 ventral series. Formula for configuration of anterior neural spines and anterior dorsal pterygiophores //2+1/1/1/1/1/1/1/1/1/1+1/.

Body not strongly compressed anteriorly, progressively compressed posteriorly. Nape and anterior body not strongly arched. Body depth relatively deep, less than head length. Numerous tiny, slender tentacles on head and body. Short, broad tentacle on posterior edge of low membranous tube associated with anterior nostril. Pectoral-fin axil without skin flaps. Scales covering dorsal and lateral surfaces of head and mid-lateral surface of maxilla. Well-exposed ctenoid scales on lateral surface of trunk, scales becoming cycloid on abdomen. Exposed cycloid scales (sometimes with cteni) on anteroventral surface of body. Body scales extending onto basal fin rays or membranes, except for bases of pelvic fins. Lateral line nearly straight from upper end of gill opening to caudal-fin base. Underside of dentary without distinct sensory pores on each side; pores covered with skin. Pair of small pores, usually covered with skin, behind symphysial knob of lower jaw in ventral view.

Posterior margin of maxilla reaching or extending slightly beyond a vertical through posterior margin of orbit. No distinct longitudinal ridge on lateral surface of maxilla. Width of symphysial gap separating premaxillary teeth bands subequal to width of each band. Upper and lower jaws with

Table1. Measurements, expressed as percentages of SL, of type (Greenfield and Matsuura, 2002) and non-type specimens (this study) of *Scorpaenodes quadrispinosus*. Means in parentheses.

	This study	Greenfield and Matsuura (2002)	
	Non-types	Holotype	Paratypes
	Indo-Pacific	Fiji	Fiji and Marshall Islands
	n = 27		*n* = 4
Standard length (SL; mm)	27.3–99.8	75.0	47.5–76.2
Head length	40.6–45.2 (42.7)	37.7	35.8–43.4 (39.3)
Snout length	10.2–12.7 (11.2)	9.9	8.2–10.1 (9.2)
Orbit diameter	10.8–13.9 (12.7)	12.8	12.2–13.4 (12.7)
Interorbital width	6.8–8.7 (7.7)	8.0	7.0–8.4 (7.6)
Upper-jaw length	21.7–26.3 (23.8)	20.9	18.5–20.9 (19.3)
Predorsal-fin length	36.5–42.2 (39.1)	36.5	31.5–38.7 (34.7)
Body depth	31.9–37.9 (35.3)	35.1	32.7–35.1 (33.7)
Pectoral-fin length	25.7–31.3 (27.5)	26.7	26.6–29.1 (27.4)
Pelvic-fin length	21.1–27.3 (24.3)	23.2	25.4–27.4 (25.6)
Caudal-fin length	21.4–26.2 (24.3)	23.6	22.6–23.9 (23.2)
1st dorsal-fin spine length	3.9–6.1 (5.1)	4.5	4.2–5.9 (4.9)
2nd dorsal-fin spine length	5.7–8.9 (7.1)	7.1	6.1–8.7 (7.2)
3rd dorsal-fin spine length	7.5–10.6 (9.0)	9.7	7.0–10.0 (8.7)
4th dorsal-fin spine length	8.4–11.3 (9.8)	10.3	7.2–11.1 (9.7)
5th dorsal-fin spine length	7.8–11.6 (10.5)	10.8	9.3–11.1 (10.3)
6th dorsal-fin spine length	8.3–11.9 (10.5)	11.2	8.8–11.0 (10.0)
7th dorsal-fin spine length	8.9–11.9 (10.6)	10.4	9.1–11.5 (10.2)
8th dorsal-fin spine length	7.4–11.6 (10.1)	9.7	8.8–10.5 (9.9)
9th dorsal-fin spine length	7.1–11.5 (9.5)	8.5	8.0–9.5 (8.6)
10th dorsal-fin spine length	6.5–10.4 (8.6)	5.7	5.8–8.4 (7.0)
11th dorsal-fin spine length	4.1–8.4 (6.8)	4.7	3.4–6.5 (4.5)
12th dorsal-fin spine length	4.5–7.1 (5.6)	3.3	2.4–4.8 (3.5)
13th dorsal-fin spine length	8.0–10.4 (9.3)	7.7	7.8–9.9 (8.3)
1st anal-fin spine length	7.1–11.9 (9.5)	9.6	10.2–11.3 (10.4)
2nd anal-fin spine length	14.5–22.2 (18.2)	17.7	17.2–21.6 (18.7)
3rd anal-fin spine length	10.9–16.3 (14.0)	14.9	13.8–15.9 (14.8)
Longest anal-fin soft ray (2nd)	17.2–22.7 (20.8)	20.8	21.1–23.1 (21.8)
Longest dorsal-fin soft ray (5th)	15.5–18.0 (16.9)	16.8	17.0–17.4 (17.1)

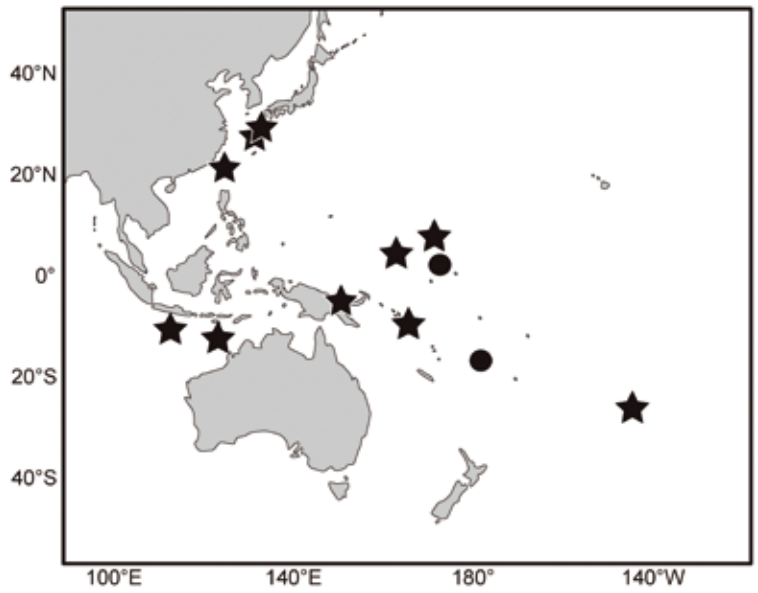

Fig. 2. Distributional records of *Scorpaenodes quadrispinosus*. ★ based on specimens examined in this study; ● based on Greenfield and Matsuura (2002).

villiform teeth, lacking canine teeth. Villiform teeth forming V-shaped patch on vomer. Palatine teeth absent. Underside of lower jaw without ridges. Gill rakers relatively short and spinous; slit present behind fourth gill arch. Swimbladder present, well developed.

Dorsal profile of snout steep, forming angle of about 40 degrees to horizontal axis of head and body. Ascending process of premaxilla slightly intruding into interorbital space, its posterior margin extending well beyond level of posterior margin of posterior nostril in dorsal view. Median interorbital ridge absent. Interorbital ridges weakly developed (sometimes absent), separated by relatively shallow channel; interorbital spines usually present at level of midline of eye. Interorbital space shallow, with about one-tenth of orbit extending above dorsal profile of head. Preocular spine simple, slightly flattened anteriorly and posteriorly; anterior surface of spine without distinct ridges. Supraocular, postocular, and tympanic spines simple. Coronal spines usually present (sometimes absent on one side of head) between origins of tympanic spines. Pretympanic spines absent. Occipital region flat, with no distinct ridges in front or rear of occiput. Parietal and nuchal spines joined at base. Sphenotic with several small spines. Postorbital usually with tiny spines. Pterotic spine simple, directed posteroventrally. Upper and lower posttemporal spines present; length of upper spine about one-third of that of lower spine. Supracleithral and cleithral spines simple.

Lateral lacrimal spine simple, well developed. Anterior and posterior lacrimal spines simple, triangular or rounded, not strongly developed. Dorsal lacrimal with 0–2 sharp spines directed dorsally. Suborbital ridge with 3 well developed spines in a row; first spine canted dorsally, its tip below posterior margin of pupil; second and third spines behind orbit. An additional spine below second suborbital spine. No space between ventral margin of eye and suborbital ridge. Suborbital pit small. Preopercle with 3 spines; uppermost spine largest with supplemental preopercular spine on its base; space between second and third spines broader than that between first and second spines. Preopercle, between uppermost preopercular spine and upper end of preopercle, without serrae or spines, and its margin completely covered with scales. Upper opercular spine simple without median ridge. Lower opercular spine simple with low median ridge. Space between upper and lower opercular spines without ridges. Posterior tips of upper and lower opercular spines reaching and extending slightly beyond opercular margin respectively.

Origin of first dorsal-fin spine above supra-

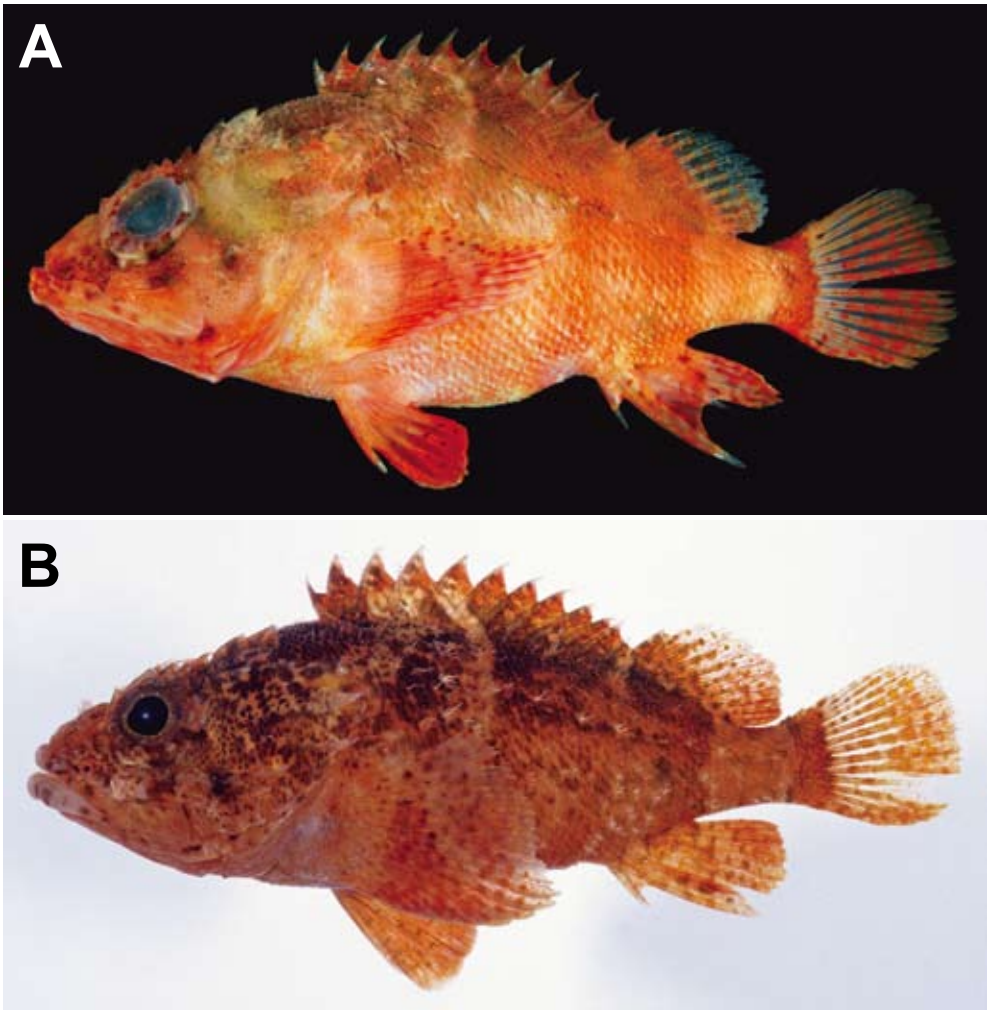

Fig. 3. Fresh specimens of *Scorpaenodes parvipinnis* from Japan. **A**, KAUM–I. 6601, 72.6 mm SL, Okinawa-jima Island, Ryukyu Islands; **B**, KPM–NI 4855, 81.2 mm SL, Ie-jima Island, Ryukyu Islands, photo by H. Senou.

cleithral spine. Posterior margin of opercular membrane reaching a vertical through base of third dorsal-fin spine. Posterior tip of pectoral fin not reaching a vertical through origin of anal fin. Origin of pelvic-fin spine slightly posterior to a vertical through origin of pectoral fin. Posterior tip of depressed pelvic fin not reaching origin of anal fin. Origin of first anal-fin spine anterior to a vertical through last dorsal-fin spine.

Color when fresh. Based on color photographs of KAUM and YCM specimens (Fig. 1). Body strongly variegated, mainly from pale pink to dense red, with 4 indistinct, vertical, dark bands on lateral surface of body; first band above opercle, second between middle of spinous portion of dorsal fin and pectoral fin, third below ninth to twelfth spines of dorsal fin, and fourth below soft-rayed portion of dorsal fin. All fins, except for spinous portion of dorsal fin, pinkish to reddish, with small reddish to blackish spots scattered on rays. Caudal-fin base with a vertical, reddish band, its width less than pupil diameter. No distinct black blotches on opercle or subopercle.

Color of preserved specimens. Head and trunk yellowish-white, mottled with black blotches; few black spots on ventral surface of body. Black spots scattered on all fins, except for lower portion of pectoral fin.

Distribution and habitats. Currently known from the eastern Indian Ocean (Christmas Island, Australia) and the Pacific Ocean (East Asia, Micronesia, Melanesia, Timor Sea, and Polynesia) (Fig. 2). The northernmost and easternmost recorded ranges of the species are considered to be Yaku-shima Island, Japan, and Rapa, French Polynesia (Fig. 2). Yoshigou (2004: fig. 2) reported a single specimen of *Scorpaenodes* sp. from Minamidaito-jima Island (ca. 400 km east of Okinawa Island), Japan, and gave an illustration of the head of the specimen. His specimen is identified here as *S. quadrispinosus*. Collection data for the species indicated capture depths less than 12 m. The species occurs on rocky reefs with strong surge. Most specimens of *S. quadrispinosus* were collected with *S. parvipinnis*.

Remarks. Characters of the present 27 specimens agreed with those of type specimens of *S. quadrispinosus* given by Greenfield and Matsuura (2002). As Greenfield and Matsuura (2002) mentioned, *S. quadrispinosus* can be easily distinguished from all other congeners by the first suborbital spine (= Greenfield and Matsuura's second suborbital spine, their first spine is equivalent to the lateral lacrimal spine in this study; see Motomura and Senou, 2008: fig. 2) extending dorsally above the ventral margin of the orbit (vs. spine tip in line with suborbital ridge and not projecting dorsally in the latter). Although some spines in *S. parvipinnis* (Fig. 3) point dorsally, they do not reach the ventral margin of the orbit (Greenfield and Matsuura, 2002: fig. 2; this study). Greenfield and Matsuura (2002) considered that the dorsally directed suborbital spine could possibly be a synapomorphy uniting *S. quadrispinosus* and *S. parvipinnis*. Detailed comparisons of *S. quadrispinosus* with other congeners were given in Greenfield and Matsuura (2002).

Greenfield and Matsuura (2002) distinguished *S. quadrispinosus* from *S. parvipinnis* by lacking the dorsally directed spine on the lacrimal ridge (vs. having the spine in the latter). However, examination of specimens of *S. parvipinnis* in this study showed that they often lacked the spine from the lacrimal ridge, indicating that the character is not always reliable for species' discrimination. In addition, Greenfield and Matsuura (2002) mentioned four color pattern differences between the two species; viz., *S. quadrispinosus* is characterized by having four prominent dark spots along the base of the spinous portion of the dorsal fin, a dark spot running between the bases of the parietal and tympanic spines, three rows of dark spots on the caudal fin, and the general background color of cream with some pink overtones. These color characters, however, vary considerably between individuals and cannot be used as diagnoses. The density and pattern of coloration of *S. quadrispinosus* may be influenced by environmental conditions for protective mimicry or camouflage.

Examination of specimens of *S. quadrispinosus* and *S. parvipinnis* during this study revealed that *S. quadrispinosus* also differs from the latter in having lower counts of pectoral-fin rays (usually 17 vs. 18 in *S. parvipinnis*), scale rows in the longitudinal series [39–47 (mode 45) vs. 49–62 (52)], scales above the lateral line [4–8 (6) vs. 9–11 (10)], and scale rows between last dorsal-fin base and lateral line [4–7 (5) vs. 7–8 (7)], and higher counts of scales below the lateral line [18–25 (21) vs. 14–18 (15)], in addition to characters given by Greenfield and Matsuura (2002) and Randall (2005), viz., three suborbital spines in *S. quadrispinosus* (vs. 5–15 spines in *S. parvipinnis*), and the first suborbital spine extending dorsally above the ventral margin of the orbit (vs. not reaching the orbital margin).

A nominal species, *Paronescodes asperrimus* Smith, 1958, was not mentioned in the original description of *S. quadrispinosus*, although Eschmeyer (1986) regarded it as a junior synonym of *S. parvipinnis*, a close relative to *S. quadrispinosus*. Examination of all type specimens [holotype (Fig. 4) and 18 paratypes; listed below] of *P. asperrimus* in this study showed them to be identical with *S. parvipinnis*; thus *P. asperrimus* is regarded here as a junior synonym of *S. parvipinnis*. Selected meristics of the type specimens of *P. asperrimus* are as follows (data for holotype are presented first, followed by data for paratypes in parentheses if different): Dorsal-fin rays XIII, 9; anal-fin rays III, 5; pectoral fin rays 18 on each side of body (18 on each side in 14 paratypes, and 19 in a paratype; asymmetrically 17 and 18 in

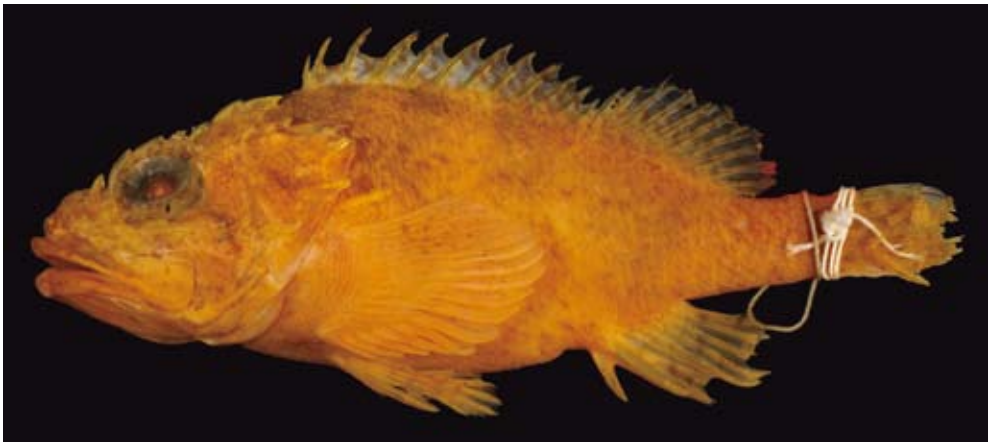

Fig. 4. Holotype of *Paronescodes asperrimus*, SAIAB 112, 90.6 mm SL, La Digue Island, Seychelles.

2 paratypes, and 18 and 19 in 1 paratype); scale rows in longitudinal series 52 (49–55); pored lateral-line scales 23; scales above lateral line 9 (9–11), below 14 (14–18); scale rows between last dorsal-fin base and lateral line 7 (7–8); scale rows between sixth dorsal-fin base and lateral line 8 (8–10); predorsal scale rows 11 (11–14); gill rakers on upper limb 4 (4–5), on lower limb 8 (7–8), on hypobranchial 0, total 12 (11–13).

Comparative material examined. Type specimens of *Paronescodes asperrimus* (= *Scorpaenodes parvipinnis*): SAIAB 112, holotype, 90.6 mm SL, La Digue Island, Seychelles, 04°22′00″S, 55°49′59″E, J. Smith and M. Smith; SAIAB 377, paratype, 23.0 mm SL, Ibo Island, Querimba Archipelago, Mozambique, 12°19′59″S, 40°37′00″E, Aug. 1951; SAIAB 378, 3 paratypes, 52.9–67.7 mm SL, Mafia Island, Tanzania, 07°50′60″S, 39°46′59″E, J. Smith, Nov. 1954; SAIAB 379, paratype, 66.1 mm SL, Pinda Island, Mozambique, 14°2167’S, 40°7667’E, J. Smith and M. Smith, 1956; SAIAB 380, 4 paratypes, 60.5–77.8 mm SL, Assumption Island, Cosmoledo Islands, Seychelles, 09°45′00″S, 46°30′00″E, J. Smith, Nov. 1954; SAIAB 381, paratype, 71.8 mm SL, Aldabra Island, Seychelles, 09°25′59″S, 46°19′59″E, J. Smith and M. Smith, Nov. 1954; SAIAB 382, paratype, 42.8 mm SL, Bazaruto Island, Mozambique, 21°40′00″S, 35°30′00″E, Sept. 1953; SAIAB 383, 2 paratypes, 65.1–76.2 mm SL, Bazaruto Island, Mozambique, 21°40′00″S, 35°30′00″E, Sept. 1953; SAIAB 384, paratype, 72.3 mm SL, Zanzibar Island, Tanzania, 06°10′00″S, 39°10′59″E, Sept. 1952; SAIAB 385, paratype, 58.3 mm SL, Zanzibar Island, Tanzania, 06°10′00″S, 39°10′59″E, Dec. 1957; SAIAB 386, 2 paratypes, 34.8–40.9 mm SL, collection data unknown; SAIAB 387, paratype, 82.4 mm SL, collection data unknown.

Type specimens of *Scorpaenodes quadrispinosus*: CAS 214498, holotype, 74.2 mm SL, off Suva, Viti Levu Island, Fiji, 4.6–6.4 m, D. Greenfield et al., 28 May 1999; FMNH 110236, paratype, 47.8 mm SL, same data as CAS 214498; USNM 367135, paratype, 76.8 mm SL, same data as CAS 214498.

Scorpaenodes parvipinnis: FMNH 112040, 64.7 mm SL, Ashmore Reef, 10°09′31″S, 144°35′26″E, FNQ team, 25 Jan. 1993; KAUM–I. 255, 76.9 mm SL, south side of Shin-nittetsu oil factory in Ishado, Nakagusuku, Nakagami, Okinawa-jima Island, Ryukyu Islands, Japan, 26°17′44″N, 127°48′38″E, Y. Sakurai, 9 July 2006, washed up by Typhoon No. 3; KAUM–I. 256, 74.3 mm SL, same data as KAUM–I. 255; KAUM–I. 6596, 77.2 mm SL, Nakagusuku-hama Port, Hama, Nakagusuku, Nakagami, Okinawa-jima Island, Ryukyu Islands, Japan, 26°15′29″N, 127°47′38″E, Y. Sakurai, 13 July 2007, washed up by Typhoon No. 4; KAUM–I. 6597, 72.2 mm SL, same data as KAUM–I. 6596; KAUM–I. 6598, 79.7 mm SL, same data as KAUM–I.

6596; KAUM–I. 6599, 69.2 mm SL, same data as KAUM–I. 6596; KAUM–I. 6600, 80.8 mm SL, same data as KAUM–I. 6596; KAUM–I. 6601, 72.6 mm SL, same data as KAUM–I. 6596; KAUM–I. 6602, 75.4 mm SL, same data as KAUM–I. 6596; KAUM–I. 7089, 60.8 mm SL, same data as KAUM–I. 6596; KAUM–I. 20324, 57.9 mm SL, west of Kamazeno-hana, Kurio, Yaku-shima Island, Kagoshima, Japan, 30°16′03″N, 130°24′48″E, 0–11 m, KAUM fish team, 30 Oct. 2008; KAUM–I. 12818, 72.6 mm SL, Sesoko Island, Okinawa-jima Island, Ryukyu Islands, Japan, 26°38′N, 127°51′E, Y. Sakurai, 1 Jan. 2008; KPM–NI 4855, 81.2 mm SL, Kananzaki, Ie-jima Island, Okinawa, Ryukyu Islands, 15 m, 6 June 1998; USNM 140483, 70.0 mm SL, Bikini Atoll, Namu Island, L. Schultz et al., 6 Aug. 1947; WAM P. 33056-008, 36.4 mm SL, Sekartaji, Nusa Penida, Indonesia, 08°48′S, 115°36′E, 15–20 m, G. Allen and M. Erdmann, Nov. 2008; WAM P. 31522-005, 25.1 mm SL, Pulau Weh, Sumatra, Indonesia, 05°54′N, 95°13′E, 20–23 m, G. Allen, 23 Jan. 1999; YCM–P 34221, 2 specimens, 78.7–94.0 mm SL, Hamazaki, Kakeroma Island, Amami-oshima Island, Ryukyu Islands, Japan, 28°09′31″N, 129°11′00″E, 6–15 m, Sagami Bay Marine Biological Research Club, 29 Aug. 1994; YCM–P 36425, 87.0 mm SL, Saneku, Kakeroma Island, Amami-oshima Island, Ryukyu Islands, Japan, 28°11′01″N, 129°15′32″E, 10–23 m, Sagami Bay Marine Biological Research Club, 24 Aug. 1995.

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Apogonid fishes (Teleostei: Perciformes) of Yaku-shima Island, Kagoshima Prefecture, southern Japan

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Abstract Forty five species of apogonid fishes were confirmed to occur at Yaku-shima Island, Kagoshima Prefecture, Kyushu, southern Japan. Of these, 27 species represent the first records from the island, including the first Japanese record of *Apogon chrysotaenia*. A new Japanese name, Akafuji-tenjikudai, is proposed for *Apogon crassiceps*. Each species account provides a synonym list, material examined, descriptions based on collected specimens, distribution in Japanese waters, taxonomic and nomenclatural remarks, and ecological notes from Yaku-shima Island.

Key words: Apogonidae, cardinalfishes, distribution, Yaku-shima Island, Japan.

Introduction

The family Apogonidae, characterized by having two separated dorsal fins, the first with 6–8 spines and the second with 1 spine and 8–14 soft rays, anal fin with 2 spines and 8–18 soft rays, and usually 24 vertebrae, consists of about 23 genera and roughly 273 species (Nelson, 2006). Of these, about 15 genera and 94 species have been recorded from Japanese waters (Matsuura and Tachikawa, 1994; Hayashi, 2002, 2004; Mabuchi et al., 2003, 2004; Yoshigou and Yoshino, 2004; Miyahara et al., 2005; Shibukawa et al., 2007; Fraser and Allen, 2010).

The first apogonid fish reported from Yaku-shima Island was *Apogon notatus* in 1906. Jordan and Starks (1906) gave an illustration of this species (as *Amia notata*) by Mr. W. S. Atkinson on the basis of a single specimen from the island. The specimen is now missing from collections of the California Academy of Sciences, San Francisco, or the Museum Support Center of the Smithsonian Institution National Museum of Natural History, Suitland. Subsequently, Arai and Ida (1975) reported two genera with four species of the family from Kusugawa on the northeast coast of Yaku-shima Island on the basis of collected specimens, which are deposited at the National Museum of Nature and Science, Tokyo. Ichikawa et al. (1992) listed three genera with 10 species from the island, and Kuniyasu (1999) listed two genera with 12 species from Kurio on the southwest coast, both being based only on underwater observations.

In addition to the previous records, our Yaku-shima Island ichthyofaunal surveys in 2008–2009 (see Motomura et al., 2010) and the second author's underwater observations over the last six years resulted in 11 genera with 45 species of apogonid fishes occurring off Yaku-shima Island. This paper provides an annotated checklist of these species, along with color photographs if available.

Materials and methods

Counts and measurements generally follow Fraser (2005). Counts of longitudinal stripes on the lateral surface of the body begin with the uppermost stripe, including a stripe running along the dorsal-fin bases. Measurements were made to

the nearest 0.1 mm. Unless specified otherwise, the length of specimens listed throughout this paper is the standard length (abbreviated as SL). Identifications are generally based on Allen et al. (2005), Greenfield, (2001, 2007a, b), Gon (1993), Gon and Randall (2003), Fraser (2005, 2008), Fraser and Allen (2010), Hayashi (2000, 2002), Mabuchi et al. (2003, 2004), Randall (2005), and Randall et al. (1997a). Randall (2005) reclassified the genus *Apogon* and divided it into four genera, *Apogon*, *Ostorhinchus*, *Pristiapogon*, and *Zoramia*, but we use *Apogon* rather than these generic names. Scientific names are arranged alphabetically for each genus. The synonym lists contain only the original description citation and papers related to Yaku-shima Island, viz., Jordan and Starks (1906), Arai and Ida (1975), Ichikawa et al. (1992), Kuniyasu (1999), and Yoshida and Motomura (2009). Descriptions are based on specimens collected from Yaku-shima Island during ichthyofaunal surveys of the island (Motomura et al., 2010) and four specimens of *A. taeniophorus* reported by Arai and Ida (1975).

A photograph of *A. indicus* is based on a preserved specimen; other specimen photographs were taken when fresh. Underwater photographs were taken by the second author (SH) and I. Takaku (Yakushima-Diving-Life) around the island. Underwater observations have been made by SH for more than six years, and ecological notes on each species at Yaku-shima Island are given on the basis of his observations.

Acronyms of the following institutions are used in the text: Australian Museum, Sydney (AMS); Bernice Pauahi Bishop Museum, Honolulu (BPBM); Laboratory of Marine Biology, Kochi University, Kochi (BSKU); Fisheries Research Laboratory, Mie University, Shima (FRLM); Institute of Oceanic Research and Development, Tokai University, Shimizu (IORD); Kagoshima University Museum, Kagoshima (KAUM); Kanagawa Prefectural Museum of Natural History, Odawara (KPM); Department of Plant and Animal Sciences, Faculty of Agriculture, University of Miyazaki, Miyazaki (MUFS); and National Museum of Nature and Science, Tokyo (NSMT). Color photographs of fresh specimens are deposited at BSKU, KAUM, and KPM.

List of species of Apogonidae

Apogon amboinensis Bleeker, 1853
[Japanese name: Amami-ishimochi]
(Figs. 1A, B)

Apogon amboinensis Bleeker, 1853: 329 (type locality: Ambon, Moluccas, Indonesia); Yoshida and Motomura, 2009: 96, fig. 1 (mouth of Ambo River, Yaku-shima Island).

Material examined. KAUM–I. 21588, 53.5 mm SL, mouth of Ambo River; KAUM–I. 21589, 49.0 mm SL, mouth of Ambo River.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 7; circumpeduncular scales 12; total gill rakers 21–22, developed gill rakers 19–20; body light brown, with two black stripes, one from snout to opercular margin through eye, and the other on anterior portion of lateral line; anterior part of first dorsal fin blackish; and a distinct black spot on caudal-fin base.

Remarks. Yoshida and Motomura (2009) reported two specimens (KAUM–I. 21588, 21589) of *A. amboinensis* as the first records from Yakushima Island and the northernmost records of the species. They considered *A. amboinensis* to reproduce in the mouth of the Ambo River on Yakushima Island because one of the two specimens (KAUM–I. 21588) had about 3,000 eggs in his mouth. Subsequently, this species was also confirmed by the second author to occur in the mouth of the Isso River on the northern coast of the island on 24 Oct. 2009 and the mouth of the Ambo River on 8 Jan. 2010 (Fig. 1B).

Apogon amboinensis is distributed in the western Pacific, from Papua New Guinea to Japan (Allen et al., 2005). In Japanese waters, this species has been reported from Yaku-shima Island (Yoshida and Motomura, 2009; this study) and the Ryukyu Islands [Amami-oshima Island (Schmidt, 1930; Okada, 1938; Matsubara, 1963; Yoshigou et al., 2001), Okinawa Island (Yoshigou et al., 2005), Kume-jima Island (Yoshigou and Nakamura, 2003; Yoshigou, 2007), Miyako-jima Island (Yoshigou et al., 2005), Ishigaki-jima Island (Sakai

et al., 2001), Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001), and Yonaguni-jima Island (Sakai et al., 2001)]. At Yaku-shima Island, the species inhabits river mouths on substrates mixed with mud and deciduous leaves in depths of 1–2 m.

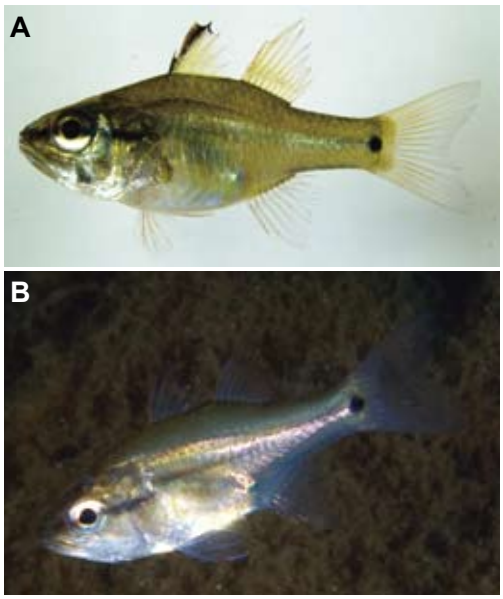

Fig. 1. *Apogon amboinensis*. **A**, KAUM–I. 21589, 49.0 mm SL, mouth of Ambo River; **B**, mouth of Ambo River, 1 m, 8 Jan. 2010, S. Harazaki.

Apogon angustatus (Smith and Radcliffe, 1911)
[Japanese name: Usujima-ishimochi]
(Fig. 2)

Amia angustata Smith and Radcliffe in Radcliffe, 1911: 253, fig.1 (type locality: Malanipa Island, east of Zamboanga in Mindanao, Philippines).

Material examined. KAUM–I. 20268, 17.8 mm SL, Kurio; KAUM–I. 21721, 14.3 mm SL, Kurio.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 4; circumpeduncular scales 12; total gill rakers 19, developed gill rakers 14; white body, with five poorly defined dark brown stripes on lateral surface of body, posterior end of third stripe (middle stripe) reaching a black spot on caudal-fin base; and caudal-fin base spot subequal in size to pupil.

Remarks. *Apogon angustatus* is widely distributed in the Indo-West Pacific where it ranges from the Red Sea to Australia and Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from Hachijo-jima Island (Senou et al., 2002) and the Ryukyu Islands [Amami-oshima Island (Hayashi, 2002), Okinoerabu-jima Island (Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2005), Sesoko-jima Island (Hayashi, 2002), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Yoshigou et al., 2001; Yoshigou and Nakamura, 2002)].

At Yaku-shima Island, specimens of *A. angustatus* were collected only from Kurio, representing the first reliable records of *A. angustatus* from the island. This solitary species (not forming schools) lives in the shade of rocky reefs at depths of less than 15 m at Yaku-shima Island; it can be observed in coastal areas of the island throughout the year.

Fig. 2. *Apogon angustatus*. Off Isso, 15 m, 16 Oct. 2009, S. Harazaki.

Apogon apogonides (Bleeker, 1856)
[Japanese name: Aohana-tenjikudai]
(Fig. 3)

Cheilodipterus apogonides Bleeker, 1856a: 37 [type locality: Manado, Sulawesi (Celebes), Indonesia].

Remarks. The photographed individual (Fig. 3) is herein identified as *Apogon apogonides* on the basis of the following combination of characters: pinkish orange body, with brassy yellow abdomen; two blue lines from front of snout to opercular margin; bluish spots in three rows on mid-lateral surface of body; and no black markings on caudal peduncle. Specimens have not been collected from Yaku-shima Island.

Apogon apogonides is widely distributed in the Indo–Pacific where it ranges from the Red Sea east to the Society Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Miyake-jima Island (Hayashi, 2002) and Hachijo-jima Island (Senou et al., 2002)], the Sagami Sea (Senou et al., 2006b), Shikoku [Oshima Island (Aizawa and Senou, 1991) and Kashiwa-jima Island (Hirata et al., 1996)], and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Hayashi, 2002), and Miyako Group (Senou et al., 2007)].

Figure 3 represents the first confirmed record of *A. apogonides* from Yaku-shima Island. This species is always observed in aggregations with *Apogon notatus* throughout the year around a wreck at a depth of 15 m off Isso, Yaku-shima Island; it was not observed elsewhere around the island. Off Isso, the spawning period of the species is from July to August.

Fig. 3. *Apogon apogonides*. Off Isso, 18 m, 15 Sept. 2009, S. Harazaki.

Apogon aureus (Lacepède, 1802)
[Japanese name: Aosuji-tenjikudai]
(Figs. 4A, B)

Centropomus aureus Lacepède, 1802: 253, 273 (type locality: Mauritius).

Apogon aureus; Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan).

Material examined. BSKU 96634, 63.3 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 25; predorsal scales 5; circumpeduncular scales 12; total gill rakers 24, developed gill rakers 21; no oblique dark bars on cheek; yellowish orange body, with two blue stripes from snout to opercle through eye; and a broad, black band, its width subequal to pupil diameter, on caudal-fin base.

Remarks. *Apogon aureus* is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa east to Tonga, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Miyake-jima Island (Ida and Moyer, 1974; Hayashi, 2002) and Hachijo-jima Island (Senou et al., 2002)], the Sagami Sea (Senou et al., 2006b), Shikoku [Oshima Island (Aizawa and Senou, 1991) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Ichikawa et al., 1992), and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

At Yaku-shima Island, only a single specimen of *A. aureus* was collected off Isso, but it has also been observed at depths of 6–30 m off the island throughout the year, sheltering among rocky reefs. At Yaku-shima Island, spawning of *A. aureus* begins in early June and ends in July. Although juveniles aggregate, adults usually behave as a pair at the island.

Apogon caudicinctus Randall and Smith, 1988
[Japanese name: Koyari-ishimochi]
(Fig. 5)

Apogon caudicinctus Randall and Smith, 1988: 2, fig.1 (type locality: south side of Mei Point, Rapa).

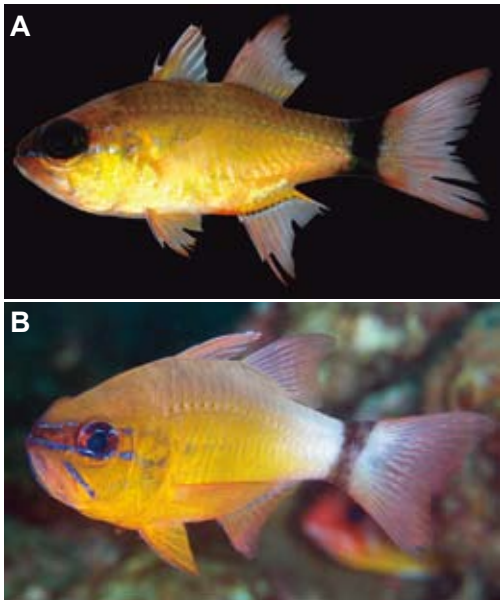

Fig. 4. *Apogon aureus*. **A**, BSKU 96634, 63.3 mm SL, Isso; **B**, off Isso, 18 m, 22 Apr. 2005, S. Harazaki.

Material examined. KAUM–I. 21765, 33.8 mm SL, Kurio.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 12; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 7; circumpeduncular scales 12; total gill rakers 16, developed gill rakers 10; second spine length of first dorsal fin 1.8 in head length; reddish body, with a broad, black circumpeduncular bar, its width greater than orbit diameter; and edges of scales on dorsal body dark.

Remarks. *Apogon caudicinctus* has been known from Réunion, the Marquesas Islands, the Pitcairn Islands, Rapa, Fiji, and the Ryukyu Islands (Randall, 2005). In Japanese waters, this species has been reported from the Ogasawara Islands (Randall et al., 1997b; Hayashi, 2002) and the Ryukyu Islands [Amami-oshima Island (Hayashi, 2002), Ie-jima Island (Senou et al., 2006a), Kume-jima Island (Yoshigou and Nakamura, 2003), and Ishigaki-jima Island (Hayashi, 2002)].

At Yaku-shima Island, a single specimen of *A. caudicinctus* was collected at a depth of less than 3 m in Kurio, representing the first reliable records of *A. caudicinctus* from the island and the northernmost record for the species. Ecological information on *A. caudicinctus* at Yaku-shima Island is unknown since it is difficult to distinguish the species from other small reddish species of *Apogon* during underwater observation.

Fig. 5. *Apogon caudicinctus*. KAUM–I. 21765, 33.8 mm SL, Kurio.

Apogon chrysotaenia Bleeker, 1851
[Japanese name: None]
(Fig. 6)

Apogon chrysotaenia Bleeker 1851: 168 [type locality: Jakarta (Batavia), Java, Indonesia].

Remarks. The photographed individual (taken off Isso) is identified as *Apogon chrysotaenia* on the basis of the following characters reported for adults of the species: a yellowish orange body, with several faint brownish stripes dorsally; 6 fluorescent blue stripes radiating from front of head; and tip of second dorsal fin elongated.

Apogon chrysotaenia has been reported only from the South China Sea, Indonesia, Papua New Guinea, and Australia (Allen, 2000; Allen et al., 2005), and no records of the species have been published from Japanese waters. Thus, the photographed individual represents the first record of the species from Japan. Specimens of the species from Yaku-shima Island are required to confirm this new record.

The second author (SH) first observed a single individual of the species at a depth of 20 m off Isso, Yaku-shima Island, on 5 July 2004, and he photographed that individual on 11 July 2004 (Fig. 6). Subsequently, SH found a pair of adult and subadult individuals at a depth of 30 m off Isso on 21 November 2009. These individuals usually shelter under or behind large rocks but are often forced into open water by strong unidirectional currents around the rocks.

Fig. 6. *Apogon chrysotaenia*. Off Isso, 20 m, 11 July 2004, S. Harazaki.

Apogon cookii Macleay, 1881
[Japanese name: Suji-ishimochi]
(Figs. 7A–C)

Apogon cookii Macleay, 1881: 344 (type locality: Endeavour River and Darnley Island, Australia).

Material examined. KAUM–I. 11207, 27.3 mm SL, Kurio; KAUM–I. 21714, 31.0 mm SL, Kurio; KAUM–I. 21715, 28.0 mm SL, Kurio; KAUM–I. 21716, 22.0 mm SL, Kurio; KAUM–I. 21717, 18.0 mm SL, Kurio; NSMT–P 91664, 76.0 mm SL, Kurio.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 3–4; circumpeduncular scales 12; total gill rakers 18–20, developed gill rakers 12–13; body white, with six dark brown stripes on lateral surface of body; third stripe beginning from upper eye, ending at middle of body (below second dorsal-fin origin); fourth stripe (middle stripe) posteriorly reaching to a black spot on caudal-fin base; and caudal-fin base spot subequal in size to pupil diameter.

Remarks. *Apogon cookii* is similar to *A. nigrofasciatus*, but the former differs in having 12–13 (vs. 15–19 in the latter) developed gill rakers, 15 (vs. usually 14) pectoral-fin rays, and a postocular stripe (vs. no stripe) (Gon and Randall, 2003).

Apogon cookii is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and east coast of Africa east to New Caledonia and Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Sagami Sea (Senou et al., 2006b) and the Ryukyu Islands [Amami-oshima Island (Yoshigou et al., 2001), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2002, 2003; Yoshigou et al., 2005), Sesoko-jima Island (Yoshigou and Nakamura, 2003), Ou-jima Island (Yoshigou et al., 2005), Kume-jima Island (Yoshigou and Nakamura, 2003), Tokashiki-jima Island (Watai et al., 2009), Minamidaitou-jima Island (Yoshigou et al., 2005), Shimoji-shima Island (Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), Iriomote-jima Island (Hayashi and Kishimoto, 1983), and Yonaguni-jima Island (Yoshigou et al., 2001)].

At Yaku-shima Island, specimens of *A. cookii* were collected only from Kurio and these specimens represent the first reliable records of *A. cookii* from the island. This solitary species (not forming schools) lives in the shade of rocky reefs at depths of less than 5 m at Yaku-shima Island; it can be observed in coastal areas of the island throughout the year.

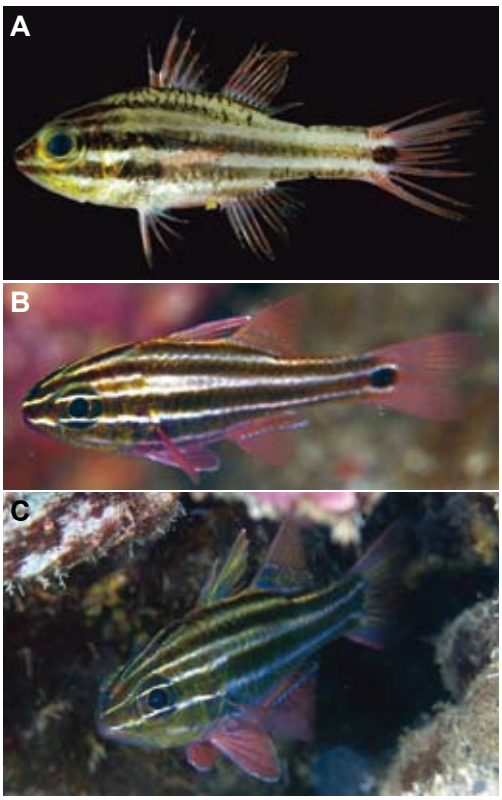

Fig. 7. *Apogon cookii*. **A**, KAUM–I. 11207, 27.3 mm SL, Kurio; **B**, off Isso, 5 m, 22 May 2007, S. Harazaki; **C**, off Isso, 3 m, 14 Apr. 2005, S. Harazaki.

Apogon crassiceps Garman, 1903
[New Japanese name: Akafuji-tenjikudai]
(Figs. 8A, B)

Apogon crassiceps Garman, 1903: 230 (type locality: Suva Reef, Viti Levu, Fiji).

Material examined. BSKU 96552, 27.2 mm SL, Yudomari; KAUM–I. 11445, 37.4 mm SL, Isso; KAUM–I. 20159, 20.3 mm SL, Yudomari; KAUM–I. 20196, 42.5 mm SL, Yudomari; KAUM–I. 20205, 22.8 mm SL, Yudomari; KAUM–I. 20206, 17.0 mm SL, Yudomari; KAUM–I. 20249, 24.9 mm SL, Kurio; KAUM–I. 20331, 34.3 mm SL, Isso; KAUM–I. 21767, 29.2 mm SL, Kurio; KAUM–I. 21768, 27.2 mm SL, Kurio; KPM–NI 22513, 24.4 mm SL, Yudomari; KPM–NI 22546, 28.4 mm SL, Kurio.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 13; pelvic-fin rays I, 5; pored lateral-line scales 24 ; predorsal scales 5–6; large scale between first dorsal fin and lateral line 1 (often with a smaller second scale at base of dorsal fin); circumpeduncular scales 12; total gill rakers 15–16, developed gill rakers 8–9; full scale between the first dorsal fin and the lateral line 1, often with a smaller second scale; a free edge of skin near the anterior nasal opening; and body semitransparent red, with a thin, dark red stripe on mid-lateral surface of body when alive.

Remarks. The *Apogon coccineus* complex, comprising *A. campbelli* Smith 1949, *A. coccineus* Rüppell 1838, *A. crassiceps* Garman 1903, *A. kautamea* Greenfield and Randall 2004, and *A. kominatoensis* Ebina, 1935 (see Greenfield, 2001; Greenfield and Randall, 2004), was defined by Greenfield (2001) as having a free edge of skin near the anterior nasal opening, and a single, large, full scale (often a smaller second scale) between the lateral line and the dorsal fin. Our specimens from Yaku-shima Island is herein identified as *A. crassiceps* of the *A. coccineus* complex and differ from *A. campbelli* and *A. kautamea* in having 13 pectoral-fin rays (vs. 14 rays in the latter two species; Greenfield and Randall, 2004) and from *A. kominatoensis* in lacking numerous small brownish spots scattered on the body (vs. having the spots in *A. kominatoensis*; Ebina, 1935). *Apogon coccineus* is an Indian Ocean species (Randall, 2005).

All previous records of *A. crassiceps* "Akane-tenjikudai" in Japanese waters (e.g., Masuda et al., 1984; Hayashi, 2000, 2002) were based on misidentifications of a species of the *A. talboti* group (sensu Greenfield, 2007b). Comparisons of *A. crassiceps* from Yaku-shima Island with "Akane-tenjikudai" (= *A. crassiceps* in Japanese literature) from Ie-jima and Iriomote-jima Islands revealed that the former differs from the latter in having a semitransparent red body (vs. opaque dark red), a thin, dark red stripe on the mid-lateral surface of the body (vs. stripe absent), 15 or 16 total gill rakers (vs. 18 or 19), and a single full scale (often with a smaller second scale) between the first dorsal fin and lateral line (vs. 2 large full scales, with 1 smaller third scale) (this study; Hayashi, 2000, 2002). In addition, *A. crassiceps* attains 5 cm SL (Randall, 2005), whereas "Akane-tenjikudai" reaches 12 cm SL (Hayashi, 2000, 2002).

"Akane-tenjikudai" is most similar to *A. talboti* Smith, 1961 in overall body appearance and sharing the following characters ("Akane-tenjikudai" vs. *A. talboti*): dorsal-fin rays VI-I, 9 (vs. VI-I, 9); anal-fin rays II, 8 (II, 8); pectoral-fin rays 13 or 14 (13); pored lateral-line scales 24 (24); total gill rakers 19 (20 or 21), developed rakers 18 (16–19); and supraneural bones 3 (3) [data for "Akane-tenjikudai" were based on KPM–NI 2524 (79.9 mm SL, Ie-jima Island, Japan, 16 m depth, coll. by H. Senou et al., 17 Jan. 1996), Masuda et al. (1984), and/or Hayashi (2000, 2002), and data for *A. talboti* were based on Gon and Randall (2003), Greenfield and Randall (2004), and Greenfield (2007b)]. Accordingly, we tentatively identify "Akane-tenjikudai" as *A. talboti*, and propose a new standard Japanese name, Akafuji-tenjikudai, for *A. crassiceps*.

Apogon crassiceps is widely distributed in the western Pacific where it ranges from the Line Islands and Tauamotu east to Australia, and north to Japan (Allen et al., 2005; Randall, 2005; this study). At Yaku-shima Island, specimens of *A. crassiceps* were collected from Isso, Kurio, and Yudomari in depths of less than 5 m, representing the first reliable records of *A. crassiceps* from the island. The photographed individual (Fig. 8B)

is herein identified as *A. crassiceps* by having a body semitransparent red, with a thin, dark red stripe on the mid-lateral surface of the body.

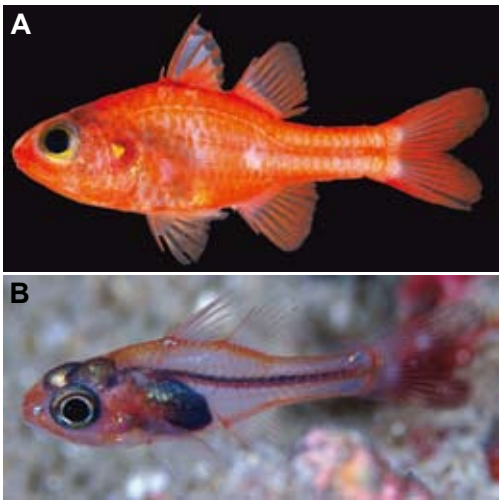

Fig. 8. *Apogon crassiceps*. **A**, KAUM–I. 20331, 34.3 mm SL, Isso; **B**, off Isso, 8 m, 22 Oct. 2009, S. Harazaki.

Apogon doederleini Jordan and Snyder, 1901
[Japanese name: Osuji-ishimochi]
(Figs. 9A, B)

Apogon doederleini Jordan and Snyder, 1901: 901, fig. 6 (type locality: Nagasaki, Japan); Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan); Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

Material examined. FRLM 34706, 103.7 mm SL, Yudomari; KAUM–I. 11124, 99.2 mm SL, Ambo; KAUM–I. 11440, 46.5 mm SL, Isso; KAUM–I. 11441, 47.5 mm SL, Isso; KAUM–I. 11442, 46.5 mm SL, Isso; KAUM–I. 11443, 52.7 mm SL, Isso; KAUM–I. 11444, 44.5 mm SL, Isso; KAUM–I. 11446, 48.7 mm SL, Isso; KAUM–I. 11447, 43.9 mm SL, Isso; KAUM–I. 11448, 41.2 mm SL, Isso; KAUM–I. 11449, 41.5 mm SL, Isso; KAUM–I. 11450, 51.6 mm SL, Isso; KAUM–I. 11451, 52.1 mm SL, Isso; KAUM–I. 11452, 51.9 mm SL, Isso; KAUM–I. 20071, 85.7 mm SL, Yudomari; KAUM–I. 20072, 62 mm SL, Yudomari; KAUM–I. 20343, 56 mm SL, Isso; KAUM–I. 21751, 91.9 mm SL, Ambo; KAUM–I. 25234, 78.1 mm SL, Ambo; MUFS 25446, 92.7 mm SL, Ambo; MUFS 25447, 85.4 mm SL, Ambo; MUFS 25448, 70.9 mm SL, Ambo; MUFS 25449, 69.2 mm SL, Ambo; MUFS 25450, 69.4 mm SL, Ambo.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 15; pelvic-fin rays I, 5; pored lateral-line scales 24 ; predorsal scales 3; circumpeduncular scales 12; total gill rakers 18, developed gill rakers 12; body pinkish brown, with four dark brown stripes on lateral surface of body; third stripe (middle stripe) posteriorly not reaching to a black spot on caudal-fin base; and caudal-fin base spot subequal in size to pupil diameter.

Remarks. *Apogon doederleini* is distributed in the Indo-West Pacific where it ranges from Western Australia east to the Kermadec Islands, and north to Japan, but no records from Indonesia or New Guinea (Randall et al., 1997a; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Hachijo-jima Island (Senou et al., 2002)], the Ogasawara Islands (Kuwamura et al., 1983; Sato, 1991; Randall et al., 1997b), Tateyama Bay (Hagiwara and Kimura, 2005), the Sagami Sea (Senou et al., 2006b), Shikoku [Oshima Island (Aizawa and Senou, 1991), Kochi (Kamohara, 1964), and Kashiwa-jima Island (Hirata et al., 1996)], Nagasaki (Jordan and Snyder, 1901), Yaku-shima Island (Ichikawa et al., 1992; Kuniyasu, 1999), and the Ryukyu Islands [Amami-oshima Island (Yamakawa, 1969), Yagaji-shima Island (Yoshigou and Nakamura, 2002; Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2001; Yoshigou et al., 2005), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

At Yaku-shima Island, specimens of *A. doederleini* were collected from Ambo, Isso, Kurio and Yudomari. The species has been observed at depths of less than 10 m in coastal areas of the island throughout the year, usually sheltering among rocky reefs in the daytime. Although juveniles form small aggregations, the adults are usually solitary.

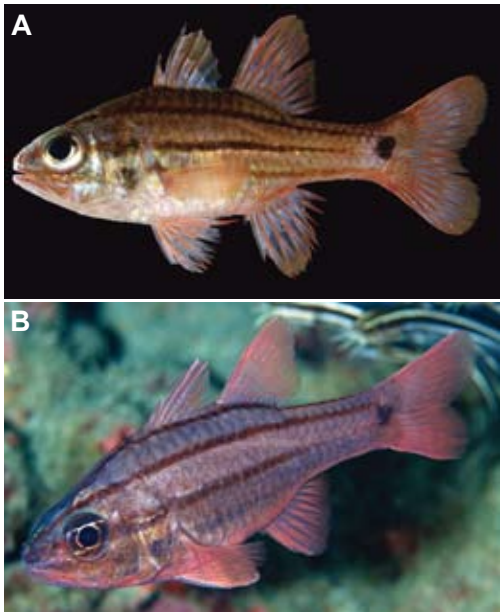

Fig. 9. *Apogon doederleini*. **A**, KAUM–I. 11124, 99.2 mm SL, Ambo; **B**, off Isso, 5 m, 26 Jan. 2005, S. Harazaki.

Apogon endekataenia Bleeker, 1852
[Japanese name: Kosuji-ishimochi]
(Figs. 10A, B)

Apogon endekataenia Bleeker, 1852: 449 [type locality: Bangka (Banka) or Lepar Island, Indonesia]; Arai and Ida, 1975: 192 (Kusugawa, Yaku-shima Island, Japan); Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan); Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

Material examined. KAUM–I. 21786, 26.8 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24 ; predorsal scales 3; circumpeduncular scales 12; total gill rakers 17, developed gill rakers 12; body white, with about seven yellowish brown stripes on lateral surface of body; fifth stripe (middle stripe) posteriorly reaching to a black spot on caudal-fin base; caudal-fin base spot subequal in size to pupil diameter.

Remarks. *Apogon endekataenia* is widely distributed in the western Pacific (Randall et al., 1997a; Hayashi, 2002). In Japanese waters, this species has been reported from the Ogasawara Islands (Randall et al., 1997b), Tateyama Bay (Hagiwara and Kimura, 2005), Sagami Bay (Senou, 1999), the Sagami Sea (Senou et al., 2006b), Shikoku [Kochi (Kamohara, 1964) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Arai and Ida, 1975; Ichikawa et al., 1992; Kuniyasu, 1999), and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1965) and the Kerama Islands (Hayashi, 2002)].

At Yaku-shima Island, specimens of *A. endekataenia* were collected only from Isso. This species is always observed in aggregations of about 10 individuals in depths of 25–30 m off Isso throughout the year; not observed elsewhere around the island.

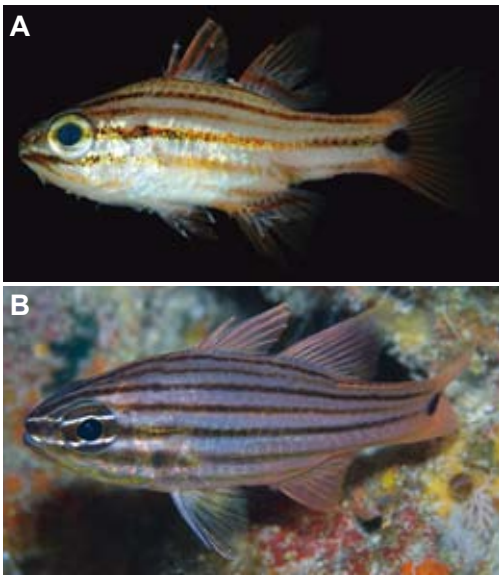

Fig. 10. *Apogon endekataenia*. **A**, KAUM–I. 21786, 26.8 mm SL, Isso; **B**, off Isso, 30 m, 16 Sept. 2009, S. Harazaki.

Apogon exostigma (Jordan and Starks, 1906)
[Japanese name: Yukata-ishimochi]
(Figs. 11A, B)

Amia exostigma Jordan and Starks, 1906: 238, fig. 31 (type locality: Apia, Upolu Island, Western Samoa).

Material examined. BSKU 96553, 45.8 mm SL, Yudomari; KPM–NI 22551, 28.1 mm SL, Kurio.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 23; predorsal scales 4; circumpeduncular scales 12; total gill rakers 16–17, developed gill rakers 10–12; no dark saddle on body below second dorsal-fin base; body depth 3.0–3.4 in SL; body whitish silver, with a middle stripe extending from front of snout to a black spot, smaller than pupil diameter, at caudal-fin base; and lower margin of caudal-fin base spot on lateral line.

Remarks. *Apogon exostigma* is widely distributed in the Indo-West Pacific where it ranges from the Red Sea east to the Line and Pitcairn Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported only from the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1968), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2002), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), Ishigaki-jima Island (Yoshigou et al., 2001), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

Two specimens of *A. exostigma*, collected from Kurio and Yudomari, represent the first reliable records of the species from Yaku-shima Island and the northernmost records for the species. This solitary species lives in the shade of rocky reefs in depths of less than 10 m at Yaku-shima Island; it can be observed in coastal areas of the island throughout the year (relatively common).

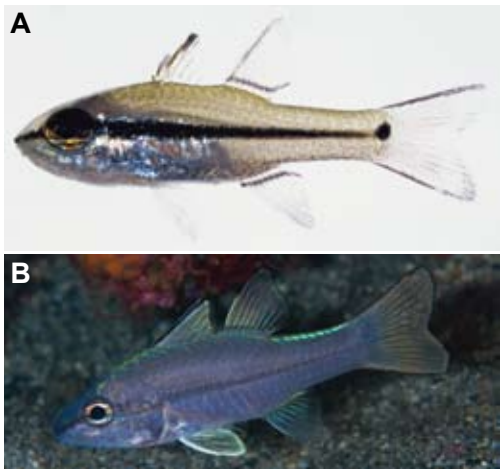

Fig. 11. *Apogon exostigma*. **A**, KPM–NI 22551, 28.1 mm SL, Kurio; **B**, off Isso, 12 m, 21 Sept. 2009, S. Harazaki.

Apogon fasciatus (White, 1790)
[Japanese name: Furai-ishimochi]
(Fig. 12)

Mullus fasciatus White, 1790: 268, pl. 53, fig. 1 (type locality: Port Jackson, New South Wales, Australia).

Remarks. Many Japanese authors (e.g., Hayashi, 2000, 2002; Senou et al., 2006b) have used a name, *Apogon quadrifasciatus* Cuvier, 1828, for this species. However, Randall and Lachner (1986) and Fraser (2005) regarded *A. quadrifasciatus* as a junior synonym of *A. fasciatus*.

The photographed individual (Fig. 12) is identified as *Apogon fasciatus* on the basis of the following combination of characters: a semitransparent body, with two black stripes on the lateral surface of the body, the upper stripe extending from the snout to the dorsal portion of the caudal-fin base via above the eye, the lower stripe from the snout to the caudal-fin margin via the middle of the eye; and two whitish stripes (or dotted stripes) running above and below each black stripe.

Apogon fasciatus is widely distributed in the Indo-West Pacific where it ranges from the Red Sea east to Australia, and north to Japan (Allen et al., 2005; Fraser, 2005). In Japanese waters, this species has been reported as *A. quadrifasciatus* from the Sagami Sea (Senou et al., 2006b), Nagasaki Prefecture and southward (Hayashi, 2002), including the Ryukyu Islands [Okinawa-jima Island (Yoshigou and Nakamura, 2003) and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

Figure 12 represents the first confirmed record of *A. fasciatus* from Yaku-shima Island. The second author observed this species forming a school with five or six individuals behind a big piece of driftwood over a sandy bottom at a depth of 20–25 m off Isso, Yaku-shima Island. No other individuals have recently been confirmed around Yaku-shima Island; it seems to be very rare in the island. Specimens have not been collected from Yaku-shima Island.

Fig. 12. *Apogon fasciatus*. Off Isso, 20 m, 10 Sept. 2005, S. Harazaki.

Apogon fraenatus Valenciennes, 1832
[Japanese name: Hitosuji-ishimochi]
(Figs. 13A, B)

Apogon fraenatus Valenciennes, 1832: 57, pl. 4, fig. 4 (type locality: New Guinea).

Remarks. Photographed individuals (Figs. 13A, B) are identified as *A. fraenatus* on the basis of the following combination of characters: a pinkish silver body with a dark black stripe on lateral surface of body, middle stripe posteriorly reaching to a black spot on caudal-fin base; and caudal-fin base spot subequal in size to pupil diameter. Specimens have not been collected from Yaku-shima Island.

Apogon fraenatus is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and Gulf of Oman east to the Line Islands and Tuamotu Archipelago, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Miyake-jima Island (Hayashi, 2002) and Hachijo-jima Island (Senou et al., 2002)], Wakayama Prefecture (Hayashi, 2002), Kashiwa-jima Island (Hirata et al., 1996), and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1965), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001; Yoshigou and Nakamura, 2002)].

Figure 13 represents the first confirmed record of *A. fraenatus* from Yaku-shima Island. This species is always observed in aggregations, sheltering among rocky reefs, throughout the year around Yaku-shima Island at depths of less than 20 m. Although juveniles ca. 3–4 cm SL are common in the island, adults over ca. 10 cm SL are relatively rare.

Fig. 13. *Apogon fraenatus*. **A**, off Isso, 25 m, 15 Sept. 2009, S. Harazaki; **B**, off Isso, 10 m, 14 Jan. 2010, S. Harazaki.

Apogon indicus Greenfield, 2001
[Japanese name: Ryukyu-ishimochi]
(Fig. 14)

Apogon indicus Greenfield, 2001: 465, figs. 2B, C (type locality: off le Morne, passe de l'Ambulante, southwestern coast of Mauritius).

Material examined. NSMT–P 95448, 32.9 mm SL, Haruo.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 13; pelvic-fin rays I, 5; pored lateral-line scales 23; predorsal scales 6; large scales between first dorsal fin and lateral line 2, with a smaller third scale at base of dorsal fin; circumpeduncular scales 14; total gill rakers 15, developed gill rakers 7; no free edge of skin near anterior nasal opening; and body whitish, with black pigments scattered on anterodorsal portion of body and caudal-fin base when preserved.

Remarks. Many Japanese authors (e.g., Hayashi, 2000, 2002) have used a name, *Apogon erythrinus* Snyder, 1904, for this species. However, Greenfield (2001) reviewed the *Apogon*

erythrinus complex and reclassified "*A. erythrinus*" into four species: *A. erythrinus*, endemic to the Hawaiian Islands and Johnston Atoll; *A. marquesensis* Greenfield, 2001, endemic to the Marquesas Islands; *A. indicus*, widespread in the Indo–Pacific; and *A. susanae* Greenfield, 2001, restricted to the Pacific Ocean. The *A. erythrinus* complex is characterized by the following two characters: skin at the end of the snout covering the nasal bones and over the ascending processes of the premaxilla smooth with no free edge near the anterior nasal opening, and two large full scales (often a smaller third scales at base of first dorsal fin) between the lateral line and the third spine of the first dorsal fin (Greenfield, 2001). *Apogon indicus* is distinguished from other members of the complex by having 12 or 13 pectoral-fin rays (vs. usually 14 rays in the latter; Greenfield, 2001). Yoshigou et al. (2005) reported eight specimens of the species (2 specimens from Okinoerabu-jima Island, 1 specimen from Irabu-jima Island, and 5 specimens from Okinawa-jima Island) from Japan as *A. indicus* (instead of *A. erythrinus*) for the first time.

Apogon indicus has been known from Mauritius, Vietnam, Philippines, Palau, Mariana Islands, New Caledonia, Tonga, and American Samoa (Randall, 2005). In Japanese waters, this species has been reported as *A. erythrinus* [except for Yoshigou et al. (2005, as *A. indicus*)] from Hachijo-jima Island (Senou et al., 2002), Kashiwa-jima Island (Hirata et al., 1996), and the Ryukyu Islands [Okinoerabu-jima Island (Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2002, 2003; Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Irabu-jima Island (Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001)].

At Yaku-shima Island, a single specimen of *A. indicus* was collected at a depth of 4 m off Haruo, representing the first reliable record of *A. indicus* from the island. Ecological information on *A. indicus* at Yaku-shima Island is unknown since it is difficult for us to distinguish it from other reddish species of *Apogon* during underwater observation.

Fig. 14. *Apogon indicus*. NSMT–P 95448, 32.9 mm SL, Haruo.

Apogon kallopterus Bleeker, 1856
[Japanese name: Kasuri-ishimochi]
(Fig. 15)

Apogon kallopterus Bleeker, 1856a: 33 [type locality: Manado, Sulawesi (Celebes), Indonesia]; Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

Remarks. The photographed individual (Fig. 15) is identified as *Apogon kallopterus* on the basis of the following combination of characters: a pale pinkish brown body, with an indistinct, broad, black stripe on lateral surface of body; anterior part of first dorsal fin yellowish; and poorly defined black spot, its size greater than pupil diameter, above middle of caudal-fin base.

Apogon kallopterus is widely distributed in the Indo–Pacific where it ranges from the Red Sea and the east coast of Africa to the Hawaiian and Pitcairn Islands, including Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from Hachijo-jima Island (Senou et al., 2002), the Ogasawara Islands (Randall et al., 1997b; Hayashi, 2002), Wakayama Prefecture and southward (Hayashi, 2002), including Yaku-shima Island (Kuniyasu, 1999), and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2003; Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

Apogon kallopterus lives solitarily (not forming schools) in the shade of rocky reefs at depths of less than 10 m at Yaku-shima Island; it can be

observed in coastal areas of the island throughout the year. Although it is common around the island, no specimens were collected during this study.

Fig. 15. *Apogon kallopterus*. Off Isso, 6 m, 11 Sept. 2009, S. Harazaki.

Apogon kominatoensis Ebina, 1935
[Japanese name: Kominato-tenjikudai]
(Fig. 16)

Apogon kominatoensis Ebina, 1935: 212, fig.1 [type locality: tidepools at Kominato, Chiba, (Toba-ken: probably Chiba-ken), Japan].

Material examined. BSKU 96655, 29.7 mm SL, Isso; FRLM 34709, 38.3 mm SL, Yudomari; KAUM–I. 11133, 29.0 mm SL, Kurio; KAUM–I. 11290, 37.7 mm SL, Yudomari; KAUM–I. 11291, 42.3 mm SL, Yudomari; KAUM–I. 11652, 27.9 mm SL, Ambo; KAUM–I. 20041, 40.2 mm SL, Yudomari; KAUM–I. 20248, 39.3 mm SL, Kurio; KAUM–I. 20259, 41.3 mm SL, Kurio; KAUM–I. 20260, 41.2 mm SL, Kurio; KAUM–I. 20261, 32.7 mm SL, Kurio; KAUM–I. 20332, 35.4 mm SL, Isso; KAUM–I. 21766, 27.1 mm SL, Kurio; NSMT–P 91356, 40 mm SL, Yudomari; NSMT–P 91357, 37 mm SL, Yudomari; NSMT–P 95461, 36.7 mm SL, Haruo.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 13; pelvic-fin rays I, 5; pored lateral-line scales 22 ; predorsal scales 5–6; large full scale between first dorsal fin and lateral line 1, often with a smaller second scale at base of dorsal fin; circumpeduncular scales 12; total gill rakers 15–16, developed gill rakers 8; a free edge of skin near the anterior nasal opening; body semitransparent red, with numerous brownish spots scattered on head and body when alive, and without a thin, dark red stripe on mid-lateral surface of body; and no black mark on caudal peduncle or lower lobe of caudal fin.

Remarks. Many Japanese authors (e.g., Hayashi, 2000, 2002) have used a name, *Apogon coccineus* Rüppell, 1838, for this species. However, Randall (2005) has recently regarded that *A. coccineus* is distributed only in the western Indian Ocean. Our specimens from Yaku-shima Island appear to be identical with *A. kominatoensis*, a species of the *A. coccineus* complex (see Remarks of *A. crassiceps*). Because previous Japanese records of "*A. coccineus*" may include more than one species, the reliable distributional range of *A. kominatoensis* in Japan is unknown.

At Yaku-shima Island, specimens of *A. kominatoensis* were collected from Isso, Ambo, Haruo, Yudomari, and Kurio, at depths of less than 5 m.

Fig. 16. *Apogon kominatoensis*. KAUM–I. 20332, 35.4 mm SL, Isso.

Apogon moluccensis Valenciennes, 1832
[Japanese name: Sehoshi-tenjikudai]
(Figs. 17A, B)

Apogon moluccensis Valenciennes, 1832: 54 [type locality: Ambon, Moluccas, Indonesia].

Material examined. BSKU 96640, 46.8 mm SL, Isso; KAUM–I. 20378, 43.1 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 3; circumpeduncular scales 12; total gill rakers 22–23, developed gill rakers 19–21; body yellowish brown, with 2 reddish stripes, upper narrower stripe along anterior portion of lateral line, and

lower broader stripe from snout to opercular margin through eye; about 7 vertical, brownish bars on lateral surface of lower body, a small white spot at posterior end of second dorsal-fin base; and no black spot on caudal peduncle.

Remarks. Many Japanese authors (e.g., Hayashi, 2000, 2002) have used a name, *Apogon ventrifasciatus* Allen, Kuiter and Randall, 1994, for this species. However, Fraser et al. (2002) regarded *A. ventrifasciatus* as a junior synonym of *A. moluccensis*.

Apogon moluccensis is widely distributed in the western Pacific, from Australia to Japan (Hayashi, 2002; Randall et al., 1997a). In Japanese waters, this species has been reported as *A. ventrifasciatus* from the Ryukyu-Islands [Okinawa-jima Island (Hayashi, 2002) and Iriomote-jima Island (Hayashi and Yano, 1996; Hayashi, 2002)].

At Yaku-shima Island, two specimens of *A. moluccensis* were collected from Isso, representing the first reliable records of *A. moluccensis* from the island and the northernmost records for the species. This species is always observed in aggregations (ca. 20 individuals) throughout the year around a wreck at a depth of 4 m off Isso, Yaku-shima Island; no other localities confirmed from the island.

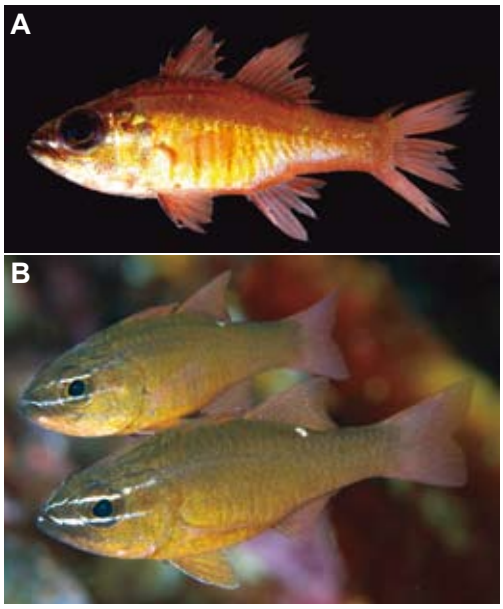

Fig. 17. *Apogon moluccensis*. **A**, KAUM–I. 20378, 43.1 mm SL, Isso; **B**, off Isso, 20 m, 18 Sept. 2007, S. Harazaki.

Apogon nigrofasciatus Lachner, 1953
[Japanese name: Minami-futosuji-ishimochi]
(Figs. 18A, B)

Apogon nigrofasciatus Lachner, 1953: 466, fig. 81, pl. 37C, D (type locality: Yuro Island, Bikini Atoll, Marshall Islands); Kuniyasu, 1999: 12 (Kurio, Yaku-shima, Japan).

Apogon aroubiensis (not of Hombron and Jacquinot); Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan).

Material examined. BSKU 96605, 58.9 mm SL, Kurio.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 4; circumpeduncular scales 12; total gill rakers 24, developed gill rakers 18; snout pointed; body white, with 5 broad, dark reddish brown stripes on lateral surface of body; middle stripes broader than pale interspace; and stripes not extending onto caudal fin.

Remarks. *Apogon nigrofasciatus* is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and Gulf of Aden east to the Marshall Islands and Tuamotu Archipelago, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species (as *A. aroubiensis* or *A. nigrofasciatus*) has been reported from Hachijo-jima Island (Senou et al., 2002), the Ogasawara Islands (Randall et al., 1997b), the Sagami Sea (Senou et al., 2006b), Kashiwa-jima Island (Hirata et al., 1996), Yaku-shima Island (Ichikawa et al., 1992; Kuniyasu, 1999), and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1965; Yoshigou et al., 2001), Okinoerabu-jima Island (Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2002, 2003; Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

At Yaku-shima Island, only a single specimen of *A. nigrofasciatus* was collected off Kurio, but it has been observed at depths of 10–30 m throughout the year, sheltering among rocky reefs. At

Yaku-shima Island, spawning of *A. nigrofasciatus* begins in early April and ends in May.

Fig. 18. *Apogon nigrofasciatus*. **A**, BSKU 96605, 58.9 mm SL, Kurio; **B**, off Isso, 15 m, 11 Sept. 2009, S. Harazaki.

Apogon notatus (Houttuyn, 1782)
[Japanese name: Kurohoshi-ishimochi]
(Fig. 19)

Sparus notatus Houttuyn, 1782: 320 (type locality: Japan)
Amia notata: Jordan and Starks, 1906: 698, fig. 4 (Yaku-shima Island, Japan).
Apogon notatus: Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan).

Remarks. Although the specimen's whereabouts is unknown, Jordan and Starks' figure (fig. 4 as *Amia notata*) clearly shows it to be identified as *Apogon notatus* in having a black band from the snout to the eye, a distinct spot on the nape, a black spot on the caudal-fin base, a black blotch on the first dorsal fin distally, and blackish bands along the bases of second dorsal and anal fins. The photographed individual (Fig. 19) is also herein identified as *A. notatus*.

Apogon notatus is widely distributed in the Indo-West Pacific, from Australia to Japan (Allen et al., 2005; Randall et al., 1997a). In Japanese waters, this species has been reported from Hachijo-jima Island (Senou et al., 2002), Sagami Bay (Senou, 1999), the Sagami Sea (Senou et al., 2006b), Shikoku [Oshima Island, (Aizawa and Senou, 1991) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Jordan and Starks, 1906; Ichikawa et al., 1992), and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

Apogon notatus has been observed only at two diving spots at a depth of 20 m off Isso. A single school usually comprises more than 1,000 individuals, the number of individuals decreasing to ca. 100 in winter. At Yaku-shima Island, the spawning period of the species is from May to July.

Fig. 19. *Apogon notatus*. Off Isso, 20 m, 20 June 2005, S. Harazaki.

Apogon novemfasciatus Cuvier, 1828
[Japanese name: Tasuji-ishimochi]
(Fig. 20)

Apogon novemfasciatus Cuvier in Cuvier and Valenciennes, 1828: 154 (type locality: Timor and Guam); Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

Material examined. KAUM–I. 21759, 33.7 mm SL, Ambo.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 4; circumpeduncular scales 12; total gill rakers

20, developed gill rakers 16; snout pointed; body white, with five poorly defined dark brown to black stripes on lateral surface of body; and third stripe (middle stripe) uneven in width, reaching caudal fin, but not ending a spot.

Remarks. *Apogon novemfasciatus* is widely distributed in the Indo-West Pacific where it ranges from the Cocos Keeling Islands east to the Line Islands, and the islands of Micronesia, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Ogasawara Islands (Randall et al., 1997b), the Sagami Sea (Senou et al., 2006b), Shikoku [Kochi (Kamohara, 1964) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Kuniyasu, 1999), and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1965; Yoshigou et al., 2001), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2001; Yoshigou and Nakamura, 2002, 2003), Sesoko-jima Island (Yoshigou and Nakamura, 2003), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), Ishigaki-jima Island (Yoshigou et al., 2001), Iriomote-jima Island (Hayashi and Kishimoto, 1983), and Yonaguni-jima Island (Yoshigou et al., 2001)].

At Yaku-shima Island, a single specimen of *A. novemfasciatus* was collected off Ambo. This species lives solitarily in the shade of rocky reefs (not forming schools) at depths of less than 1 m at Yaku-shima Island; it can be observed in coastal areas of the island throughout the year.

Fig. 20. *Apogon novemfasciatus*. KAUM–I. 21759, 33.7 mm SL, Ambo.

Apogon parvulus (Smith and Radcliffe, 1912) [Japanese name: Neon-tenjikudai]

Amia parvula Smith and Radcliffe in Radcliffe, 1912: 432, pl. 34, fig. 2 (type locality: Tataan Pass, Tawi Tawi Group, Philippines).

Apogon parvulus: Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan).

Remarks. The identification of Ichikawa et al.'s (1992) *Apogon parvulus* is uncertain. The second author has dived to observe fishes around Yaku-shima Island almost everyday for six years, but has never seen this species. *Apogon parvulus* is distributed in the western Pacific, from Kalimantan to Japan (Allen et al., 2005); known only from Iriomote-jima Island (Hayashi and Kishimoto, 1983) in Japanese waters.

Apogon cf properuptus (Whitley, 1964), dotted type [Japanese name: "kinsen-ishimochi, dotto-gata"] (Figs. 21A, B)

Lovamia properupta Whitley, 1964: 167, pl. 10 (type locality: Frederick Reef, Coral Sea).

Material examined. KAUM–I. 21789, 37.8 mm SL, Isso; KAUM–I. 21790, 40.2 mm SL, Isso; KAUM–I. 21791, 36.6 mm SL, Isso; KAUM–I. 21792, 35.1 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 3; circumpeduncular scales 12; total gill rakers 21, developed gill rakers 18; white body, with 6 yellowish brown stripes on lateral surface of body, posterior end of fourth stripe (middle stripe) reaching to caudal-fin margin; and a whitish interspace, between fifth and sixth stripes, on cheek and flank, with a series of white spots.

Remarks. In Japanese waters, "Kinsen-ishimochi, *A. properuptus*" has long been regarded to exhibit two color forms (e.g., Masuda and Kobayashi, 1996; Hayashi, 1997). Recently, Mabuchi et al. (2003) verified that "Kinsen-ishimochi, *A. properuptus*" in Japanese waters contained two distinct species, named as dotted and lined types, on the basis of examination of nucleotide

sequence data of approximately 650 bp from the anterior half of the mitochondrial 16S rRNA gene. Their "dotted type" is characterized by a series of white spots on a whitish interspace, between the fifth and sixth body stripes, and on the cheek and flank, whereas the "lined type" has a narrow stripe on a whitish interspace on the cheek and flank. Twelve specimens of "dotted type of Kinsen-ishimochi, *A. properuptus*" were reported by Mabuchi et al. (2003) from Japan: 3 specimens from Ajiro, Kochi; 3 from Okinoshima Island, Fukuoka; 3 from Tatsunokuchi, Nagasaki; and 3 from Bonotsu, Kagoshima). Senou (1999) reported the dotted type as *A. properuptus* from Sagami Bay. Kuiter and Kozawa (1999) published underwater photographs of this species as *Apogon* sp. 9 from Shizuoka, Mie, Kochi, and Kagoshima Prefectures. Hagiwara and Kimura (2005) listed this species as "*A. properuptus* (dotted type)" from Tateyama Bay. Although Ichikawa et al. (1992) and Arai and Ida (1975) listed "Kinsen-ishimochi" as *A. cyanosoma* from Yaku-shima Island, and Kuniyasu (1999) listed it as *A. properuptus* from the island, the taxonomic status of each of their "Kinsen-ishimochi" is unknown.

Mabuchi et al. (2003) suggested that the name *A. properuptus* cannot be applied to either dotted or lined types because *A. properuptus* (type locality: Frederick Reef, Coral Sea) is most likely to be restricted to the southwestern Pacific, as Randall et al. (1997a) stated. We tentatively identified here the "dotted type of Kinsen-ishimochi" in Japanese waters as "*A. cf properuptus*, dotted type".

Comparisons of underwater photographs of "*A. cf properuptus*, dotted type" from Yaku-shima Island and published underwater photographs of *A. holotaenia* Regan, 1905 (e.g., Kuiter and Kozawa, 1999) showed that their overall body appearance and color pattern, including lines and spots, were indistinguishable. However, comparison of the preserved specimens from Yaku-shima Island with a specimen of *A. holotaenia* from its type locality (BPBM34498, 37.6 mm SL, Muscat, Oman, coll. by J. E. Randall, 13 May 1990) shows that the pigmentation of the fourth stripe on the caudal-fin membrane is different (barely remained faint stripe in the former vs. distinct black stripe in the latter), suggesting that the two may be distinct species.

At Yaku-shima Island, only four specimens of "*A. cf properuptus*, dotted type" were collected off Isso, but it has been observed in depths of more than 25 m throughout the year, usually sheltering among rocky reefs. At Yaku-shima Island, spawning of this species begins in early summer.

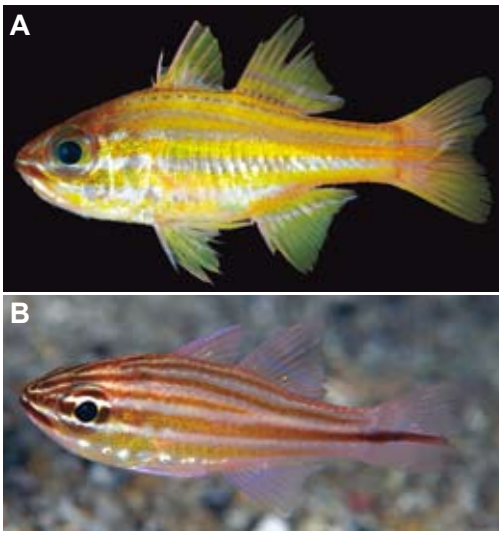

Fig. 21. *Apogon cf properuptus*, dotted type. **A**, KAUM–I. 21790, 40.2 mm SL, Isso; **B**, off Isso, 30 m, 13 Dec. 2004, S. Harazaki.

Apogon cf properuptus (Whitley, 1964), lined type [Japanese name: "kinsen-ishimochi, rain-gata"] (Figs. 22A, B)

Lovamia properupta Whitley, 1964: 167, pl. 10 (type locality: Frederick Reef, Coral Sea).

Material examined. KAUM–I. 20112, 32.3 mm SL, Yudomari; KAUM–I. 20207, 31.7 mm SL, Yudomari; KPM–NI 22506, 41.1 mm SL, Yudomari.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24 ; predorsal scales 3; circumpeduncular scales 12; total gill rakers 22–23, developed gill rakers 19; white body with 6 yellow stripes on lateral surface of body, posterior end of forth stripe (middle stripe) reaching on caudal fin margin; a narrow stripe on whitish interspace on cheek and flank.

Remarks. Taxonomic remarks are given under species account of "*A. cf properuptus*, dotted type". Nine specimens of "lined type of Kinsen-ishimochi, *A. properuptus*," were reported by Mabuchi et al. (2003) from Japan: 3 specimens from Ajiro, Kochi; 3 from Kuchinoerabu-jima Island; and 3 from Iriomote-jima Island. Aizawa and Senou's (1991: pl. 8, C) *A. cyanosoma* from Oshima Island, Tokushima Prefecture is herein identified as "*A. cf properuptus*, lined type" in having a narrow stripe on the cheek and flank. Kuiter and Kozawa (1999) published underwater photographs of this species as *Apogon* sp. 12 from Iriomote-jima Island. Although Ichikawa et al. (1992) and Arai and Ida (1975) listed "Kinsen-ishimochi" as *A. cyanosoma* from Yaku-shima Island, and Kuniyasu (1999) listed it as *A. properuptus* from the island, taxonomic status of their "Kinsen-ishimochi" are unknown.

"*Apogon cf properuptus*, lined type" is similar to *A. properuptus* in overall appearance. However, although *A. properuptus* from the southwestern Pacific (see e.g., Randall et al., 1997a: 145) has a white line below the eye not extending beyond the opercular margin, the Japanese population of "*A. cf properuptus*, lined type" has the white line extending onto near the anal-fin base.

At Yaku-shima Island, three specimens of "*A. cf properuptus*, lined type" were collected off Yudomari, but it has been observed at depths of less than 25 m (vs. more than 25 m in "*A. cf properuptus*, dotted type") throughout the year, usually sheltering among rocky reefs. At Yaku-shima Island, spawning of this species begins in early summer.

Apogon selas Randall and Hayashi, 1990
[Japanese name: Nagareboshi]

Apogon selas Randall and Hayashi, 1990: 399, figs. 1–2 (type locality: Tripod Reef, off Nagada Harbor, Madang, Papua New Guinea); Kuniyasu, 1999: 12 (Kurio, Yaku-shima, Japan).

Remarks. *Apogon selas* was originally described by Randall and Hayashi (1990) on the basis of 25 specimens, including 18 paratypes (19.4–25.7 mm SL) from Japan (Iriomote-jima Island in the Ryukyu Islands). *Apogon selas* has been known from Japan, Indonesia, Papua New Guinea, the Solomon Islands, and New Caledonia (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported only from the Ryukyu Islands [Amami-oshima Island (Hayashi, 2002), Miyako Group (Senou et al., 2007) and Iriomote-jima Island (Hayashi and Kishimoto, 1983, as *Apogon* sp.; Randall and Hayashi, 1990; Hayashi, 2002)].

Identification of Kuniyasu's (1999) *A. selas* is uncertain as the second author has dived to observe fishes around Yaku-shima Island almost every day for six years, but has never seen this distinct species.

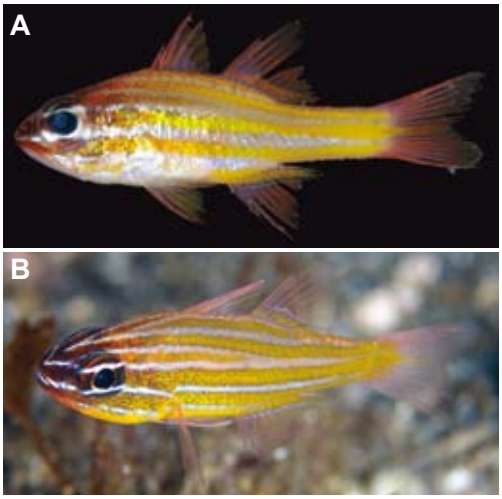

Fig. 22. *Apogon cf properuptus*, lined type. **A**, KAUM–I. 20112, 32.3 mm SL, Yudomari; **B**, off Isso, 20 m, 13 Dec. 2004, S. Harazaki.

Apogon seminigracaudus Greenfield, 2007
[Japanese name: Oguro-tenjikudai]
(Fig. 23)

Apogon seminigracaudus Greenfield, 2007a: 362, figs. 1–4 (type locality: north shore of Vanua Levu, Fiji).

Material examined. KAUM–I. 21785, 26.8 mm SL, Isso.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I,

5; pored lateral-line scales 24 ; predorsal scales 6; circumpeduncular scales 12; total gill rakers 17, developed gill rakers 10; body reddish; and lower caudal-fin lobe blackish distally.

Remarks. The Yaku-shima Island specimen and other Japanese specimens, previously identified as *Apogon fuscus* Quoy and Gaimard, 1825 (or *Nectamia fusca*), agree with *A. seminigracaudus* (see Greenfield, 2007a), with the exception of the number of pectoral-fin rays (14 in Yaku-shima Island specimen vs. 13 rays in type specimens; Greenfield, 2007a). *Apogon fuscus* is currently considered to be a valid species of the *A. bandanensis* group (T. Fraser, pers. comm. in Greenfield, 2007a).

Apogon seminigracaudus is widely distributed in the western Pacific where it ranges from the Fiji and Tonga Islands north to Japan (Greenfield, 2007a). In Japanese waters, this species has been reported as *A. fuscus* from Tateyama Bay (Hagiwara and Kimura, 2005), the Sagami Sea (Senou et al., 2006b), Shizuoka Prefecture (Hayashi, 2002), Shikoku [Ehime Prefecture (Hayashi, 2002) and Kashiwa-jima Island (Hirata et al., 1996)], and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2003; Yoshigou et al., 2005), and Iriomote-jima Island (Yoshigou et al., 2001)].

At Yaku-shima Island, a single specimen of *A. seminigracaudus* was collected from Isso, representing the first reliable records of the species from the island. This species lives solitarily (not forming schools) in the shade of rocky reefs at a depth of 20 m off Isso, Yaku-shima Island; no other localities confirmed from the island.

Fig. 23. *Apogon seminigracaudus*. KAUM–I. 21785, 26.8 mm SL, Isso.

Apogon semiornatus Peters, 1876
[Japanese name: Yami-tenjikudai]
(Fig. 24)

Apogon semiornatus Peters, 1876: 436 (type locality: Mauritius).

Remarks. The photographed individual (Fig. 24) is herein identified as *Apogon semiornatus* on the basis of the following characters: transparent pinkish body, with a broad reddish brown band from the snout to the anal-fin base, and a broad dark brown band at the middle of the body surface.

Apogon semiornatus is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and Gulf of Oman east to Australia and Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Miyake-jima Island (Ida and Moyer, 1974; Hayashi, 2002) and Hachijo-jima Island (Senou et al., 2002)], Chiba Prefecture and southward (Hayashi, 2002), including Tateyama Bay (Hagiwara and Kimura, 2005), the Sagami Sea (Senou et al., 2006b), Kashiwa-jima Island (Hirata et al., 1996), and Ie-jima Island (Senou et al., 2006a).

Figure 24 represents the first confirmed record of *A. semiornatus* from Yaku-shima Island, but no specimens have been collected from the island. This species has usually been found hiding in a crack or hole on a large rock at depths of 10–20 m at Yaku-shima Island.

Fig. 24. *Apogon semiornatus*. Off Isso, 15 m, 21 July 2006, S. Harazaki.

Apogon taeniophorus Regan, 1908
[Japanese name: Misuji-tenjikudai]
(Figs. 25A, B)

Apogon taeniophorus Regan, 1908: 226 (type locality: Maldives, Indian Ocean).
Apogon endekataenia (not of Bleeker): Arai and Ida, 1975: 192 (Kusugawa, Yaku-shima Island, Japan).

Material examined. BSKU 96641, 37.8 mm SL, Isso; FRLM 34677, 47.2 mm SL, Kurio; KAUM–I. 11171, 59.3 mm SL, Kurio; KAUM–I. 11358, 76.9 mm SL, Kurio; KAUM–I. 11359, 76.1 mm SL, Kurio; KAUM–I. 20208, 28.2 mm SL, Yudomari; KAUM–I. 20240, 76.8 mm SL, Kurio; KAUM–I. 20341, 90.4 mm SL, Isso; KAUM–I. 20344, 88.8 mm SL, Isso; KAUM–I. 21718, 15.5 mm SL, Kurio; KAUM–I. 21719, 16.6 mm SL, Kurio; KAUM–I. 21720, 14.8 mm SL, Kurio; KAUM–I. 25227, 87.4 mm SL, Nagata; KPM–NI 22577, 21.8 mm SL, Isso; KPM–NI 22578, 25.8 mm SL, Isso; MUFS 25595, 57.7 mm SL, Kurio; MUFS 25596, 56.6 mm SL, Kurio; MUFS 25597, 63.1 mm SL, Kurio; NSMT–P 17846, 4 specimens: 28.8–68.0 mm SL, Kusugawa; NSMT–P 91351, 45.9 mm SL, Yudomari; NSMT–P 91682, 3 specimens: 58.4–69.3 mm SL, Kurio; NSMT–P 95459, 2 specimens: 32.6–84.6 mm SL, Haruo; NSMT–P 95463, 87.8 mm SL, Hirauchi.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 3–4; circumpeduncular scales 12; total gill rakers 18–20, developed gill rakers 11–13; body white, with 6 distinct dark brown stripes on lateral surface of body; posterior portion of third stripe not reaching to second stripe at below first dorsal fin; posterior end of fourth stripe (middle stripe) forming a poorly defined black spot, less than pupil diameter, at caudal-fin base; and fourth stripe not extending onto caudal-fin membrane.

Remarks. Matsuura and Tachikawa (1994) reported *A. taeniophorus* from Chichi-jima Island, the Ogasawara Islands, as the first record of the species from Japan, on the basis of a single specimen (NSMT–P 35302, 60.8 mm SL), and proposed a new Japanese name, Misuji-tenjikudai, for the species. Subsequently, Mabuchi et al. (2004) recognized two distinct species in specimens previously identified as *A. taeniophorus* from Japan on the basis of analysis of nucleotide sequence data of approximately 610 bp from the anterior half of the mitochondrial 16S rRNA gene. The two species were named by Mabuchi et al. (2004) as "Lined type of Misuji-tenjikudai, *A. taeniophorus*" and "Spotted type of Misuji-tenjikudai, *A. taeniophorus*". The two can be easily distinguished by color patterns on the body and caudal fin (Mabuchi et al., 2004; this study, see Description of each species account).

Judging from numerous underwater photographs and published data for *A. taeniophorus* from the Indo–Pacific, Mabuchi et al.'s (2004) "Spotted type of Misuji-tenjikudai" is herein identified as *A. taeniophorus*. However, the taxonomic status of "Lined type of Misuji-tenjikudai" is still unknown. Two syntypes of *Amia fasciata stevensi* McCulloch, 1915 (AMS I. 4247, 48.3 mm SL, Fiji; AMS I. 13461, 59.9 mm SL, Vanuatu) were examined during this study and we confirmed that *A. fasciata stevensi* is a junior synonym of *A. taeniophorus* (= "Spotted type of Misuji-tenjikudai") in having 14 pectoral-fin rays; white body with six dark brown stripes on lateral surface of body; posterior portion of third stripe not reaching to second stripe below first dorsal fin; posterior end of fourth stripe forming a black spot, less than pupil diameter, at caudal-fin base; and fourth stripe not extending onto caudal-fin membrane.

Because Matsuura and Tachikawa's (1994) specimen (NSMT–P 35302) from Chichi-jima Island is in very poor condition (lacking most body scales and stripes), it cannot be reliably identified as either *A. taeniophorus* or "Lined type of Misuji-tenjikudai". However, in their checklist of fishes of the Ogasawara Islands, Randall et al. (1997b) regarded Kuwamura et al.'s (1983) *A. robusta* (Smith and Radcliffe, 1911) (currently regarded as a junior synonym of *A. cookii*) and Sato's (1991) *A. cookii* (both listed from the Ogasawara Islands) as *A. taeniophorus*. Sato's (1991: fig. 11) *A. cookii* is also herein identified as *A. taeniophorus*. In addition, Randall et al. (1997b) listed four newly collected specimens of *A. taeniophorus* (BPBM

35092; BPBM 35125, 2 specimens; BPBM 35297) suggesting that *A. taeniophorus* is common in the Ogasawara Islands. Accordingly, we regard here that Matsuura and Tachikawa's (1994) specimen is *A. taeniophorus* (not Mabuchi et al.'s "Lined type of Misuji-tenjikudai") and the Japanese name proposed by Matsuura and Tachikawa (1994) is applied to *A. taeniophorus*.

At Yaku-shima Island, *A. taeniophorus* is most similar to *A. cookii*, but differs in having 14 pectoral-fin rays (vs. 15 rays in *A. cookii*) and an indistinct, smaller caudal-fin base spot (vs. a distinct, larger spot) (Gon, 1987; this study).

Apogon taeniophorus is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa east to the islands of Micronesia, the Line Islands, French Polynesia, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Ogasawara Islands (Matsuura and Tachikawa, 1994; Randall et al., 1997b; Mabuchi et al., 2004), Tateyama Bay (Hagiwara and Kimura, 2005), the Sagami Sea (Senou et al., 2006b), and the Ryukyu Islands [Kuchinoerabu-jima Island (Mabuchi et al., 2004), Okinoerabu-jima Island (Yoshigou et al., 2005), and Tokashiki-jima Island (Watai et al., 2009)].

At Yaku-shima Island, specimens of *A. taeniophorus* were collected from Hirauchi, Isso, Kurio, Kusugawa, Nagata, and Yudomari, representing the first records of the species from the island. This solitary species lives in the shade of rocky reefs at depths of less than 15 m at Yaku-shima Island; it can be observed in coastal areas of the island throughout the year. This species spawns in the early summer at the island.

Apogon cf taeniophorus Regan, 1908, lined type [Japanese name: "misuji-tenjikudai, rain-gata"] (Figs. 26A, B)

Apogon taeniophorus Regan, 1908: 226 (type locality: Maldives, Indian Ocean).

Material examined. KPM–NI 22579, 25.1 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 24; predorsal scales 4; circumpeduncular scales 12; total gill rakers 18, developed gill rakers 12; body white, with 6 dark brown stripes on lateral surface of body; posterior portion of third stripe curving upwardly and reaching to second stripe at below first dorsal fin; posterior end of fourth stripe (middle stripe) reaching on caudal-fin margin.

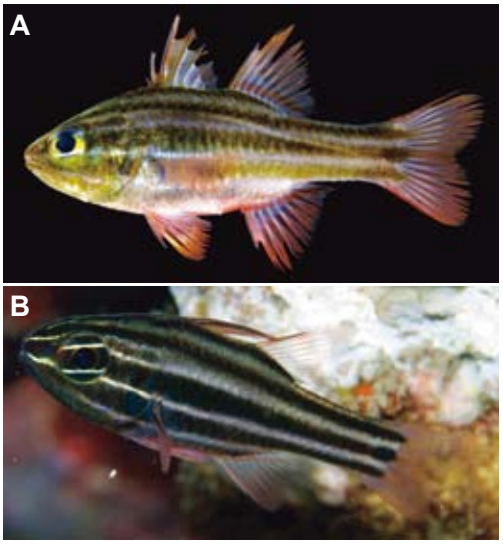

Fig. 25. *Apogon taeniophorus*. **A**, KAUM–I. 11359, 76.1 mm SL, Kurio; **B**, off Kurio, 2 m, 17 Dec. 2009, S. Harazaki.

Remarks. The Yaku-shima Island specimen (Fig. 26A) and a photographed individual (Fig. 26B) are herein identified as Mabuchi et al.'s (2004) "Lined type of Misuji-tenjikudai, *A. taeniophorus*" on the basis of the following combination of characters: a white body, with six dark brown stripes on the lateral surface of the body, the posterior portion of the third stripe curving upwardly and reaching to the second stripe below the first dorsal fin, and the posterior end of the fourth stripe (middle stripe) reaching to the caudal-fin margin. Mabuchi et al. (2004) reported four specimens of the species (2 specimens from Misho, Ehime Prefecture, and 2 specimens from Kuchinoerabu-jima Island, Kagoshima Prefecture) from Japan as *A. taeniophorus* (lined type).

The Yaku-shima Island specimen was collected at a depth of 4 m off Isso. Another individual of the species was observed by the second author at a depth of 15 m off Isso.

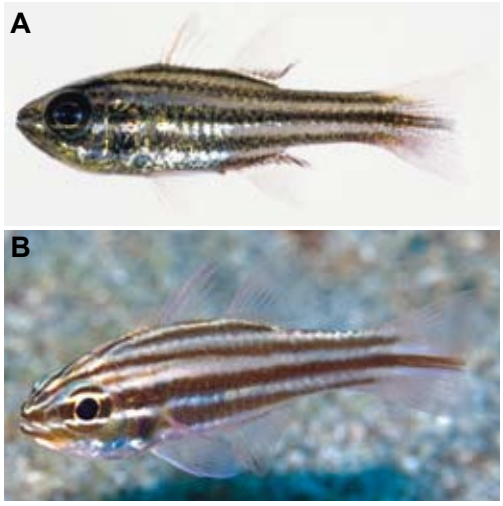

Fig. 26. *Apogon cf taeniophorus*, lined type. **A**, KPM–NI 22579, 25.1 mm SL, Isso; **B**, off Isso, 20 m, 14 Sept. 2009, S. Harazaki.

Apogonichthyoides timorensis (Bleeker, 1854)
[Japanese name: Kakure-ishimochi]
(Fig. 27)

Apogon timorensis Bleeker, 1854b: 207 (type locality: Kupang, Timor, Indonesia).

Material examined. KAUM–I. 20076, 59.9 mm SL, Yudomari; KPM–NI 22542, 29.0 mm SL, Yudomari; KPM–NI 22580, 21.9 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 16; pelvic-fin rays I, 5; pored lateral-line scales 23–24; predorsal scales 3; circumpeduncular scales 12; total gill rakers 15, developed gill rakers 8–9; posterior tip of depressed pelvic fin extending beyond origin of anal fin; body yellowish brown, with four broad, vertical, dark brown bands on lateral surface of body, first band from anterior portion of first dorsal fin to pectoral fin, second band between bases of second dorsal and anal fins, third band on middle of caudal peduncle, and fourth band at caudal-fin base; and head with a broad brownish band from posterior margin of orbit to opercular margin, and a narrow brown stripe across cheek.

Remarks. Fraser and Allen (2010) allocated this species to the genus *Apogonichthyoides*. *Apogonichthyoides timorensis* is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa and the Red Sea east to Australia and Japan (Allen et al., 2005; Randall et al., 1997a). In Japanese waters, this species (mostly as *Apogon timorensis*) has been reported from the Sagami Sea (Senou et al., 2006b), Shizuoka Prefecture (Hayashi, 2002), Shikoku [Ehime Prefecture (Hayashi, 2002) and Kashiwa-jima Island (Hirata et al., 1996)], and the Ryukyu Islands [Okinawa-jima Island (Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), and Iriomote-jima Island (Hayashi and Kishimoto, 1983, as *A. fraxineus*)].

At Yaku-shima Island, three specimens of *A. timorensis* were collected in less than 3 m depths off Isso and Yudomari, representing the first reliable records of *A. timorensis* from the island.

Fig. 27. *Apogonichthyoides timorensis*. KAUM–I. 20076, 59.9 mm SL, Yudomari.

Archamia fucata (Cantor, 1849)
[Japanese name: Sumitsuki-atohiki-tenjikudai]
(Figs. 28A, B)

Apogon fucata Cantor, 1849: 986 [type locality: Sea of Pinang (Penang), Malaysia].

Material examined. BSKU 96549, 50.6 mm SL, Yudomari; KAUM–I. 20044, 49.5 mm SL, Yudomari; KAUM–I. 20074, 53.3 mm SL, Yudomari; KAUM–I. 20075, 73.5 mm SL, Yudomari.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 16; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 25; predorsal scales 6; circumpeduncular scales 12; total gill rakers 20–23, developed gill rakers 20; body pinkish, with numerous narrow, vertical or oblique reddish

orange bars; an indistinct reddish black spot behind opercle; and no black band on cheek;.

Remarks. *Archamia dispilus* Lachner, 1951 was recently synonymized with *A. fucata* by Gon and Randall (2003). Although the former (with an elongate spot behind head) is likely to be a valid species, we tentatively follow Gon and Randall's (2003) taxonomic decision.

Archamia fucata is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and the east coast of Africa east to the Marshall Islands, the Samoa Islands, and Tonga, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species (as *A. dispilus*) has been reported from Hachijo-jima Island (Senou et al., 2002), the Ogasawara Islands (Sato, 1991; Randall et al., 1997b), Miyazaki Prefecture (Motomura et al., 2001), Kagoshima Prefecture (Yamada, 2007), and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2001; Yoshigou and Nakamura, 2002; 2003; Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

At Yaku-shima Island, specimens of *A. fucata* were collected only from Yudomari, representing the first reliable records of the species from the island. This species forms schools in less than 5 m on muddy substrates in river mouths and fishing ports of Yaku-shima Island; it can be observed there in aggregations throughout the year.

Cheilodipterus artus Smith, 1961
[Japanese name: Kasumi-yarai-ishimochi]
(Fig. 29)

Cheilodipterus artus Smith, 1961: 409, pl. 50, fig. F (type locality: Mahé, Seychelles)

Remarks. Hayashi (2002) reviewed the genus *Cheilodipterus* in Japanese waters and regarded four species as valid (Japanese names in parentheses), i.e., *C. artus* Smith, 1961 (Sudare-yarai-ishimochi), *C. macrodon* Lacepède, 1802 (Ryukyu-yarai-ishimochi), *C. quinquelineatus* Cuvier, 1828 (Yarai-ishimochi), and *C. subulatus* Weber, 1909 (Kasumi-yarai-ishimochi). Incidentally, although Gon (1993) regarded *C. subulatus* as a junior synonym of *C. singapurensis* Bleeker, 1859–60, Hayashi (2002) overlooked Gon's (1993) taxonomic decision.

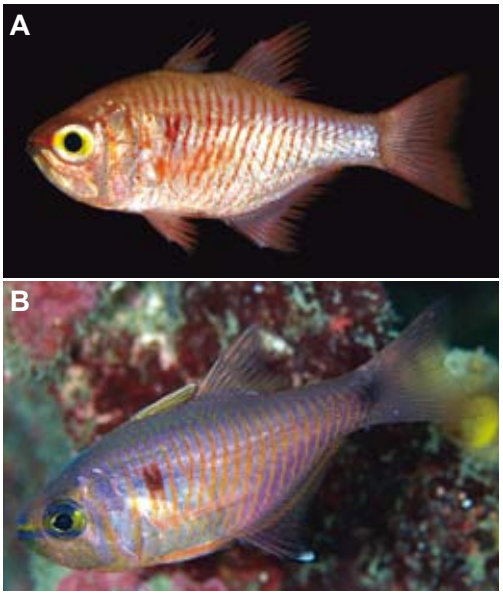

Fig. 28. *Archamia fucata*. **A**, KAUM–I. 20075, 73.5 mm SL, Yudomari; **B**, off Isso, 4 m, 26 Aug. 2006, S. Harazaki.

Hayashi and Kishimoto's (1983: pl. 3, figs. 10a–b; IORD 77-748, 77-20) *Cheilodipterus* sp., type A, and Hayashi's (2002) 'Sudare-yarai-ishimochi, *C. artus*' are herein identified as *C. intermedius* Gon, 1993 (see Gon, 1993: pl. 1, fig. B). In addition, Hayashi and Kishimoto's (1983: pl. 3, fig. 9; IORD 76-435) *C. subulatus*, and Hayashi's (2002) 'Kasumi-yarai-ishimochi, *C. subulatus*' are herein identified as *C. artus* (see Gon, 1993: pl. 4, fig. C). Thus, the Japanese names 'Kasumi-yarai-ishimochi' and 'Sudare-yarai-ishimochi' correspond to *C. artus* and *C. intermedius* respectively (Senou et al., 2006a, 2007; this study).

Although *C. artus* is very similar to *C. intermedius* in juvenile coloration, *C. artus* differs from the latter in ontogenetic color changes of the caudal peduncle. Black pigments around a black spot at the caudal-fin base of *C. artus* increase with growth and the posterior portion of the caudal peduncle finally becomes black, whereas no black pigments usually occur around the caudal-fin base spot of *C. intermedius* and the posterior portion of the caudal peduncle usually becomes whitish (Gon, 1993; H. Senou, pers. comm.). The

figured individual (Fig. 29) may be an adult of *C. intermedius* (rather than *C. artus*); at this life stage, specimens are required for accurate identification.

Cheilodipterus artus is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa east to the Marshall Islands and Tuamotu Archipelago, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, reliable records of the species are from Yaku-shima Island (this study) and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983, as *C. subulatus*)].

This species inhabits rocky and coral reefs at depths of less than 20 m at Yaku-shima Island; common in the island and can be observed throughout the year.

Fig. 29. *Cheilodipterus cf artus*. Off Isso, 8 m, 11 June 2005, S. Harazaki.

Cheilodipterus intermedius Gon, 1993
[Japanese name: Sudare-yarai-ishimochi]
(Figs. 30A, B)

Cheilodipterus intermedius Gon, 1993: 19, pl. 1, figs. 3B, 8 (type locality: east side of Marine lab., Sesoko-jima Island, Okinawa, Ryukyu Islands, Japan).

Remarks. Photographed individuals (Figs. 30A, B) are identified as *C. intermedius* on the basis of the following combination of characters: nine blackish brown broad and narrow stripes on lateral surface of body; a black spot, surrounded by yellow, at midbase of caudal fin in young (Fig. 30A); and no black vertical bar or distinct black spot at caudal fin base in adults (Fig. 30B) (see Remarks of *C. artus*).

Cheilodipterus intermedius is widely distributed in the western Pacific where it ranges from the Solomon Islands to the South China Sea and Japan (Allen et al., 2005). In Japanese waters, this species has been reported from the Sagami Sea (Senou et al., 2006b, as *C. artus*) and the Ryukyu Islands [Sesoko-jima Island (Gon, 1993), Ie-jima Island (Senou et al., 2006a), and Miyako Group (Senou et al., 2007)].

This species is solitary on rocky and coral reefs at depths of less than 20 m at Yaku-shima Island; common in the island throughout the year.

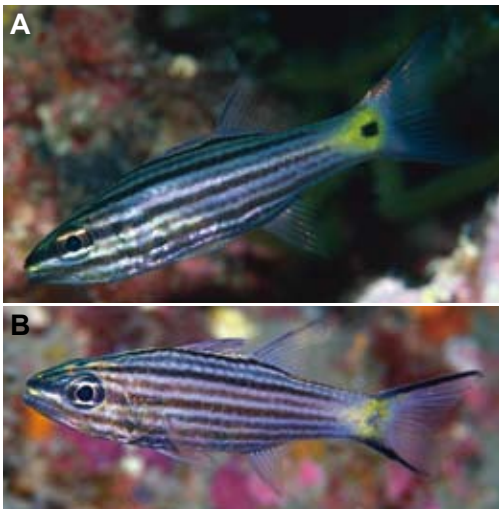

Fig. 30. *Cheilodipterus intermedius*. **A**, off Isso, 10 m, 5 Nov. 2005, S. Harazaki; **B**, off Isso, 10 m, 5 Nov. 2005, S. Harazaki.

Cheilodipterus macrodon (Lacepède, 1802)
[Japanese name: Ryukyu-yarai-ishimochi]
(Figs. 31A, B)

Centropomus macrodon Lacepède, 1802: 252, 273 (type locality: Mauritius or Réunion Island).
Cheilodipterus lineatus; Arai and Ida, 1975: 184, pl. 17, fig. 1 (Kusugawa, Yaku-shima Island, Japan).
Cheilodipterus macrodon; Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan); Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

Material examined. BSKU 96548, 58.7 mm SL, Yudomari; KAUM–I. 11453, 70.5 mm SL, Isso.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 12; pelvic-fin rays I, 5; pored lateral-line scales 25; predorsal scales 6; circumpeduncular scales 12; total gill rakers 20, developed gill rakers 9; large canine-like teeth on jaws; preopercular margin serrated; body white, with nine poorly defined dark brown stripes on lateral surface of body; a broad, black band on caudal-fin base in young.

Remarks. *Cheilodipterus macrodon* is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and east coast of Africa east to French Polynesia (expect for the Marquesas Islands), and the Pitcairn Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Hachijo-jima Island (Senou et al., 2002)], the Ogasawara Islands (Kuwamura et al., 1983; Sato, 1991; Randall et al., 1997b), Tateyama Bay (Hagiwara and Kimura, 2005), the Sagami Sea (Senou et al., 2006b), Shikoku [Kochi (Kamohara, 1964, as Jadamga quinquelineatus) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Ichikawa et al., 1992; Kuniyasu, 1999), and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1968), Ie-jima Island (Senou et al., 2006a), and Tokashiki-jima Island (Watai et al., 2009)].

At Yaku-shima Island, two specimens of *C. macrodon* were collected from Isso and Yudomari. This species occurs in less than 20 m at rocky or coral reefs at Yaku-shima Island throughout the year.

Cheilodipterus quinquelineatus Cuvier, 1828
[Japanese name: Yarai-ishimochi]
(Figs. 32A, B)

Cheilodipterus quinquelineatus Cuvier in Cuvier and Valenciennes, 1828: 167 (type locality: Bora Bora, Society Islands); Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan); Kuniyasu, 1999: 12 (Kurio, Yaku-shima Island, Japan).

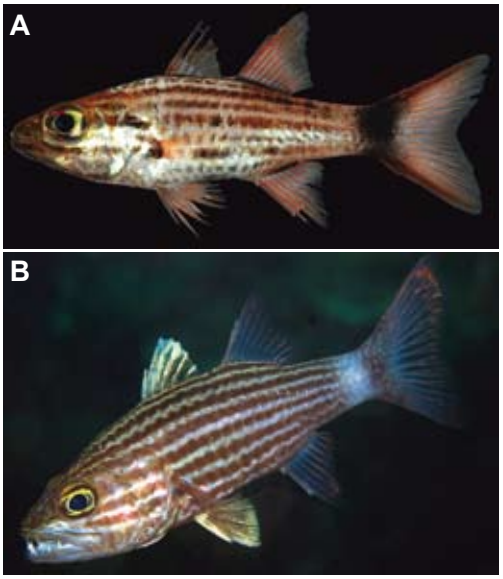

Fig. 31. *Cheilodipterus macrodon*. **A**, BSKU 96548, 58.7 mm SL, Yudomari; **B**, off Isso, 8 m, 22 June 2004, S. Harazaki.

Material examined. KAUM–I. 11289, 50.0 mm SL, Yudomari; KAUM–I. 20049, 80.3 mm SL, Yudomari; KAUM–I. 20068, 101.9 mm SL, Yudomari; KAUM–I. 20070, 85.8 mm SL, Yudomari; KAUM–I. 20073, 42.0 mm SL, Yudomari; KAUM–I. 20535, 65.5 mm SL, Yudomari; KPM–NI 22511, 40.0 mm SL, Yudomari.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 12; pelvic-fin rays I, 5; pored lateral-line scales 24–25 ; predorsal scales 6; circumpeduncular scales 12; total gill rakers 18, developed gill rakers 12; large canine-like teeth on jaws; preopercular margin serrated; body white, with five black stripes on lateral surface of body, posterior end of third stripe (middle stripe) reaching a black spot on caudal-fin base; and a caudal-fin base spot, less than pupil diameter, surrounded by poorly defined yellow blotch.

Remarks. *Cheilodipterus quinquelineatus* is widely distributed in the Indo–Pacific, expect for the Persian Gulf and Hawaiian Islands (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Miyake-jima Island (Ida and Moyer, 1974) and Hachijo-jima Island (Senou et al., 2002)], the Ogasawara Islands (Kuwamura et al., 1983; Sato, 1991; Matsuura and Tachikawa, 1994; Randall et

al., 1997b), the Sagami Sea (Senou et al., 2006b), Shikoku [Kochi (Kamohara, 1964) and Kashiwa-jima Island (Hirata et al., 1996)], Yaku-shima Island (Ichikawa et al., 1992; Kuniyasu, 1999), and the Ryukyu Islands [Yagaji-shima Island (Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2001; Yoshigou and Nakamura, 2002; Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001)].

At Yaku-shima Island, specimens of *C. quinquelineatus* were collected from Kurio and Yudomari. This species occurs in less than 20 m on rocky or coral reefs at Yaku-shima Island throughout the year. The population of *C. quinquelineatus* at Yaku-shima Island is the largest among the four species of *Cheilodipterus* occurring around the island.

Fig. 32. *Cheilodipterus quinquelineatus*. **A**, KAUM–I. 11289, 50.0 mm SL, Yudomari; **B**, off Isso, 8 m, 26 Jan. 2005, S. Harazaki.

Foa brachygramma (Jenkins, 1903)
[Japanese name: Taiwan-mato-ishimochi]
(Fig. 33)

Fowleria brachygrammus Jenkins, 1903: 447, fig. 20 (type locality: Honolulu, Oahu Island, Hawaiian Islands).

Remarks. The photographed individual (Fig. 33) is herein identified as *Foa brachygramma* on the basis of the following combination of characters: lateral line incomplete; no large black blotch on opercle; body blackish brown, with numerous small white blotches on head and caudal-fin base; and no vertical bands on lateral surface of body.

Foa brachygramma is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa east to the Hawaiian Islands, and north to Japan (Hayashi, 2002; Randall, 1997a). In Japanese waters, this species has been reported from Shimoda Bay, Shizuoka (Masuda et al., 1984) to the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001)].

Figure 33 represents the first confirmed record of *F. brachygramma* from Yaku-shima Island. This species can be observed in aggregations, each with about 20 individuals, on sandy substrates in less than 20 m off Isso, Yaku-shima Island, throughout the year; no other localities confirmed from the island.

Fig. 33. *Foa brachygramma*. Off Isso, 20 m, 15 Sept. 2009, S. Harazaki.

Fowleria isostigma (Jordan and Seale, 1906)
[Japanese name: Naha-mato-ishimochi]
(Fig. 34)

Apogonichthys isostigma Jordan and Seale, 1906: 251, fig. 45 (type locality: Apia, Upolu Island, Western Samoa).

Material examined. BSKU 96573, 17.0 mm SL, Yudomari.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 11; predorsal scales 6; circumpeduncular scales 12; total gill rakers 4, developed gill rakers 4; palatine without teeth; lateral line incomplete; body whitish brown, without small white blotches; a large ocellated black blotch on opercle; no vertical bands on lateral surface of body; and no spots or lines on fins.

Remarks. Two color variations of *F. isostigma* are known in Japanese waters: one has a round black spot basally on each scale of the lateral surface of the body, the spots forming several longitudinal stripes; the other lacks the spots (Hayashi, 2002). The Yaku-shima Island specimen is identified as Hayashi's (2002) "unmarked form".

Fowleria isostigma is widely distributed in the western Pacific where it ranges from Australia east to Mangareva and the islands of Micronesia, and north to Japan (Randall, 2005). In Japanese waters, this species has been reported from Wakayama Prefecture and southward (Hayashi, 2002), including Kashiwa-jima Island (Hirata et al., 1996) and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1968), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou and Nakamura, 2003; Yoshigou et al., 2005), Ishigaki-jima Island (Yoshigou et al., 2001), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

At Yaku-shima Island, a single specimen of *F. isostigma* was collected from Yudomari, representing the first reliable record of *F. isostigma* from the island. Ecological information on the species at Yaku-shima Island is unknown.

Fig. 34. *Fowleria isostigma*. BSKU 96573, 17.0 mm SL, Yudomari.

Fowleria cf marmorata (Alleyne and Macleay, 1877)
[Japanese name: Obi-shibori]
(Fig. 35)

Apogonichthys marmorata Alleyne and Macleay, 1877: 268, pl. 5, fig. 2 (type locality: Cape Grenville, Queensland, Australia).

Material examined. KAUM–I. 21784, 39.8 mm SL, Isso.

Description. Dorsal-fin rays VII-I, 9; anal-fin rays II, 8; pectoral-fin rays 14; pelvic-fin rays I, 5; pored lateral-line scales 6 (7 on right side of body); predorsal scales 6; circumpeduncular scales 12; total gill rakers 13, developed gill rakers 4; palatine without teeth; lateral line incomplete; body red, with several vertical dark red bars on lateral surface of body; 3 black bands radiating from posterior margin of eye; and a large ocellated black spot on opercle.

Remarks. The Yaku-shima Island specimen is herein identified as *F. marmorata* in having an incomplete lateral line; red body, with several vertical dark red bars on lateral surface of body and a large ocellated black spot on the opercle. However, the number of pored lateral-line scales in the Yaku-shima Island specimen is six (seven on right side of body), whereas those described by Hayashi (2002) and Randall (2005) are 12 and 10–13 respectively. In addition, the number of developed gill rakers in the Yaku-shima Island specimen is four, whereas those described by Hayashi (2002) is seven. More Yaku-shima Island specimens are required to determine whether these characters represent intraspecific variations or distinct species.

Fowleria marmorata is widely distributed in the Indo-West Pacific where it ranges from the Red Sea east to the Line, Society, and Marquesas Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from Kashiwa-jima Island (Hirata et al., 1996) and the Ryukyu Islands [Okinawa-jima Island (Yoshigou et al., 2005) and Sesoko-jima Island (Hayashi, 2002)]. At Yaku-shima Island, a single specimen was collected from Isso at a depth of 30 m.

Fig. 35. *Fowleria cf marmorata*. KAUM–I. 21784, 39.8 mm SL, Isso.

Fowleria variegata (Valenciennes, 1832)
[Japanese name: Shibori]
(Fig. 36)

Apogon variegata Valenciennes, 1832: 55 (type locality: Mauritius).

Material examined. BSKU 96547, 33.8 mm SL, Yudomari; KPM–NI 22505, 28.8 mm SL, Yudomari.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 13; pelvic-fin rays I, 5; pored lateral-line scales 10 ; predorsal scales 4–5; circumpeduncular scales 12; total gill rakers 14–15, developed gill rakers 6–8; palatine without teeth; lateral line incomplete; body blackish brown, with numerous black spots and blotches on lateral surface of body; a large dark ocellated spot on opercle; fins brown, with numerous white spots.

Remarks. *Fowleria variegata* is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and the east coast of Africa, east to the Mariana and Samoa Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Ogasawara Islands (Sato, 1991; Matsuura and Tachikawa, 1994; Randall et al., 1997b) and the Ryukyu Islands [Amami-oshima Island (Yamakawa, 1971; Yoshigou et al., 2001), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2001; Yoshigou and Nakamura, 2003; Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Yoshigou et al., 2001; Yoshigou and Nakamura, 2002)].

At Yaku-shima Island, two specimens of *F. variegata* were collected from Yudomari, representing the first reliable records of *F. variegata* from the island. Ecological information on the species at Yaku-shima Island is unknown.

Fig. 36. *Fowleria variegata*. KPM–NI 22505, 28.8 mm SL, Yudomari.

Neamia octospina Smith and Radcliffe, 1912
[Japanese name: Yatsutoge-tenjikudai]
(Figs. 37A, B)

Neamia octospina Smith and Radcliffe in Radcliffe, 1912: 441, pl. 36, fig. 2 (type locality: Rasa Island, off Mantaguin Bay, Palawan, Philippines).

Remarks. Photographed individuals (Figs. 37A, B) are herein identified as *N. octospina* on the basis of the following combination of characters: a semitranslucent white body, with numerous small reddish spots on the body and fins, and three indistinct reddish bands radiating from the posterior margin of the eye. Specimens have not been collected from Yaku-shima Island.

Neamia octospina is widely distributed in

the Indo-West Pacific where it ranges from the Red Sea east to Fiji, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Ryukyu Islands [Okinawa-jima Island (Yoshigou et al., 2005) and Ishigaki-jima Island (Ida and Moyer, 1974)].

Figures 37A, B represent the first confirmed records of *N. octospina* from Yaku-shima Island and the northernmost records for the species in the western Pacific. The photographed individuals were found among branches of the Alcyonacea, *Cladiella digitulata*, at a depth of 2 m off Motoura Beach, Isso, Yaku-shima Island on 23 Oct. 2006. These individual disappeared after *C. digitulata*' death confirmed by the second author; no other individuals have been observed at the island.

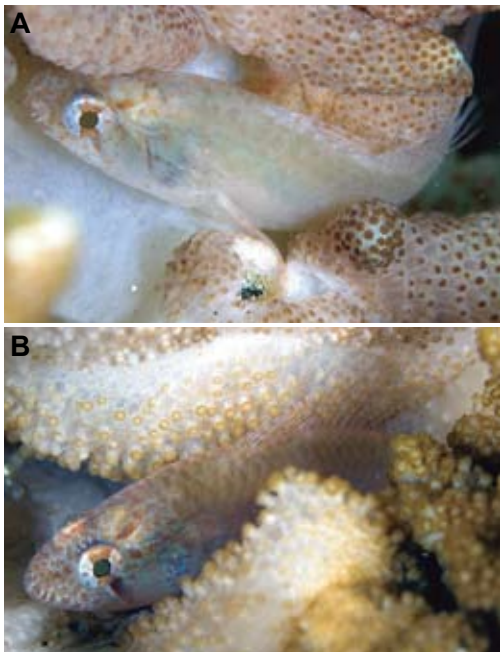

Fig. 37. *Neamia octospina*. **A** and **B**, off Isso, 5 m, 23 Oct. 2006, S. Harazaki.

Nectamia bandanensis (Bleeker, 1854)
[Japanese name: Banda-ishimochi]
(Figs. 38A, B)

Apogon bandanensis Bleeker, 1854a: 95 (type locality: Banda Neira, Banda Islands, Indonesia).

Material examined. BSKU 96538, 66.0 mm SL, Yudomari; KAUM–I. 20069, 67.8 mm SL, Yudomari.

Description. Dorsal-fin rays VII-I, 9 (one specimen with VII-II, 9); anal-fin rays II, 8; pectoral-fin rays 13; pelvic-fin rays I, 5; pored lateral-line scales 24 ; predorsal scales 3–4; circumpeduncular scales 12; total gill rakers 25–26, developed gill rakers 23; body depth 43.2–43.7 % of SL; body silvery brown, with 3 dark brown bands, widths subequal to pupil diameter, on lateral surface of body; and an oblique, straight, brownish bar from posteroventral margin of eye.

Remarks. Fraser (2008) recently allocated this species to *Nectamia* from *Apogon*. *Nectamia bandanensis* has been known from the western Pacific from Japan to American Samoa (Randall, 2005). In Japanese waters, this species has been reported from the Ogasawara Islands (Matsuura and Tachikawa, 1994, as *A. bandaensis*; Randall et al., 1997b, as *A. bandaensis*) and the Ryukyu Islands [Amami-oshima Island (Kamohara and Yamakawa, 1968, as *A. bandaensis*), Ie-jima Island (Senou et al., 2006a, as *A. bandaensis*), Okinawa-jima Island (Hayashi, 2002, as *A. bandaensis*), Sesoko-jima Island (Fraser, 2008), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007, as *A. bandaensis*), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Hayashi, 2002, as *A. bandaensis*)].

At Yaku-shima Island, two specimens of *N. bandanensis* were collected from Isso and Yudomari, representing the first reliable records of the species from the island and the northernmost records for the species. This species is observed in the shade of rocky reefs in the daytime and around the reefs at night; it can be observed in less than 10 m at Yaku-shima Island throughout the year.

Pseudamia gelatinosa Smith, 1956
[Japanese name: Numeri-tenjikudai]
(Figs. 39A, B)

Pseudamia gelatinosa Smith, 1956: 690, pl. 18, fig. A (type locality: Aldabra Islands).

Material examined. BSKU 96540, 42.9 mm SL, Yudomari; KAUM–I. 20120, 31.2 mm

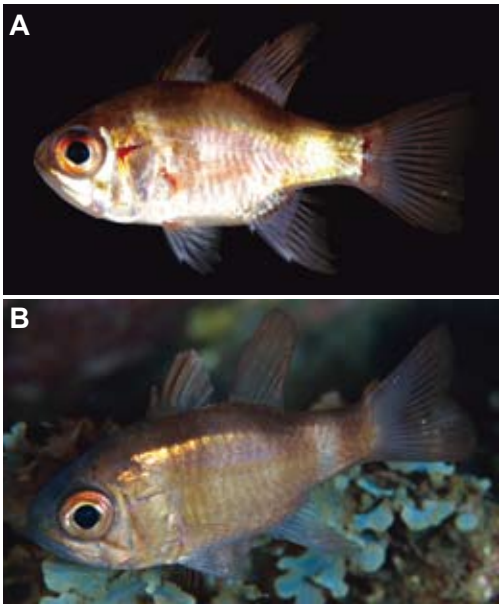

Fig. 38. *Nectamia bandanensis*. **A**, KAUM–I. 20069, 67.8 mm SL, Yudomari; **B**, off Isso, 10 m, 22 Oct. 2009, S. Harazaki.

SL, Yudomari; KAUM–I. 20163, 16.4 mm SL, Yudomari; KAUM–I. 20164, 21.0 mm SL, Yudomari; KAUM–I. 20165, 14.9 mm SL, Yudomari; KAUM–I. 20166, 16.5 mm SL, Yudomari; KPM–NI 22529, 18.7 mm SL, Yudomari.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 15; pelvic-fin rays I, 5; pored lateral-line scales 35; predorsal scales 5–6; circumpeduncular scales 12; total gill rakers 11, developed gill rakers 8; caudal fin lanceolate; anterior nostril with a long flap; semitranslucent slender body, with numerous small blackish spots forming several longitudinal stripes; caudal fin with a large black blotch dorsally; and a black blotch on caudal-fin base.

Remarks. *Pseudamia gelatinosa* differs from its close relative, *P. amblyuroptera*, in having 8 developed gill rakers and 8 anal-fin rays (vs. 11 rakers and usually 9 rays; Yoshigou and Yoshino, 2004).

Pseudamia gelatinosa is widely distributed in the Indo-West Pacific where it ranges from the Red Sea and east coast of Africa, east to the Line Islands, Society Islands and Rapa, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Hachijo-jima Island (Senou et al., 2002)], the Sagami Sea (Hayashi, 2002; Senou et al., 2006b), and the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2005), Miyako Group (Senou et al., 2007), Ishigaki-jima Island (Ida and Moyer, 1974), and Iriomote-jima Island (Yoshigou et al., 2001)].

At Yaku-shima Island, specimens of *P. gelatinosa* were collected from Yudomari, representing the first reliable records of the species from the island. This species is solitary in the shade of rocky reefs (not forming schools) at depths of less than of 10 m off Isso and Yudomari, Yaku-shima Island; no other localities confirmed from the island.

Fig. 39. *Pseudamia gelatinosa*. **A**, BSKU 96540, 42.9 mm SL, Yudomari; **B**, off Isso, 10 m, 16 Oct. 2009, I. Takaku.

Rhabdamia gracilis (Bleeker, 1856)
[Japanese name: Sukashi-tenjikudai]
(Figs. 40A, B)

Apogonichthys gracilis Bleeker, 1856b: 371 (type locality: Ternate, Moluccas, Indonesia).

Remarks. Photographed individuals (Figs. 40A, B) are identified as *R. gracilis* by having a translucent silvery body, with a bluish longitudinal stripe on the middle of the body. No specimens have been collected from Yaku-shima Island.

Mabuchi (2001) regarded that *R. gracilis* contained two distinct species: one has a black spot

on the posteroventral caudal peduncle, and the other lacks the spot. However, because these two have been observed as members of a school (see Fig. 40A) and the second author confirmed that they have often paired with each other at Yaku-shima Island, we tentatively treat them as conspecific in this study.

Rhabdamia gracilis is widely distributed in the Indo-West Pacific where it ranges from the east coast of Africa east to the Marshall Islands, Caroline Islands and Fiji, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Sagami Sea (Senou et al., 2006b), Wakayama Prefecture and southward (Hayashi, 2002), including the Ryukyu Islands [Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Ida and Moyer, 1974; Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Ida and Moyer, 1974; Hayashi and Kishimoto, 1983; Yoshigou and Nakamura, 2002)]. Figures 40 represent the first confirmed record of *R. gracilis* from Yaku-shima Island.

Rhabdamia gracilis, forming a school of ca. 50 individuals, lives sympatrically with *A. notatus* in depths of 20–25 m at two diving spots off Isso, Yaku-shima Island; no other localities confirmed from the island. At Yaku-shima Island, the spawning period of the species is in July and August.

Siphamia majimai Matsubara and Iwai, 1958
[Japanese name: Majimakuro-ishimochi]
(Figs. 41A–C)

Siphamia majimai Matsubara and Iwai, 1958: 603, fig.1 (type locality: Urasokari, Amami-oshima Island, Japan, ca. 28°07'N, 129°20'E).

Material examined. BSKU 96557, 16.9 mm SL, Yudomari; KAUM–I. 20158, 20.3 mm SL, Yudomari; KAUM–I. 20211, 19.3 mm SL, Yudomari; KPM–NI 22582, 16.9 mm SL, Isso.

Description. Dorsal-fin rays VI-I, 9; anal-fin rays II, 8; pectoral-fin rays 15; pelvic-fin rays I, 5; pored lateral-line scales 23; predorsal scales 6; circumpeduncular scales 12; total gill rakers 13–14, developed gill rakers 7–8; luminous organ

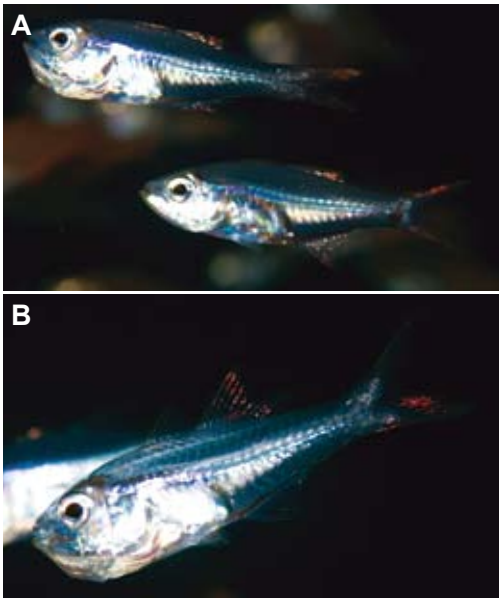

Fig. 40. *Rhabdamia gracilis*. **A**, off Isso, 20 m, 15 Sept. 2009, S. Harazaki; **B**, off Isso, 20 m, 15 Sept. 2009, S. Harazaki.

inside translucent muscles of ventral body from throat to caudal peduncle; and blackish silver body, with numerous small red spots on body and fins when fresh.

Remarks. *Siphamia majimai* is distributed in the western Pacific from Australia to Japan (Randall et al., 1997a). In Japanese waters, this species has been reported from the Ogasawara Islands (Randall et al., 1997b), Kashiwa-jima Island (Hirata et al., 1996), and the Ryukyu Islands [Amami-oshima Island (Matsubara and Iwai, 1958; Hayashi, 2002), Tokashiki-jima Island (Watai et al., 2009), Miyako Group (Senou et al., 2007), and Iriomote-jima Island (Hayashi and Kishimoto, 1983; Hayashi, 2002)].

At Yaku-shima Island, specimens of *S. majimai* were collected from Isso and Yudomari, representing the first reliable records of the species from the island. *Siphamia majimai* usually forms a school with five or six individuals and lives among spines of *Diadema setosum* at depths of less than 15 m at Yaku-shima Island. This species spawns in July and juveniles are observed in the middle of summer at the island.

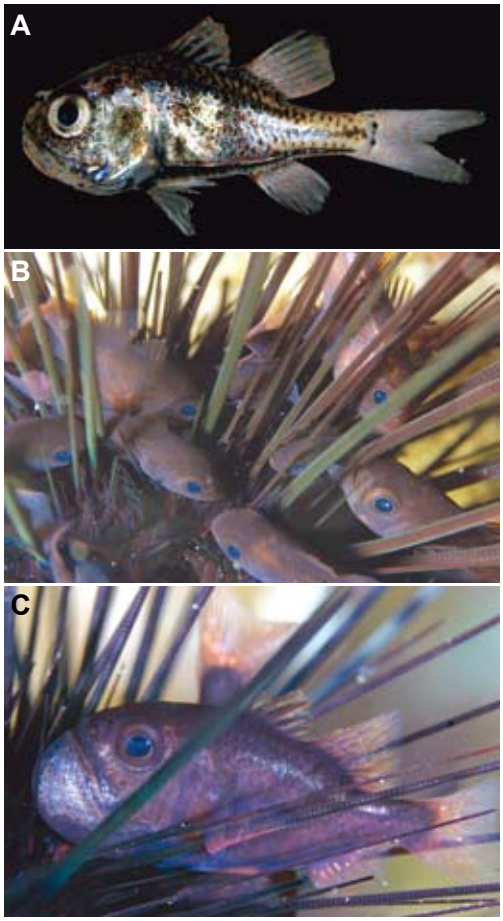

Fig. 41. *Siphamia majimai*. **A**, KAUM–I. 20158, 20.3 mm SL, Yudomari; **B**, off Isso, 5 m, 6 June 2005, S. Harazaki; **C**, off Isso, 5 m, 3 June 2006, S. Harazaki.

Siphamia tubulata (Weber, 1909)
[Japanese name: Inazuma-hikari-ishimochi]
(Fig. 42)

Apogon tubulatus Weber 1909: 160 (type locality: Sapeh Strait, Sumbawa Island, Lesser Sunda Islands, Indonesia).

Remarks. The photographed individual (Fig. 42) is herein identified as *Siphamia tubulata* on the basis of the unique coloration, viz., body silvery, mottled with reddish brown blotches. Specimens have not been collected from Yaku-shima Island.

Siphamia tubulata is distributed in the western Pacific, from Indonesia and Australia to Japan (Hayashi, 2002). In Japanese waters, this species has been reported from Kashiwa-jima Island (Hirata et al., 1996; Hayashi, 2002).

Figure 42 represents the first confirmed record of *S. tubulata* from Yaku-shima Island. *Siphamia tubulata* is usually solitary in the shade of rocky reefs at depths of 25–30 m at Yaku-shima Island. A school with five or six young individuals was observed around *Padina arborescens* at depths of 25–30 m only once over the last six years of underwater observations.

Fig. 42. *Siphamia tubulata*. Off Isso, 25 m, 28 Oct. 2005, S. Harazaki.

Siphamia versicolor (Smith and Radcliffe, 1911)
[Japanese name: Hikari-ishimochi]

Amia versicolor Smith and Radcliffe in Radcliffe, 1911: 257, fig. 3 (type locality: Cataingan Bay, Masbate, Philippines).
Siphamia versicolor: Ichikawa et al., 1992: 9 (Yaku-shima Island, Japan).

Remarks. Identification of Ichikawa et al.'s (1992) *S. versicolor* is uncertain. The second author has dived for fish watching around Yaku-shima Island almost everyday for six years, but has never found the species.

Siphamia versicolor is widely distributed in the Indo-West Pacific where it ranges from the Gulf of Oman and Maldive Islands east to the Caroline Islands, and north to Japan (Allen et al., 2005; Randall, 2005). In Japanese waters, this species has been reported from the Izu Islands [Hachijo-jima Island (Senou et al., 2002)], the Ogasawara Islands (Kuwamura et al., 1983; Randall et al., 1997b; Yoshigou and Nakamura, 2002),

and the Ryukyu Islands [Yagaji-shima Island (Yoshigou and Nakamura, 2002; Yoshigou et al., 2005), Ie-jima Island (Senou et al., 2006a), Okinawa-jima Island (Yoshigou et al., 2005), Tokashiki-jima Island (Watai et al., 2009), and Iriomote-jima Island (Hayashi and Kishimoto, 1983)].

Conclusion

Fifteen genera with 94 species of the family Apogonidae have been recorded from Japanese waters (see Introduction). During this study, 45 species of the family were confirmed to occur around Yaku-shima Island, representing nearly half of all known Japanese species. Three species, *Apogon parvulus*, *A. selas* and *Siphamia versicolor*, previously reported by Ichikawa et al. (1992) and Kuniyasu (1999) from the island on the basis of underwater observations, were not observed or collected during this study (2004–2010). Thirteen of the 45 species, *Apogon apogonides*, *A. chrysotaenia*, *A. fasciatus*, *A. fraenatus*, *A. kallopterus*, *A. notatus*, *A. semiornatus*, *Cheilodipterus artus*, *C. intermedius*, *Foa brachygramma*, *Neamia octospina*, *Rhabdamia gracilis*, and *Siphamia tubulata*, were herein recorded only on the basis of underwater photographs, and records of the remaining species were based on collected specimens. Twenty-seven species represent the first records from Yaku-shima Island.

Recently, Yoshida and Motomura (2009) considered the northernmost recorded range of *Apogon amboinensis* to be Yaku-shima Island. In addition, our survey revealed that the northward distributional range of the following six species extended to Yaku-shima Island: *Apogon caudicinctus*, *A. chrysotaenia*, *A. exostigma*, *A. moluccensis*, *Neamia octospina*, and *Nectamia bandanensis*. Of these, *A. chrysotaenia* was recorded from Japanese waters for the first time. Although no specimens of three species, *A. chrysotaenia*, *A. exostigma*, and *N. octospina*, were collected during this study, underwater photographs facilitated their accurate identification. *Siphamia tubulata*, reported only from Kashiwa-jima Island (Hirata et al., 1996; Hayashi, 2002) in Japanese waters, was found at Yaku-shima Island. Incidentally, none of the 45 species found at Yaku-shima Island represents the southernmost record of the species.

Most of the 45 species found at Yaku-shima Island have been observed throughout the year at various life stages by scuba diving, with the exception of the following four: *Apogon fasciatus*, *A. cf taeniophorus*, *Neamia octospina*, and *Siphamia tubulata*. Only a single, small specimen of *A. cf taeniophorus* was collected and no adults of the species have been observed or collected at the island. The remaining three species have never been collected and have been observed by scuba diving only once for each species during the last six years. This suggests that the four species were most likely transported from around Taiwan or China by the Kuroshio Current, which normally flows well west of the Ryukyu Islands. It is highly unlikely that these species reproduce around Yaku-shima Island.

Although the second author has confirmed by underwater observations for the last six years that the following three species occur at Yaku-shima Island, no specimens or photographs of these species were taken from the island: *Apogon fukuii* Hayashi, 1990 (Futasuji-ishimochi), *A. rubrimacula* Randall and Kulbicki, 1998 (Akahoshi-kinsen-ishimochi), and *Pseudamia hayashii* Randall, Lachner, and Fraser, 1985 (Sabikudari-bouzugisumodoki). These species may be collected from the island in future.

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Annotated checklist of marine and estuarine fishes of Yaku-shima Island, Kagoshima, southern Japan

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Abstract An annotated checklist of marine and estuarine fishes of Yaku-shima Island, Kagoshima Prefecture, southern Japan, was compiled from field and literature surveys. All registered specimens previously recorded from Yaku-shima Island in published papers were re-examined. A total of 951 species (382 genera, 112 families, 24 orders), including 374 species that represent the first reliable records from the island on the basis of collected specimens, are listed with citation of literature, registration numbers, sizes, localities in the island, nomenclatural and taxonomic remarks, and color photographs if available. A new Japanese name is proposed for a bythitid, *Alionematichthys piger*. Zoogeographical implications of the Yaku-shima Island ichthyofauna are discussed.

Key words: fish fauna, checklist, Yaku-shima Island, Kagoshima, Japan, Kuroshio Current.

Introduction

In 1904–1905, Mr. Robert Anderson, who was a graduate student of Stanford University and usually studied birds, collected fishes from Yaku-shima and Tanega-shima Islands, Kagoshima, Japan. His collection was sent to the United States National Museum and Stanford University. In 1906 Jordan and Starks reported 20 species of fishes, including seven new species, from these islands on the basis of Anderson's collection. Thirteen of the 20 species were described on the basis of specimens from Yaku-shima Island, and these are currently deposited at the Museum Support Center of the Smithsonian Institution National Museum of Natural History, Suitland (formerly United States National Museum) and the California Academy of Sciences, San Francisco (all fish specimens moved from Stanford University around 1969). These represent the oldest available fish specimens from Yaku-shima Island.

After Jordan and Starks (1906), no comprehensive reports on fishes from Yaku-shima Island were published for nearly 70 years until 1975. Arai and Ida (1975) reported 143 species from Yaku-shima and Tanega-shima Islands, 80 species of which were collected from Kusugawa on the northeast coast of Yaku-shima Island. Although Arai and Ida's (1975) report was based on collected specimens, they gave no indication of voucher specimens, including registration numbers. However, most of their specimens were in fact deposited at the National Museum of Nature and Science, Tokyo.

Recently, several reports on fishes from Yaku-

shima Island (e.g., Ichikawa et al., 1992; Kuniyasu, 1999; Matsumoto, 2001) were published by local divers and nature guides. These were based on underwater investigations, including underwater observations, photographs and movies, and observation at local fish markets. Ichikawa et al. (1992) provided a list of 580 species from Yaku-shima and Kuchierabu-shima Islands (the latter is located off the northwest of Yaku-shima Island), including freshwater fishes and species reported by Arai and Ida (1975). Ichikawa et al. (1992) gave only Japanese and scientific names and 14 underwater photographs but no information on observed fish sizes, localities, water depth, or specimens of species listed. Subsequently, Kuniyasu (1999) reported 333 species from Kurio on the southwest coast of Yaku-shima Island on the basis of underwater observation; he also did not collect any specimens. Matsumoto (2001–2005) published a series of underwater photographs of various Yaku-shima fish families, viz., Chaetodontidae (2001), Pomacanthidae (2002), Muraenidae (2004a), and Pomacentridae (2004b, 2005), but he also did not collect any specimens.

Since Yaku-shima Island is very important and interesting zoogeographically (see below), we made three large-scale Yaku-shima Expeditions in 2008–2009 (8–13 August 2008, 28 October–4 November 2008, and 25 July–1 August 2009) to elucidate the island's ichthyofauna and to clarify the influence of the Kuroshio Current on the ichthyofauna of southern Japan. In the expeditions and several small-scale surveys during this study, 4,386 specimens of 457 species of marine and estuarine fishes were collected, with 374 of the 457 species representing the first records from the island based on collected specimens.

This paper provides a list of 951 species of marine and estuarine fishes (382 genera, 112 families and 24 orders) occurring off Yaku-shima Island on the basis of published papers, underwater photographs, and collected specimens, along with color photographs where available. Previously reported specimens from Yaku-shima (Jordan and Starks, 1906; Arai and Ida, 1975) were re-identified during this study. The zoogeographical implications of the Yaku-shima Island ichthyofauna are discussed.

Yaku-shima Island and Kuroshio Current

Yaku-shima Island is located at 30°20′N, 130°32′E, ca. 60 km off south–southwest of Osumi Peninsula, Kagoshima Prefecture, southern Kyushu, Japan. The island, roughly circular in shape and with an area of ca. 505 km² and several mountains more than 1,000 m in height (highest 1,936 m), is the largest island in the Osumi Islands (and the ninth largest island in Japan). The Osumi Islands, including Tanega-shima, Yaku-shima, and Kuchierabu-jima Islands, are often treated as a part of the Ryukyu Islands, but the Ryukyu Islands are biogeographically defined as islands of Amami-oshima and southward. Yaku-shima Island, formed mostly of granite, has very limited flatlands and in its entirety appears as one large, steep mountain, with the mountain slope continuing under the sea. Thus, shallow waters, coral reefs and sandy beaches are very limited; most coastal areas are occupied by rocky reefs. Although such a monotonous environment in the coastal areas of an oceanic island generally results in a decrease in fish species diversity, Yaku-shima Island has a relatively higher diversity because the island faces a warm, strong water current, the Kuroshio Current, which brings tropical fishes from the south.

The Kuroshio Current flows from off the east of the Philippines to the Pacific coast of southern Japan, via Taiwan and west of the Ryukyu Islands (Fig. 1). The northwardly flowing current off the west of the Ryukyu Islands turns to the east and flows through the Tokara Islands (located between Yaku-shima and Amami-oshima Islands) (Lee et al., 2001). The current then turns north again toward the Pacific coasts of the islands of Kyushu, Shikoku, and Honshu (the main island of Japan) (Kamachi et al., 2004).

The Tokara Islands consist of 12 small islands in a row extending ca. 160 km north to south. There are two flow paths of the Kuroshio Current through the Tokara Islands (Chaen and Ichikawa, 2001): the more southerly route takes the current across the island chain from west to east around Nakano-shima Island; and the other, more northerly, route flows along the southern coast of Yaku-shima Island. The current alternates between the two flow paths on a 30–50 days cycle. Changes in

Fig. 1. Map of the East China Sea (from Kyushu to Taiwan) with the major water currents.

the flow path influence other minor water currents in the area, especially the Osumi Branch Current flowing between Yaku-shima Island and the southern tip of Osumi Peninsula. During a period when the Kuroshio Current flows around Yaku-shima Island, the Osumi Branch Current flows northeastward from Yaku-shima Island to Osumi Peninsula, but during a period when the Kuroshio Current takes its more southerly route, the direction of the Osumi Branch current is irregularly reversed to southwestward. So, the water currents around Yaku-shima Island are complex, with the flow rates and directions changing with seasons, water temperatures, and winds. These factors produce a unique ichthyofauna off the island.

Materials and methods

The systematic arrangement of families follows Nelson (2006). Scientific names generally followed Nakabo (2002) and Eschmeyer and Fricke (2009), with some modifications by recent published or unpublished taxonomic studies. Species in families are arranged in alphabetical order by species name. Standard Japanese names (abbreviated as Jpn name) generally follow Nakabo (2002), and are transliterated using the Hepburn system. Each species record was compiled from voucher specimens and literature sources related to marine and estuarine fishes, including freshwa-

Fig. 2. Map of Yaku-shima Island. Names of places and rivers given in this map are used in text.

ter fishes collected from estuaries. Each voucher specimen includes registration number, number of specimens registered if more than one, standard length [abbreviated as SL; sometimes total length (TL) or disc width (DW)], and locality on Yaku-shima Island (Fig. 2). The list of specimens is followed by literature cited. Most specimens used in previously published papers were re-identified in this study, and information on SL and locality of the re-examined specimens are provided.

Specimens collected during the 2008–2009 Yaku-shima Expeditions have been deposited at collections of Laboratory of Marine Biology, Faculty of Science, Kochi University, Kochi, Japan (BSKU), Fisheries Research Laboratory, Mie University, Shima, Japan (FRLM), Kagoshima University Museum, Kagoshima, Japan (KAUM), Kanagawa Prefectural Museum of Natural History, Odawara, Japan (KPM), Division of Fisheries Sciences, Faculty of Agriculture, University of Miyazaki, Miyazaki, Japan (MUFS), and National Museum of Nature and Science, Tokyo, Japan (NSMT). Other collections referred in this study are as follows: Biological Laboratory, Akasaka Imperial Palace, Imperial Household, Tokyo, Japan (BLIP), California Academy of Sciences, San Francisco, USA (CAS and SU), Kyushu University Museum, Fukuoka, Japan (KYUM), Osaka Museum of Natural History, Osaka, Japan (OMNH), Museum Support Center of the Smithsonian Institution National Museum of Natural History, Suitland, USA (USNM), and University Museum, University of Tokyo, Tokyo, Japan (ZUMT).

Checklist

ORDER ORECTOLOBIFORMES

FAMILY ORECTOLOBIDAE

Orectolobus japonicus Regan, 1906

[Jpn name: Ose] (Fig. 3)

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY HEMISCYLLIIDAE

Chiloscyllium punctatum Müller and Henle, 1838

[Jpn name: Inuzame]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 3. *Orectolobus japonicus* (off Isso, 8 m, 18 Jan. 2010, S. Harazaki).

FAMILY RHINCODONTIDAE

Rhincodon typus Smith, 1828

[Jpn name: Jimbezame]

Ichikawa et al. (1992): Yaku-shima Island.

ORDER LAMNIFORMES

FAMILY ALOPIIDAE

Alopias pelagicus Nakamura, 1935

[Jpn name: Nitari]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY CETORHINIDAE

Cetorhinus maximus (Gunnerus, 1765)

[Jpn name: Ubazame]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY LAMNIDAE

Isurus oxyrinchus Rafinesque, 1810

[Jpn name: Aozame]

Ichikawa et al. (1992): Yaku-shima Island.

ORDER CARCHARHINIFORMES

FAMILY PROSCYLLIIDAE

Galeocerdo cuvier (Péron and Lesueur, 1822)

[Jpn name: Itachizame]

Ichikawa et al. (1992): Yaku-shima Island.

Proscyllium venustum (Tanaka, 1912)

[Jpn name: Hyozame]

Ichikawa et al. (1992): Yaku-shima Island.

Triaenodon obesus (Rüppell, 1837)
[Jpn name: Nemuribuka]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY SPHYRNIDAE
Sphyrna lewini (Griffith and Smith, 1834)
[Jpn name: Akashumokuzame]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER MYLIOBATIFORMES
FAMILY DASYATIDAE
Dasyatis akajei (Müller and Henle, 1841)
[Jpn name: Akaei]
Ichikawa et al. (1992): Yaku-shima Island.

Dasyatis kuhlii (Müller and Henle, 1841)
[Jpn name: Yakkoei] (Fig. 4)
MUFS 25616, 719.5 mm DW, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 4. *Dasyatis kuhlii* (MUFS 25616, 719.5 mm DW).

FAMILY MYLIOBATIDAE
Aetobatus narinari (Euphrasen, 1790)
[Jpn name: Madaratobiei]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER ELOPIFORMES
FAMILY ELOPIDAE
Elops hawaiensis Regan, 1909
[Jpn name: Karaiwashi]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY MEGALOPIDAE
Megalops cyprinoides (Broussonet, 1782)
[Jpn name: Isegoi] (Fig. 5)
KAUM–I. 24677, 120.8 mm SL, Ambo; KAUM–I. 24678, 61.4 mm SL, Ambo.

Fig. 5. *Megalops cyprinoides* (KAUM–I. 24677, 120.8 mm SL, preserved specimen).

FAMILY ALBULIDAE
Albula forsteri Valenciennes, 1847
[Jpn name: Sotoiwashi] (Fig. 6)
Ichikawa et al. (1992): Yaku-shima Island. Hidaka et al. (2004): Isso.
Remarks: Hidaka et al. (2008) regarded *Albula argenteus* (Schneider, 1801) as a junior synonym of *Albula forsteri*.

Fig. 6. *Albula forsteri* (off Isso; after Hidaka et al., 2004).

ORDER ANGUILLIFORMES
FAMILY ANGUILLIDAE
Anguilla bicolor pacifica Schmidt, 1928
[Jpn name: Nyuginiaunagi] (Fig. 7)
Yamamoto et al. (2000): 19 specimens from Miyanoura—NSMT–PL 100, 46.5–51.5 mm TL; OMHN–P 11281, 48.4 mm TL; OMHN–P 11282, 47.5 mm TL; OMHN–P 11283, 48.4 mm TL; OMHN–P 11284, 48.1 mm TL; OMHN–P 11285–11287, 49.9–50.3 mm TL; OMHN–P 11288, 51.0 mm TL. Yamamoto et al. (2001): 19 specimens, same with Yamamoto et al. (2000).

Fig. 7. *Anguilla bicolor pacifica* (OMHN–P 11288, 51.0 mm TL).

Anguilla japonica Temminck and Schlegel, 1846
[Jpn name: Unagi] (Fig. 8)

MUFS 25451, 121.6 mm SL, Kurio.

Jordan and Starks (1906): USNM 53542, 2 specimens, 247.1–256.5 mm SL, mouth of Miyanoura River. Ichikawa et al. (1992): Yaku-shima Island. Yamamoto et al. (2001): 1710 specimens, Miyanoura (uncataloged at Kyushu University Museum).

Fig. 8. *Anguilla japonica* (MUFS 25451, 121.6 mm SL, preserved specimen).

Anguilla marmorata Quoy and Gaimard, 1824
[Jpn name: Ounagi] (Fig. 9)

KYUM–PI–2541, 92.0 mm TL, mouth of Kurio River.

Ichikawa et al. (1992): Yaku-shima Island. Yamamoto et al. (2001): 340 specimens, Miyanoura (uncataloged at Kyushu University Museum).

Fig. 9. *Anguilla marmorata* (KYUM–PI–2541, 92.0 mm TL, preserved specimen).

FAMILY MURAENIDAE

Echidna nebulosa (Ahl, 1789)
[Jpn name: Kumoutsubo] (Fig. 10)

FRLM 34742, 123.9 mm SL, Kurio; KAUM–I. 11345, 113.5 mm SL, Kurio; KAUM–I. 11346, 119.9 mm SL, Kurio; KAUM–I. 11560, 111.6 mm SL, Ambo; KAUM–I. 21731, 222.4 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Mugio.

Fig. 10. *Echidna nebulosa* (KAUM–I. 21731, 222.4 mm SL).

Echidna polyzona (Richardson, 1845)
[Jpn name: Shimaarashiutsubo] (Fig. 11)

KAUM–I. 11559, 210.6 mm SL, Ambo; KPM–NI 22503, 129.5 mm TL, Yudomari.

Fig. 11. *Echidna polyzona* (KAUM–I. 11559, 210.6 mm SL).

Enchelycore schismatorhynchus (Bleeker, 1853)
[Jpn name: Hidautsubo] (Fig. 12)

KAUM–I. 20238, 366.3 mm SL, Kurio.

Fig. 12. *Enchelycore schismatorhynchus* (KAUM–I. 20238, 366.3 mm SL, preserved specimen).

Gymnomuraena zebra (Shaw, 1797)
[Jpn name: Zeburautsubo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Yudomari.

Gymnothorax chilospilus Bleeker, 1864
[Jpn name: Minamiutsubo] (Fig. 13)

KAUM–I. 11299, 131.5 mm SL, Yudomari; NSMT–P 68026, 150.6 mm SL, Onoaida; NSMT–P 95398, 343.1 mm SL, Haruo.

Fig. 13. *Gymnothorax chilospilus* (KAUM–I. 11299, 131.5 mm SL).

Gymnothorax chlorostigma (Kaup, 1856)
[Jpn name: Hanabirautsubo]

Matsumoto (2004a): Kurio.

Remarks: *Gymnothorax chlorostigma* was synonymized with *Gymnothorax meleagris* by Böhlke and Randall (2000), but Hatooka (2002) regarded the former as a valid species.

Gymnothorax enigmaticus McCosker and Randall, 1982
[Jpn name: Shimautsubo] (Fig. 14)

KAUM–I. 11347, 105.5 mm SL, Kurio.

Fig. 14. *Gymnothorax enigmaticus* (KAUM–I. 11347, 105.5 mm SL).

Gymnothorax fimbriatus (Bennett, 1832)
[Jpn name: Herigoishiutsubo] (Fig. 15)

KAUM–I. 11130, 171.2 mm SL, Yudomari; KAUM–I. 11216, 154.5 mm SL, Kurio; KAUM–I. 11554, 398.9 mm SL, Ambo; KAUM–I. 11555, 402.1 mm SL, Ambo; KAUM–I. 11556, 424.2 mm SL, Ambo; KAUM–I. 11557, 320.9 mm SL, Ambo; KAUM–I. 11561, 150.5 mm SL, Ambo; KAUM–I. 11562, 178.2 mm SL, Ambo; KAUM–I. 21733, 338.4 mm SL, Kurio; KAUM–I. 21798, 132.0 mm SL, Kurio; KPM–NI 22502, 222.8 mm TL, Yudomari; NSMT–P 95417, 782.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Isso.

Fig. 15. *Gymnothorax fimbriatus* (KPM–NI 22502, 222.8 mm TL).

Gymnothorax flavimarginatus (Rüppell, 1830)
[Jpn name: Gomautsubo] (Fig. 16)

FRLM 34684, 109.4 mm SL, Kurio; KAUM–I. 11191, 98.9 mm SL, Kurio; KAUM–I. 11339, 98.9 mm SL, Kurio; KAUM–I. 11599, 233.0 mm SL, Ambo; KAUM–I. 20234, 56.3 mm SL, Kurio; KAUM–I. 20235, 209.0 mm SL, Kurio; KAUM–I. 20236, 134.9 mm SL, Kurio; KAUM–I. 20237, 105.4 mm SL, Kurio; KAUM–I. 21806, 281.0 mm SL, Kurio; NSMT–P 95416, 447.0 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a, as *Gymnothorax lavimarginatus*): Yudomari.

Fig. 16. *Gymnothorax flavimarginatus* (KAUM–I. 20235, 209.0 mm SL).

Gymnothorax isingteena (Richardson, 1845)
[Jpn name: Nisegoishiutsubo] (Fig. 17)

Ichikawa et al. (1992, as *Gymnothorax melanospilos*): Yaku-shima Island. Matsumoto (2004a): Kurio.

Remarks: Böhlke and McCosker (2001) regarded *Gymnothorax melanospilos* (Bleeker, 1855) as a junior synonym of *Gymnothorax isingteena*, but Hatooka (2002) treated the former as a valid species.

Fig. 17. *Gymnothorax isingteena* (off Isso, 10 m, 24 Dec. 2009, S. Harazaki).

Gymnothorax kidako (Temminck and Schlegel, 1847)
[Jpn name: Utsubo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Yudomari.

Gymnothorax melanospilos (Bleeker, 1855)
[Jpn name: Dokuutsubo]

Ichikawa et al. (1992, as *Gymnothorax javanicus*): Yaku-shima Island. Kuniyasu (1999, as *Gymnothorax javanicus*): Kurio. Matsumoto (2004a): Kurio.

Gymnothorax melatremus Schultz, 1953
[Jpn name: Himeutsubo]

Matsumoto (2004a): Nagata.

Gymnothorax meleagris (Shaw, 1795)
[Jpn name: Wakautsubo] (Fig. 18)

FRLM 34743, 418.1 mm SL, Kurio; KAUM–I. 11140, 233.9 mm SL, Kurio; KAUM–I. 11200, 277.5 mm SL, Kurio; KAUM–I. 11284, 255.0 mm SL, Yudomari; KAUM–I. 11340, 457.9 mm SL, Kurio; KAUM–I. 11390, 457.9 mm SL, Kurio; KAUM–I. 11460, 179.3 mm SL, Isso; KAUM–I. 11461, 216.4 mm SL, Isso; KAUM–I. 11462, 341.6 mm SL, Isso; KAUM–I. 11480, 294.1 mm SL, Isso; KAUM–I. 11558, 347.2 mm SL, Ambo; KAUM–I. 20239, 372.7 mm SL, Kurio; KAUM–I. 21730, 475.7 mm SL, Kurio; KAUM–I. 21752, 475.3 mm SL, Kurio; KAUM–I. 21799, 83.1 mm SL, Kurio; KAUM–I. 21800, 88.8 mm SL, Kurio; KAUM–I. 22818, 99.2 mm SL, Kurio; KAUM–I. 22819, 75.7 mm SL, Kurio; NSMT–P 68025, 229.8 mm SL, Miyanoura; NSMT–P 95419, 370.0 mm SL, Kurio; NSMT–P 95420, 393.9 mm SL, Kurio; NSMT–P 95421, 390.4 mm SL, Kurio; NSMT–P 95422, 2 specimens, 303.0–326.1 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Mugio.

Fig. 18. *Gymnothorax meleagris* (KAUM–I. 11340, 457.9 mm SL).

Gymnothorax nudivomer (Günther, 1867)
[Jpn name: Adeutsubo]

Matsumoto (2004a): Isso.

Gymnothorax pictus (Ahl, 1789)
[Jpn name: Aseutsubo] (Fig. 19)

KAUM–I. 11552, 518.0 mm SL, Ambo; KAUM–I. 11553, 371.0 mm SL, Ambo; KAUM–I. 21801, 104.7 mm SL, Kurio.

Fig. 19. *Gymnothorax pictus* (KAUM–I. 21801, 104.7 mm SL).

Gymnothorax thyrsoideus (Richardson, 1845)
[Jpn name: Sabiutsubo] (Fig. 20)

KAUM–I. 21732, 258.4 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004a): Isso.

Fig. 20. *Gymnothorax thyrsoideus* (KAUM–I. 21732, 258.4 mm SL).

Gymnothorax undulatus (Lacepède, 1803)
[Jpn name: Namiutsubo]

Matsumoto (2004a): Isso.

Gymnothorax zonipectis Seale, 1906
[Jpn name: Hireobiutsubo]

Matsumoto (2004a): Isso.

Muraena pardalis (Temminck and Schlegel, 1846)
[Jpn name: Torautsubo] (Fig. 21)

KAUM–I. 11298, 74.9 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004a): Hirauchi.

Rhinomuraena quaesita Garman, 1888
[Jpn name: Hanahigeutsubo] (Fig. 22)

Matsumoto (2004a): Isso.

Scuticaria tigrina (Lesson, 1828)
[Jpn name: Moyokikaiutsubo]

Matsumoto (2004a): Isso.

Fig. 21. *Muraena pardalis* (KAUM–I. 11298, 74.9 mm SL).

Fig. 22. *Rhinomuraena quaesita* (upper: off Isso, 18 m, 2 Mar. 2005, S. Harazaki; lower: off Isso, 12 m, 3 Mar. 2005, S. Harazaki).

Uropterygius macrocephalus (Bleeker, 1865)
[Jpn name: Hoshikikaiutsubo] (Fig. 23)

KAUM–I. 11402, 63.4 mm SL, Kurio.

Fig. 23. *Uropterygius macrocephalus* (KAUM–I. 11402, 63.4 mm SL).

Uropterygius micropterus (Bleeker, 1852)
[Jpn name: Amikikaiutsubo] (Fig. 24)
NSMT–P 77568, 294.6 mm TL, Kurio.

Fig. 24. *Uropterygius micropterus* (NSMT–P 77568, 294.6 mm TL).

FAMILY OPHICHTHIDAE
Leiuranus semicinctus (Lay and Bennett, 1839)
[Jpn name: Soraumihebi] (Fig. 25)
KAUM–I. 11600, 213.0 mm SL, Ambo.

Myrichthys colubrinus (Boddaert, 1781)
[Jpn name: Shimaumihebi]
Ichikawa et al. (1992): Yaku-shima Island.

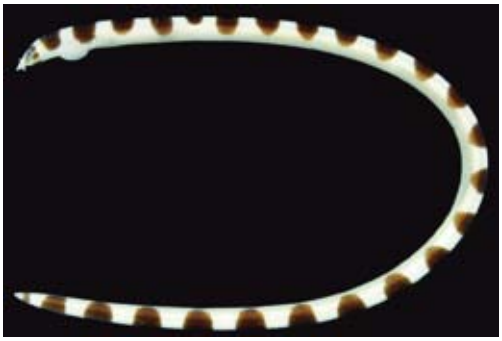

Fig. 25. *Leiuranus semicinctus* (KAUM–I. 11600, 213.0 mm SL).

Myrichthys maculosus (Cuvier, 1816)
[Jpn name: Goishiumihebi]
Ichikawa et al. (1992, as *Myrichthys aki*): Yaku-shima Island.
Remarks: *Myrichthys aki* Tanaka 1917 is a junior synonym of *Myrichthys maculosus*.

Pisodonophis cancrivorus (Richardson, 1848)
[Jpn name: Minamihotateumihebi]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY CONGRIDAE
Conger japonicus Bleeker, 1879
[Jpn name: Kuroanago] (Fig. 26)
KAUM–I. 20110, 277.5 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 26. *Conger japonicus* (KAUM–I. 20110, 277.5 mm SL).

Heteroconger hassi (Klausewitz and Eibl-Eibesfeldt, 1959)
[Jpn name: Chin-anago] (Fig. 27)

ORDER CLUPEIFORMES
FAMILY CLUPEIDAE
Sardinops melanostictus (Temminck and Schlegel, 1846)
[Jpn name: Maiwashi]
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 27. *Heteroconger hassi* (off Isso, 16 m, 19 Jan. 2010, S. Harazaki).

Spratelloides gracilis (Temminck and Schlegel, 1846) [Jpn name: Kibinago]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999, as *Spratelloides* sp.): Kurio. MOSC (2002): Isso, Ambo and Kurio.

FAMILY CHANIDAE

Chanos chanos (Forsskål, 1775)
[Jpn name: Sabahi]

Senta and Hirai (1981): 65 specimens, less than 16 mm TL, Miyanoura.

ORDER SILURIFORMES

FAMILY PLOTOSIDAE

Plotosus japonicus Yoshino and Kishimoto, 2008 [Jpn name: Gonzui] (Fig. 28)

KAUM–I. 11165, 68.4 mm SL, Kurio; KAUM–I. 11286, 133.1 mm SL, Yudomari; KAUM–I. 11624, 128.6 mm SL, Yudomari; KAUM–I. 11625, 60.6 mm SL, Yudomari; KAUM–I. 11626, 113.2 mm SL, Yudomari; KAUM–I. 11627, 118.2 mm SL, Yudomari; KAUM–I. 11628, 115 mm SL, Yudomari; KAUM–I. 11629, 61.9 mm SL, Yudomari; KAUM–I. 11630, 58.5 mm SL, Yudomari; KAUM–I. 11631, 59.7 mm SL, Yudomari; KAUM–I. 11632, 58.0 mm SL, Yudomari; KAUM–I. 11633, 57.7 mm SL, Yudomari; KAUM–I. 11634, 59.4 mm SL, Yudomari; KAUM–I. 11635, 57.5 mm SL, Yudomari; KAUM–I. 11636, 60.9 mm SL, Yudomari; KAUM–I. 11637, 62.6 mm SL, Yudomari; KAUM–I. 11638, 62.1 mm SL, Yudomari; KAUM–I. 11639, 61.2 mm SL, Yudomari; KAUM–I. 11640, 60.4 mm SL, Yudomari; KAUM–I. 11641, 63.0 mm SL, Yudomari; KAUM–I. 11642, 59.3 mm SL, Yudomari; KAUM–I. 11643, 57.7 mm SL, Yudomari; KAUM–I. 11644, 61.9 mm SL, Yudomari; KAUM–I. 11645, 58.5 mm SL, Yudomari; KAUM–I. 11646, 57.0 mm SL, Yudomari; KAUM–I. 11647, 56.2 mm SL, Yudomari; KAUM–I. 11648, 54.3 mm SL, Yudomari; KAUM–I. 11649, 59.7 mm SL, Yudomari; KAUM–I. 11650, 60.4 mm SL, Yudomari; KAUM–I. 20091, 141.5 mm SL, Yudomari; KAUM–I. 20144, 153.0 mm SL, Yudomari; KAUM–I. 21753, 58.9 mm SL, Kurio; NSMT–P 91358, 70 mm SL, Yudomari; NSMT–P 91359, 65 specimens, 23–70 mm SL, Yudomari; NSMT–P 91379, 30 mm SL, Kurio; NSMT–P 91499, 32 specimens, 31–134 mm SL, Kurio; NSMT–P 91501, 71 mm SL, Kurio.

Arai and Ida (1975, as *Plotosus anguillicaudatus*): Kusugawa (one specimen was reported, but not found at NSMT). Ichikawa et al. (1992, as *Plotosus lineatus*): Yaku-shima Island. Kuniyasu (1999, as *Plotosus lineatus*): Kurio.

Fig. 28. *Plotosus japonicus* (KAUM–I. 11625, 60.6 mm SL).

ORDER OSMERIFORMES
FAMILY OSMERIDAE
Plecoglossus altivelis altivelis Temminck and Schlegel, 1846
[Jpn name: Ayu]
Ichikawa et al. (1992): Yaku-shima Island. Yonezawa (2003b): Isso, Miyanoura, Ambo and Kurio Rivers.

ORDER AULOPIFORMES
Family SYNODONTIDAE
Saurida gracilis (Quoy and Gaimard, 1824)
[Jpn name: Madaraeso] (Fig. 29)
FRLM 34708, 167.3 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.


Fig. 29. *Saurida gracilis* (FRLM 34708, 167.3 mm SL).

Synodus dermatogenys Fowler, 1912
[Jpn name: Minamiakaeso] (Fig. 30)
KAUM–I. 11301, 135.5 mm SL, Yudomari; KAUM–I. 11302, 144.4 mm SL, Yudomari.
Kuniyasu (1999, as *Synodus variegatus*): Kurio.


Fig. 30. *Synodus dermatogenys* (KAUM–I. 11301, 135.5 mm SL).

Synodus fuscus Tanaka, 1917
[Jpn name: Sunaeso] (Fig. 31)
BSKU 96635, 104.3 mm SL, Isso.


Fig. 31. *Synodus fuscus* (BSKU 96635, 104.3 mm SL).

Synodus jaculum Russell and Cressey, 1979
[Jpn name: Oguroeso]
Kuniyasu (1999): Kurio.

Synodus ulae Schultz, 1953
[Jpn name: Akaeso] (Fig. 32)
KPM–NI 24258, 185.2 mm SL, Yoshida; NSMT–P 58106, 139.5 mm SL, Kusugawa; NSMT–P 96391, 165.7 mm SL, mouth of Tainoko River.
Ichikawa et al. (1992): Yaku-shima Island.


Fig. 32. *Synodus ulae* (KPM–NI 24258, 185.2 mm SL).

Synodus variegatus (Lacepède, 1803)
[Jpn name: Hitosujieso]
Kuniyasu (1999, as *Synodus englemani*): Kurio.
Remarks: Kuniyasu's (1999) identification is uncertain.

Trachinocephalus myops (Forster, 1801)
[Jpn name: Okieso]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER LAMPRIFORMES
FAMILY LAMPRIDAE
Lampris guttatus (Brünnich, 1788)
[Jpn name: Akamambo] (Fig. 33)
KAUM–I. 24997, ca. 1000 mm SL, off Isso (preserved caudal fin only).
Remarks: This specimen was collected by hand on 29 May 2007 from water surface off Isso (30°46′N, 130°47′E) where the fish drifted in a state of suspended animation.

Fig. 33. *Lampris guttatus* (KAUM–I. 24997, preserved caudal fin only).

ORDER GADIFORMES

FAMILY MACROURIDAE

Hymenocephalus lethonemus Jordan and Gilbert, 1904 [Jpn name: Itodara] (Fig. 34)

NSMT–P 94418, 5 specimens, 129.2–172.7 mm (lacking posterior portion of caudal peduncle), off east of Yaku-shima Island.

Fig. 34. *Hymenocephalus lethonemus* (NSMT–P 94418, 129.2 mm, preserved specimen).

Nezumia condylura Jordan and Gilbert, 1904 [Jpn name: Nezumidara] (Fig. 35)

NSMT–P 94557, 2 specimens, 127.3–149.0 mm (lacking posterior portion of caudal peduncle), off east of Yaku-shima Island.

Fig. 35. *Nezumia condylura* (NSMT–P 94557, 149.0 mm, preserved specimen).

ORDER OPHIDIIFORMES

FAMILY OPHIDIIDAE

Brotula multibarbata Temminck and Schlegel, 1846 [Jpn name: Itachiuo]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY BYTHITIDAE

Alionematichthys piger (Alcock, 1890) [New Jpn name: Hadakaryukyuitachiuo] (Fig. 36)

Møller et al. (2008): KAUM–I. 11482, 58.6 mm SL, Isso; KAUM–I. 11483, 52.1 mm SL, Isso.

Remarks: Møller et al. (2008) redescribed *Dinematichthys piger* Alcock as a member of *Alionematichthys*, based on 2288 specimens, including several specimens from the Ryukyu Islands, two of which were collected from Yaku-shima Island. The Yaku-shima specimens represent the northernmost records of the species. A new standard Japanese name, Hadaka-ryukyu-itachiuo, is proposed here for the species because it can easily be distinguished from *A. riukiuensis*, a congener co-ocurring in Japan, by lacking scales above the opercular spine (vs. scales present in the latter).

Fig. 36. *Alionematichthys piger* (KAUM–I. 11482, 58.6 mm SL, preserved specimen).

Alionematichthys riukiuensis (Aoyagi, 1954) [Jpn name: Ryukyuitachiuo] (Fig. 37)

Møller et al. (2008): KAUM–I. 11459, 62.7 mm SL, Isso; KAUM–I. 11484, 56.4 mm SL, Isso.

Remarks: This species, previously classified in the genus *Dinematichthys*, was transferred to a new genus, *Alionematichthys*, by Møller et al. (2008).

Fig. 37. *Alionematichthys riukiuensis* (KAUM–I. 11459, 62.7 mm SL).

Diancistrus fuscus (Fowler, 1946)
[Jpn name: Sangoitachiuo] (Fig. 38)

KAUM–I. 11279, 54.3 mm SL, Yudomari.

Remarks: This species has been regarded as a species of *Brotulina* (e.g., Nielsen et al., 1999; Nakabo, 2002), but Schwarzhans et al. (2005) considered it a species of *Diancistrus*.

Fig. 38. *Diancistrus fuscus* (KAUM–I. 11279, 54.3 mm SL).

ORDER LOPHIIFORMES
Family ANTENNARIIDAE
Antennarius commerson (Latreille, 1804)
[Jpn name: Omonkaeruanko] (Fig. 39)

Ichikawa et al. (1992, as *Antennarius moluccensis*): Yaku-shima Island.

Antennarius maculatus (Desjardins, 1840)
[Jpn name: Kumadorikaeruanko] (Fig. 40)

Antennarius pictus (Shaw, 1794)
[Jpn name: Irokaeruanko] (Fig. 41)

KAUM–I. 20230, 50.6 mm SL, Kurio.

Histrio histrio (Linnaeus, 1758)
[Jpn name: Hanaokoze] (Fig. 42)

KPM–NI 24779, 14.9 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 39. *Antennarius commerson* (off Isso, 25 m, 8 Apr. 2007, S. Harazaki).

Fig. 40. *Antennarius maculatus* (off Isso, 5 m, 28 Apr. 2007, S. Harazaki).

Fig. 41. *Antennarius pictus* (KAUM–I. 20230, 50.6 mm SL).

Fig. 42. *Histrio histrio* (upper: KPM–NI 24779, 14.9 mm SL; lower: off Isso, 1 m, 8 Apr. 2007, S. Harazaki).

ORDER MUGILIFORMES

FAMILY MUGILIDAE

Chelon macrolepis (Smith, 1846)

[Jpn name: Kobora] (Fig. 43)

KAUM–I. 11157, 106.9 mm SL, Kurio; KAUM–I. 11319, 33.8 mm SL, Ambo; KAUM–I. 11768, 24.0 mm SL, Nagakubo; KAUM–I. 15587, 48.7 mm SL, Yaku-shima Island; KAUM–I. 24683, 41.9 mm SL, mouth of Kurio River; KAUM–I. 24684, 42.0 mm SL, mouth of Kurio River; KAUM–I. 24685, 41.4 mm SL, mouth of Kurio River; NSMT–P 91597, 62 mm SL, Nagakubo; NSMT–P 91598, 7 specimens, 33–76 mm SL, Nagakubo; NSMT–P 91665, 97 mm SL, Kurio; NSMT–P 91666, 4 specimens, 61–101 mm SL, Kurio; NSMT–P 91669, 108.5 mm SL, Kurio.

Fig. 43. *Chelon macrolepis* (KAUM–I. 11157, 106.9 mm SL, preserved specimen).

Crenimugil crenilabis (Forsskål, 1775)

[Jpn name: Furaibora] (Fig. 44)

KAUM–I. 11159, 85.9 mm SL, Kurio; KAUM–I. 11173, 43.3 mm SL, Kurio; KAUM–I. 11174, 35.9 mm SL, Kurio; KAUM–I. 20540, 40.3 mm SL, Yudomari; NSMT–P 91667, 79.3 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 17814, 52.0 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 44. *Crenimugil crenilabis* (NSMT–P 91667, 79.3 mm SL).

Ellochelon vaigiensis (Quoy and Gaimard, 1825)

[Jpn name: Onibora]

Arai and Ida (1975, as *Chelon vaigiensis*): Kusugawa [two specimens (20–36 mm TL) were reported, but not found at NSMT].

Moolgarda engeli (Bleeker 1858-59)

[Jpn name: Monnashibora] (Fig. 45)

KAUM–I. 24736, 25.3 mm SL, mouth of Kurio River; KAUM–I. 24737, 26.0 mm SL, mouth of Kurio River; KAUM–I. 24742, 22.0 mm SL, mouth of Kurio River.

Fig. 45. *Moolgarda engeli* (KAUM–I. 24736, 25.3 mm SL, preserved specimen).

Moolgarda perusii (Valenciennes, 1836)
[Jpn name: Nan-yobora] (Fig. 46)

KAUM–I. 24738, 25.2 mm SL, mouth of Kurio River; KAUM–I. 24739, 23.4 mm SL, mouth of Kurio River; KAUM–I. 24740, 22.1 mm SL, mouth of Kurio River; KAUM–I. 24741, 24.4 mm SL, mouth of Kurio River.

Fig. 46. *Moolgarda perusii* (KAUM–I. 24741, 24.4 mm SL, preserved specimen).

Moolgarda seheli (Forsskål, 1775)
[Jpn name: Taiwammenada] (Fig. 47)

KAUM–I. 11321, 54.1 mm SL, Nagakubo; KAUM–I. 21739, 27.3 mm SL, Kurio; KAUM–I. 21740, 26.3 mm SL, Kurio; KAUM–I. 24735, 27.4 mm SL, mouth of Kurio River.

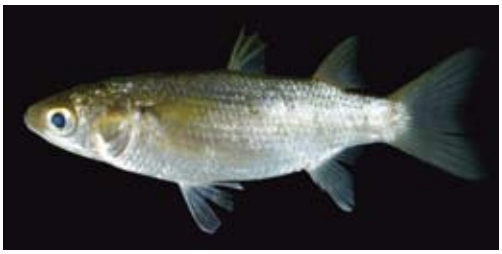

Fig. 47. *Moolgarda seheli* (KAUM–I. 11321, 54.1 mm SL).

Mugil cephalus cephalus Linnaeus, 1758
[Jpn name: Bora] (Fig. 48)

KAUM–I. 11769, 23.0 mm SL, Nagakubo; KAUM–I. 15417, 136.4 mm SL, Yaku-shima Island; KAUM–I. 15418, 74.4 mm SL, Yaku-shima Island; KAUM–I. 15425, 137.0 mm SL, Yaku-shima Island; KAUM–I. 15428, 102.8 mm SL, Yaku-shima Island; KAUM–I. 20064, 131.9 mm SL, Yudomari; KAUM–I. 24686, 79.2 mm SL, Ambo; KAUM–I. 24687, 71.1mm SL, Ambo; KPM–NI 24659, 293.0 mm SL, mouth of Ambo River; NSMT–P 91597, 61.5 mm SL, Nagakubo; NSMT–P 91598, 7 specimens, 31.5–75.0 mm SL, Nagakubo; NSMT–P 91665, 95.7 mm SL, Kurio; NSMT–P 91666, 3 specimens, 88.9–99.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

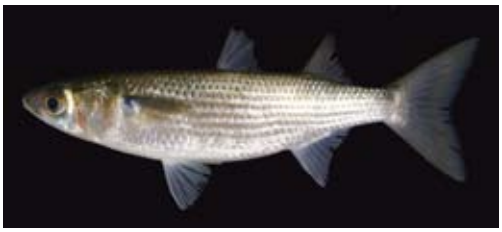

Fig. 48. *Mugil cephalus cephalus* (KAUM–I. 20064, 131.9 mm SL).

ORDER ATHERINIFORMES
FAMILY ATHERINIDAE
Atherinomorus lacunosus (Forster, 1801)
[Jpn name: Yakushimaiwashi] (Fig. 49)

KPM–NI 23005, 127.8 mm SL, mouth of Nagata River.

Jordan and Starks (1906), Kimura et al. (2007): SU 9354, holotype of *Atherina morrisi* Jordan and Starks, 1906, 102 mm SL, Yaku-shima Island.

Fig. 49. *Atherinomorus lacunosus* (KPM–NI 23005, 127.8 mm SL).

Atherion elymus Jordan and Starks, 1901
[Jpn name: Mugiiwashi] (Fig. 50)

BSKU 96892, 29.3 mm SL, Kurio; FRLM 34645, 30.2 mm SL, Kurio; FRLM 34646, 30.4 mm SL, Kurio; FRLM 34647, 34.5 mm SL, Kurio; FRLM 34648, 33.9 mm SL, Kurio; FRLM 34649, 31.0 mm SL, Kurio; FRLM 34650, 49 specimens, 20.2–31.9 mm SL, Kurio; FRLM 34671, 23.3 mm SL, Kurio; FRLM 34720, 34.2

mm SL, Kurio; KAUM–I. 11403, 35.2 mm SL, Kurio Beach; KAUM–I. 11405, 29.4 mm SL, Kurio Beach; KAUM–I. 11406, 27.9 mm SL, Kurio Beach; KAUM–I. 11412, 24.2 mm SL, Kurio Beach; KAUM–I. 11414, 29.8 mm SL, Kurio; KAUM–I. 20250, 25.7 mm SL, Kurio; KAUM–I. 20334, 35.7 mm SL, Isso; KAUM–I. 20335, 29.7 mm SL, Isso; KAUM–I. 20336, 34.7 mm SL, Isso; KAUM–I. 20337, 29.7 mm SL, Isso; KAUM–I. 20338, 28.7 mm SL, Isso; KAUM–I. 21830, 28.7 mm SL, Kurio; KAUM–I. 23549, 28.6 mm SL, Kurio.

Fig. 50. *Atherion elymus* (KAUM–I. 20250, 25.7 mm SL).

Hypoatherina valenciennei (Bleeker, 1853) [Jpn name: Togoroiwashi]

Ichikawa et al. (1992): Yaku-shima Island.

ORDER BELONIFORMES

FAMILY EXOCOETIDAE

Cheilopogon agoo (Temminck and Schlegel, 1846) [Jpn name: Tobiuo] (Fig. 51)

Jordan and Starks (1906): USNM 53535, 259.7 mm SL, Yaku-shima Island. Ichikawa et al. (1992): Yaku-shima Island.

Fig. 51. *Cheilopogon agoo* (USNM 53535, 259.7 mm SL, preserved specimen).

Cheilopogon cyanopterus (Valenciennes, 1847) [Jpn name: Karasutobiuo] (Fig. 52)

NSMT–P 95149, 264.1 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 52. *Cheilopogon cyanopterus* (NSMT–P 95149, 264.1 mm SL).

Cheilopogon pinnatibarbatus japonicus (Franz, 1910) [Jpn name: Hamatobiuo] (Fig. 53)

NSMT–P 64314, 294.8 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 53. *Cheilopogon pinnatibarbatus japonicus* (NSMT–P 64314, 294.8 mm SL, preserved specimen).

Cheilopogon furcatus furcatus (Mitchill, 1815) [Jpn name: Omenatsutobi] (Fig. 54)

NSMT–P 95150, 278.6 mm SL, Yaku-shima Island; NSMT–P 95151, 288.2 mm SL, Yaku-shima Island.

Remarks: This species has been regarded as *Cypselurus antoncichi* Woods and Schultz, 1953 by numerous authors, but Parin (2009) recently synonymized it with *C. furcatus*.

Fig. 54. *Cheilopogon furcatus furcatus* (NSMT–P 95150, 278.6 mm SL).

Cypselurus furcatus fisunovi (Parin and Belyanina, 1998)
[Jpn name: Shirofuchitobiuo]

KAUM–I. 8368, 201.6 mm SL, Yaku-shima Island.

Cypselurus heterurus doederleini (Steindachner, 1887)
[Jpn name: Tsukushitobiuo]

Ichikawa et al. (1992): Yaku-shima Island.

Cypselurus poecilopterus (Valenciennes, 1847)
[Jpn name: Ayatobiuo] (Fig. 55)

KAUM–I. 21944, 162.7 mm SL, Yaku–shima Island; NSMT–P 95152, 162.6 mm SL, Yaku-shima Island; NSMT–P 95153, 2 specimens, 165.5–171.9 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 55. *Cypselurus poecilopterus* (KAUM–I. 21944, 162.7 mm SL).

Exocoetus monocirrhus Richardson, 1846
[Jpn name: Hagoromotobiuo]

Ichikawa et al. (1992): Yaku-shima Island.

Hirundichthys speculiger (Valenciennes, 1847)
[Jpn name: Ninojitobiuo] (Fig. 56)

KAUM–I. 15868, 46.0 mm SL, off northwest of Yaku-shima Island; KAUM–I. 15895, 62.8 mm SL, off northwest of Yaku-shima Island; KAUM–I. 15921 83.7 mm SL, off northwest of Yaku-shima Island.

Fig. 56. *Hirundichthys speculiger* (KAUM–I. 15895, 62.8 mm SL, preserved specimen).

Parexocoetus brachypterus brachypterus (Richardson, 1846)
[Jpn name: Tsumaritobiuo]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY HEMIRAMPHIDAE
Euleptorhamphus viridis (van Hasselt, 1823)
[Jpn name: Tozayori]

Ichikawa et al. (1992): Yaku-shima Island.

Hemiramphus lutkei Valenciennes, 1847
[Jpn name: Nan-yosayori]

Ichikawa et al. (1992): Yaku-shima Island.

Oxyporhamphus micropterus micropterus (Valenciennes, 1847)
[Jpn name: Sayoritobiuo]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY BELONIDAE
Ablennes hians (Valenciennes, 1846)
[Jpn name: Hamadatsu]

Ichikawa et al. (1992): Yaku-shima Island.

Platybelone argalus platyura (Bennett,1832)
[Jpn name: Himedatsu]

Ichikawa et al. (1992): Yaku-shima Island.

Tylosurus acus melanotus (Bleeker, 1850)
[Jpn name: Tenjikudatsu] (Fig. 57)

KAUM–I. 1898, 131.2 mm SL, Yudomari; KPM–NI 24669, 714.8 mm SL, Onoaida.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 57. *Tylosurus acus melanotus* (KPM–NI 24669, 714.8 mm SL).

Tylosurus crocodilus crocodilus (Péron and Lesueur, 1821)
[Jpn name: Okizayori] (Fig. 58)

KAUM–I. 11141, 182.3 mm SL, Kurio; KAUM–I. 25228, 482.2 mm SL, Onoaida; KPM–NI 24664, 419.0 mm SL, mouth of Nagata River; KPM–NI 24668, 746.6 mm SL, Onoaida; KPM–NI 24670, 613.6 mm SL, Onoaida; NSMT–P 96079, 412.7 mm SL, Ambo.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 58. *Tylosurus crocodilus crocodilus* (KPM–NI 24664, 419.0 mm SL).

FAMILY SCOMBERESOCIDAE
Cololabis saira (Brevoort 1856)
[Jpn name: Samma]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER BERYCIFORMES
FAMILY MONOCENTRIDAE
Monocentris japonica (Houttuyn, 1782)
[Jpn name: Matsukasauo]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY HOLOCENTRIDAE
Myripristis berndti Jordan and Evermann, 1903
[Jpn name: Akamatsukasa]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Myripristis botche Cuvier, 1829
[Jpn name: Urokomatsukasa]
Kuniyasu (1999): Kurio.

Myripristis kuntee Valenciennes, 1831
[Jpn name: Kuroobimatsukasa]
Kuniyasu (1999): Kurio.

Myripristis murdjan (Forsskål, 1775)
[Jpn name: Yogorematsukasa] (Fig. 59)
KAUM–I. 11463, 108.0 mm SL, Isso.

Fig. 59. *Myripristis murdjan* (KAUM–I. 11463, 108.0 mm SL).

Myripristis violacea Bleeker, 1851
[Jpn name: Seguromatsukasa] (Fig. 60)

Fig. 60. *Myripristis violacea* (off Isso, 6 m, 29 Dec. 2008, S. Harazaki).

Ostichthys japonicus (Cuvier, 1829)
[Jpn name: Ebisudai] (Fig. 61)
KAUM–I. 7411, 308.4 mm SL, Yaku-shima Island.

Fig. 61. *Ostichthys japonicus* (KAUM–I. 7411, 308.4 mm SL).

Sargocentron caudimaculatum (Rüppell, 1838)
[Jpn name: Kurakakeebisu]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Sargocentron diadema (Lacepède, 1802)
[Jpn name: Nijiebisu] (Fig. 62)
BSKU 96594, 112.7 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 62. *Sargocentron diadema* (BSKU 96594, 112.7 mm SL, preserved specimen).

Sargocentron ittodai (Jordan and Fowler, 1902) [Jpn name: Teriebisu] (Fig. 63)

FRLM 34728, 149.1 mm SL, Kurio; KAUM–I. 11271, 148.7 mm SL, Yudomari; KAUM–I. 11342, 161.6 mm SL, Kurio; KAUM–I. 20021, 113.2 mm SL, Yudomari; KAUM–I. 20323, 132.2 mm SL, Kurio; KAUM–I. 24227, 134.9 mm SL, Onoaida; KPM–NI 24941, 139.7 mm SL, Onoaida; NSMT–P 95400, 149.5 mm SL, Miyanoura; NSMT–P 95410, 3 specimens, 135.3–145.4 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 63. *Sargocentron ittodai* (KAUM–I. 20021, 113.2 mm SL).

Sargocentron melanospilos (Bleeker, 1858) [Jpn name: Sumitsukikanoko] (Fig. 64)

NSMT–P 77634, 202.0 mm SL, Nanase.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 64. *Sargocentron melanospilos* (NSMT–P 77634, 202.0 mm SL).

Sargocentron praslin (Lacepède, 1802) [Jpn name: Kuroobiebisu] (Fig. 65)

KAUM–I. 11531, 44.5 mm SL, Ambo; NSMT–P 95414, 187.1 mm SL, Kurio; NSMT–P 95437, 115.8 mm SL, Haruo.

Arai and Ida (1975, as *Holocentrus ruber*): NSMT–P 58120, 76.2 mm SL, Kusugawa; NSMT–P 58136, 77.0 mm SL, Kusugawa.

Fig. 65. *Sargocentron praslin* (upper: KAUM–I. 11531, 44.5 mm SL; lower: NSMT–P 95414, 187.1 mm SL).

Sargocentron punctatissimum (Cuvier, 1829)
[Jpn name: Hoshiebisu] (Fig. 66)

FRLM 34729, 117.5 mm SL, Kurio; KAUM–I. 11255, 131.0 mm SL, Yudomari; KAUM–I. 11341, 129.5 mm SL, Kurio; MUFS 25545, 130.4 mm SL, Yudomari; NSMT–P 91502, 126 mm SL, Kurio; NSMT–P 91503, 2 specimens, 115–117 mm SL, Kurio; NSMT–P 95412, 2 specimens, 101.8–126.2 mm SL, Kurio; NSMT–P 95456, 45.4 mm SL, Haruo.

Fig. 66. *Sargocentron punctatissimum* (KAUM–I. 11255, 131.0 mm SL).

Sargocentron spiniferum (Forsskål, 1775)
[Jpn name: Togariebisu] (Fig. 67)

FRLM 34721, 297.0 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 67. *Sargocentron spiniferum* (FRLM 34721, 297.0 mm SL).

ORDER ZEIFORMES
FAMILY PARAZENIDAE
Parazen pacificus Kamohara, 1935
[Jpn name: Benimatodai] (Fig. 68)

USNM 118007, 128.4 mm SL, Yaku-shima Island.

Fig. 68. *Parazen pacificus* (USNM 118007, 128.4 mm SL, preserved specimen).

ORDER GASTEROSTEIFORMES
FAMILY SOLENOSTOMIDAE
Solenostomus cyanopterus Bleeker, 1854
[Jpn name: Kamisoriuo] (Fig. 69)

Fig. 69. *Solenostomus cyanopterus* (off Isso, 15 m, 17 June 2009, S. Harazaki).

Solenostomus paradoxus (Pallas, 1770)
[Jpn name: Nishikifuraiuo] (Fig. 70)

Fig. 70. *Solenostomus paradoxus* (off Isso, 6 m, 29 Dec. 2008, S. Harazaki).

FAMILY SYNGNATHIDAE

Corythoichthys amplexus Dawson and Randall, 1975
[Jpn name: Obiishiyoji]

Kuniyasu (1999): Kurio.

Corythoichthys haematopterus (Bleeker, 1851)
[Jpn name: Ishiyoji] (Fig. 71)

KAUM–I. 20342, 97.2 mm SL, Isso; KPM–NI 22572, 103.1 mm SL, Isso.

Fig. 71. *Corythoichthys haematopterus* (KAUM–I. 20342, 97.2 mm SL).

Corythoichthys schultzi Herald, 1953
[Jpn name: Kuchinagaishiyoji]

Kuniyasu (1999): Kurio.

Choeroichthys sculptus (Günther, 1870)
[Jpn name: Chigoyoji] (Fig. 72)

KAUM–I. 21772, 57.2 mm SL, Kurio; KPM–NI 24903, 67.0 mm SL, Kurio; KPM–NI 24904, 60.5 mm SL, Kurio.

Fig. 72. *Choeroichthys sculptus* (KAUM–I. 21772, 57.2 mm SL).

Doryrhamphus excisus excisus Kaup, 1856
[Jpn name: Hibashiyoji] (Fig. 73)

KAUM–I. 11324, 56.8 mm SL, Nagakubo; KAUM–I. 11533, 48.6 mm SL, Ambo; KAUM–I. 21831, 51.7 mm SL, Kurio; NSMT–P 95453, 52.1 mm SL, Haruo.

Arai and Ida (1975, as *Doryrhamphus melanopleura*): Kusugawa (one specimen was reported, but not found at NSMT).

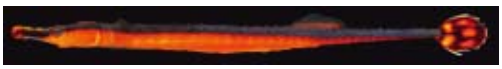

Fig. 73. *Doryrhamphus excisus excisus* (KAUM–I. 11324, 56.8 mm SL).

Doryrhamphus japonicus Araga and Yoshino, 1975
[Jpn name: Nokogiriyoji] (Fig. 74)

KAUM–I. 11196, 72.2 mm SL, Kurio; KAUM–I. 11323, 65.0 mm SL, Nagakubo; KAUM–I. 20541, 70.8 mm SL, Yudomari; KAUM–I. 20542, 62.2 mm SL, Yudomari; KAUM–I. 21802, 54.7 mm SL, Kurio.

Fig. 74. *Doryrhamphus japonicus* (KAUM–I. 11323, 65.0 mm SL).

Dunckerocampus dactyliophorus (Bleeker, 1853)
[Jpn name: Oiran-yoji] (Fig. 75)

BSKU 96541, 134.5 mm SL, Yudomari.

Fig. 75. *Dunckerocampus dactyliophorus* (BSKU 96541, 134.5 mm SL).

Hippocampus bargibanti Whitley 1970
[Jpn name: None] (Fig. 76)

Remarks: This species has been recorded along the Pacific coast of Japan, and the Izu, Ogasawara, and Ryukyu Islands (Senou et al., 2002, 2006a). No specimens have been collected from Yaku-shima Island, although this species is relatively common in the island in depths of 25–30 m.

Hippocampus histrix Kaup, 1856
[Jpn name: Ibaratatsu]

Ichikawa et al. (1992): Yaku-shima Island.

Hippocampus kelloggi Jordan and Snyder, 1901
[Jpn name: Oumiuma] (Fig. 77)

KAUM–I. 21741, 208.7 mm, mouth of Ambo River.

Fig. 76. *Hippocampus bargibanti* (off Isso, 25 m, 17 June 2004, S. Harazaki).

Hippocampus kuda Bleeker, 1852
[Jpn name: Kuroumiuma] (Fig. 77)

BSKU 96574, 214.1 mm, Yudomari; KPM–NI 22507, 164.3 mm, Yudomari.

Fig. 77. Left: *Hippocampus kelloggi* (KAUM–I. 21741, 208.7 mm); right: *H. kuda* (KPM–NI 22507, 164.3 mm).

Hippichthys spicifer (Rüppell, 1838)
[Jpn name: Kawayoji] (Fig. 78)

KAUM–I. 21593, 107.0 mm SL, mouth of Ambo River; KAUM–I. 21594, 107.7 mm SL, mouth of Ambo River; NSMT–P 77932, 90.8 mm SL, mouth of Ambo River.

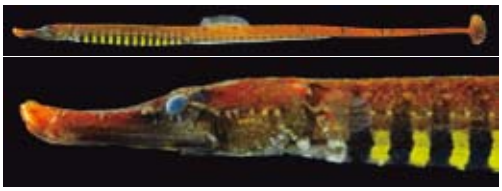

Fig. 78. *Hippichthys spicifer* (KAUM–I. 21594, 107.7 mm SL).

Micrognathus andersonii (Bleeker, 1858)
[Jpn name: Kammuriyoji] (Fig. 79)

KAUM–I. 11532, 62.7 mm SL, Ambo; KAUM–I. 21735, 92.8 mm SL, Kurio; KAUM–I. 21773, 66.1 mm SL, Kurio; KAUM–I. 21774, 46.6 mm SL, Kurio; KPM–NI 22573, 56.4 mm SL, Isso.

Arai and Ida (1975, as *Micrognathus brevirostris*): NSMT–P 17833, 46.5 mm SL, Kusugawa.

Fig. 79. *Micrognathus andersonii* (upper: KAUM–I. 21774, 46.6 mm SL; lower: KAUM–I. 21773, 66.1 mm SL).

Microphis brachyurus brachyurus (Bleeker, 1853)
[Jpn name: Tenguyoji] (Fig. 80)

KAUM–I. 21763, 120.3 mm SL, Ambo; KAUM–I. 21764, 99.5 mm SL, Ambo; KAUM–I. 24682, 101.1 mm SL, Ambo; KAUM–I. 25198, 129.1 mm SL, mouth of Nagata River; KAUM–I. 25199, 101.0 mm SL, mouth of Nagata River.

Phoxocampus belcheri (Kaup, 1856)
[Jpn name: Boyoji] (Fig. 81)

KPM–NI 24796, 28.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

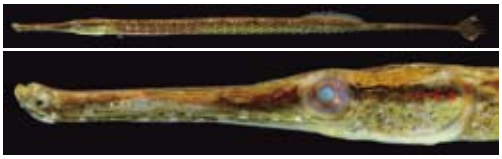

Fig. 80. *Microphis brachyurus brachyurus* (KAUM–I. 21763, 120.3 mm SL).

Fig. 81. *Phoxocampus belcheri* (KPM–NI 24796, 28.7 mm SL).

Phoxocampus diacanthus (Schultz, 1943)
[Jpn name: Hachijoboyoji] (Fig. 82)
KPM–NI 22574, 55.4 mm SL, Isso.

Fig. 82. *Phoxocampus diacanthus* (KPM–NI 22574, 55.4 mm SL).

FAMILY AULOSTOMIDAE
Aulostomus chinensis (Linnaeus, 1766)
[Jpn name: Herayagara]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY FISTULARIIDAE
Fistularia commersonii Rüppell, 1838
[Jpn name: Aoyagara] (Fig. 83)
KAUM–I. 11203, 388.4 mm SL, Kurio; KAUM–I. 11328, 369.6 mm SL, Nagakubo; KAUM–I. 11654, 464.1 mm SL, Ambo; KAUM–I. 20147, 493.9 mm SL, Yudomari; KAUM–I. 20148, 537.9 mm SL, Yudomari; KAUM–I. 20149, 714.2 mm SL, Yudomari; KAUM–I. 20183, 528 mm SL, Yudomari; NSMT–P 91352, 179 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso.

Fig. 83. *Fistularia commersonii* (KAUM–I. 11203, 388.4 mm SL).

FAMILY CENTRISCIDAE
Aeoliscus strigatus (Günther, 1861)
[Jpn name: Hekoayu] (Fig. 84)
KAUM–I. 20090, 97.4 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 84. *Aeoliscus strigatus* (KAUM–I. 20090, 97.4 mm SL).

ORDER SCORPAENIFORMES
FAMILY DACTYLOPTERIDAE
Dactyloptena orientalis (Cuvier, 1829)
[Jpn name: Semihobo]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY APISTIDAE
Apistus carinatus (Bloch and Schneider, 1801)
[Jpn name: Hachi]
SU 25235, 94.2 mm SL, off southeast of Yaku-shima Island.

FAMILY SCORPAENIDAE
Dendrochirus brachypterus (Cuvier, 1829)
[Jpn name: Shimahimeyamanokami] (Fig. 85)
KAUM–I. 20160, 24.8 mm SL, Yudomari.

Fig. 85. *Dendrochirus brachypterus* (KAUM–I. 20160, 24.8 mm SL).

Dendrochirus zebra (Cuvier, 1829)
[Jpn name: Kirimmino] (Fig. 86)

KAUM–I. 20107, 88.6 mm SL, Yudomari; KAUM–I. 20162, 44.0 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 86. *Dendrochirus zebra* (KAUM–I. 20107, 88.6 mm SL).

Parascorpaena aurita (Rüppell, 1838)
[Jpn name: Chiburunettaifusakasago] (Fig. 87)

KAUM–I. 20102, 56.6 mm SL, Yudomari; KPM–NI 24783, 22.1 mm SL, Kurio.

Motomura et al. (2009): BSKU 96650, 116.1 mm SL, Isso.

Remarks: This species was first recorded from East Aisa by Motomura et al. (2009) on the basis of 56 specimens. One of these, BSKU 96650, represents the northernmost record of the species.

Fig. 87. *Parascorpaena aurita* (KAUM–I. 20102, 56.6 mm SL).

Parascorpaena mossambica (Peters, 1855)
[Jpn name: Nettaifusakasago] (Fig. 88)

KAUM–I. 11145, 55.5 mm SL, Kurio; KAUM–I. 11227, 36.5 mm SL, Kurio; KAUM–I. 11228, 37.6 mm SL, Kurio; KAUM–I. 11229, 41.3 mm SL, Kurio; KAUM–I. 11376, 37.7 mm SL, Kurio; KAUM–I. 11455, 56.9 mm SL, Isso; KAUM–I. 11584, 37.7 mm SL, Ambo; KAUM–I. 20242, 30.8 mm SL, Kurio; KAUM–I. 20264, 19.8 mm SL, Kurio; KAUM–I. 21703, 30.8 mm SL, Kurio; KAUM–I. 21706, 20.7 mm SL, Kurio; KAUM–I. 21707, 18.5 mm SL, Kurio; KAUM–I. 21709, 17.4 mm SL, Kurio.

Arai and Ida (1975, as *Scorpaena zanzibarensis*): Kusugawa [one specimen (129 mm TL) was reported, but not found at NSMT].

Fig. 88. *Parascorpaena mossambica* (KAUM–I. 11376, 37.7 mm SL).

Pterois antennata (Bloch, 1787)
[Jpn name: Nettaiminokasago]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pterois lunulata Temminck and Schlegel, 1843
[Jpn name: Minokasago]

Ichikawa et al. (1992): Yaku-shima Island.

Pterois radiata Cuvier, 1829
[Jpn name: Kimiokoze] (Fig. 89)

KAUM–I. 11312, 76.8 mm SL, Yudomari; KAUM–I. 11513, 72.5 mm SL, Ambo; KAUM–I. 21713, 29.4 mm SL, Kurio; NSMT–P 95428, 67.6 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 89. *Pterois radiata* (KAUM–I. 11513, 72.5 mm SL).

Pterois volitans (Linnaeus, 1758)
[Jpn name: Hanaminokasago] (Fig. 90)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 90. *Pterois volitans* (off Isso, 12 m, 16 May 2008, S. Harazaki).

Scorpaenodes guamensis (Quoy and Gaimard, 1824)
[Jpn name: Guamukasago] (Fig. 91)

KAUM–I. 11582, 66.7 mm SL, Ambo; KAUM–I. 21702, 43.2 mm SL, Kurio; NSMT–P 95433, 37.3 mm SL, Haruo.

Arai and Ida (1975): NSMT–P 17830, 2 specimens, 20.8–38.7 mm SL, Kusugawa.

Scorpaenodes littoralis (Tanaka, 1917)
[Jpn name: Isokasago] (Fig. 92)

KPM–NI 22547, 22.4 mm SL, Kurio.

Fig. 91. *Scorpaenodes guamensis* (KAUM–I. 21702, 43.2 mm SL).

Fig. 92. *Scorpaenodes littoralis* (KPM–NI 22547, 22.4 mm SL).

Scorpaenodes parvipinnis (Garrett, 1864)
[Jpn name: Himesangokasago] (Fig. 93)

KAUM–I. 20324, 58.8 mm SL, Kurio.

Fig. 93. *Scorpaenodes parvipinnis* (KAUM–I. 20324, 58.8 mm SL).

Scorpaenodes scaber (Ramsay and Ogilby, 1886)
[Jpn name: Sangokasago] (Fig. 94)

KAUM–I. 11581, 71.1 mm SL, Ambo; KAUM–I. 11583, 63.7 mm SL, Ambo; KAUM–I. 20093, 33.0 mm SL, Yudomari; KAUM–I. 20094, 34.8 mm SL, Yudomari; KAUM–I. 20152, 20.4 mm SL, Yudomari; KAUM–I. 20213, 17.8 mm SL, Yudomari; KAUM–I. 20241, 31.7 mm SL, Kurio; KAUM–I. 21704, 29.9 mm SL, Kurio; KAUM–I. 21705, 22.7 mm SL, Kurio; KAUM–

I. 21708, 17.6 mm SL, Kurio; KAUM–I. 21710, 16.4 mm SL, Kurio; KAUM–I. 21711, 16.2 mm SL, Kurio; KPM–NI 22536, 12.3 mm SL, Yudomari.

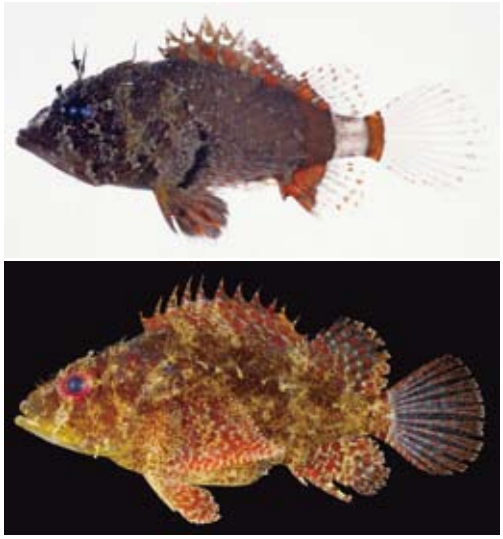

Fig. 94. *Scorpaenodes scaber* (upper: KPM–NI 22536, 12.3 mm SL; lower: KAUM–I. 11583, 63.7 mm SL).

Scorpaenodes quadrispinosus Greenfield and Matsuura, 2002
[Jpn name: Atsuhimesangokasago] (Fig. 95)

Motomura et al. (2010): KAUM–I. 11469, 75.5 mm SL, Isso; KAUM–I. 11475, 80.9 mm SL, Isso.

Remarks: This species was reported as the first records from Japan by Motomura et al. (2010) on the basis of specimens from Amami-oshima and Yaku-shima Islands.

Fig. 95. *Scorpaenodes quadrispinosus* (KAUM–I. 11475, 80.9 mm SL).

Scorpaenopsis cirrosa (Thunberg, 1793)
[Jpn name: Onikasago]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Remarks: Ichikawa et al.'s (1992) and Kuniyasu's (1999) *S. cirrosa* are most likely to be *S. ramaraoi*.

Scorpaenopsis diabolus (Cuvier, 1829)
[Jpn name: Niraikasago] (Fig. 96)

KAUM–I. 11143, 96.6 mm SL, Kurio; KAUM–I. 11186, 90.7 mm SL, Kurio; KAUM–I. 11580, 92.8 mm SL, Ambo; KAUM–I. 21676, 146.8 mm SL, Kurio.

Fig. 96. *Scorpaenopsis diabolus* (KAUM–I. 21676, 146.8 mm SL).

Scorpaenopsis neglecta Heckel, 1837
[Jpn name: Satsumakasago] (Fig. 97)

KAUM–I. 11377, 32.4 mm SL, Kurio; KAUM–I. 22817, 20.0 mm SL, Kurio; KPM–NI 22516, 17.4 mm SL, Yudomari.

Arai and Ida (1975, as *Scorpaenopsis gibbosa*): Kusugawa [one specimen (57 mm TL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island.

Fig. 97. *Scorpaenopsis neglecta* (KAUM–I. 11377, 32.4 mm SL).

Scorpaenopsis ramaraoi Randall and Eschmeyer, 2002 [Jpn name: Inukasago] (Fig. 98)

KAUM–I. 20108, 136.7 mm SL, Yudomari; KAUM–I. 25232, 163.5 mm SL, Ambo; KPM–NI 22515, 23.1 mm SL, Yudomari.

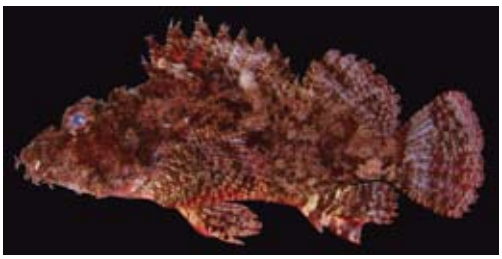

Fig. 98. *Scorpaenopsis ramaraoi* (KAUM–I. 25232, 163.5 mm SL).

Sebastapistes cyanostigma (Bleeker, 1856) [Jpn name: Kasurifusakasago] (Fig. 99)

KAUM–I. 11456, 40.1 mm SL, Isso; NSMT–P 95431, 47.1 mm SL, Haruo; NSMT–P 95432, 3 specimens, 36.2–43.2 mm SL, Haruo.

Fig. 99. *Sebastapistes cyanostigma* (KAUM–I. 11456, 40.1 mm SL).

Sebastapistes fowleri (Pietschmann, 1934) [Jpn name: Puchifusakasago] (Fig. 100)

Motomura and Senou (2009): BLIP 36670069, 21.1 mm SL, Isso; BLIP 36670070, 29.4 mm SL, Isso.

Remarks: Motomura and Senou (2009) reported this species as the first records from East Aisa (Taiwan and Japan) on the basis of 20 specimens, including two Yaku-shima Island specimens.

Fig. 100. *Sebastapistes fowleri* (BLIP 36670070, 29.4 mm SL; M. Aizawa).

Sebastapistes strongia (Cuvier, 1829) [Jpn name: Madarafusakasago] (Fig. 101)

BSKU 96563, 53.8 mm SL, Yudomari; BSKU 96570, 13.7 mm SL, Yudomari; BSKU 96571, 22.5 mm SL, Yudomari; KAUM–I. 20095, 41.4 mm SL, Yudomari; KAUM–I. 20096, 52.3 mm SL, Yudomari; KAUM–I. 20189, 54.4 mm SL, Yudomari; KAUM–I. 20190, 52.3 mm SL, Yudomari; KAUM–I. 20191, 37.7 mm SL, Yudomari; KAUM–I. 20212, 13.9 mm SL, Yudomari; KAUM–I. 20214, 15.2 mm SL, Yudomari; KAUM–I. 21712, 14.2 mm SL, Kurio; KPM–NI 22517, 19.7 mm SL, Yudomari; KPM–NI 22518, 18.8 mm SL, Yudomari; KPM–NI 22586, 8.7 mm SL, Isso.

Ichikawa et al. (1992, as *Scorpaena bynoensis*): Yaku-shima Island.

Fig. 101. *Sebastapistes strongia* (KAUM–I. 20096, 52.3 mm SL).

Taenianotus triacanthus Lacepède, 1802 [Jpn name: Hadakahaokoze] (Fig. 102)

Fig. 102. *Taenianotus triacanthus* (off Isso, 20 m, 19 Jan. 2010, S. Harazaki).

FAMILY SEBASTIDAE

Sebastiscus albofasciatus (Lacepède, 1802)
[Jpn name: Ayamekasago] (Fig. 103)

KAUM–I. 20852, 211.5 mm SL, off Yaku-shima Island.

Fig. 103. *Sebastiscus albofasciatus* (KAUM–I. 20852, 211.5 mm SL).

FAMILY TETRAROGIDAE

Ablabys taenianotus (Cuvier, 1829)
[Jpn name: Tsumajirookoze] (Fig. 104)

KAUM–I. 23010, 70.1 mm SL, Kurio; KPM–NI 22557, 17.6 mm SL, Kurio.

FAMILY SYNANCEIIDAE

Inimicus japonicus (Cuvier, 1829)
[Jpn name: Oniokoze]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 104. *Ablabys taenianotus* (KAUM–I. 23010, 70.1 mm SL).

Minous quincarinatus (Fowler, 1943)
[Jpn name: Itookoze] (Fig. 105)

USNM 117906, 73.4 mm SL, off northeast of Yaku-shima Island.

Fowler (1943): USNM 99515, holotype of *Paraminous quincarinatus*, 74.7 mm SL, off northeast of Yaku-shima Island.

Fig. 105. *Minous quincarinatus* (USNM 117906, 73.4 mm SL, preserved specimen).

Synanceia verrucosa Bloch and Schneider, 1801
[Jpn name: Onidarumaokoze] (Fig. 106)

KAUM–I. 21682, 23.3 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

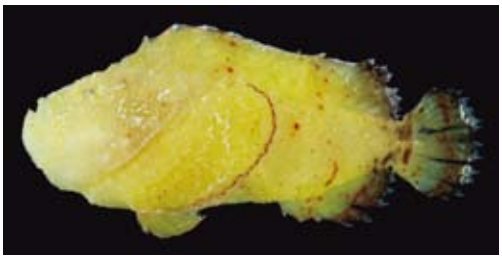

Fig. 106. *Synanceia verrucosa* (KAUM–I. 21682, 23.3 mm SL).

FAMILY TRIGLIDAE

Chelidonichthys spinosus (McClelland, 1844)

[Jpn name: Hobo]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY PLATYCEPHALIDAE

***Inegocia* sp.**

[Jpn name: Wanigochi]

Ichikawa et al. (1992, as *Inegocia guttata*): Yaku-shima Island.

Remarks: Imamura and Yoshino (2009) regarded that specimens previously identified as *I. guttata* from the East and South China Seas are an undescribed species.

ORDER PERCIFORMES

FAMILY AMBASSIDAE

Ambassis miops Günther, 1872

[Jpn name: Sesujitakasagoishimochi] (Fig. 107)

KAUM–I. 11502, 18.9 mm SL, mouth of Miyanoura River; KAUM–I. 11509, 19.6 mm SL, mouth of Miyanoura River; KAUM–I. 11510, 17.2 mm SL, mouth of Miyanoura River; KAUM–I. 21737, 17.0 mm SL, Kurio; KAUM–I. 21738, 19.0 mm SL, Kurio; KAUM–I. 24688, 35.8 mm SL, mouth of Kurio River; KAUM–I. 24689, 44.3 mm SL, Ambo.

Yonezawa (2003c): Yaku-shima Island.

Fig. 107. *Ambassis miops* (KAUM–I. 21737, 17.0 mm SL).

Ambassis urotaenia Bleeker, 1852

[Jpn name: Takasagoishimochi] (Fig. 108)

KAUM–I. 24690, 47.4 mm SL, mouth of Kurio River; KAUM–I. 24691, 46.4 mm SL, mouth of Kurio River; KAUM–I. 24692, 43.5 mm SL, mouth of Kurio River; KAUM–I. 24693, 43.0 mm SL, mouth of Kurio River; KAUM–I. 24694, 39.5 mm SL, mouth of Kurio River; KAUM–I. 24695, 39.4 mm SL, mouth of Kurio River.

Fig. 108. *Ambassis urotaenia* (KAUM–I. 24691, 46.4 mm SL, preserved specimen).

FAMILY PERCICHTHYIDAE

Lateolabrax latus Katayama, 1957

[Jpn name: Hirasuzuki] (Fig. 109)

KAUM–I. 25203, 257.3 mm SL, mouth of Nagata River; KPM–NI 24246, 165.2 mm SL, mouth of Nagata River; KPM–NI 24247, 162.5 mm SL, mouth of Nagata River.

Ichikawa et al. (1992): Yaku-shima Island. Yonezawa (2003c): Yaku-shima Island.

Fig. 109. *Lateolabrax latus* (KPM–NI 24246, 165.2 mm SL).

FAMILY ACROPOMATIDAE

Malakichthys elegans Matsubara and Yamaguti, 1943

[Jpn name: Nagaomehata] (Fig. 110)

USNM 117989, 100.3 mm SL, Yaku-shima Island.

FAMILY SERRANIDAE

Belonoperca chabanaudi Fowler and Bean, 1930

[Jpn name: Yamisuzuki] (Fig. 111)

Fig. 110. *Malakichthys elegans* (USNM 117989, 100.3 mm SL, preserved specimen).

Fig. 111. *Belonoperca chabanaudi* (off Isso, 15 m, 8 Nov. 2009, S. Harazaki).

Cephalopholis argus Bloch and Schneider, 1801 [Jpn name: Aonomehata] (Fig. 112)

KAUM–I. 11162, 19.2 mm SL, Kurio; KPM–NI 24784, 53.8 mm SL, Kurio; MUFS 25575, 76.2 mm SL, Kurio; NSMT–P 77629, 362.3 mm SL, Nanase.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 112. *Cephalopholis argus* (upper: KAUM–I. 11162, 19.2 mm SL; lower: NSMT–P 77629, 362.3 mm SL).

Cephalopholis miniata (Forsskål, 1775) [Jpn name: Yukatahata] (Fig. 113)

FRLM 34701, 274.1 mm SL, Yaku-shima Island; KAUM–I. 11622, 252.0 mm SL, Isso; NSMT–P 95761, 158.0 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 113. *Cephalopholis miniata* (upper: NSMT–P 95761, 158.0 mm SL; lower: FRLM 34701, 274.1 mm SL).

Cephalopholis sonnerati (Valenciennes, 1828) [Jpn name: Azahata] (Fig. 114)

KAUM–I. 16275, 229.2 mm SL, off east of Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 114. *Cephalopholis sonnerati* (KAUM–I. 16275, 229.2 mm SL).

Cephalopholis urodeta (Forster, 1801)
[Jpn name: Nijihata] (Fig. 115)

KAUM–I. 11454, 194.7 mm SL, Isso; NSMT–P 77644, 167.3 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 115. *Cephalopholis urodeta* (KAUM–I. 11454, 194.7 mm SL).

Epinephelus areolatus (Forsskål 1775)
[Jpn name: Omonhata] (Fig. 116)

FRLM 34702, 290.8 mm SL, Yaku-shima Island.

Fig. 116. *Epinephelus areolatus* (FRLM 34702, 290.8 mm SL).

Epinephelus bontoides (Bleeker, 1855)
[Jpn name: Shiranuihata] (Fig. 117)

NSMT–P 96549, 288.6 mm SL, Nagata; NSMT–P 96550, 317.1 mm SL, Nagata.

Kuriiwa et al. (2008): NSMT–P 77624, 336 mm SL, mouth of Miyanoura River.

Remarks: Kuriiwa et al. (2008) reported this species as the first Japanese record on the basis of a single specimen (NSMT–P 77624) from the mouth of the Miyanoura River. Subsequently two additional specimens (NSMT–P 96549 and 96550) were collected from Nagata, northwestern Yaku-shima Island. This species has currently been known only from Yaku-shima Island in Japanese waters.

Fig. 117. *Epinephelus bontoides* (NSMT–P 96549, 288.6 mm SL).

Epinephelus bruneus Bloch, 1793
[Jpn name: Kue]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus caeruleopunctatus (Bloch, 1790)
[Jpn name: Hakutenhata] (Fig. 118)

FRLM 34722, 361.2 mm SL, Kurio; KAUM–I. 11535, 204.2 mm SL, Ambo; NSMT–P 91953, 390 mm SL, Nanase.

Arai and Ida (1975): NSMT–P 58131, 52.1 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island.

Fig. 118. *Epinephelus caeruleopunctatus* (KAUM–I. 11535, 204.2 mm SL).

Epinephelus coioides (Hamilton, 1822)
[Jpn name: Chairomaruhata] (Fig. 119)

NSMT–P 77627, 206.1 mm SL, mouth of Miyanoura River.

Kuniyasu (1999): Kurio.

Fig. 119. *Epinephelus coioides* (NSMT–P 77627, 206.1 mm SL).

Fig. 120. *Epinephelus fasciatus* (KAUM–I. 11363, 207.8 mm SL).

Epinephelus cyanopodus (Richardson, 1846)
[Jpn name: Tsuchihozeri]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus fasciatus (Forsskål, 1775)
[Jpn name: Akahata] (Fig. 120)

FRLM 34730, 225.8 mm SL, Kurio; KAUM–I. 11363, 207.8 mm SL, Kurio; NSMT–P 77631, 222.5 mm SL, Nanase; NSMT–P 91170, 223 mm SL, off east of Yaku-shima Island; NSMT–P 91171, 249 mm SL, off east of Yaku-shima Island; NSMT–P 91172, 222 mm SL, off east of Yaku-shima Island; NSMT–P 91173, 249 mm SL, off east of Yaku-shima Island; NSMT–P 91174, 235 mm SL, off east of Yaku-shima Island; NSMT–P 91175, 249 mm SL, off east of Yaku-shima Island; NSMT–P 91176, 240 mm SL, off east of Yaku-shima Island; NSMT–P 91177, 236 mm SL, off east of Yaku-shima Island; NSMT–P 91341, 263 mm SL, off north of Yaku-shima Island; NSMT–P 91342, 309 mm SL, off north of Yaku-shima Island; NSMT–P 91343, 244 mm SL, off north of Yaku-shima Island; NSMT–P 91344, 298 mm SL, off north of Yaku-shima Island; NSMT–P 91345, 284 mm SL, off north of Yaku-shima Island; NSMT–P 91346, 278 mm SL, off north of Yaku-shima Island; NSMT–P 91955, 232 mm SL, Nanase; NSMT–P 91956, 193 mm SL, Nanase; NSMT–P 91957, 235 mm SL, Nanase; NSMT–P 91958, 252 mm SL, Hirauchi; NSMT–P 91959, 266 mm SL, Hirauchi; NSMT–P 96386, 232.3 mm SL, Kurio; NSMT–P 96387, 227.0 mm SL, Kurio; NSMT–P 96548, 239.5 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Epinephelus hexagonatus (Forster, 1801)
[Jpn name: Ishigakihata] (Fig. 121)

BSKU 96599, 119.6 mm SL, Kurio; NSMT–P 95413, 146.2 mm SL, Kurio.

Fig. 121. *Epinephelus hexagonatus* (BSKU 96599, 119.6 mm SL).

Epinephelus howlandi (Günther, 1873)
[Jpn name: Hiregurohata]

Kuniyasu (1999): Kurio.

Epinephelus maculatus (Bloch, 1790)
[Jpn name: Shirobuchihata] (Fig. 122)

BSKU 96643, 119.3 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island.

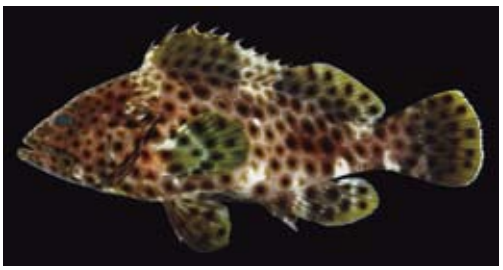

Fig. 122. *Epinephelus maculatus* (BSKU 96643, 119.3 mm SL).

Epinephelus malabaricus (Bloch and Schneider, 1801)
[Jpn name: Yaitohata] (Fig. 123)

NSMT–P 77625, 305.3 mm SL, mouth of Miyanoura River.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 123. *Epinephelus malabaricus* (NSMT–P 77625, 305.3 mm SL).

Epinephelus melanostigma Schultz, 1953
[Jpn name: Sumitsukihata]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus merra Bloch, 1793
[Jpn name: Kammonhata] (Fig. 124)

KAUM–I. 11620, 123.1 mm SL, Ambo; KAUM–I. 20051, 111.4 mm SL, Yudomari; MUFS 25621, 190 mm SL, Kurio; NSMT–P 91964, 214 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso.

Fig. 124. *Epinephelus merra* (NSMT–P 91964, 214 mm SL).

Epinephelus morrhua (Valenciennes, 1833)
[Jpn name: Hokihata]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus ongus (Bloch, 1790)
[Jpn name: Namihata]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus polyphekadion (Bleeker, 1849)
[Jpn name: Madarahata]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus quoyanus (Valenciennes, 1830)
[Jpn name: Moyohata] (Fig. 125)

KAUM–I. 20042, 81.2 mm SL, Yudomari.

Fig. 125. *Epinephelus quoyanus* (KAUM–I. 20042, 81.2 mm SL).

Epinephelus septemfasciatus (Thunberg, 1793)
[Jpn name: Mahata]

Ichikawa et al. (1992): Yaku-shima Island.

Epinephelus tauvina (Forsskål, 1775)
[Jpn name: Hitomihata] (Fig. 126)

KAUM–I. 11356, 136.4 mm SL, Kurio; NSMT–P 77630, 329.2 mm SL, Nanase; NSMT–P 91954, 352 mm SL, Nanase.

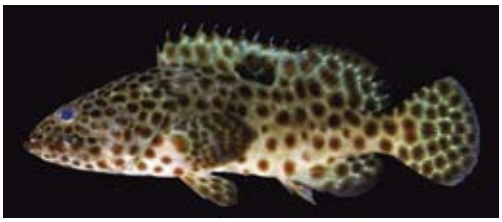

Fig. 126. *Epinephelus tauvina* (KAUM–I. 11356, 136.4 mm SL).

Epinephelus tukula Morgans, 1959
[Jpn name: Kasurihata]

Ichikawa et al. (1992): Yaku-shima Island.

Grammistes sexlineatus (Thunberg, 1792)
[Jpn name: Nunosarashi] (Fig. 127)

BSKU 96678, 33.4 mm SL, Kurio; FRLM 34674, 74.3 mm SL, Kurio; FRLM 34732, 75.4 mm SL, Kurio; FRLM 34735, 61.6 mm SL, Kurio; KAUM–I. 11125, 15.6 mm SL, Kurio; KAUM–I. 11139, 86.8 mm SL, Kurio; KAUM–I. 11603, 72.8 mm SL, Ambo; KAUM–I. 20251, 32.5 mm SL, Kurio; KAUM–I. 20313, 57.2 mm SL, Kurio; KAUM–I. 21666, 67.9 mm SL, Kurio; KAUM–I. 21835, 13.0 mm SL, Kurio; KAUM–I. 21869, 82.8 mm SL, Kurio; KAUM–I. 21870, 77.8 mm SL, Kurio; KAUM–I. 21871, 17.1 mm SL, Kurio; KAUM–I. 23540, 13.0 mm SL, Kurio; MUFS 25562, 52.5 mm SL, Kurio; MUFS 25563, 82.7 mm SL, Kurio; NSMT–P 95443, 75.9 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

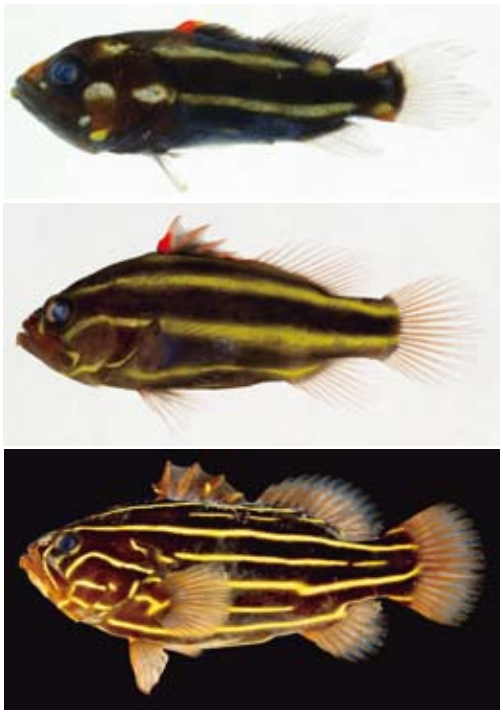

Fig. 127. *Grammistes sexlineatus* (upper: KAUM–I. 11125, 15.6 mm SL; middle: KAUM–I. 20251, 32.5 mm SL; lower: KAUM–I. 11139, 86.8 mm SL).

Liopropoma susumi (Jordan and Seale, 1906)
[Jpn name: Kosujihanasuzuki] (Fig. 128)

KPM–NI 22544, 44.4 mm SL, Kurio.

Fig. 128. *Liopropoma susumi* (KPM–NI 22544, 44.4 mm SL).

Plectranthias kamii Randall, 1980
[Jpn name: Izuhanadai] (Fig. 129)

KAUM–I. 1654, 236.1 mm SL, Yaku-shima Island; KAUM–I. 1655, 196.2 mm SL, Yaku-shima Island.

Fig. 129. *Plectranthias kamii* (KAUM–I. 1654, 236.1 mm SL).

Plectranthias yamakawai Yoshino, 1972
[Jpn name: Amamihanadai]

Ichikawa et al. (1992): Yaku-shima Island.

Plectropomus laevis (Lacepède, 1801)
[Jpn name: Kokuhan-ara]

Ichikawa et al. (1992): Yaku-shima Island.

Plectropomus leopardus (Lacepède, 1802)
[Jpn name: Sujiara]

Ichikawa et al. (1992): Yaku-shima Island.

Pogonoperca punctata (Valenciennes, 1830)
[Jpn name: Agohata] (Fig. 130)

KAUM–I. 11386, 11.8 mm SL, Kurio; KPM–NI 24799, 12.8 mm SL, Kurio.

Remarks: These specimens may be juveniles of *Grammistes sexlineatus*.

Fig. 130. *Pogonoperca punctata* (KAUM–I. 11386, 11.8 mm SL).

Pseudanthias bicolor (Randall, 1979)
[Jpn name: Futairohanagoi] (Fig. 131)

Fig. 131. *Pseudanthias bicolor* (upper: off Isso, 20 m, 8 Apr. 2007, S. Harazaki; lower: off Isso, 20 m, 16 May 2008, S. Harazaki).

Pseudanthias fasciatus (Kamohara, 1954)
[Jpn name: Sujihanadai] (Fig. 132)

Pseudanthias lori (Lubbock and Randall, 1976)
[Jpn name: Akaboshihanagoi] (Fig. 133)

Pseudanthias pascalus (Jordan and Tanaka, 1927)
[Jpn name: Hanagoi]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 132. *Pseudanthias fasciatus* (off Isso, 35 m, 21 Sept. 2004, S. Harazaki).

Fig. 133. *Pseudanthias lori* (off Nagata, 45 m, 19 Nov. 2009, S. Harazaki).

Pseudanthias pleurotaenia (Bleeker, 1857)
[Jpn name: Sumirenagahanadai] (Fig. 134)

Fig. 134. *Pseudanthias pleurotaenia* (off Isso, 20 m, 4 Mar. 2005, S. Harazaki).

Pseudanthias squamipinnis (Peters, 1855)
[Jpn name: Kingyohanadai] (Fig. 135)

KAUM–I. 21788, 27.8 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 135. *Pseudanthias squamipinnis* (KAUM–I. 21788, 27.8 mm SL).

***Pseudanthias* sp.**
[Jpn name: Benihanadai] (Fig. 136)

Remarks: This species has been recorded along the Pacific coast of southern Japan and the Ryukyu Islands (Senou, 2002). It is relatively common at Yaku-shima Island (deeper than 20 m).

Fig. 136. *Pseudanthias* sp. (upper: off Isso, 20 m, 2 Mar. 2005, S. Harazaki; lower: off Isso, 35 m, 15 July 2005, S. Harazaki).

Serranocirrhitus latus Watanabe, 1949
[Jpn name: Hanagombe] (Fig. 137)

Fig. 137. *Serranocirrhitus latus* (off Isso, 20 m, 4 Mar. 2005, S. Harazaki).

Triso dermopterus (Temminck and Schlegel, 1842)
[Jpn name: Tobihata]

Ichikawa et al. (1992): Yaku-shima Island.

Variola albimarginata Baissac, 1953
[Jpn name: Ojirobarahata]

Kuniyasu (1999): Kurio.

Variola louti (Forsskål, 1775)
[Jpn name: Barahata]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY PSEUDOCHROMIDAE

Labracinus cyclophthalma (Müller and Troschel, 1849)
[Jpn name: Megisu] (Fig. 138)

KAUM–I. 11132, 28.3 mm SL, Kurio; KAUM–I. 11285, 93.2 mm SL, Yudomari; KAUM–I. 11524, 127.0 mm SL, Ambo; KAUM–I. 11589, 87.1 mm SL, Ambo; KAUM–I. 20083, 87.9 mm SL, Yudomari; KAUM–I. 20087, 101.3 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pictichromis porphyrea (Lubbock and Goldman, 1974)
[Jpn name: Kurenainisesuzume] (Fig. 139)

Pseudochromis cyanotaenia Bleeker, 1857
[Jpn name: Ryukyunisesuzume] (Fig. 140)

BSKU 96603, 41.0 mm SL, Kurio.
Kuniyasu (1999): Kurio.

Fig. 138. *Labracinus cyclophthalma* (upper: KAUM–I. 11132, 28.3 mm SL; middle: KAUM–I. 11589, 87.1 mm SL; lower: KAUM–I. 11524, 127.0 mm SL).

Fig. 139. *Pictichromis porphyrea* (off Isso, 5 m, 21 Aug. 2004, S. Harazaki).

Fig. 140. *Pseudochromis cyanotaenia* (BSKU 96603, 41.0 mm SL).

Pseudochromis luteus Aoyagi, 1943
[Jpn name: Koganenisesuzume] (Fig. 141)

FRLM 34738, 45.7 mm SL, Kurio; KAUM–I. 11161, 43.9 mm SL, Kurio; KAUM–I. 11362, 33.3 mm SL, Kurio; KAUM–I. 11485, 45.5 mm SL, Isso; KAUM–I. 11537, 24.2 mm SL, Ambo; KAUM–I. 20245, 32.3 mm SL, Kurio; KAUM–I. 20329, 43.8 mm SL, Isso; MUFS 25593, 41.5 mm SL, Kurio; MUFS 25601, 32.3 mm SL, Kurio; NSMT–P 91672, 28 mm SL, Kurio.

Fig. 141. *Pseudochromis luteus* (upper: KAUM–I. 11362, 33.3 mm SL; middle: KAUM–I. 11161, 43.9 mm SL; lower: off Kurio, 10 m, 21 July 2006, S. Harazaki).

Pseudochromis marshallensis Schultz, 1953
[Jpn name: Hoshinisesuzume] (Fig. 142)

KAUM–I. 11275, 43.5 mm SL, Yudomari; KAUM–I. 11296, 51.4 mm SL, Yudomari; KAUM–I. 11618, 44.2 mm SL, Ambo.

FAMILY PLESIOPIDAE

Acanthoplesiops psilogaster Hardy, 1985
[Jpn name: Fuchidoritanabatauo] (Fig. 143)

KAUM–I. 11126, 15.7 mm SL, Kurio; KAUM–I. 11369, 16.3 mm SL, Kurio; KAUM–I.

Fig. 142. *Pseudochromis marshallensis* (KAUM–I. 11296, 51.4 mm SL).

20243, 18.0 mm SL, Kurio; KAUM–I. 20262, 19.6 mm SL, Kurio; KAUM–I. 20263, 17.2 mm SL, Kurio.

Remarks: Although *Acanthoplesiops* and *Belonepterygion* have often been treated as members of the family Acanthoclinidae, we follow Nelson's (2006) classification in the subfamily Acanthoclininae (family Plesiopidae).

Fig. 143. *Acanthoplesiops psilogaster* (KAUM–I. 11369, 16.3 mm SL).

Assessor randalli Allen and Kuiter, 1976
[Jpn name: Tsubametanabatauo] (Fig. 144)

KAUM–I. 20288, 36.9 mm SL, Kurio.

Belonepterygion fasciolatum (Ogilby, 1889)
[Jpn name: Togetanabatauo] (Fig. 145)

FRLM 34740, 40.3 mm SL, Kurio; KAUM–I. 11364, 32.7 mm SL, Kurio; KAUM–I. 11365, 22.3 mm SL, Kurio; KAUM–I. 11366, 22.8 mm SL, Kurio; KAUM–I. 11367, 19.7 mm SL, Kurio; KAUM–I. 11368, 21.3 mm SL, Kurio; KAUM–I. 11653, 35.0 mm SL, Ambo; KAUM–I. 11746, 20.8 mm SL, Ambo; KAUM–I. 20193, 25.9 mm SL, Yudomari; KAUM–I. 20244, 34.7 mm SL, Kurio; KAUM–I. 21864, 21.3 mm SL, Kurio;

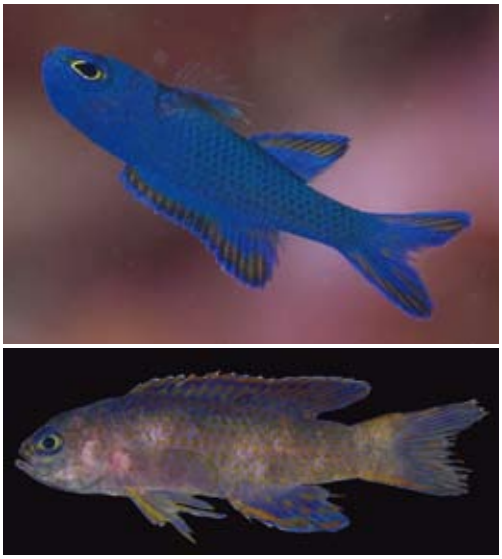

Fig. 144. *Assessor randalli* (upper: off Isso, 5 m, 9 Oct. 2006, S. Harazaki; lower: KAUM–I. 20288, 36.9 mm SL).

KAUM–I. 21865, 20.7 mm SL, Kurio; KPM–NI 22575, 30.5 mm SL, Isso; MUFS 25598, 33.1 mm SL, Kurio; MUFS 25599, 35.0 mm SL, Kurio; MUFS 25600, 24.6 mm SL, Kurio.

Fig. 145. *Belonepterygion fasciolatum* (KAUM–I. 11364, 32.7 mm SL).

Calloplesiops altivelis (Steindachner, 1903)
[Jpn name: Shimofuritanabatauo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Plesiops coeruleolineatus Rüppell, 1835
[Jpn name: Tanabatauo] (Fig. 146)

KAUM–I. 11520, 42.6 mm SL, Ambo; KAUM–I. 11579, 51.3 mm SL, Ambo; KPM–NI 22519, 26.8 mm SL, Yudomari.

Arai and Ida (1975, as *Plesiops melas*): NSMT–P 17831, 2 specimens, 38.8–61.6 mm SL, Kusugawa.

Fig. 146. *Plesiops coeruleolineatus* (KAUM–I. 11579, 51.3 mm SL).

FAMILY PRIACANTHIDAE

Cookeolus japonicus (Cuvier, 1829)
[Jpn name: Chikamekintoki]

Ichikawa et al. (1992): Yaku-shima Island.

Heteropriacanthus cruentatus (Lacepède, 1801)
[Jpn name: Gomahirekintoki] (Fig. 147)

FRLM 34713, 231.1 mm SL, Yudomari.

Fig. 147. *Heteropriacanthus cruentatus* (FRLM 34713, 231.1 mm SL).

Priacanthus hamrur (Forsskål, 1775)
[Jpn name: Hosekikintoki] (Fig. 148)

KAUM–I. 21946, 260.6 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 148. *Priacanthus hamrur* (KAUM–I. 21946, 260.6 mm SL).

FAMILY APOGONIDAE

Apogon amboinensis Bleeker, 1853
[Jpn name: Amamiishimochi] (Fig. 149)

Yoshida and Motomura (2009), Yoshida et al. (2010): KAUM–I. 21588, 53.5 mm SL, mouth of Ambo River; KAUM–I. 21589, 49.0 mm SL, mouth of Ambo River. Yoshida et al. (2010): mouth of Isso River.

Fig. 149. *Apogon amboinensis* (KAUM–I. 21589, 49.0 mm SL).

Apogon angustatus (Smith and Radcliffe, 1911)
[Jpn name: Usujimaishimochi] (Fig. 150)

Yoshida et al. (2010): KAUM–I. 20268, 17.8 mm SL, Kurio; KAUM–I. 21721, 14.3 mm SL, Kurio.

Apogon apogonides (Bleeker, 1856)
[Jpn name: Aohanatenjikudai] (Fig. 151)

Yoshida et al. (2010): Isso.

Apogon aureus (Lacepède, 1802)
[Jpn name: Aosujitenjikudai] (Fig. 152)

Ichikawa et al. (1992): Yaku-shima Island. Yoshida et al. (2010): BSKU 96634, 63.3 mm SL, Isso.

Fig. 150. *Apogon angustatus* (off Isso; from Yoshida et al., 2010).

Fig. 151. *Apogon apogonides* (off Isso; from Yoshida et al., 2010).

Fig. 152. *Apogon aureus* (BSKU 96634, 63.3 mm SL).

Apogon caudicinctus Randall and Smith, 1988
[Jpn name: Koyariishimochi] (Fig. 153)

Yoshida et al. (2010): KAUM–I. 21765, 33.8 mm SL, Kurio.

Fig. 153. *Apogon caudicinctus* (KAUM–I. 21765, 33.8 mm SL).

Apogon chrysotaenia Bleeker, 1851
[Jpn name: None] (Fig. 154)

Yoshida et al. (2010): Isso.

Remarks: The species was reported by Yoshida et al. (2010) as the first Japanese record on the basis of underwater photograph and observations. However, no specimens have been collected.

Fig. 154. *Apogon chrysotaenia* (off Isso; from Yoshida et al., 2010).

Apogon cookii Macleay, 1881
[Jpn name: Sujiishimochi] (Fig. 155)

Yoshida et al. (2010): KAUM–I. 11207, 27.3 mm SL, Kurio; KAUM–I. 21714, 31.0 mm SL, Kurio; KAUM–I. 21715, 28.0 mm SL, Kurio; KAUM–I. 21716, 22.0 mm SL, Kurio; KAUM–I. 21717, 18.0 mm SL, Kurio; NSMT–P 91664, 76.0 mm SL, Kurio.

Apogon crassiceps Garman, 1903
[Jpn name: Akafujitenjikudai] (Fig. 156)

Yoshida et al. (2010): BSKU 96552, 27.2 mm SL, Yudomari; KAUM–I. 11445, 37.4 mm SL, Isso; KAUM–I. 20159, 20.3 mm SL,

Fig. 155. *Apogon cookii* (KAUM–I. 11207, 27.3 mm SL).

Yudomari; KAUM–I. 20196, 42.5 mm SL, Yudomari; KAUM–I. 20205, 22.8 mm SL, Yudomari; KAUM–I. 20206, 17.0 mm SL, Yudomari; KAUM–I. 20249, 24.9 mm SL, Kurio; KAUM–I. 20331, 34.3 mm SL, Isso; KAUM–I. 21767, 29.2 mm SL, Kurio; KAUM–I. 21768, 27.2 mm SL, Kurio; KPM–NI 22513, 24.4 mm SL, Yudomari; KPM–NI 22546, 28.4 mm SL, Kurio.

Remarks: All previous records of *A. crassiceps* "Akane-tenjikudai" in Japanese waters (e.g., Hayashi, 2002) were based on mis-identifications of a species of the *A. talboti* group (Yoshida et al., 2010).

Fig. 156. *Apogon crassiceps* (KAUM–I. 20331, 34.3 mm SL).

Apogon doederleini Jordan and Snyder, 1901
[Jpn name: Osujiishimochi] (Fig. 157)

KPM–NI 24942, 91.2 mm SL, Onoaida; NSMT–P 91664, 74.3 mm SL, Kurio; NSMT–P 95410, 2 specimens, 81.6–90.0 mm SL, Miyanoura; NSMT–P 95422, 6 specimens, 67.0–90.5 mm SL, Miyanoura Port.

Arai and Ida (1975): NSMT–P 17815, 74.0 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Yoshida et al. (2010): FRLM 34706, 103.7 mm SL, Yudomari; KAUM–I. 11124, 99.2 mm SL, Ambo Port; KAUM–I. 11440, 46.5 mm SL, Isso; KAUM–I. 11441, 47.5 mm SL, Isso; KAUM–I. 11442, 46.5 mm SL, Isso; KAUM–I. 11443, 52.7 mm SL, Isso; KAUM–I. 11444, 44.5 mm SL, Isso; KAUM–I. 11446, 48.7 mm SL, Isso; KAUM–I. 11447, 43.9 mm SL, Isso; KAUM–I. 11448, 41.2 mm SL, Isso; KAUM–I. 11449, 41.5 mm SL, Isso; KAUM–I. 11450, 51.6 mm SL, Isso; KAUM–I. 11451, 52.1 mm SL, Isso; KAUM–I. 11452, 51.9 mm SL, Isso; KAUM–I. 20071, 85.7 mm SL, Yudomari; KAUM–I. 20072, 62 mm SL, Yudomari; KAUM–I. 20343, 56 mm SL, Isso; KAUM–I. 21751, 91.9 mm SL, Ambo Port; KAUM–I. 25234, 78.1 mm SL, Ambo Port; MUFS 25446, 92.7 mm SL, Ambo Port; MUFS 25447, 85.4 mm SL, Ambo Port; MUFS 25448, 70.9 mm SL, Ambo Port; MUFS 25449, 69.2 mm SL, Ambo Port; MUFS 25450, 69.4 mm SL, Ambo Port.

Fig. 157. *Apogon doederleini* (KAUM–I. 11124, 99.2 mm SL).

Apogon endekataenia Bleeker, 1852
[Jpn name: Kosujiishimochi] (Fig. 158)

Ichikawa et al. (1992): Yaku-shima Island. Yoshida et al. (2010): KAUM–I. 21786, 26.8 mm SL, Isso.

Apogon exostigma (Jordan and Starks, 1906)
[Jpn name: Yukataishimochi] (Fig. 159)

Yoshida et al. (2010): BSKU 96553, 45.8 mm SL, Yudomari; KPM–NI 22551, 28.1 mm SL, Kurio.

Fig. 158. *Apogon endekataenia* (KAUM–I. 21786, 26.8 mm SL).

Fig. 159. *Apogon exostigma* (BSKU 96553, 45.8 mm SL).

Apogon fasciatus (White, 1790)
[Jpn name: Furaiishimochi] (Fig. 160)
Yoshida et al. (2010): Isso.

Fig. 160. *Apogon fasciatus* (off Isso; from Yoshida et al., 2010).

Apogon fraenatus Valenciennes, 1832
[Jpn name: Hitosujiishimochi] (Fig. 161)
Yoshida et al. (2010): Isso.

Apogon indicus Greenfield, 2001
[Jpn name: Ryukyuishimochi] (Fig. 162)
Yoshida et al. (2010): NSMT–P 95448, 32.9 mm SL, Haruo.
Remarks: Greenfield (2001) considered *A. erythrinus* Snyder, 1904 an endemic species to the Hawaiian Islands, and some Japanese specimens previously identified as *A. erythrinus* were his new species, *A. indicus* (see Yoshida et al., 2010).

Fig. 161. *Apogon fraenatus* (off Isso; from Yoshida et al., 2010).

Fig. 162. *Apogon indicus* (NSMT–P 95448, 32.9 mm SL, preserved specimen).

Apogon kallopterus Bleeker, 1856
[Jpn name: Kasuriishimochi] (Fig. 163)
Kuniyasu (1999): Kurio. Yoshida et al. (2010): Isso.

Fig. 163. *Apogon kallopterus* (off Isso; from Yoshida et al., 2010).

Apogon kominatoensis Ebina, 1935
[Jpn name: Kominatotenjikudai] (Fig. 164)

Yoshida et al. (2010): BSKU 96655, 29.7 mm SL, Isso; FRLM 34709, 38.3 mm SL, Yudomari; KAUM–I. 11133, 29.0 mm SL, Kurio; KAUM–I. 11290, 37.7 mm SL, Yudomari; KAUM–I. 11291, 42.3 mm SL, Yudomari; KAUM–I. 11652, 27.9 mm SL, Ambo; KAUM–I. 20041, 40.2 mm SL, Yudomari; KAUM–I. 20248, 39.3 mm SL, Kurio; KAUM–I. 20259, 41.3 mm SL, Kurio; KAUM–I. 20260, 41.2 mm SL, Kurio; KAUM–I. 20261, 32.7 mm SL, Kurio; KAUM–I. 20332, 35.4 mm SL, Isso; KAUM–I. 21766, 27.1 mm SL, Kurio; NSMT–P 91356, 40 mm SL, Yudomari; NSMT–P 91357, 37 mm SL, Yudomari; NSMT–P 95461, 36.7 mm SL, Haruo.

Remarks: Many Japanese authors (e.g., Hayashi, 2002) have used a name, *A. coccineus* Rüppell, 1838, for this species. However, *A. coccineus* has been regarded as a western Indian Ocean species (Randall, 2005; Yoshida et al., 2010).

Fig. 164. *Apogon kominatoensis* (KAUM–I. 20332, 35.4 mm SL).

Apogon moluccensis Valenciennes, 1832
[Jpn name: Sehoshitenjikudai] (Fig. 165)

Yoshida et al. (2010): BSKU 96640, 46.8 mm SL, Isso; KAUM–I. 20378, 43.1 mm SL, Isso.

Remarks: Many Japanese authors (e.g., Hayashi, 2002) have used a name, *A. ventrifasciatus* Allen et al., 1994, for this species. However, Fraser et al. (2002) regarded *A. ventrifasciatus* as a junior synonym of *A. moluccensis*.

Fig. 165. *Apogon moluccensis* (KAUM–I. 20378, 43.1 mm SL).

Apogon nigrofasciatus Lachner, 1953
[Jpn name: Minamifutosujiishimochi] (Fig. 166)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Yoshida et al. (2010): BSKU 96605, 58.9 mm SL, Kurio.

Fig. 166. *Apogon nigrofasciatus* (BSKU 96605, 58.9 mm SL).

Apogon notatus (Houttuyn, 1782)
[Jpn name: Kurohoshiishimochi] (Fig. 167)

Jordan and Starks (1906): whereabouts of a single specimen from Yaku-shima Island is unknown. Yoshida et al. (2010): Isso.

Fig. 167. *Apogon notatus* (off Isso; from Yoshida et al., 2010).

Apogon novemfasciatus Cuvier, 1828
[Jpn name: Tasujiishimochi] (Fig. 168)

Kuniyasu (1999): Kurio. Yoshida et al. (2010): KAUM–I. 21759, 33.7 mm SL, Ambo.

Fig. 168. *Apogon novemfasciatus* (KAUM–I. 21759, 33.7 mm SL).

Apogon parvulus (Smith and Radcliffe, 1912)
[Jpn name: Neontenjikudai]

Ichikawa et al. (1992): Yaku-shima Island.

Apogon cf properuptus (Whitley, 1964), dotted type
[Jpn name: "kinsen-ishimochi, dotto-gata"] (Fig. 169)

Yoshida et al. (2010): KAUM–I. 21789, 37.8 mm SL, Isso; KAUM–I. 21790, 40.2 mm SL, Isso; KAUM–I. 21791, 36.6 mm SL, Isso; KAUM–I. 21792, 35.1 mm SL, Isso.

Fig. 169. *Apogon cf properuptus* (KAUM–I. 21790, 40.2 mm SL).

Apogon cf properuptus (Whitley, 1964), lined type
[Jpn name: "kinsen-ishimochi, rain-gata"] (Fig. 170)

Yoshida et al. (2010): KAUM–I. 20112, 32.3 mm SL, Yudomari; KAUM–I. 20207, 31.7 mm SL, Yudomari; KPM–NI 22506, 41.1 mm SL, Yudomari.

Fig. 170. *Apogon cf properuptus* (KAUM–I. 20112, 32.3 mm SL).

Apogon selas Randall and Hayashi, 1990
[Jpn name: Nagareboshi]

Kuniyasu (1999): Kurio.

Apogon seminigracaudus Greenfield, 2007
[Jpn name: Ogurotenjikudai] (Fig. 171)

Yoshida et al. (2010): KAUM–I. 21785, 26.8 mm SL, Isso.

Remarks: Japanese specimens previously identified as *Apogon fuscus* Quoy and Gaimard, 1825 (or *Nectamia fusca*) were described by Greenfield (2007) as a new species, *A. seminigracaudus*.

Fig. 171. *Apogon seminigracaudus* (KAUM–I. 21785, 26.8 mm SL, Isso).

Apogon semiornatus Peters, 1876
[Jpn name: Yamitenjikudai] (Fig. 172)

Yoshida et al. (2010): Isso.

Apogon taeniophorus Regan, 1908
[Jpn name: Misujitenjikudai] (Fig. 173)

Arai and Ida (1975, as *A. endekataenia*): NSMT–P 17846, 4 specimens, 28.8–68.0 mm SL, Kusugawa. Yoshida et al. (2010): BSKU

Fig. 172. *Apogon semiornatus* (off Isso; from Yoshida et al., 2010).

96641, 37.8 mm SL, Isso; FRLM 34677, 47.2 mm SL, Kurio; KAUM–I. 11171, 59.3 mm SL, Kurio; KAUM–I. 11358, 76.9 mm SL, Kurio; KAUM–I. 11359, 76.1 mm SL, Kurio; KAUM–I. 20208, 28.2 mm SL, Yudomari; KAUM–I. 20240, 76.8 mm SL, Kurio; KAUM–I. 20341, 90.4 mm SL, Isso; KAUM–I. 20344, 88.8 mm SL, Isso; KAUM–I. 21718, 15.5 mm SL, Kurio; KAUM–I. 21719, 16.6 mm SL, Kurio; KAUM–I. 21720, 14.8 mm SL, Kurio; KAUM–I. 25227, 87.4 mm SL, Nagata; KPM–NI 22577, 21.8 mm SL, Isso; KPM–NI 22578, 25.8 mm SL, Isso; MUFS 25595, 57.7 mm SL, Kurio; MUFS 25596, 56.6 mm SL, Kurio; MUFS 25597, 63.1 mm SL, Kurio; NSMT–P 17846, 4 specimens: 28.8–68.0 mm SL, Kusugawa; NSMT–P 91351, 45.9 mm SL, Yudomari; NSMT–P 91682, 3 specimens: 58.4–69.3 mm SL, Kurio; NSMT–P 95459, 2specimens: 32.6–84.6 mm SL, Haruo; NSMT–P 95463, 87.8 mm SL, Hirauchi.

Remarks: Yoshida et al. (2010) regarded Mabuchi et al.'s (2004) "spotted type of Misujitenjikudai" as *A. taeniophorus*.

Fig. 173. *Apogon taeniophorus* (KAUM–I. 11359, 76.1 mm SL).

Apogon cf taeniophorus Regan, 1908, lined type [Jpn name: "misujitenjikudai, rain-gata"] (Fig. 174)

Yoshida et al. (2010): KPM–NI 22579, 25.1 mm SL, Isso.

Remarks: The specimen is identified as Mabuchi et al.'s (2004) "lined type of Misujitenjikudai". Taxonomic status of this species is still unknown.

Fig. 174. *Apogon cf taeniophorus* (KPM–NI 22579, 25.1 mm SL).

Apogonichthyoides timorensis (Bleeker, 1854) [Jpn name: Kakureishimochi] (Fig. 175)

Yoshida et al. (2010): KAUM–I. 20076, 59.9 mm SL, Yudomari; KPM–NI 22542, 29.0 mm SL, Yudomari; KPM–NI 22580, 21.9 mm SL, Isso.

Fig. 175. *Apogonichthyoides timorensis* (KAUM–I. 20076, 59.9 mm SL).

Archamia fucata (Cantor, 1849) [Jpn name: Sumitsukiatohikitenjikudai] (Fig. 176)

BSKU 96549, 50.6 mm SL, Yudomari; KAUM–I. 20044, 49.5 mm SL, Yudomari; KAUM–I. 20074, 53.3 mm SL, Yudomari; KAUM–I. 20075, 73.5 mm SL, Yudomari.

Remarks: *Archamia dispilus* Lachner, 1951 was recently synonymized with *A. fucata* by Gon and Randall (2003).

Fig. 176. *Archamia fucata* (KAUM–I. 20075, 73.5 mm SL).

Cheilodipterus artus Smith, 1961
[Jpn name: Kasumiyaraiishimochi]

Yoshida et al. (2010): Isso.

Remarks: Hayashi's (2002) *C. subulatus* was re-identified as *C. artus* (see Yoshida et al., 2010).

Cheilodipterus intermedius Gon, 1993
[Jpn name: Sudareyaraiishimochi] (Fig. 177)

Yoshida et al. (2010): Isso.

Remarks: Hayashi's (2002) *C. artus* was re-identified as *C. intermedius* (see Yoshida et al., 2010).

Fig. 177. *Cheilodipterus intermedius* (upper: young; lower: adult; off Isso; from Yoshida et al., 2010).

Cheilodipterus macrodon (Lacepède, 1802)
[Jpn name: Ryukyuyaraiishimochi] (Fig. 178)

Arai and Ida (1975, as *Cheilodipterus lineatus*): Kusugawa [two specimens (107–118 mm TL) were reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Yoshida et al. (2010): BSKU 96548, 58.7 mm SL, Yudomari; KAUM–I. 11453, 70.5 mm SL, Isso.

Fig. 178. *Cheilodipterus macrodon* (BSKU 96548, 58.7 mm SL).

Cheilodipterus quinquelineatus Cuvier, 1828
[Jpn name: Yaraiishimochi] (Fig. 179)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Yoshida et al. (2010): KAUM–I. 11289, 50.0 mm SL, Yudomari; KAUM–I. 20049, 80.3 mm SL, Yudomari; KAUM–I. 20068, 101.9 mm SL, Yudomari; KAUM–I. 20070, 85.8 mm SL, Yudomari; KAUM–I. 20073, 42.0 mm SL, Yudomari; KAUM–I. 20535, 65.5 mm SL, Yudomari; KPM–NI 22511, 40.0 mm SL, Yudomari.

Fig. 179. *Cheilodipterus quinquelineatus* (KAUM–I. 11289, 50.0 mm SL).

Foa brachygramma (Jenkins, 1903)
[Jpn name: Taiwammatoishimochi] (Fig. 180)
Yoshida et al. (2010): Isso.

Fig. 180. *Foa brachygramma* (off Isso; from Yoshida et al., 2010).

Fowleria isostigma (Jordan and Seale, 1906)
[Jpn name: Nahamatoishimochi] (Fig. 181)
Yoshida et al. (2010): BSKU 96573, 17.0 mm SL, Yudomari.

Fig. 181. *Fowleria isostigma* (BSKU 96573, 17.0 mm SL).

Fowleria cf marmorata (Alleyne and Macleay, 1877)
[Jpn name: Obishibori] (Fig. 182)
Yoshida et al. (2010): KAUM–I. 21784, 39.8 mm SL, Isso.

Remarks: The specimen was identified as *F. marmorata*, but differed from published meristic data for *F. marmorata* in having 6 or 7 pored lateral-line scales (vs. 10–13 in the latter) (see Yoshida et al., 2010).

Fig. 182. *Fowleria cf marmorata* (KAUM–I. 21784, 39.8 mm SL).

Fowleria variegata (Valenciennes, 1832)
[Jpn name: Shibori] (Fig. 183)
Yoshida et al. (2010): BSKU 96547, 33.8 mm SL, Yudomari; KPM–NI 22505, 28.8 mm SL, Yudomari.

Fig. 183. *Fowleria variegata* (KPM–NI 22505, 28.8 mm SL).

Neamia octospina Smith and Radcliffe, 1912
[Jpn name: Yatsutogetenjikudai] (Fig. 184)
Yoshida et al. (2010): Isso.

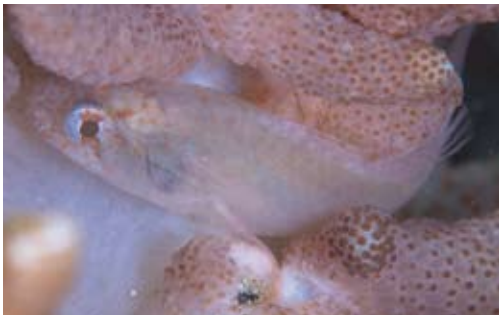

Fig. 184. *Neamia octospina* (off Isso; from Yoshida et al., 2010).

Nectamia bandanensis (Bleeker, 1854)
[Jpn name: Bandaishimochi] (Fig. 185)

Yoshida et al. (2010): BSKU 96538, 66.0 mm SL, Yudomari; KAUM–I. 20069, 67.8 mm SL, Yudomari.

Remarks: Fraser (2008) allocated this species to *Nectamia* from *Apogon*.

Fig. 185. *Nectamia bandanensis* (BSKU 96538, 66.0 mm SL).

Pseudamia gelatinosa Smith, 1956
[Jpn name: Numeritenjikudai] (Fig. 186)

Yoshida et al. (2010): BSKU 96540, 42.9 mm SL, Yudomari; KAUM–I. 20120, 31.2 mm SL, Yudomari; KAUM–I. 20163, 16.4 mm SL, Yudomari; KAUM–I. 20164, 21.0 mm SL, Yudomari; KAUM–I. 20165, 14.9 mm SL, Yudomari; KAUM–I. 20166, 16.5 mm SL, Yudomari; KPM–NI 22529, 18.7 mm SL, Yudomari.

Fig. 186. *Pseudamia gelatinosa* (BSKU 96540, 42.9 mm SL).

Rhabdamia gracilis (Bleeker, 1856)
[Jpn name: Sukashitenjikudai] (Fig. 187)

Yoshida et al. (2010): Isso.

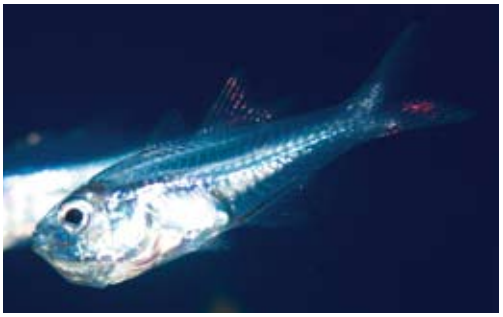

Fig. 187. *Rhabdamia gracilis* (off Isso; from Yoshida et al., 2010).

Siphamia majimai Matsubara and Iwai, 1958
[Jpn name: Majimakuroishimochi] (Fig. 188)

Yoshida et al. (2010): BSKU 96557, 16.9 mm SL, Yudomari; KAUM–I. 20158, 20.3 mm SL, Yudomari; KAUM–I. 20211, 19.3 mm SL, Yudomari; KPM–NI 22582, 16.9 mm SL, Isso.

Fig. 188. *Siphamia majimai* (KAUM–I. 20158, 20.3 mm SL).

Siphamia tubulata (Weber, 1909)
[Jpn name: Inazumahikariishimochi] (Fig. 189)

Yoshida et al. (2010): Isso.

Fig. 189. *Siphamia tubulata* (off Isso; from Yoshida et al., 2010).

Siphamia versicolor (Smith and Radcliffe, 1911)
[Jpn name: Hikariishimochi]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY MALACANTHIDAE
Hoplolatilus cuniculus Randall and Dooley, 1974
[Jpn name: Okinawasangoamadai] (Fig. 190)

Fig. 190. *Hoplolatilus cuniculus* (off Nagata, 40 m, 5 June 2009, S. Harazaki).

Hoplolatilus fronticinctus (Günther, 1887)
[Jpn name: None] (Fig. 191)

Remarks: The photographed individual has the following characters: caudal fin forked; opercular spine smaller than pupil diameter; depth of posterior margin of maxilla less than pupil diameter; dorsal fin with 10 spines and 13 soft rays; anal fin with two spines and 12 soft rays; a blue saddle-shaped blotch on caudal peduncle dorsally; a blue band from snout to eye; dorsal and anal fins yellowish, with bluish green basally and pink distally; and caudal fin yellowish, with bluish green stripes along upper and lower margins. These characters agree with description of *H. fronticinctus* given by Dooley (1999). This species is distributed in the Indo-West Pacific, and has been known from the Philippines to the Solomon Islands in the western Pacific (Dooley, 1999). Recently, Senou et al. (2006b) reported juveniles of this species as *Hoplolatilus* sp. from Izu-oshima Island on the basis of underwater photographs (KPM–NR 31560, 62592). A juvenile of this species was also photographed at a depth of 55 m off Kume-jima Island in 1999 (KPM–NR 29578). The photograph of the species taken at Yaku-shima Island represents the first record of *H. fronticinctus* from the island. This species is relatively common in depths of more than 50 m off Yaku-shima Island. Specimens of the species have never been collected from Japanese waters.

Fig. 191. *Hoplolatilus fronticinctus* (off Nagata, 60 m, 28 Nov. 2009, S. Harazaki).

Malacanthus brevirostris Guichenot, 1848
[Jpn name: Yaseamadai]
Ichikawa et al. (1992): Yaku-shima Island.

Malacanthus latovittatus (Lacepède, 1801)
[Jpn name: Kitsuneamadai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY CORYPHAENIDAE
Coryphaena hippurus Linnaeus, 1758
[Jpn name: Shiira]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY RACHYCENTRIDAE
Rachycentron canadum (Linnaeus, 1766)
[Jpn name: Sugi]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY ECHENEIDAE
Echeneis naucrates Linnaeus, 1758
[Jpn name: Kobanzame]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY CARANGIDAE

Alectis ciliaris (Bloch, 1787)
[Jpn name: Itohikiaji]
Ichikawa et al. (1992): Yaku-shima Island.

Carangoides fulvoguttatus (Forsskål, 1775)
[Jpn name: Hoshikaiwari]
Ichikawa et al. (1992): Yaku-shima Island.

Carangoides orthogrammus (Jordan and Gilbert, 1882)
[Jpn name: Nan-yokaiwari] (Fig. 192)
NSMT–P 91960, 357.6 mm SL, Hirauchi.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 192. *Carangoides orthogrammus* (NSMT–P 91960, 357.6 mm SL).

Caranx ignobilis (Forsskål, 1775)
[Jpn name: Ronin-aji]
Ichikawa et al. (1992): Yaku-shima Island.

Caranx melampygus Cuvier, 1833
[Jpn name: Kasumiaji] (Fig. 193)
KAUM–I. 11272, 125.3 mm SL, Yudomari; NSMT–P 77628, 459.8 mm SL, Nanase.
Ichikawa et al. (1992): Yaku-shima Island.

Caranx papuensis Alleyne and Macleay, 1877
[Jpn name: Onihiraaji] (Fig. 194)
KAUM–I. 24696, 44.8 mm SL, mouth of Kurio River.

Caranx sexfasciatus Quoy and Gaimard, 1825
[Jpn name: Gingameaji] (Fig. 195)
KAUM–I. 11273, 107.8 mm SL, Yudomari; KAUM–I. 25224, 162.8 mm SL, Nagata; KAUM–I. 25225, 170.2 mm SL, Nagata; KAUM–I. 25226, 165.7 mm SL, Nagata; KPM–NI 24257, 131.8 mm SL, mouth of Nagata River; KPM–NI 24274, 149.9 mm SL, mouth of Miyanoura River; KPM–NI 24277, 242.4 mm SL, mouth of Miyanoura River; KPM–NI 24281, 123.3 mm SL, mouth of Nagata River; KPM–NI 24661, 146.7 mm SL, mouth of Nagata River; KPM–NI 24662, 154.3 mm SL, mouth of Nagata River; KPM–NI 24673, 177.1 mm SL, Onoaida; KPM–NI 24674, 160.3 mm SL, Onoaida; KPM–NI 24675, 162.2 mm SL, Onoaida; NSMT–P 77582, 288.8 mm SL, Nagata; NSMT–P 77664, 170.5 mm SL, Miyanoura; NSMT–P 77665, 161.0 mm SL, Miyanoura; NSMT–P 91370, 115 mm SL, Yudomari; NSMT–P 96014, 263.0 mm SL, mouth of Miyanoura River; NSMT–P 96390, 156.5 mm SL, mouth of Tainoko River.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 193. *Caranx melampygus* (upper: KAUM–I. 11272, 125.3 mm SL; lower: NSMT–P 77628, 459.8 mm SL).

Fig. 194. *Caranx papuensis* (KAUM–I. 24696, 44.8 mm SL, preserved specimen).

Fig. 195. *Caranx sexfasciatus* (KPM–NI 24277, 242.4 mm SL).

Decapterus macarellus (Cuvier, 1833)
[Jpn name: Kusayamoro] (Fig. 196)

FRLM 34662, 252.5 mm SL, off Ambo; FRLM 34663, 316.0 mm SL, off Ambo; FRLM 34664, 282.1 mm SL, off Ambo; FRLM 34665, 274.5 mm SL, off Ambo; FRLM 34666, 292.0 mm SL, off Ambo; FRLM 34667, 299.7 mm SL, off Ambo; FRLM 34668, 268.7 mm SL, off Ambo; FRLM 34669, 275.5 mm SL, off Ambo; FRLM 34670, 275.5 mm SL, off Ambo; FRLM 34704, 360.1 mm SL, Yaku-shima Island; KAUM–I. 11254, 364.3 mm SL, Yaku-shima Island; NSMT–P 76551, 247.9 mm SL, south of Yaku-shima Island; NSMT–P 76552, 4 specimens, 253.4–275.5 mm SL, south of Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 196. *Decapterus macarellus* (KAUM–I. 11254, 364.3 mm SL).

Decapterus macrosoma Bleeker, 1851
[Jpn name: Moro] (Fig. 197)

NSMT–P 76550, 7 specimens, 222.2–285.9 mm SL, south of Yaku-shima Island.

Decapterus muroadsi (Temminck and Schlegel, 1844)
[Jpn name: Muroaji]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 197. *Decapterus macrosoma* (NSMT–P 76550, 285.9 mm SL, preserved specimen).

Decapterus tabl Berry, 1968
[Jpn name: Oakamuro] (Fig. 198)

NSMT–P 76549, 5 specimens, 266.0–302.2 mm SL, south of Yaku-shima Island.

Fig. 198. *Decapterus tabl* (NSMT–P 76549, 302.2 mm SL, preserved specimen).

Elagatis bipinnulata (Quoy and Gaimard, 1825)
[Jpn name: Tsumuburi] (Fig. 199)

NSMT–P 91962, 459.6 mm SL, Hirauchi; NSMT–P 91963, 432.5 mm SL, Hirauchi.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 199. *Elagatis bipinnulata* (NSMT–P 91962, 459.6 mm SL).

Naucrates ductor (Linnaeus, 1758)
[Jpn name: Burimodoki]

Ichikawa et al. (1992): Yaku-shima Island.

Pseudocaranx dentex (Bloch and Schneider, 1801)
[Jpn name: Shimaaji]

Ichikawa et al. (1992): Yaku-shima Island.

Scomberoides lysan (Forsskål, 1775)
[Jpn name: Ikekatsuo]
Ichikawa et al. (1992): Yaku-shima Island.

Selar crumenophthalmus (Bloch, 1793)
[Jpn name: Meaji]
Ichikawa et al. (1992): Yaku-shima Island.

Seriola dumerili (Risso, 1810)
[Jpn name: Kampachi] (Fig. 200)
KPM–NI 24273, 170.8 mm SL, Ambo; KPM–NI 24275, 176.3 mm SL, mouth of Ambo River.
Ichikawa et al. (1992): Yaku-shima Island.

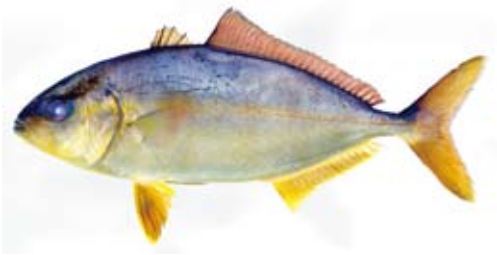

Fig. 200. *Seriola dumerili* (KPM–NI 24273, 170.8 mm SL).

Seriola lalandi Valenciennes, 1833
[Jpn name: Hiramasa]
Ichikawa et al. (1992): Yaku-shima Island.

Seriola quinqueradiata Temminck and Schlegel, 1845
[Jpn name: Buri]
Ichikawa et al. (1992): Yaku-shima Island.

Seriola rivoliana Valenciennes, 1833
[Jpn name: Hirenagakampachi]
Ichikawa et al. (1992): Yaku-shima Island.

Trachinotus baillonii (Lacepède, 1801)
[Jpn name: Koban-aji] (Fig. 201)
KAUM–I. 11408, 11.9 mm SL, Kurio; KAUM–I. 15414, 105.6 mm SL, Yaku-shima Island; KPM–NI 24667, 258.0 mm SL, Onoaida.
Ichikawa et al. (1992): Yaku-shima Island.

Trachinotus blochii (Lacepède, 1801)
[Jpn name: Marukoban]
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 201. *Trachinotus baillonii* (KPM–NI 24667, 258.0 mm SL).

Trachurus japonicus (Temminck and Schlegel, 1844)
[Jpn name: Maaji]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY BRAMIDAE
Pteraclis aesticola (Jordan and Snyder, 1901)
[Jpn name: Benten-uo] (Fig. 202)
Senou and Kanno (2004): Isso.

Fig. 202. *Pteraclis aesticola* (off Isso; after Senou and Kanno, 2004).

FAMILY LUTJANIDAE
Aprion virescens Valenciennes, 1830
[Jpn name: Aochibiki] (Fig. 203)
NSMT–P 91961, 441.4 mm SL, Hirauchi.
Ichikawa et al. (1992): Yaku-shima Island.

Etelis coruscans Valenciennes, 1862
[Jpn name: Hamadai] (Fig. 204)
KAUM–I. 21947, 271.4 mm SL, Yaku-shima Island.

Fig. 203. *Aprion virescens* (NSMT–P 91961, 441.4 mm SL).

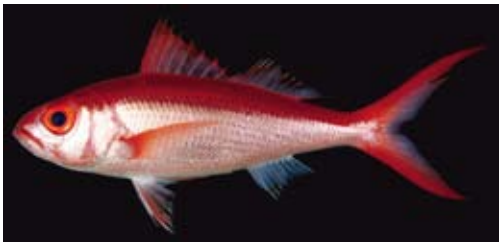

Fig. 204. *Etelis coruscans* (KAUM–I. 21947, 271.4 mm SL).

Fig. 205. *Lutjanus argentimaculatus* (upper: KAUM–I. 20303, 66.7 mm SL; lower: KAUM–I. 25229, 208.5 mm SL).

Lutjanus argentimaculatus (Forsskål, 1775)
[Jpn name: Gomafuedai] (Fig. 205)

BSKU 96690, 18.7 mm SL, Kurio; KAUM–I. 20303, 66.7 mm SL, mouth of Kurio River; KAUM–I. 24697, 57.6 mm SL, mouth of Kurio River; KAUM–I. 24698, 20.4 mm SL, mouth of Kurio River; KAUM–I. 25229, 208.5 mm SL, mouth of Ambo River; KPM–NI 24280, 262.4 mm SL, mouth of Miyanoura River; NSMT–P 68063, 36.9 mm SL, mouth of Nagata River; NSMT–P 77626, 309 mm SL, mouth of Miyanoura River; NSMT–P 96393, 265.7 mm SL, Ambo.

Ichikawa et al. (1992): Yaku-shima Island.

Lutjanus bengalensis (Bloch, 1790)
[Jpn name: Bengarufuedai] (Fig. 206)

Fig. 206. *Lutjanus bengalensis* (off Isso, 20 m, 16 Jan. 2010, S. Harazaki).

Lutjanus bohar (Forsskål, 1775)
[Jpn name: Barafuedai] (Fig. 207)

NSMT–P 77718, 630 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 207. *Lutjanus bohar* (NSMT–P 77718, 630 mm SL).

Lutjanus decussatus (Cuvier, 1828)
[Jpn name: Amimefuedai]

Ichikawa et al. (1992): Yaku-shima Island.

Lutjanus fulviflamma (Forsskål, 1775)
[Jpn name: Nisekurohoshifuedai] (Fig. 208)

KAUM–I. 11486, 56.4 mm SL, mouth of Miyanoura River; KAUM–I. 21761, 76.7 mm SL, mouth of Ambo River; KPM–NI 24251, 99.6 mm

SL, mouth of Nagata River; KPM–NI 24660, 76.2 mm SL, mouth of Nagata River.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 208. *Lutjanus fulviflamma* (KAUM–I. 21761, 76.7 mm SL).

Lutjanus fulvus (Forster, 1801)
[Jpn name: Okifuedai] (Fig. 209)

KAUM–I. 11404, 111.7 mm SL, mouth of Ambo River; KAUM–I. 20309, 77.9 mm SL, mouth of Kurio River; KAUM–I. 20325, 26.4 mm SL, mouth of Kurio River; KAUM–I. 25048, 81.2 mm SL, mouth of Nagata River; KAUM–I. 25233, 147.5 mm SL, Ambo; KPM–NI 22571, 21.7 mm SL, mouth of Kurio River.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Lutjanus gibbus (Forsskål, 1775)
[Jpn name: Himefuedai] (Fig. 210)

MUFS 25530, 158.6 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Lutjanus kasmira (Forsskål, 1775)
[Jpn name: Yosujifuedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Lutjanus monostigma (Cuvier, 1828)
[Jpn name: Ittenfuedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 209. *Lutjanus fulvus* (upper: KAUM–I. 20325, 26.4 mm SL; lower: KAUM–I. 25048, 81.2 mm SL).

Fig. 210. *Lutjanus gibbus* (MUFS 25530, 158.6 mm SL).

Lutjanus quinquelineatus (Bloch, 1790)
[Jpn name: Rokusenfuedai] (Fig. 211)

NSMT–P 77654, 126.2 mm SL, Nagata.

Ichikawa et al. (1992, as *Lutjanus spilurus*): Yaku-shima Island.

Lutjanus rivulatus (Cuvier, 1828)
[Jpn name: Namifuedai]

Kuniyasu (1999): Kurio.

Lutjanus russellii (Bleeker, 1849)
[Jpn name: Kurohoshifuedai] (Fig. 212)

KAUM–I. 11504, 19.6 mm SL, mouth of Miyanoura River.

Kuniyasu (1999): Kurio.

Fig. 211. *Lutjanus quinquelineatus* (NSMT–P 77654, 126.2 mm SL).

Fig. 212. *Lutjanus russellii* (KAUM–I. 11504, 19.6 mm SL).

Lutjanus sebae (Cuvier, 1816)
[Jpn name: Sennendai]
Ichikawa et al. (1992): Yaku-shima Island.

Lutjanus stellatus Akazaki, 1983
[Jpn name: Fuedai] (Fig. 213)
KAUM–I. 21760, 75.9 mm SL, mouth of Ambo River; KAUM–I. 21762, 80.4 mm SL, mouth of Ambo River; KAUM–I. 25048, 81.2 mm SL, mouth of Nagata River; MUFS 25564, 34.8 mm SL, Kurio; NSMT–P 77651, 203 mm SL, Nagata.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Macolor macularis Fowler, 1931
[Jpn name: Hohosujitarumi] (Fig. 214)

Macolor niger (Forsskål, 1775)
[Jpn name: Madaratarumi]
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 213. *Lutjanus stellatus* (KAUM–I. 21760, 75.9 mm SL).

Fig. 214. *Macolor macularis* (off Isso, 18 m, 25 Aug. 2004, S. Harazaki).

Paracaesio caerulea (Katayama, 1934)
[Jpn name: Aodai]
Ichikawa et al. (1992): Yaku-shima Island.

Paracaesio kusakarii Abe, 1960
[Jpn name: Shimaaodai]
Ichikawa et al. (1992): Yaku-shima Island.

Paracaesio xanthura (Bleeker, 1869)
[Jpn name: Umeiro] (Fig. 215)
FRLM 34698, 249.5 mm SL, Yaku-shima Island; FRLM 34699, 247.0 mm SL, Yaku-shima Island; KAUM–I. 11252, 264.2 mm SL, Yaku-shima Island; KAUM–I. 11253, 267.7 mm SL, Yaku-shima Island; MUFS 25523, 260.9 mm SL, Yaku-shima Island; MUFS 25524, 255.5 mm SL,

Yaku-shima Island; MUFS 25525, 245.8 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 215. *Paracaesio xanthura* (KAUM–I. 11253, 267.7 mm SL).

FAMILY CAESIONIDAE

Caesio teres Seale, 1906

[Jpn name: Umeiromodoki] (Fig. 216)

BSKU 96649, 26.1 mm SL, Isso; FRLM 34725, 277.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 216. *Caesio teres* (FRLM 34725, 277.7 mm SL).

Pterocaesio digramma (Bleeker, 1864)

[Jpn name: Takasago]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pterocaesio tile (Cuvier, 1830)

[Jpn name: Kumasasahanamuro]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY LOBOTIDAE

Lobotes surinamensis (Bloch, 1790)

[Jpn name: Matsudai] (Fig. 217)

KAUM–I. 21776, 53.6 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

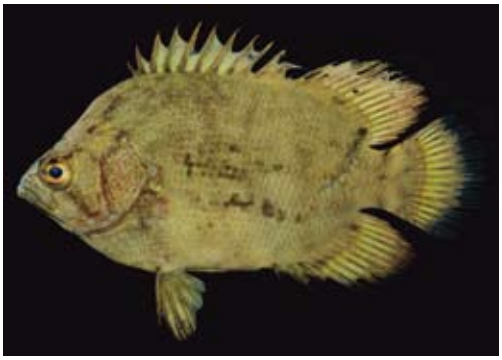

Fig. 217. *Lobotes surinamensis* (KAUM–I. 21776, 53.6 mm SL).

FAMILY GERREIDAE

Gerres equulus Temminck and Schlegel, 1844

[Jpn name: Kurosagi] (Fig. 218)

KPM–NI 24276, 208.6 mm SL, mouth of Miyanoura River; KPM–NI 24658, 203.6 mm SL, mouth of Miyanoura River; NSMT–P 96392, 192.7 mm SL, mouth of Miyanoura River.

Fig. 218. *Gerres equulus* (KPM–NI 24658, 203.6 mm SL).

Gerres filamentosus Cuvier, 1829

[Jpn name: Itohikisagi] (Fig. 219)

KAUM–I. 11488, 42.2 mm SL, mouth of Miyanoura River; KAUM–I. 11497, 42.4 mm SL, mouth of Miyanoura River; KAUM–I. 24699,

62.3 mm SL, mouth of Kurio River; KAUM–I. 24700, 46.6 mm SL, mouth of Kurio River; KAUM–I. 24701, 43.7 mm SL, mouth of Kurio River; KAUM–I. 24702, 24.1 mm SL, mouth of Kurio River; KAUM–I. 24703, 23.1 mm SL, mouth of Kurio River; KAUM–I. 24704, 22.6 mm SL, mouth of Kurio River; KAUM–I. 24705, 20.1 mm SL, mouth of Kurio River.

Fig. 219. *Gerres filamentosus* (KAUM–I. 11488, 42.2 mm SL).

Gerres oyena (Forsskål, 1775)
[Jpn name: Minamikurosagi] (Fig. 220)

KAUM–I. 11409, 11.0 mm SL, Kurio Beach; KAUM–I. 11411, 8.5 mm SL, Kurio Beach.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Remarks: Previous records of *G. oyena* from Yaku-shima Island possibly included *G. equulus*.

Fig. 220. *Gerres oyena* (KAUM–I. 11409, 11.0 mm SL).

FAMILY HAEMULIDAE

Diagramma picta picta (Thunberg, 1792)
[Jpn name: Korodai]

Ichikawa et al. (1992, as *Plectorhinchus pictus*): Yaku-shima Island.

Remarks: Johnson et al. (2001) regarded it as a valid subspecies.

Parapristipoma trilineatum (Thunberg, 1793)
[Jpn name: Isaki]

Ichikawa et al. (1992): Yaku-shima Island.

Plectorhinchus chaetodonoides Lacepède, 1801
[Jpn name: Chochokoshodai] (Fig. 221)

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 221. *Plectorhinchus chaetodonoides* (off Isso, 6 m, 11 Apr. 2007, S. Harazaki).

Plectorhinchus chrysotaenia (Bleeker, 1855)
[Jpn name: Nijikoshodai]

Kuniyasu (1999): Kurio.

Plectorhinchus cinctus (Temminck and Schlegel, 1843)
[Jpn name: Koshodai]

Ichikawa et al. (1992): Yaku-shima Island.

Plectorhinchus flavomaculatus (Cuvier, 1830)
[Jpn name: Osharekoshodai] (Fig. 222)

NSMT–P 77642, 267.6 mm SL, mouth of Kurio River.

Kuniyasu (1999): Kurio.

Fig. 222. *Plectorhinchus flavomaculatus* (NSMT–P 77642, 267.6 mm SL).

Plectorhinchus gibbosus (Lacepède, 1802)
[Jpn name: Kurokoshodai] (Fig. 223)

KAUM–I. 24706, 75.9 mm SL, mouth of Kurio River; KPM-NI 24266, 331.3 mm SL, mouth of Miyanoura River; NSMT–P 77639, 359.4 mm SL, Kurio.

Ichikawa et al. (1992, as *Plectorhinchus niger*): Yaku-shima Island. Yonezawa (2003c): Yaku-shima Island. Matsunuma et al. (2009): mouth of Miyanoura River.

Fig. 223. *Plectorhinchus gibbosus* (NSMT–P 77639, 359.4 mm SL).

Plectorhinchus lessonii (Cuvier, 1830).
[Jpn name: Hiregurokoshodai] (Fig. 224)

FRLM 34694, 266.1 mm SL, Kurio; NSMT–P 77633, 282.0 mm SL, Nanase.

Kuniyasu (1999): Kurio.

Fig. 224. *Plectorhinchus lessonii* (FRLM 34694, 266.1 mm SL).

Plectorhinchus lineatus (Linnaeus, 1758)
[Jpn name: Ayakoshodai]

Ichikawa et al. (1992, as *Plectorhinchus goldmammi*): Yaku-shima Island.

Plectorhinchus picus (Cuvier, 1828)
[Jpn name: Ajiakoshodai] (Fig. 225)

NSMT–P 91951, 443 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 225. *Plectorhinchus picus* (NSMT–P 91951, 443 mm SL).

Plectorhinchus vittatus (Linnaeus, 1758)
[Jpn name: Musujikoshodai] (Fig. 226)

FRLM 34723, 349.0 mm SL, Kurio; NSMT–P 77632, 300.6 mm SL, Nanase.

Ichikawa et al. (1992, as *Plectorhinchus diagrammus*): Yaku-shima Island. Kuniyasu (1999, as *Plectorhinchus orientalis*): Kurio.

Remarks: This species has currently been regarded as a senior synonym of *Plectorhinchus orientalis* (Bloch, 1793).

Fig. 226. *Plectorhinchus vittatus* (NSMT–P 77632, 300.6 mm SL).

Pomadasys quadrilineatus Shen and Lin, 1984
[Jpn name: Sujimizoisaki] (Fig. 227)

Senou and Harazaki (2004): Isso. Matsunuma et al. (2009): KAUM–I. 25047, 103.8 mm SL, mouth of Nagata River; underwater photographs, Nagata and mouth of Miyanoura River.

Fig. 227. *Pomadasys quadrilineatus* (KAUM–I. 25047, 103.8 mm SL).

FAMILY NEMIPTERIDAE

Parascolopsis eriomma (Jordan and Richardson, 1909) [Jpn name: Akatamagashira] (Fig. 228)

KAUM–I. 7409, 208.6 mm SL, Yaku-shima Island; KAUM–I. 7410, 242.0 mm SL, Yaku-shima Island; NSMT–P 95154, 229.1 mm SL, Yaku-shima Island.

Fig. 228. *Parascolopsis eriomma* (KAUM–I. 7410, 242.0 mm SL).

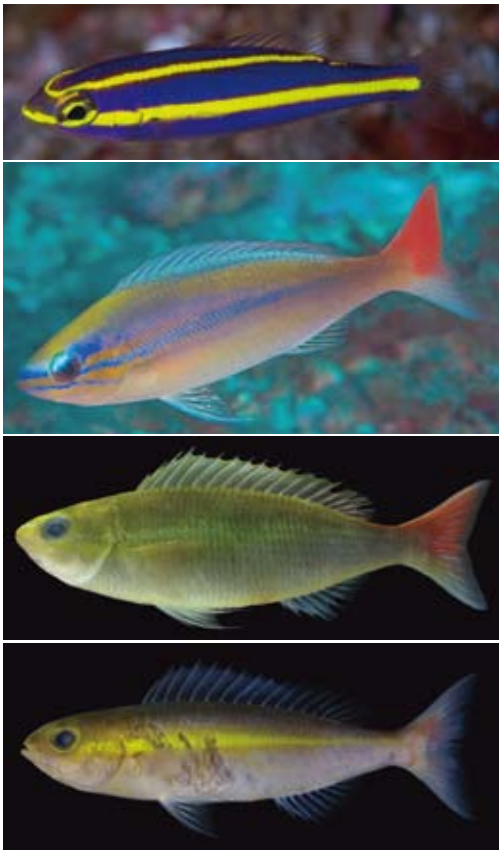

Fig. 229. *Pentapodus aureofasciatus* (upper two from Motomura and Harazaki, 2007; lower two: KAUM–I. 285, male, 158.5 mm SL and KAUM–I. 14137, female, 156.0 mm SL).

Pentapodus aureofasciatus Russell, 2001 [Jpn name: Yakushimakitsuneuo] (Fig. 229)

KAUM–I. 14137, 156.0 mm SL, Shitoko.

Motomura and Harazaki (2007): KAUM–I. 35, 150.0 mm SL, Shitoko; KAUM–I. 285, 158.5 mm SL, off Isso. Motomura and Sakurai (2008): KAUM–I. 285, 158.5 mm SL, off Isso.

Pentapodus caninus (Cuvier, 1830) [Jpn name: Kitsuneuo] (Fig. 230)

Motomura and Harazaki (2007): off Isso.

Pentapodus nagasakiensis (Tanaka, 1915) [Jpn name: Itotamagashira]

Ichikawa et al. (1992): Yaku-shima Island.

Scolopsis affinis Peters, 1877 [Jpn name: Himetamagashira] (Fig. 231)

Scolopsis bilineata (Bloch, 1793) [Jpn name: Futasujitamagashira] (Fig. 232)

KAUM–I. 11334, 164.7 mm SL, Kurio; KPM–NI 24259, 143.4 mm SL, Yoshida.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Scolopsis lineata Quoy and Gaimard, 1824 [Jpn name: Yokoshimatamagashira]

Ichikawa et al. (1992, as *Scolopsis cancellatus*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Scolopsis monogramma (Cuvier, 1830) [Jpn name: Hitosujitamagashira] (Fig. 233)

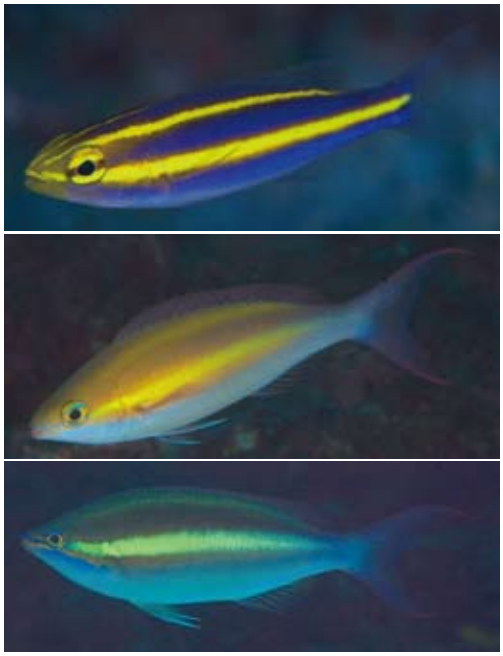

Fig. 230. *Pentapodus caninus* (off Isso; from Motomura and Harazaki, 2007).

Fig. 231. *Scolopsis affinis* (off Isso, 15 m, 15 July 2009, S. Harazaki).

Fig. 232. *Scolopsis bilineata* (KPM–NI 24259, 143.4 mm SL).

Fig. 233. *Scolopsis monogramma* (off Isso, 15 m, 15 July 2009, S. Harazaki).

Scolopsis trilineata Kner, 1868

[Jpn name: None] (Fig. 234)

Remarks: The underwater photograph shows that the fish has scales dorsally on the head reaching forward only to above the middle of the eye; a forked caudal fin; and a body gray dorsally, silvery white ventrally, with distinct stripes on the dorsal and upper lateral surfaces of the body. The dorsal head squamation and color pattern of the photographed individual agree with those of *Scolopsis trilineata* given by Russell (2001) and Randall (2005).

This species has been known in the western Pacific, only from Taiwan to Tonga and Australia (Shen, 1997; Russell, 2001; Randall, 2005); thus the photographed individual taken at Yaku-shima Island represents the first record of the species from Japan and the northernmonst record for the species. No other individuals have been observed in the island.

Fig. 234. *Scolopsis trilineata* (off Isso, 9 m, 16 Oct. 2009, S. Harazaki).

FAMILY LETHRINIDAE

Gnathodentex aureolineatus (Lacepède, 1802)
[Jpn name: Nokogiridai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Gymnocranius euanus (Günther, 1879)
[Jpn name: Shirodai]

Ichikawa et al. (1992, as *Gymnocranius affinis*): Yaku-shima Island.

Gymnocranius griseus (Temminck and Schlegel, 1843)
[Jpn: Meichidai] (Fig. 235)

MUFS 25519, 254.0 mm SL, Yaku-shima Island; MUFS 25520, 316.3 mm SL, Yaku-shima Island; MUFS 25521, 366.0 mm SL, Yaku-shima Island; MUFS 25522, 300.0 mm SL, Yaku-shima Island.

Remarks: This name has been applied to more than one species and is under investigation by Y. Iwatsuki (MUFS) and his colleagues. The Yaku-shima Island specimens also include several morphotypes.

Fig. 235. *Gymnocranius griseus* (MUFS 25519, 254.0 mm SL).

Lethrinus atkinsoni Seale, 1910
[Jpn name: Isofuefuki]

Ichikawa et al. (1992, as *Lethrinus mahsena*): Yaku-shima Island.

Lethrinus haematopterus Temminck and Schlegel, 1844
[Jpn name: Fuefukidai]

Ichikawa et al. (1992): Yaku-shima Island.

Lethrinus harak (Forsskål, 1775)
[Jpn name: Matofuefuki]

Ichikawa et al. (1992): Yaku-shima Island.

Lethrinus nebulosus (Forsskål, 1775)
[Jpn name: Hamafuefuki] (Fig. 236)

NSMT–P 95399, 179.6 mm SL, Miyanoura.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 236. *Lethrinus nebulosus* (NSMT–P 95399, 179.6 mm SL, preserved specimen).

Lethrinus rubrioperculatus Sato, 1978
[Jpn name: Hoakakuchibi] (Fig. 237)

FRLM 34700, 347.1 mm SL, Yaku-shima Island; KAUM–I. 11249, 338.2 mm SL, Yaku-shima Island.

Fig. 237. *Lethrinus rubrioperculatus* (FRLM 34700, 347.1 mm SL).

Monotaxis grandoculis (Forsskål, 1775)
[Jpn name: Yokoshimakurodai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY SPARIDAE

Acanthopagrus schlegelii (Bleeker, 1854)
[Jpn name: Kurodai] (Fig. 238)

KAUM–I. 11487, 62.3 mm SL, mouth of Mi-

yanoura River; KAUM–I. 11498, 52.2 mm SL, mouth of Miyanoura River; KAUM–I. 11499, 60.4 mm SL, mouth of Miyanoura River; NSMT–P 77927, 215 mm SL, Kurio; NSMT–P 77928, 400 mm SL, Kurio; NSMT–P 95760, 342.0 mm SL, mouth of Miyanoura River; NSMT–P 96013, 217.5 mm SL, mouth of Nagata River; NSMT–P 96388, 314.6 mm SL, mouth of Miyanoura River; NSMT–P 96389, 383.1 mm SL, mouth of Miyanoura River.

Ichikawa et al. (1992): Yaku-shima Island. Shinomiya and Yonezawa (2002): Yaku-shima Island. Yonezawa (2003c): Yaku-shima Island.

Fig. 238. *Acanthopagrus schlegelii* (NSMT–P 95760, 342.0 mm SL).

Acanthopagrus sivicolus Akazaki, 1962
[Jpn name: Minamikurodai] (Fig. 239)

NSMT–P 77929, 325 mm SL, Kurio.

Kuniyasu (1999): Kurio.

Fig. 239. *Acanthopagrus sivicolus* (NSMT–P 77929, 325 mm SL).

Dentex hypselosomus Bleeker, 1854
[Jpn name: Kidai]

KAUM–I. 21945, 179.6 mm SL, Yaku-shima Island.

Ichikawa et al. (1992, as *Dentex tumifrons*): Yaku-shima Island.

Remarks: Ichikawa et al. (1992) mentioned that their *D. tumifrons* (= *D. hypselosomus*) might be Kibireakarenko, *Dentex* sp. (= *D. abei*).

Pagrus major (Temminck and Schlegel, 1843)
[Jpn name: Madai]

Ichikawa et al. (1992): Yaku-shima Island.

Rhabdosargus sarba (Forsskål, 1775)
[Jpn name: Hedai] (Fig. 240)

KPM–NI 24663, 99.2 mm SL, mouth of Miyanoura; NSMT–P 91952, 303 mm SL, mouth of Kurio River.

Ichikawa et al. (1992, as *Sparus sarba*): Yaku-shima Island.

Fig. 240. *Rhabdosargus sarba* (NSMT–P 91952, 303 mm SL).

FAMILY POLYNEMIDAE

Polydactylus plebeius (Broussonet, 1782)
[Jpn name: Tsubamekonoshiro] (Fig. 241)

KAUM–I. 10701, 47.6 mm SL, Nagakubo; KAUM–I. 10702, 47.7 mm SL, Nagakubo; KAUM–I. 10703, 47.8 mm SL, Nagakubo; KAUM–I. 10704, 47.9 mm SL, Nagakubo; KAUM–I. 10705, 47.1 mm SL, Nagakubo; KAUM–I. 11410, 41.3 mm SL, Kurio Beach; NSMT–P 77729, 41.0 mm SL, Nagakubo; NSMT–P 77730, 48.2 mm SL, Nagakubo; NSMT–P 77731, 41.6 mm SL, Nagakubo; NSMT–P 77732, 44.5

mm SL, Nagakubo;

Ichikawa et al. (1992, as *Polydactylus plebejus*): Yaku-shima Island.

Fig. 241. *Polydactylus plebeius* (KAUM–I. 11410, 41.3 mm SL).

FAMILY MULLIDAE

Mulloidichthys flavolineatus (Lacepède, 1801)
[Jpn name: Montsukiakahimeji] (Fig. 242)

KAUM–I. 20053, 113.1 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 242. *Mulloidichthys flavolineatus* (KAUM–I. 20053, 113.1 mm SL).

Mulloidichthys vanicolensis (Valenciennes, 1831)
[Jpn name: Akahimeji] (Fig. 243)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Parupeneus barberinoides (Bleeker, 1852)
[Jpn name: Indohimeji] (Fig. 244)

Ichikawa et al. (1992): Yaku-shima Island.

Remarks: This species occurs in depths of 10–15 m at Yaku-shima Island.

Fig. 243. *Mulloidichthys vanicolensis* (off Isso, 8 m, 19 Jan. 2010, S. Harazaki).

Fig. 244. *Parupeneus barberinoides* (off Isso, 12 m, 17 Jan. 2010, S. Harazaki).

Parupeneus barberinus (Lacepède, 1801)
[Jpn name: Osujihimeji] (Fig. 245)

KAUM–I. 11293, 31.2 mm SL, Yudomari; KAUM–I. 20045, 57.1 mm SL, Yudomari; KAUM–I. 20046, 58.1 mm SL, Yudomari; KAUM–I. 20132, 65.4 mm SL, Yudomari; KAUM–I. 20154, 49.8 mm SL, Yudomari; KAUM–I. 20188, 88.9 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 245. *Parupeneus barberinus* (KAUM–I. 20045, 57.1 mm SL).

Parupeneus ciliatus (Lacepède, 1802)
[Jpn name: Horaihimeji] (Fig. 246)

FRLM 34736, 81.8 mm SL, Kurio; KAUM–I. 11164, 74.1 mm SL, Kurio; KAUM–I. 11283, 94.5 mm SL, Yudomari; KAUM–I. 11612, 84.4 mm SL, Ambo; KAUM–I. 11613, 104.4 mm SL, Ambo; KAUM–I. 20048, 103.2 mm SL, Yudomari; KAUM–I. 20115, 81.0 mm SL, Yudomari; KAUM–I. 20116, 109.9 mm SL, Yudomari; KAUM–I. 20117, 121.8 mm SL, Yudomari; KAUM–I. 20118, 82.3 mm SL, Yudomari; KAUM–I. 20119, 115.5 mm SL, Yudomari; KAUM–I. 20126, 74.4 mm SL, Yudomari; KAUM–I. 20127, 77.1 mm SL, Yudomari; KAUM–I. 20128, 79.9 mm SL, Yudomari; KAUM–I. 20129, 84.9 mm SL, Yudomari; KAUM–I. 20130, 91.4 mm SL, Yudomari; KAUM–I. 20131, 102.4 mm SL, Yudomari; KAUM–I. 20133, 93.6 mm SL, Yudomari; KAUM–I. 20134, 94.1 mm SL, Yudomari; KAUM–I. 20135, 104.8 mm SL, Yudomari; KAUM–I. 20136, 103.4 mm SL, Yudomari; KAUM–I. 20137, 99.9 mm SL, Yudomari; KAUM–I. 20155, 81.9 mm SL, Yudomari; KAUM–I. 20156, 94.1 mm SL, Yudomari; KAUM–I. 20187, 133.9 mm SL, Yudomari; KAUM–I. 21699, 69.3 mm SL, Kurio; KAUM–I. 21700, 67.2 mm SL, Kurio; KAUM–I. 21701, 79.0 mm SL, Kurio; KAUM–I. 21779, 44.0 mm SL, Kurio; KAUM–I. 21780, 84.2 mm SL, Kurio; KAUM–I. 21781, 76.9 mm SL, Kurio; MUFS 25533, 61.5 mm SL, Yudomari; MUFS 25534, 61.0 mm SL, Yudomari; MUFS 25535, 66.1 mm SL, Yudomari; MUFS 25536, 69.6 mm SL, Yudomari; MUFS 25537, 71.0 mm SL, Yudomari; MUFS 25538, 68.3 mm SL, Yudomari; MUFS 25539, 69.1 mm SL, Yudomari; MUFS 25540, 72.0 mm SL, Yudomari; MUFS 25541, 69.1 mm SL, Yudomari; MUFS 25542, 79.6 mm SL, Yudomari; MUFS 25543, 77.0 mm SL, Yudomari; MUFS 25544, 97.9 mm SL, Yudomari; MUFS 25576, 69.3 mm SL, Kurio; NSMT–P 17832, 27.5 mm SL, Kusugawa; NSMT–P 77621, 223.2 mm SL, mouth of Kurio River; NSMT–P 95434, 96.4 mm SL, Haruo.

Kuniyasu (1999): Kurio.

Fig. 246. *Parupeneus ciliatus* (upper: KAUM–I. 20048, 103.2 mm SL; lower: NSMT–P 77621, 223.2 mm SL).

Parupeneus cyclostomus (Lacepède, 1801)
[Jpn name: Marukuchihimeji] (Fig. 247)

FRLM 34726, 354.7 mm SL, Kurio; KAUM–I. 20339, 84.4 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 247. *Parupeneus cyclostomus* (KAUM–I. 20339, 84.4 mm SL).

Parupeneus indicus (Shaw, 1803)
[Jpn name: Kobanhimeji] (Fig. 248)

BSKU 96564, 54.9 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 248. *Parupeneus indicus* (BSKU 96564, 54.9 mm SL).

Parupeneus multifasciatus (Quoy and Gaimard, 1825)
[Jpn name: Ojisan] (Fig. 249)

KAUM–I. 11261, 150.0 mm SL, Yudomari; KAUM–I. 20054, 174.1 mm SL, Yudomari; KAUM–I. 21943, 209.8 mm SL, Yaku-shima Island; KAUM–I. 25200, 130.8 mm SL, Isso; KAUM–I. 25205, 161.0 mm SL, Onoaida; MUFS 25527, 160.4 mm SL, Yudomari; MUFS 25528, 148.4 mm SL, Yudomari; MUFS 25529, 160.2 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Fig. 249. *Parupeneus multifasciatus* (KAUM–I. 11261, 150.0 mm SL).

Parupeneus pleurostigma (Bennett, 1831)
[Jpn name: Ryukyuhimeji]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Parupeneus spilurus (Bleeker, 1854)
[Jpn name: Okinahimeji] (Fig. 250)

FRLM 34703, 273.1 mm SL, Yaku-shima Island; FRLM 34724, 297.4 mm SL, Kurio; KAUM–I. 11250, 285.9 mm SL, Yaku-shima Island; KAUM–I. 11251, 293.8 mm SL, Yaku-shima Island; MUFS 25526, 295.8 mm SL, Yaku-shima Island.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 250. *Parupeneus spilurus* (MUFS 25526, 295.8 mm SL).

Parupeneus trifasciatus (Lacepède, 1801)
[Jpn name: Futasujihimeji]

Ichikawa et al. (1992, as *Parupeneus bifasciatus*): Yaku-shima Island.

Upeneus tragula Richardson, 1846
[Jpn name: Yomehimeji] (Fig. 251)

Remarks: Although this species is common in depths of less than 10 m at Yaku-shima Island, no specimens have been collected.

Fig. 251. *Upeneus tragula* (off Isso, 10 m, 17 Jan. 2010, S. Harazaki).

FAMILY PEMPHERIDAE

Parapriacanthus ransonneti Steindachner, 1870
[Jpn name: Kimmemodoki]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pempheris japonica Döderlein, 1883
[Jpn name: Tsumagurohatampo]

Arai and Ida (1975): Kusugawa [two specimens (85–90 mm TL) were reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pempheris schwenkii Bleeker, 1855
[Jpn name: Minamihatampo] (Fig. 252)

KAUM–I. 11383, 34.0 mm SL, Kurio; KAUM–I. 11387, 13.3 mm SL, Kurio.

Kuniyasu (1999): Kurio.

Fig. 252. *Pempheris schwenkii* (KAUM–I. 11383, 34.0 mm SL).

***Pempheris* sp.**
[Jpn name: Ryukyuhatampo] (Fig. 253)

FRLM 34733, 103.9 mm SL, Kurio; KAUM–I. 11357, 106.1 mm SL, Kurio; MUFS 25612, 41.4 mm SL, Kurio; MUFS 25613, 63.5 mm SL, Kurio; MUFS 25614, 99.1 mm SL, Kurio; MUFS 25615, 125.5 mm SL, Kurio; MUFS 25622, 36.2 mm SL, Kurio; MUFS 25623, 41.7 mm SL, Kurio; MUFS 25624, 41.0 mm SL, Kurio; MUFS 25625, 41.0 mm SL, Kurio; MUFS 25626, 41.3 mm SL, Kurio; MUFS 25627, 40.4 mm SL, Kurio; MUFS 25628, 41.8 mm SL, Kurio; MUFS 25629, 36.1 mm SL, Kurio; MUFS 25630, 39.1 mm SL, Kurio; MUFS 25631, 40.8 mm SL, Kurio; MUFS 25632, 42.2 mm SL, Kurio; MUFS 25633, 39.8 mm SL, Kurio; MUFS 25634, 40.4 mm SL, Kurio; MUFS 25635, 46.6 mm SL, Kurio; MUFS 25636, 40.6 mm SL, Kurio; MUFS 25637, 40.7 mm SL, Kurio; MUFS 25638, 43.0 mm SL, Kurio; MUFS 25639, 54.5 mm SL, Kurio; MUFS 25640, 54.0 mm SL, Kurio; MUFS 25641, 52.8 mm SL, Kurio; MUFS 25642, 56.5 mm SL, Kurio; MUFS 25643, 57.4 mm SL, Kurio; MUFS 25644, 65.6 mm SL, Kurio; MUFS 25645, 60.3 mm SL, Kurio; MUFS 25646, 58.8 mm SL, Kurio; MUFS 25647, 82.3 mm SL, Kurio; MUFS 25648, 84.2 mm SL, Kurio; MUFS 25649, 90.0 mm SL, Kurio; MUFS 25650, 88.7 mm SL, Kurio; MUFS 25651, 81.0 mm SL, Kurio; MUFS 25652, 89.9 mm SL, Kurio; MUFS 25653, 87.2 mm SL, Kurio; MUFS 25654, 91.0 mm SL, Kurio; MUFS 25655, 87.0 mm SL, Kurio; MUFS 25656, 95.6 mm SL, Kurio; MUFS 25657, 95.9 mm SL, Kurio; MUFS 25658, 91.0 mm SL, Kurio; MUFS 25659, 101.5 mm SL, Kurio; MUFS 25660, 96.8 mm SL, Kurio; MUFS 25661, 117.7 mm SL, Kurio; MUFS 25662, 119.5 mm SL, Kurio; MUFS 25663, 110.3 mm SL, Kurio; MUFS 25664, 104.4 mm SL, Kurio; MUFS 25665, 44.2 mm SL, Kurio; MUFS 25666, 51.8 mm SL, Kurio; MUFS 25667, 79.2 mm SL, Kurio; MUFS 25668, 98.6 mm SL, Kurio; MUFS 25669, 121.4 mm SL, Kurio; NSMT–P 91372, 102 mm SL, Kurio; NSMT–P 91373, 45 specimens, 42–112 mm SL, Kurio.

Fig. 253. *Pempheris* sp. (KAUM–I. 11357, 106.1 mm SL).

FAMILY MONODACTYLIDAE
Monodachtylus argenteus (Linnaeus, 1758)
[Jpn name: Himetsubameuo] (Fig. 254)

BSKU 96629, 18.6 mm SL, mouth of Kurio River; KAUM–I. 11490, 29.4 mm SL, mouth of Miyanoura River; KAUM–I. 11492, 25.0 mm SL, mouth of Miyanoura River; KAUM–I. 11493, 27.5 mm SL, mouth of Miyanoura River; KAUM–

I. 11494, 21.2 mm SL, mouth of Miyanoura River; KAUM–I. 11495, 26.7 mm SL, mouth of Miyanoura River; KAUM–I. 11496, 30.5 mm SL, mouth of Miyanoura River; KAUM–I. 24707, 39.5 mm SL, mouth of Kurio River; KAUM–I. 24708, 13.9 mm SL, Ambo.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 254. *Monodachtylus argenteus* (KAUM–I. 11490, 29.4 mm SL).

FAMILY KYPHOSIDAE

Girella leonina (Richardson, 1846)

[Jpn name: Kuromejina] (Fig. 255)

BSKU 96667, 106.0 mm SL, Kurio; FRLM 34673, 71.6 mm SL, Kurio; FRLM 34680, 70.6 mm SL, Kurio; KAUM–I. 11150, 73.7 mm SL, Kurio; KAUM–I. 21874, 74.1 mm SL, Kurio; KAUM–I. 21875, 77.5 mm SL, Kurio; KAUM–I. 22814, 79.9 mm SL, Kurio; KAUM–I. 22815, 135.9 mm SL, Kurio; MUFS 25452, 63.5 mm SL, Kurio; MUFS 25453, 52.9 mm SL, Kurio; MUFS 25454, 53.9 mm SL, Kurio; MUFS 25455, 52.6 mm SL, Kurio; MUFS 25456, 56.9 mm SL, Kurio; MUFS 25457, 63.4 mm SL, Kurio; MUFS 25458, 55.1 mm SL, Kurio; MUFS 25459, 59.4 mm SL, Kurio; MUFS 25460, 51.3 mm SL, Kurio; MUFS 25461, 59.1 mm SL, Kurio; MUFS 25462, 51.9 mm SL, Kurio; MUFS 25463, 59.8 mm SL, Kurio; MUFS 25464, 58.6 mm SL, Kurio; MUFS 25465, 52.7 mm SL, Kurio; MUFS 25466, 55.7 mm SL, Kurio; MUFS 25467, 55.5 mm SL, Kurio; MUFS 25468, 57.5 mm SL, Kurio; MUFS 25469, 56.3 mm SL, Kurio; MUFS 25470, 56.8 mm SL, Kurio; MUFS 25471, 58.4 mm SL, Kurio; MUFS 25472, 57.5 mm SL, Kurio; MUFS 25473, 49.3 mm SL, Kurio; MUFS 25474, 59.3 mm SL, Kurio; MUFS 25475, 61.5 mm SL, Kurio; MUFS 25476, 53.2 mm SL, Kurio; MUFS 25477, 68.7 mm SL, Kurio; MUFS 25478, 61.9 mm SL, Kurio; MUFS 25479, 53.2 mm SL, Kurio; MUFS 25480, 82.6 mm SL, Kurio; MUFS 25481, 60.1 mm SL, Kurio; MUFS 25565, 53.7 mm SL, Kurio; MUFS 25566, 54.2 mm SL, Kurio; MUFS 25567, 64.7 mm SL, Kurio; MUFS 25568, 66.7 mm SL, Kurio; MUFS 25569, 66.9 mm SL, Kurio; MUFS 25570, 66.6 mm SL, Kurio; NSMT–P 91378, 34 mm SL, Kurio; NSMT–P 91498, 20 specimens, 39–59 mm SL, Kurio; NSMT–P 91500, 60 mm SL, Kurio; NSMT–P 91602, 4 specimens, 13–51 mm SL, Nagakubo.

Ichikawa et al. (1992, as *Girella melanichthys*): Yaku-shima Island. Kuniyasu (1999): Kurio. Yagishita and Nakabo (2000): ZUMT 40460, 105.3 mm SL, Yaku-shima Island; ZUMT 41089, 107.2 mm SL, Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Remarks: Although species of the genus *Girella* has often been classified as the family Girellidae, we treat the species as a member of the family Kyphosidae (subfamily Girellinae), following Nelson's (2006) classification.

Fig. 255. *Girella leonina* (KAUM–I. 11150, 73.7 mm SL).

Girella mezina Jordan and Starks, 1907
[Jpn name: Okinamejina] (Fig. 256)

BSKU 96668, 96.0 mm SL, Kurio; FRLM 34672, 78.0 mm SL, Kurio; FRLM 34678, 99.3 mm SL, Kurio; FRLM 34679, 94.6 mm SL, Kurio; KAUM–I. 11152, 108.7 mm SL, Kurio; KAUM–I. 20150, 78.2 mm SL, Kurio; KAUM–I. 20161, 62.7 mm SL, Kurio; KAUM–I. 22810, 107.0 mm SL, Kurio; KAUM–I. 22811, 94.6 mm SL, Kurio; KAUM–I. 22812, 119.2 mm SL, Kurio; KAUM–I. 22813, 119.0 mm SL, Kurio; NSMT–P 91496, 82 mm SL, Kurio; NSMT–P 91497, 14 specimens, 37–78 mm SL, Kurio; NSMT–P 95438, 110.2 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Yagishita and Nakabo (2000): ZUMT 39800, 128.8 mm SL, Yaku-shima Island; ZUMT 39801, 153.8 mm SL, Yaku-shima Island. MOSC (2002): Yaku-shima Island.

Fig. 256. *Girella mezina* (KAUM–I. 11152, 108.7 mm SL).

Girella punctata Gray, 1835
[Jpn name: Mejina]

Ichikawa et al. (1992): Yaku-shima Island. Yagishita and Nakabo (2000): ZUMT 40461, 70.0 mm SL, Yaku-shima Island. MOSC (2002): Yaku-shima Island.

Kyphosus bigibbus Lacepède, 1801
[Jpn name: Notoisuzumi] (Fig. 257)

KPM–NI 22926, 118.9 mm SL, Koseda.

Kyphosus cinerascens (Forsskål, 1775)
[Jpn name: Tenjikuisaki]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 257. *Kyphosus bigibbus* (KPM–NI 22926, 118.9 mm SL).

Kyphosus pacificus Sakai and Nakabo, 2004
[Jpn name: Minamiisuzumi]

Ichikawa et al. (1992, as *K.yphosus bigibbus*): Yaku-shima Island. Kuniyasu (1999, as *Kyphosus* sp.): Kurio.

Kyphosus vaigiensis (Quoy and Gaimard, 1825)
[Jpn name: Isuzumi] (Fig. 258)

MUFS 25531, 135.6 mm SL, Yudomari.

Ichikawa et al. (1992, as *Kyphosus lembus*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 258. *Kyphosus vaigiensis* (MUFS 25531, 135.6 mm SL).

Microcanthus strigatus (Cuvier, 1831)
[Jpn name: Kagokakidai] (Fig. 259)

KAUM–I. 11128, 56.2 mm SL, Kurio; KAUM–I. 11154, 51.2 mm SL, Kurio; KAUM–I. 20062, 79.9 mm SL, Yudomari; KAUM–I. 20063, 85.3 mm SL, Yudomari; KAUM–I. 25201, 82.6 mm SL, mouth of Nagata River.

Jordan and Starks (1906): Miyanoura [one specimen (35 mm TL) was reported, but not found

at CAS or USNM]. Arai and Ida (1975): Kusugawa (one specimen was reported, but not found at NSMT). Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo, Kurio.

Remarks: Although this species has often been classified as the family Microcanthidae, we treat the species as a member of the family Kyphosidae (subfamily Microcanthinae), following Nelson's (2006) classification.

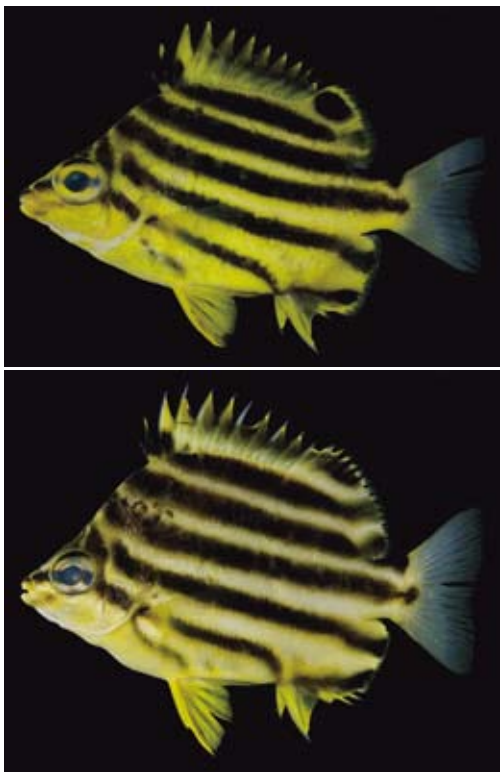

Fig. 259. *Microcanthus strigatus* (upper: KAUM–I. 11128, 56.2 mm SL; lower: KAUM–I. 25201, 82.6 mm SL).

FAMILY CHAETODONTIDAE

Chaetodon argentatus Smith and Radcliffe, 1911 [Jpn name: Kagamichochouo] (Fig. 260)

BSKU 96600, 74.9 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Fig. 260. *Chaetodon argentatus* (BSKU 96600, 74.9 mm SL).

Chaetodon auriga Forsskål, 1775 [Jpn name: Togechochouo] (Fig. 261)

KAUM–I. 11199, 139.6 mm SL, Kurio; KAUM–I. 11606, 52.9 mm SL, Ambo; KAUM–I. 11657, 34.9 mm SL, Ambo; KAUM–I. 20031, 53.8 mm SL, Yudomari; KAUM–I. 20032, 50.6 mm SL, Yudomari; KAUM–I. 20033, 50.3 mm SL, Yudomari; KAUM–I. 20034, 49.0 mm SL, Yudomari; KAUM–I. 20036, 60.0 mm SL, Yudomari; KAUM–I. 20038, 21.9 mm SL, Yudomari; KAUM–I. 20282, 65.4 mm SL, Kurio; KAUM–I. 21852, 21.3 mm SL, Kurio; KAUM–I. 21853, 23.2 mm SL, Kurio; MUFS 25610, 39.1 mm SL, Kurio; NSMT–P 95441, 79.5 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island. MOSC (2002): Yaku-shima Island.

Fig. 261. *Chaetodon auriga* (KAUM–I. 11199, 139.6 mm SL).

Chaetodon auripes Jordan and Snyder, 1901
[Jpn name: Chochouo] (Fig. 262)

BSKU 96663, 49.9 mm SL, Kurio; BSKU 96664, 51.2 mm SL, Kurio; KAUM–I. 11168, 43.9 mm SL, Kurio; KAUM–I. 11292, 23.2 mm SL, Yudomari; KAUM–I. 11607, 44.6 mm SL, Ambo; KAUM–I. 11608, 42.5 mm SL, Ambo; KAUM–I. 11658, 21.6 mm SL, Ambo; KAUM–I. 11659, 40.8 mm SL, Ambo; KAUM–I. 20035, 44.0 mm SL, Yudomari; KAUM–I. 20037, 46.0 mm SL, Yudomari; KAUM–I. 20283, 59.5 mm SL, Kurio; KAUM–I. 21667, 29.5 mm SL, Kurio; KAUM–I. 21668, 35.7 mm SL, Kurio; KAUM–I. 21669, 30.8 mm SL, Kurio; KAUM–I. 21670, 30.1 mm SL, Kurio; KAUM–I. 21672, 31.2 mm SL, Kurio; KAUM–I. 21673, 51.3 mm SL, Kurio; KAUM–I. 21845, 29.0 mm SL, Kurio; KAUM–I. 21846, 27.9 mm SL, Kurio; KAUM–I. 21847, 28.3 mm SL, Kurio; KAUM–I. 21848, 32.8 mm SL, Kurio; KAUM–I. 21849, 28.0 mm SL, Kurio; KAUM–I. 21850, 22.4 mm SL, Kurio; MUFS 25552, 18.1 mm SL, Yudomari; MUFS 25553, 21.7 mm SL, Yudomari; MUFS 25557, 37.5 mm SL, Yudomari; MUFS 25558, 37.6 mm SL, Yudomari; MUFS 25559, 42.9 mm SL, Yudomari; MUFS 25560, 18.9 mm SL, Yudomari; MUFS 25577, 25.0 mm SL, Kurio; MUFS 25578, 10.8 mm SL, Kurio; MUFS 25579, 24.8 mm SL, Kurio; MUFS 25580, 30.2 mm SL, Kurio; MUFS 25581, 31.8 mm SL, Kurio; MUFS 25582, 33.7 mm SL, Kurio; MUFS 25583, 33.4 mm SL, Kurio; MUFS 25584, 37.9 mm SL, Kurio; MUFS 25585, 38.3 mm SL, Kurio; MUFS 25586, 39.5 mm SL, Kurio; MUFS 25587, 40.0 mm SL, Kurio; MUFS 25588, 37.8 mm SL, Kurio; MUFS 25590, 45.9 mm SL, Kurio; MUFS 25591, 48.2 mm SL, Kurio; MUFS 25592, 47.4 mm SL, Kurio; NSMT–P 77741, 24.8 mm SL, Nagakubo; NSMT–P 77742, 18.1 mm SL, Nagakubo; NSMT–P 77743, 15.3 mm SL, Nagakubo; NSMT–P 91581, 46.0 mm SL, Kurio; NSMT–P 91659, 4 specimens, 22.2–45.2 mm SL, Kurio; NSMT–P 95440, 83.3 mm SL, Haruo.

Arai and Ida (1975, as *Chaetodon collaris*): NSMT–P 17861, 39.2 mm SL, Kusugawa; NSMT–P 58093, 51.5 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 262. *Chaetodon auripes* (KAUM–I. 11168, 43.9 mm SL).

Chaetodon baronessa Cuvier, 1829
[Jpn name: Mikadochochouo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Chaetodon bennetti Cuvier, 1831
[Jpn name: Umizukichochouo]

Kuniyasu (1999): Kurio. Matsumoto (2001): Shitoko and Miyanoura.

Chaetodon citrinellus Cuvier, 1831
[Jpn name: Gomachochouo] (Fig. 263)

KAUM–I. 11194, 36.6 mm SL, Kurio; KAUM–I. 11201, 60.6 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon ephippium Cuvier, 1831
[Jpn name: Segurochochouo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Chaetodon kleinii Bloch, 1790
[Jpn name: Mizorechochouo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Fig. 263. *Chaetodon citrinellus* (KAUM–I. 11194, 36.6 mm SL).

Fig. 264. *Chaetodon lunula* (KAUM–I. 11169, 42.5 mm SL).

Chaetodon lineolatus Cuvier, 1831
[Jpn name: Nisefuraichochouo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon lunula (Lacepède, 1802)
[Jpn name: Chohan] (Fig. 264)

BSKU 96665, 58.4 mm SL, Kurio; BSKU 96666, 63.7 mm SL, Kurio; FRLM 34695, 161.4 mm SL, Kurio; FRLM 34710, 52.3 mm SL, Yudomari; KAUM–I. 11169, 42.5 mm SL, Kurio; KAUM–I. 20030, 44.7 mm SL, Yudomari; KAUM–I. 20284, 67.7 mm SL, Kurio; KAUM–I. 20285, 54.0 mm SL, Kurio; KAUM–I. 21671, 25.1 mm SL, Kurio; KAUM–I. 21844, 47.3 mm SL, Kurio; MUFS 25554, 22.8 mm SL, Yudomari; MUFS 25555, 35.9 mm SL, Yudomari; MUFS 25556, 38.6 mm SL, Yudomari; MUFS 25589, 44.1 mm SL, Kurio; MUFS 25617, 39.2 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 58123, 47.0 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island. MOSC (2002): Yaku-shima Island.

Chaetodon lunulatus Quoy and Gaimard, 1825
[Jpn name: Misujichochouo] (Fig. 265)

KAUM–I. 20039, 16.9 mm SL, Yudomari; KAUM–I. 20078, 34.3 mm SL, Yudomari; KAUM–I. 20201, 19.8 mm SL, Yudomari.

Ichikawa et al. (1992, as *Chaetodon trifasciatus*): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001, as *Chaetodon trifasciatus*): Yaku-shima Island.

Fig. 265. *Chaetodon lunulatus* (KAUM–I. 20078, 34.3 mm SL).

Chaetodon melannotus Bloch and Schneider, 1801
[Jpn name: Akebonochochouo] (Fig. 266)

KAUM–I. 11337, 40.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Fig. 266. *Chaetodon melannotus* (KAUM–I. 11337, 40.7 mm SL).

Chaetodon meyeri Bloch and Schneider, 1801
[Jpn name: Ogichochouo]
Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Kurio, Shitoko and Miyanoura.

Chaetodon nippon Steindachner and Döderlein, 1883
[Jpn name: Shirakodai]
Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Chaetodon ornatissimus Cuvier, 1831
[Jpn name: Hanagurochochouo]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Kurio and Isso.

Chaetodon plebeius Cuvier, 1831
[Jpn name: Sumitsukitonosamadai] (Fig. 267)
KAUM–I. 11335, 122.0 mm SL, Kurio; NSMT–P 77580, 132 mm SL, Nagata.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon punctatofasciatus Cuvier, 1831
[Jpn name: Shichisenchochouo]
Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

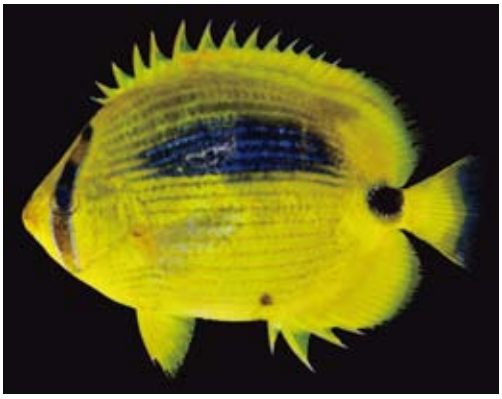

Fig. 267. *Chaetodon plebeius* (KAUM–I. 11335, 122.0 mm SL).

Chaetodon rafflesii Bennett, 1830
[Jpn name: Amichochouo] (Fig. 268)
BSKU 96554, 27.2 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Fig. 268. *Chaetodon rafflesii* (BSKU 96554, 27.2 mm SL).

Chaetodon reticulatus Cuvier, 1831
[Jpn name: Hakutenkatagi]
Matsumoto (2001): Isso.

Chaetodon speculum Cuvier, 1831
[Jpn name: Tonosamadai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon trifascialis Quoy and Gaimard, 1825
[Jpn name: Yarikatagi]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon ulietensis Cuvier, 1831
[Jpn name: Sudarechochouo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Chaetodon unimaculatus Bloch, 1787
[Jpn name: Ittenchochouo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Kurio and Shitoko.

Chaetodon vagabundus Linnaeus, 1758
[Jpn name: Furaichochouo] (Fig. 269)

KAUM–I. 11160, 27.0 mm SL, Kurio; KAUM–I. 11195, 27.8 mm SL, Kurio; KAUM–I. 11604, 82.1 mm SL, Ambo; KAUM–I. 11605, 77.7 mm SL, Ambo; KAUM–I. 11660, 36.7 mm SL, Ambo; KAUM–I. 11661, 33.5 mm SL, Ambo; KAUM–I. 20025, 63.7 mm SL, Yudomari; KAUM–I. 20026, 51.6 mm SL, Yudomari; KAUM–I. 20027, 57.5 mm SL, Yudomari; KAUM–I. 20028, 66.1 mm SL, Yudomari; KAUM–I. 20029, 40.2 mm SL, Yudomari; KAUM–I. 21851, 28.6 mm SL, Kurio; MUFS 25561, 34.2 mm SL, Yudomari; NSMT–P 91586, 23 mm SL, Yudomari; NSMT–P 95442, 71.7 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

Chaetodon wiebeli Kaup, 1863
[Jpn name: Tsukichochouo]

Matsumoto (2001): Yaku-shima Island.

Chaetodon xanthurus Bleeker, 1857
[Jpn name: Amimechochouo]

Matsumoto (2001): Yaku-shima Island.

Fig. 269. *Chaetodon vagabundus* (KAUM–I. 11660, 36.7 mm SL).

Forcipiger flavissimus Jordan and McGregor, 1898
[Jpn name: Fueyakkodai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001, as *Forcipiger longirostris*): Yaku-shima Island.

Hemitaurichthys polylepis (Bleeker, 1857)
[Jpn name: Kasumichochouo]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Heniochus acuminatus (Linnaeus, 1758)
[Jpn name: Hatatatedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Yaku-shima Island.

Heniochus chrysostomus Cuvier, 1831
[Jpn name: Minamihatatatedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Kurio and Isso.

Heniochus diphreutes Jordan, 1903
[Jpn name: Murehatatatedai]

Kuniyasu (1999): Kurio. Matsumoto (2001): Isso.

Heniochus monoceros Cuvier, 1831
[Jpn name: Onihatatatedai] (Fig. 270)

KAUM–I. 11522, 46.2 mm SL, Ambo; KAUM–I. 21843, 51.1 mm SL, Kurio; KAUM–I. 23523, 41.8 mm SL, Ambo; NSMT–P 77660, 137.0 mm SL, Miyanoura.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Kurio.

Fig. 270. *Heniochus monoceros* (upper: KAUM–I. 11522, 46.2 mm SL; lower: NSMT–P 77660, 137.0 mm SL).

Heniochus singularius Smith and Radcliffe, 1911
[Jpn name: Shimahatatatedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2001): Kurio.

Heniochus varius (Cuvier, 1829)
[Jpn name: Tsunohatatatedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2001): Yaku-shima Island.

FAMILY POMACANTHIDAE
Apolemichthys trimaculatus (Cuvier, 1831)
[Jpn name: Shiten-yakko] (Fig. 271)

NSMT–P 91965, 160.0 mm SL, Isso

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2002): Yaku-shima Island.

Fig. 271. *Apolemichthys trimaculatus* (NSMT–P 91965, 160.0 mm SL).

Centropyge bicolor (Bloch, 1787)
[Jpn name: Somewakeyakko]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2002): Yaku-shima Island.

Centropyge ferrugata Randall and Burgess, 1972
[Jpn name: Akaharayakko] (Fig. 272)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2002): Yaku-shima Island.

Centropyge heraldi Woods and Schultz, 1953
[Jpn name: Herarudokoganeyakko]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2002): Yaku-shima Island.

Fig. 272. *Centropyge ferrugata* (off Isso, 3 m, 4 Mar. 2005, S. Harazaki).

Centropyge tibicen (Cuvier, 1831)
[Jpn name: Aburayakko]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2002): Yaku-shima Island.

Centropyge venusta (Yasuda and Tominaga, 1969)
[Jpn name: Sumireyakko]

Matsumoto (2002, as *Holacanthus venustus*): Yaku-shima Island.

Remarks: The generic name of this species has been confused, having been listed as *Centropyge*, *Holacanthus*, *Paracentropyge*, and *Sumireyakko* in various publications over the last 20 years. We follow Myers' (1999) and Pyle's (2001) generic placement for the species.

Centropyge vrolikii (Bleeker, 1853)
[Jpn name: Namerayakko] (Fig. 273)

Arai and Ida (1975): NSMT–P 58105, 77.3 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2002, as *Centropyge vrolicki*): Yaku-shima Island.

Genicanthus lamarck (Lacepède, 1802)
[Jpn name: Tatejimayakko] (Fig. 274)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2002): Yaku-shima Island.

Fig. 273. *Centropyge vrolikii* (NSMT–P 58105, 77.3 mm SL, preserved specimen).

Fig. 274. *Genicanthus lamarck* (off Isso, 20 m, 19 Jan. 2010, S. Harazaki).

Genicanthus melanospilos (Bleeker, 1857)
[Jpn name: Yaitoyakko]

Matsumoto (2002): Yaku-shima Island.

Genicanthus semifasciatus (Kamohara, 1934)
[Jpn name: Tosayakko]

Matsumoto (2002): Yaku-shima Island.

Genicanthus watanabei (Yasuda and Tominaga, 1970)
[Jpn name: Hirenagayakko] (Fig. 275)

Fig. 275. *Genicanthus watanabei* (off Nagata, 25 m, 15 June 2009, S. Harazaki).

Pomacanthus imperator (Bloch, 1787)
[Jpn name: Tatejimakinchakudai] (Fig. 276)

KAUM–I. 20109, 171.8 mm SL, Yudomari; NSMT–P 77648, 182.9 mm SL, Nagata; NSMT–P 91369, 2 specimens, 13.7–14.2 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2002): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 276. *Pomacanthus imperator* (KAUM–I. 20109, 171.8 mm SL).

Pomacanthus semicirculatus (Cuvier, 1831)
[Jpn name: Sazanamiyakko] (Fig. 277)

FRLM 34696, 235.3 mm SL, Kurio; FRLM 34731, 74.8 mm SL, Kurio; KAUM–I. 11131, 13.1 mm SL, Kurio; KAUM–I. 11197, 70.3 mm SL, Kurio; KAUM–I. 11209, 13.6 mm SL, Kurio; KAUM–I. 11262, 85.1 mm SL, Yudomari; KAUM–I. 11295, 47.6 mm SL, Yudomari; KAUM–I. 11525, 61.5 mm SL, Ambo; KAUM–I. 11609, 65.1 mm SL, Ambo; KAUM–I. 20082, 94.7 mm SL, Yudomari; KAUM–I. 20280, 19.4 mm SL, Kurio; KAUM–I. 20281, 88.5 mm SL, Kurio; KAUM–I. 21842, 108.2 mm SL, Kurio; KAUM–I. 21872, 43.4 mm SL, Kurio; KAUM–I. 21873, 22.6 mm SL, Kurio; MUFS 25572, 10.7 mm SL, Kurio; MUFS 25573, 48.1 mm SL, Kurio; MUFS 25574, 67.1 mm SL, Kurio; NSMT–P 77659, 198 mm SL, Miyanoura; NSMT–P 95439, 102.8 mm SL, Haruo.

Arai and Ida (1975): NSMT–P 58129, 33.5 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2002): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 277. *Pomacanthus semicirculatus* (upper: KAUM–I. 11209, 13.6 mm SL; middle: KAUM–I. 11525, 61.5 mm SL; lower: KAUM–I. 11262, 85.1 mm SL).

Pygoplites diacanthus (Boddaert, 1772)
[Jpn name: Nishikiyakko]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2002): Yaku-shima Island.

FAMILY PENTACEROTIDAE

Evistias acutirostris (Temminck and Schlegel, 1844)
[Jpn name: Tengudai]

Ichikawa et al. (1992): Yaku-shima Island.

FAMILY TERAPONTIDAE

Terapon jarbua (Forsskål, 1775)
[Jpn name: Kotohiki] (Fig. 278)

KAUM–I. 11211, 14.1 mm SL, Kurio; KAUM–I. 11489, 45.2 mm SL, mouth of Miyanoura River; KAUM–I. 11500, 27.2 mm SL, mouth of Miyanoura River; KAUM–I. 11501, 25.0 mm SL, mouth of Miyanoura River; KAUM–I. 11781, 5 specimens, 11.5–15.3 mm SL, mouth of Miyanoura River; KAUM–I. 20050, 63.6 mm SL, Yudomari; KAUM–I. 24709, 50.1 mm SL, mouth of Kurio River; KAUM–I. 24710, 42.1 mm SL, Ambo; KPM–NI 24278, 233.7 mm SL, mouth of Miyanoura River; KPM–NI 24307, 69.2 mm SL, mouth of Nagata River; MUFS 25442, 11.8 mm SL, Matsumine; NSMT–P 77637, 91.5 mm SL, Ambo; NSMT–P 77992, 11.8 mm SL, mouth of Ambo River.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 278. *Terapon jarbua* (KAUM–I. 11489, 45.2 mm SL).

FAMILY KUHLIIDAE

Kuhlia marginata (Cuvier, 1829)
[Jpn name: Yugoi] (Fig. 279)

KAUM–I. 11541, 32.7 mm SL, Ambo; KAUM–I. 11550, 36.9 mm SL, Ambo; KAUM–I. 11551, 36.6 mm SL, Ambo; KAUM–I. 15415, 70.8 mm SL, Yaku-shima Island; KAUM–I. 15419, 59.4 mm SL, Yaku-shima Island; KAUM–I. 15421, 46.0 mm SL, Yaku-shima Island; KAUM–I. 15423, 53.2 mm SL, Yaku-shima Island; KAUM–I. 15424, 61.3 mm SL, Yaku-shima Island; KAUM–I. 15426, 47.1 mm SL, Yaku-shima Island; KAUM–I. 15427, 59.9 mm SL, Yaku-shima Island; KAUM–I. 15429, 46.5 mm SL, Yaku-shima Island; KAUM–I. 15430, 50.7 mm SL, Yaku-shima Island; KAUM–I. 15431, 53.5 mm SL, Yaku-shima Island; KAUM–I. 15432, 46.6 mm SL, Yaku-shima Island; KAUM–I. 15433, 44.4 mm SL, Yaku-shima Island; KAUM–I. 15434, 62.6 mm SL, Yaku-shima Island; KAUM–I. 15435, 58.9 mm SL, Yaku-shima Island; KAUM–I. 15438, 46.3 mm SL, Yaku-shima Island; KAUM–I. 15439, 52.3 mm SL, Yaku-shima Island; KAUM–I. 15440, 44.4 mm SL, Yaku-shima Island; KAUM–I. 15446, 48.9 mm SL, Yaku-shima Island; KAUM–I. 15447, 48.8 mm SL, Yaku-shima Island; KAUM–I. 15448, 47.2 mm SL, Yaku-shima Island; KAUM–I. 15449, 47.2 mm SL, Yaku-shima Island; KAUM–I. 15450, 53.2 mm SL, Yaku-shima Island; KAUM–I. 15451, 50.5 mm SL, Yaku-shima Island; KAUM–I. 15452, 49.0 mm SL, Yaku-shima Island; KAUM–I. 15453, 28.3 mm SL, Yaku-shima Island; KAUM–I. 15454, 51.4 mm SL, Yaku-shima Island; KAUM–I. 15455, 46.2 mm SL, Yaku-shima Island; KAUM–I. 15456, 6.1 mm SL, Yaku-shima Island; KAUM–I. 15457, 60.0 mm SL, Yaku-shima Island; KAUM–I. 15459, 53.1 mm SL, Yaku-shima Island; KAUM–I. 15461, 50.2 mm SL, Yaku-shima Island; KAUM–I. 15462, 44.4 mm SL, Yaku-shima Island; KAUM–I. 15465, 44.8 mm SL, Yaku-shima Island; KAUM–I. 15466, 49.5 mm SL, Yaku-shima Island; KAUM–I. 15467, 53.2 mm SL, Yaku-shima Island; KAUM–I. 15468, 44.5 mm SL, Yaku-shima Island; KAUM–I. 15470, 49.1 mm SL, Yaku-shima Island; KAUM–I. 15472, 48.1 mm SL, Yaku-shima Island; KAUM–I. 15582, 57.7 mm SL, Yaku-shima Island; KAUM–I. 15583, 55.4 mm SL, Yaku-shima Island; KAUM–I. 15584, 52.3 mm SL, Yaku-shima Island; KAUM–I. 15586, 57.4 mm SL, Yaku-shima Island; KAUM–I. 15588, 54.9 mm SL, Yaku-shima Island; KAUM–I. 15589, 44.8 mm SL, Yaku-shima Island; KAUM–I. 15591, 55.2 mm SL, Yaku-shima Island; KAUM–I. 15592, 47.0 mm SL, Yaku-shima Island; KAUM–I. 15594,

46.7 mm SL, Yaku-shima Island; KAUM–I. 15595, 53.9 mm SL, Yaku-shima Island; KAUM–I. 15596, 48.5 mm SL, Yaku-shima Island; KAUM–I. 15599, 47.4 mm SL, Yaku-shima Island; KAUM–I. 15600, 44.8 mm SL, Yaku-shima Island; KAUM–I. 15602, 46.6 mm SL, Yaku-shima Island; KAUM–I. 15633, 46.3 mm SL, Yaku-shima Island; KAUM–I. 15645, 45.2 mm SL, Yaku-shima Island; KAUM–I. 15646, 32.5 mm SL, Yaku-shima Island; KAUM–I. 25049, 78.4 mm SL, Ambo River.

Fig. 279. *Kuhlia marginata* (KAUM–I. 25049, 78.4 mm SL).

Kuhlia mugil (Forster, 1801)
[Jpn name: Gin-yugoi] (Fig. 280)

FRLM 34675, 59.5 mm SL, Kurio; KAUM–I. 11116, 19.3 mm SL, Matsumine; KAUM–I. 11117, 18.9 mm SL, Matsumine; KAUM–I. 11166, 65.7 mm SL, Kurio; KAUM–I. 11259, 137.2 mm SL, Yudomari; KAUM–I. 11388, 18.0 mm SL, Kurio; KAUM–I. 21876, 27.6 mm SL, Kurio; MUFS 25435, 17.6 mm SL, Matsumine; MUFS 25482, 46.0 mm SL, Kurio; MUFS 25483, 47.7 mm SL, Kurio; MUFS 25484, 47.4 mm SL, Kurio; MUFS 25485, 45.3 mm SL, Kurio; MUFS 25486, 43.6 mm SL, Kurio; MUFS 25487, 51.7 mm SL, Kurio; MUFS 25488, 42.9 mm SL, Kurio; MUFS 25489, 40.9 mm SL, Kurio; MUFS 25490, 41.9 mm SL, Kurio; MUFS 25491, 47.9 mm SL, Kurio; MUFS 25492, 46.7 mm SL, Kurio; MUFS 25493, 46.7 mm SL, Kurio; MUFS 25494, 42.1 mm SL, Kurio; MUFS 25495, 43.6 mm SL, Kurio; MUFS 25496, 42.7 mm SL, Kurio; MUFS 25497, 44.9 mm SL, Kurio; MUFS 25498, 40.0 mm SL, Kurio; MUFS 25499, 40.7 mm SL, Kurio; MUFS 25500, 47.8 mm SL, Kurio; MUFS 25501, 39.6 mm SL, Kurio; MUFS 25502, 43.2 mm SL, Kurio; MUFS 25503, 42.3 mm SL, Kurio; MUFS 25504, 42.1 mm SL, Kurio; MUFS 25505, 41.7 mm SL, Kurio; MUFS 25506, 42.0 mm SL, Kurio; MUFS 25507, 42.4 mm SL, Kurio; MUFS 25508, 43.2 mm SL, Kurio; MUFS 25509, 40.0 mm SL, Kurio; MUFS 25510, 47.8 mm SL, Kurio; MUFS 25511, 49.8 mm SL, Kurio; NSMT–P 91367, 106 mm SL, Yudomari; NSMT–P 91368, 12 specimens, 49–110 mm SL, Yudomari; NSMT–P 91653, 41 mm SL, Kurio; NSMT–P 91654, 25 specimens, 16–44 mm SL, Kurio; NSMT–P 91683, 15 specimens, 16–52 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 280. *Kuhlia mugil* (KAUM–I. 11166, 65.7 mm SL).

FAMILY OPLEGNATHIDAE

Oplegnathus fasciatus (Temminck and Schlegel, 1844)
[Jpn name: Ishidai]

Ichikawa et al. (1992): Yaku-shima Island. MOSC (2002): Isso.

Oplegnathus punctatus (Temminck and Schlegel, 1844)
[Jpn name: Ishigakidai] (Fig. 281)

NSMT–P 77649, 220 mm SL, Nagata; NSMT–P 77650, 310 mm SL, Nagata.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso.

FAMILY CIRRHITIDAE

Cirrhitichthys aprinus (Cuvier, 1829)
[Jpn name: Minamigombe]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 281. *Oplegnathus punctatus* (NSMT–P 77649, 220 mm SL).

Cirrhitichthys aureus (Temminck and Schlegel, 1842)
[Jpn name: Okigombe] (Fig. 282)

Fig. 282. *Cirrhitichthys aureus* (off Isso, 25 m, 24 June 2005, S. Harazaki).

Cirrhitichthys falco Randall, 1963
[Jpn name: Sarasagombe]
Kuniyasu (1999): Kurio.

Cirrhitus pinnulatus (Forster, 1801)
[Jpn name: Isogombe] (Fig. 283)
NSMT–P 95436, 119.4 mm SL, Haruo.
Jordan and Starks (1906, as *Cirrhitus marmoratus*): SU 9785, 119.5 mm SL, Yaku-shima Island. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Hayashi (2002): Yaku-shima Island.
Remarks: Jordan and Starks (1906) reported this species as the first record from Japan on the basis of the Yaku-shima specimen.

Fig. 283. *Cirrhitus pinnulatus* (NSMT–P 95436, 119.4 mm SL, preserved specimen).

Oxycirrhites typus Bleeker, 1857
[Jpn name: Kudagombe] (Fig. 284)

Fig. 284. *Oxycirrhites typus* (off Nagata, 30 m, 15 June 2009, S. Harazaki).

Paracirrhites arcatus (Cuvier, 1829)
[Jpn name: Meganegombe]
Ichikawa et al. (1992): Yaku-shima Island.

Paracirrhites forsteri (Schneider, 1801)
[Jpn name: Hoshigombe]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY CHEILODACTYLIDAE
Goniistius zebra (Döderlein, 1883)
[Jpn name: Migimaki] (Fig. 285)
NSMT–P 77662, 206 mm SL, Miyanoura.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 285. *Goniistius zebra* (NSMT–P 77662, 206 mm SL).

Goniistius zonatus (Cuvier, 1830)
[Jpn name: Takanohadai] (Fig. 286)

KAUM–I. 11523, 131.2 mm SL, Ambo; KAUM–I. 20067, 111.5 mm SL, Yudomari; KAUM–I. 21841, 128.9 mm SL, Kurio; KAUM–I. 22820, 122.0 mm SL, Kurio; NSMT–P 77652, 288 mm SL, Nagata; NSMT–P 95411, 120.7 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 286. *Goniistius zonatus* (KAUM–I. 11523, 131.2 mm SL).

FAMILY POMACENTRIDAE
Abudefduf bengalensis (Bloch, 1787)
[Jpn name: Tenjikusuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Isso.

Abudefduf notatus (Day, 1870)
[Jpn name: Isosuzumedai] (Fig. 287)

FRLM 34683, 27.0 mm SL, Kurio; KAUM–I. 11147, 33.1 mm SL, Kurio; KAUM–I. 21770, 21.6 mm SL, Kurio; KAUM–I. 25058, 28.6 mm SL, Ambo; MUFS 25436, 14 mm SL, Matsumine; NSMT–P 91495, 38 mm SL, Kurio; NSMT–P 91655, 8 specimens, 14–33 mm SL, Kurio; NSMT–P 91679, 27 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Yaku-shima Island.

Fig. 287. *Abudefduf notatus* (KAUM–I. 25058, 28.6 mm SL).

Abudefduf septemfasciatus (Cuvier, 1830)
[Jpn name: Shichisensuzumedai] (Fig. 288)

Arai and Ida (1975): NSMT–P 17862, 32.5 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Kurio.

Fig. 288. *Abudefduf septemfasciatus* (NSMT–P 17862, 32.5 mm SL, preserved specimen).

Abudefduf sexfasciatus (Lacepède, 1801)
[Jpn name: Rokusensuzumedai] (Fig. 289)

BSKU 96671, 51.0 mm SL, Kurio; BSKU 96672, 47.4 mm SL, Kurio; BSKU 96673, 48.8 mm SL, Kurio; KAUM–I. 11208, 24.4 mm SL, Kurio; KAUM–I. 11222, 13.8 mm SL, Kurio; KAUM–I. 11269, 36.9 mm SL, Yudomari;

KAUM–I. 11602, 50.0 mm SL, Ambo; KAUM–I. 20057, 66.5 mm SL, Yudomari; KAUM–I. 20058, 64.5 mm SL, Yudomari; KAUM–I. 20059, 70.1 mm SL, Yudomari; KAUM–I. 20228, 46.4 mm SL, Kurio; KAUM–I. 21679, 73.4 mm SL, Kurio; KAUM–I. 22808, 5 specimens, 21.8–28.9 mm SL, Kurio; KAUM–I. 23533, 16.1 mm SL, Ambo.

Arai and Ida (1975): Kusugawa [three specimens (49–53 mm TL) were reported, but not found at NSMT]. Ichikawa et al. (1992, as *Abudefduf coelestinus*): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Isso.

Fig. 289. *Abudefduf sexfasciatus* (KAUM–I. 20228, 46.4 mm SL).

Abudefduf sordidus (Forsskål, 1775)
[Jpn name: Shimasuzumedai] (Fig. 290)

KAUM–I. 11129, 25.5 mm SL, Kurio; KAUM–I. 11130, 27.6 mm SL, Kurio; KAUM–I. 11146, 17.0 mm SL, Kurio; KAUM–I. 11148, 32.3 mm SL, Kurio; KAUM–I. 11151, 77.6 mm SL, Kurio; KAUM–I. 22809, 4 specimens, 18.6–30.0 mm SL, Kurio; KAUM–I. 25064, 20.4 mm SL, Ambo; MUFS 25437, 14.8 mm SL, Matsumine; NSMT–P 77566, 25.5 mm SL, Kurio; NSMT–P 77744, 23.8 mm SL, Nagakubo; NSMT–P 77745, 19.7 mm SL, Nagakubo; NSMT–P 77746, 16.0 mm SL, Nagakubo; NSMT–P 77747, 15.3 mm SL, Nagakubo; NSMT–P 91355, 17 mm SL, Yudomari; NSMT–P 91607, 6 specimens, 14–24 mm SL, Nagakubo; NSMT–P 91658, 16 specimens, 11–20 mm SL, Kurio; NSMT–P 91680, 24 mm SL, Kurio; NSMT–P 95466, 65.5 mm SL, Hirauchi.

Arai and Ida (1975): NSMT–P 17835, 4 specimens, 16.7–22.8 mm SL, Kusugawa (only a single specimen was listed). Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Miyanoura.

Fig. 290. *Abudefduf sordidus* (KAUM–I. 11151, 77.6 mm SL).

Abudefduf vaigiensis (Quoy and Gaimard, 1825)
[Jpn name: Oyabitcha] (Fig. 291)

BSKU 96674, 39.8 mm SL, Kurio; BSKU 96675, 43.5 mm SL, Kurio; BSKU 96676, 44.8 mm SL, Kurio; KAUM–I. 11127, 30.6 mm SL, Kurio; KAUM–I. 11287, 106.9 mm SL, Yudomari; KAUM–I. 20060, 39.5 mm SL, Yudomari; KAUM–I. 20229, 38.7 mm SL, Kurio; KAUM–I. 21680, 35.4 mm SL, Kurio; KAUM–I. 21681, 23.2 mm SL, Kurio; KAUM–I. 21900, 5 specimens, 22.2–36.7 mm SL, Kurio; KAUM–I. 21901, 5 specimens, 23.1–37.7 mm SL, Kurio; KAUM–I. 21902, 5 specimens, 21.2–35.7 mm SL, Kurio; KAUM–I. 21903, 5 specimens, 15.8–34.0 mm SL, Kurio; KAUM–I. 21904, 5 specimens, 22.5–31.5 mm SL, Kurio; KAUM–I. 21905, 5 specimens, 19.7–23.7 mm SL, Kurio; KAUM–I. 21906, 5 specimens, 19.0–28.0 mm SL, Kurio; KAUM–I. 21907, 5 specimens, 22.5–38.4 mm SL, Kurio; KAUM–I. 22805, 5 specimens, 21.5–38.3 mm SL, Kurio; KAUM–I. 22806, 5 specimens, 22.0–27.0 mm SL, Kurio; KAUM–I. 22807, 5 specimens, 21.7–35.1 mm SL, Kurio; KAUM–I. 25056, 17.0 mm SL, Kurio; MUFS 25549, 94.0 mm SL, Yudomari; MUFS 25550, 107.1 mm SL, Yudomari; MUFS 25551, 111.8 mm SL, Yudomari; NSMT–P 17806, 32 specimens, 12.1–38.6

mm SL, Kusugawa; NSMT–P 17841, 2 specimens, 21.3–27.8 mm SL, Kusugawa; NSMT–P 91348, 10 mm SL, Yudomari; NSMT–P 91349, 3 specimens, 16–65 mm SL, Yudomari; NSMT–P 91362, 12 specimens, 95–103 mm SL, Yudomari; NSMT–P 91580, 3 specimens, 18–70 mm SL, Kurio; NSMT–P 91657, 15 specimens, 17–27 mm SL, Kurio; NSMT–P 91681, 98 specimens, 14–35 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 291. *Abudefduf vaigiensis* (KAUM–I. 20229, 38.7 mm SL).

Amblyglyphidodon aureus (Cuvier 1830)
[Jpn name: Yamabukisuzumedai] (Fig. 292)

Fig. 292. *Amblyglyphidodon aureus* (off Isso, 25 m, 17 Aug. 2004, S. Harazaki).

Amblyglyphidodon curacao (Bloch, 1787)
[Jpn name: Kurakaosuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Tsumoi.

Amblyglyphidodon leucogaster (Bleeker, 1847)
[Jpn name: Namisuzumedai] (Fig. 293)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Isso.

Fig. 293. *Amblyglyphidodon leucogaster* (off Isso, 12 m, 4 Mar. 2005, S. Harazaki).

Amphiprion clarkii (Bennett, 1830)
[Jpn name: Kumanomi] (Fig. 294)

FRLM 34705, 72.9 mm SL, Yudomari; KAUM–I. 11457, 36.0 mm SL, Isso; KAUM–I. 11465, 115.6 mm SL, Isso; KAUM–I. 11466, 103.9 mm SL, Isso; KAUM–I. 11617, 53.4 mm SL, Ambo; KAUM–I. 20111, 28.2 mm SL, Yudomari; KAUM–I. 20330, 32.6 mm SL, Isso; KAUM–I. 20340, 88.3 mm SL, Isso.

Arai and Ida (1975): Kusugawa (two specimens were reported, but not found at NSMT). Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Isso. MOSC (2002): Isso, Ambo and Kurio.

Amphiprion perideraion Bleeker, 1855
[Jpn name: Hanabirakumanomi] (Fig. 295)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Miyanoura.

Fig. 294. *Amphiprion clarkii* (FRLM 34705, 72.9 mm SL).

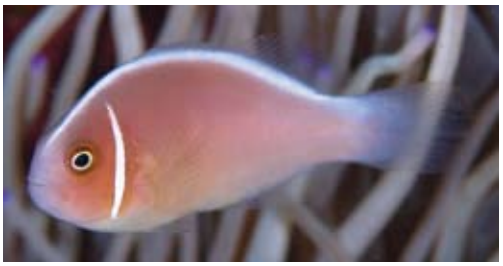

Fig. 295. *Amphiprion perideraion* (off Isso, 5 m, 21 June 2004, S. Harazaki).

Fig. 296. *Chromis albicauda* (upper: young, off Isso, 30 m, 26 Dec. 2006, S. Harazaki; lower: adult, off Isso, 20 m, 29 June 2006, S. Harazaki).

Chromis albicauda Allen and Erdmann, 2009
[Jpn name: "koganesuzumedai"] (Fig. 296)

Matsumoto (2004b): Yaku-shima Island.

Remarks: "Koganesuzumedai" has long been considered to include two distinct species in Japan. Recently, Allen and Erdmann (2009) described *C. albicauda* as a new species, closely related to *C. analis*, and they included Japan in the distributional range of *C. albicauda*. Matsumoto (2004b) mentioned that the two species occur at Yaku-shima Island.

Chromis analis (Cuvier, 1830)
[Jpn name: "koganesuzumedai"] (Fig. 297)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Yaku-shima Island.

Remarks: see account of *C. albicauda*.

Chromis atripes Fowler and Bean, 1928
[Jpn name: Hiregurosuzumedai] (Fig. 298)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

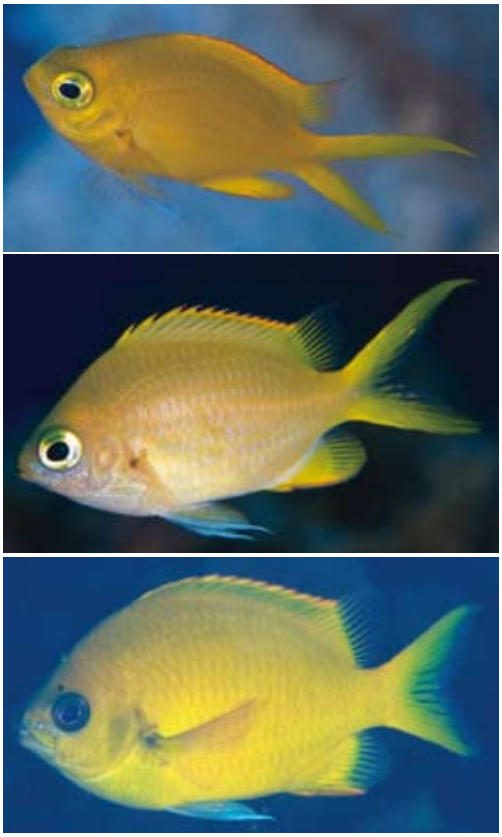

Fig. 297. *Chromis analis* (upper: young, off Isso, 25 m, 10 Dec. 2007, S. Harazaki; middle: subadult, off Isso, 30 m, 10 Dec. 2007, S. Harazaki; lower: adult, off Isso, 20 m, 4 July 2007, S. Harazaki).

Fig. 298. *Chromis atripes* (off Isso, 18 m, 4 Mar. 2005, S. Harazaki).

Chromis chrysura (Bliss, 1883)
[Jpn name: Amamisuzumedai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Chromis delta Randall, 1988
[Jpn name: Derutasuzumedai] (Fig. 299)
Matsumoto (2004b): Isso.

Fig. 299. *Chromis delta* (off Isso, 25 m, 4 Mar. 2005, S. Harazaki).

Chromis flavomaculatus Kamohara, 1960
[Jpn name: Kihoshisuzumedai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Chromis lepidolepis Bleeker, 1877
[Jpn name: Sasasuzumedai]
Kuniyasu (1999): Kurio. Matsumoto (2004b): Isso.

Chromis leucura Gilbert, 1905
[Jpn name: Fukamisuzumedai]
Matsumoto (2004b): Isso.

Chromis margaritifer Fowler, 1946
[Jpn name: Shikokusuzumedai] (Fig. 300)
KAUM–I. 20289, 49.3 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Tsumoi.

Fig. 300. *Chromis margaritifer* (KAUM–I. 20289, 49.3 mm SL).

Chromis notata notata (Temminck and Schlegel, 1843)
[Jpn name: Suzumedai]
Matsumoto (2004b): Tsumoi.

Chromis ovatiformis Fowler, 1946
[Jpn name: Marusuzumedai] (Fig. 301)
Matsumoto (2004b, as *Chromis ovatiformes*): Shitoko.

Fig. 301. *Chromis ovatiformis* (off Isso, 18 m, 4 Mar. 2005, S. Harazaki).

Chromis retrofasciata Weber, 1913
[Jpn name: Kuroobisuzumedai] (Fig. 302)

Remarks: The photographed individual is herein identified as *C. retrofasciata* in having the upper and lower caudal-fin rays prolonged as filaments, the dorsal head and nape grayish, a blue line along the ventral and posterior margins of the orbit, and a black bar obliquely running from the posterior portion of spinous dorsal fin to the distal margin of the middle of anal fin. This species has been recorded only from Ishigaki-jima Island (KPM–NR 81250), the Okinawa Islands (Aonuma and Yoshino, 2002), including Ie-jima Island (Senou et al., 2006a) and Irabu-jima Island (Senou et al., 2007), and Amami-oshima Island (KPM–NR 40707). Figure 302 represents the first records of *C. retrofasciata* from Yaku-shima Island and the northernmost record for the species. At Yaku-shima Island, adults of the species can be observed in less than 15 m depth throughout the year.

Fig. 302. *Chromis retrofasciata* (upper: off Isso, 12 m, 9 Nov. 2008, S. Harazaki; lower: off Isso, 10 m, 5 Oct. 2006, S. Harazaki).

Chromis ternatensis (Bleeker, 1856)
[Jpn name: Kaburayasuzumedai] (Fig. 303)
Matsumoto (2004b): Isso.

Fig. 303. *Chromis ternatensis* (off Isso, 7 m, 4 Mar. 2005, S. Harazaki).

Chromis vanderbilti Fowler, 1941
[Jpn name: Himesuzumedai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Chromis viridis (Cuvier, 1830)
[Jpn name: Debasuzumedai]
Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Shitoko.

Chromis weberi Fowler and Bean, 1928
[Jpn name: Takasagosuzumedai]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Chromis xanthura (Bleeker, 1854)
[Jpn name: Monsuzumedai] (Fig. 304)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Fig. 304. *Chromis xanthura* (off Isso, 10 m, 25 Feb. 2005, S. Harazaki).

Chrysiptera biocellata (Quoy and Gaimard, 1825) [Jpn name: Sujibuchisuzumedai] (Fig. 305)

Arai and Ida (1975, as *Abudefduf biocellata*): NSMT–P 17853, 37.7 mm SL, Kusugawa.

Fig. 305. *Chrysiptera biocellata* (upper: off Isso, 2 m, 26 Feb. 2005, S. Harazaki; lower: NSMT–P 17853, 37.7 mm SL, preserved specimen).

Chrysiptera brownriggii (Bennett, 1828) [Jpn name: Miyakokisensuzumedai] (Fig. 306)

KAUM–I. 11134, 20.9 mm SL, Kurio; KAUM–I. 21778, 13.4 mm SL, Kurio; KAUM–I. 23534, 11.7 mm SL, Ambo; KAUM–I. 23535, 10.1 mm SL, Ambo; KPM–NI 24785, 39.0 mm SL, Kurio; KPM–NI 24786, 58.8 mm SL, Kurio; NSMT–P 91663, 11 mm SL, Kurio; NSMT–P 95454, 47.1 mm SL, Haruo.

Ichikawa et al. (1992, as *Chrysiptera leucopoma*): Yaku-shima Island. Kuniyasu (1999, as *Chrysiptera leucopoma*): Kurio. Matsumoto (2005): Shitoko.

Remarks: *Chrysiptera leucopoma* (Cuvier, 1830) was regarded by Allen and Bailey (2002) and Randall (2005) as a junior synonym of *Chrysiptera brownriggii*.

Fig. 306. *Chrysiptera brownriggii* (upper: KAUM–I. 11134, 20.9 mm SL; lower: NSMT–P 95454, 47.1 mm SL, preserved specimen).

Chrysiptera caeruleolineata (Allen, 1973) [Jpn name: Aosujisuzumedai] (Fig. 307)

Fig. 307. *Chrysiptera caeruleolineata* (off Nagata, 40 m, 5 June 2009, S. Harazaki).

Chrysiptera cyanea (Quoy and Gaimard, 1825)
[Jpn name: Rurisuzumedai] (Fig. 308)

KAUM–I. 11192, 33.3 mm SL, Kurio; KAUM–I. 21665, 72.9 mm SL, Kurio; NSMT–P 93173, 12.0 mm SL, Kurio.

Arai and Ida (1975, as *Abudefduf assimilis*): Kusugawa [one specimens (48 mm TL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Miyanoura.

Fig. 308. *Chrysiptera cyanea* (KAUM–I. 11192, 33.3 mm SL).

Fig. 309. *Chrysiptera glauca* (upper: off Isso, 2 m, 16 May 2008, S. Harazaki; middle: KAUM–I. 11136, 15.5 mm SL; lower: KAUM–I. 21665, 72.9 mm SL).

Chrysiptera glauca (Cuvier, 1830)
[Jpn name: Nezusuzumedai] (Fig. 309)

KAUM–I. 11136, 15.5 mm SL, Kurio; KAUM–I. 11343, 43.6 mm SL, Kurio; KAUM–I. 11770, 18.0 mm SL, Nagakubo; KAUM–I. 21665, 72.9 mm SL, Kurio; NSMT–P 91684, 20 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 17843, 2 specimens, 34.9–41.3 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Yudomari.

Chrysiptera parasema (Fowler, 1918)
[Jpn name: Shirikirurisuzumedai]

Ichikawa et al. (1992, as *Chrysiptera hemicyanea*): Yaku-shima Island. Matsumoto (2005): Yaku-shima Island.

Fig. 310. *Chrysiptera rex* (off Isso, 6 m, 4 Mar. 2005, S. Harazaki).

Chrysiptera rex (Snyder, 1909)
[Jpn name: Remonsuzumedai] (Fig. 310)

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Tsumoi.

Chrysiptera starcki (Allen, 1973)
[Jpn name: Senakirurisuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Senroku.

Chrysiptera tricincta (Allen and Randall, 1974)
[Jpn name: Misujisuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2005): Isso.

Chrysiptera unimaculata (Cuvier, 1830)
[Jpn name: Ichimonsuzumedai] (Fig. 311)

KAUM–I. 11135, 20.6 mm SL, Kurio; KAUM–I. 11314, 12.5 mm SL, Yudomari; KAUM–I. 20151, 16.5 mm SL, Yudomari; KAUM–I. 20185, 12.4 mm SL, Yudomari; KAUM–I. 20194, 54.5 mm SL, Yudomari; KAUM–I. 21663, 57.4 mm SL, Kurio; KAUM–I. 21664, 40.5 mm SL, Kurio; KAUM–I. 25057, 31.6 mm SL, Ambo; KPM–NI 22528, 11.7 mm SL, Yudomari; NSMT–P 91594, 13 mm SL, Nagakubo.

Arai and Ida (1975): NSMT–P 17844, 6 specimens, 26.7–42.0 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Isso.

Dascyllus aruanus (Linnaeus, 1758)
[Jpn name: Misujiryukyusuzumedai] (Fig. 312)

BSKU 96556, 16.5 mm SL, Yudomari; KAUM–I. 20104, 32.6 mm SL, Yudomari; KAUM–I. 20203, 17.5 mm SL, Yudomari; KAUM–I. 20204, 14.3 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Tsumoi.

Dascyllus reticulatus (Richardson, 1846)
[Jpn name: Futasujiryukyusuzumedai] (Fig. 313)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Tsumoi.

Dascyllus trimaculatus (Rüppell, 1829)
[Jpn name: Mitsuboshikurosuzumedai] (Fig. 314)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Miyanoura.

Neoglyphidodon melas (Cuvier, 1830)
[Jpn name: Kurosuzumedai] (Fig. 315)

Ichikawa et al. (1992, as *Paraglyphidodon melas*): Yaku-shima Island.

Remarks: Adults of this species are very rare at Yaku-shima Island.

Fig. 311. *Chrysiptera unimaculata* (upper: KAUM–I. 11135, 20.6 mm SL; middle: KAUM–I. 25057, 31.6 mm SL; lower: KAUM–I. 21664, 40.5 mm SL).

Fig. 312. *Dascyllus aruanus* (KAUM–I. 20104, 32.6 mm SL).

Fig. 313. *Dascyllus reticulatus* (off Isso, 12 m, 3 Mar. 2005, S. Harazaki).

Fig. 314. *Dascyllus trimaculatus* (off Isso, 15 m, 19 Jan. 2010, S. Harazaki).

Fig. 315. *Neoglyphidodon melas* (off Isso, 5 m, 11 June 2006, S. Harazaki).

Neoglyphidodon nigroris (Cuvier, 1830)
[Jpn name: Hirenagasuzumedai] (Fig. 316)

BSKU 96633, 77.4 mm SL, Isso; BSKU 96543, 39.7 mm SL, Yudomari; KAUM–I. 11274, 68.9 mm SL, Yudomari; KAUM–I. 11282, 79.5 mm SL, Yudomari; KAUM–I. 20113, 31.2 mm SL, Yudomari; KPM–NI 22508, 42.8 mm SL, Yudomari; MUFS 25532, 91.4 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Isso.

Fig. 316. *Neoglyphidodon nigroris* (upper: BSKU 96543, 39.7 mm SL; middle: KAUM–I. 20113, 31.2 mm SL; lower: KPM–NI 22508, 42.8 mm SL).

Neopomacentrus taeniurus (Bleeker, 1856)
[Jpn name: Ribonsuzumedai]

Kuniyasu (1999): Kurio.

Neopomacentrus cyanomos (Bleeker, 1856)
[Jpn name: Kuroribonsuzumedai]

Kuniyasu (1999): Kurio.

Plectroglyphidodon dickii (Liénard, 1839)
[Jpn name: Ishigakisuzumedai] (Fig. 317)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Remarks: This species is common at Yaku-shima Island and usually occurs in depths of less than 5 m.

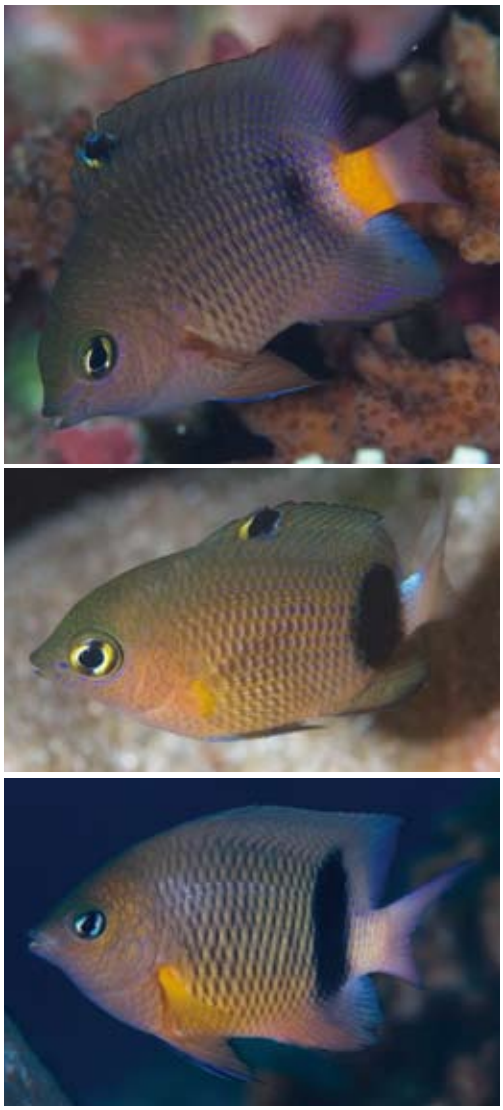

Fig. 317. *Plectroglyphidodon dickii* (upper: off Yudomari, 5 m, 9 Nov. 2008, S. Harazaki; middle: off Yudomari, 5 m, 9 Nov. 2008, S. Harazaki; lower: off Nagata, 5 m, 16 Sept. 2004, S. Harazaki).

Plectroglyphidodon johnstonianus Fowler and Ball, 1924
[Jpn name: Rurimeishigakisuzumedai] (Fig. 318)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Kurio.

Fig. 318. *Plectroglyphidodon johnstonianus* (off Isso, 7 m, 10 Nov. 2008, S. Harazaki).

Plectroglyphidodon lacrymatus (Quoy and Gaimard, 1825)
[Jpn name: Rurihoshisuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2004b): Tsumoi.

Plectroglyphidodon leucozonus (Bleeker, 1859)
[Jpn name: Hakusensuzumedai] (Fig. 319)

FRLM 34734, 78.6 mm SL, Kurio; KAUM–I. 11144, 81.8 mm SL, Kurio; KAUM–I. 11344, 12.8 mm SL, Kurio; KAUM–I. 11351, 77.3 mm SL, Kurio; KAUM–I. 20226, 54.2 mm SL, Kurio; KAUM–I. 20227, 53.8 mm SL, Kurio; NSMT–P 17850, 30.7 mm SL, Kusugawa; NSMT–P 91504, 78 mm SL, Kurio; NSMT–P 91505, 4 specimens, 57–74 mm SL, Kurio; NSMT–P 95415, 86.9 mm SL, Kurio; NSMT–P 95435, 82.3 mm SL, Haruo; NSMT–P 95458, 48.6 mm SL, Haruo.

Arai and Ida (1975, as *Abudefduf leucozonus*): NSMT–P 58092, 2 specimens, 40.7–45.4 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Matsumoto (2004b): Yaku-shima Island.

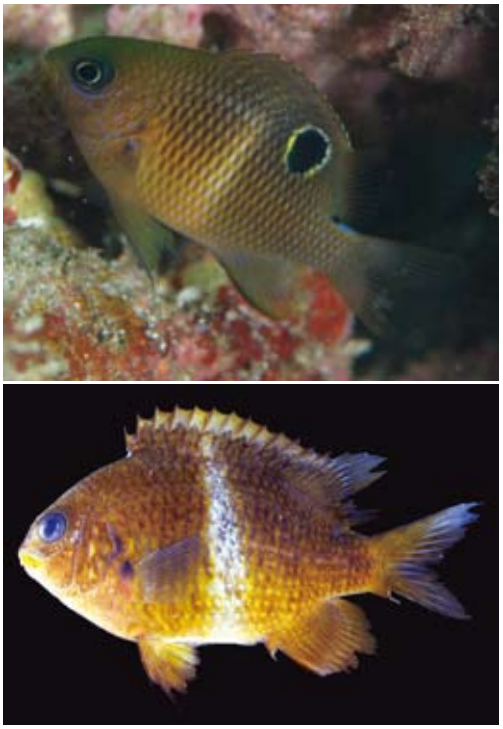

Fig. 319. *Plectroglyphidodon leucozonus* (upper: off Isso, 2 m, 26 Feb. 2005, S. Harazaki; lower: KAUM–I. 11144, 81.8 mm SL).

Pomacentrus alexanderae Evermann and Seale, 1907 [Jpn name: Montsukisuzumedai] (Fig. 320)

Kuniyasu (1999): Kurio.

Fig. 320. *Pomacentrus alexanderae* (off Isso, 18 m, 4 Mar. 2005, S. Harazaki).

Pomacentrus amboinensis Bleeker 1868 [Jpn name: Nisenettaisuzumedai] (Fig. 321)

Kuniyasu (1999): Kurio. Matsumoto (2005): Tsumoi.

Fig. 321. *Pomacentrus amboinensis* (off Isso, 6 m, 4 Mar. 2005, S. Harazaki).

Pomacentrus bankanensis Bleeker, 1853 [Jpn name: Meganesuzumedai] (Fig. 322)

KAUM–I. 20103, 32.6 mm SL, Yudomari; KAUM–I. 20202, 26.1 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Shitoko.

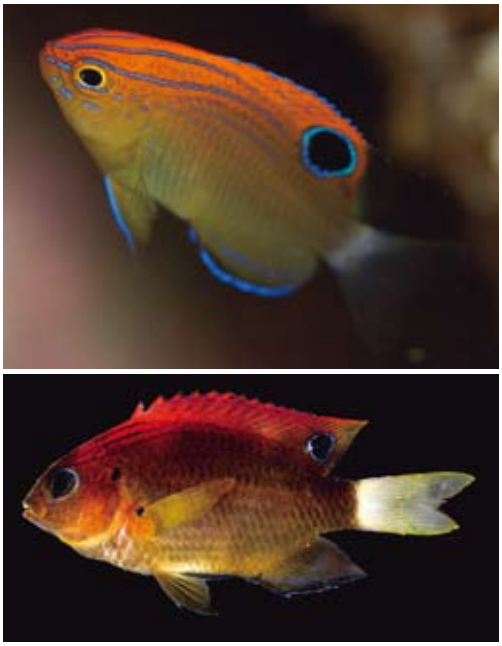

Fig. 322. *Pomacentrus bankanensis* (upper: off Isso, 5 m, 25 Feb. 2005, S. Harazaki; lower: KAUM–I. 20103, 32.6 mm SL).

Pomacentrus chrysurus Cuvier, 1830
[Jpn name: Ojirosuzumedai] (Fig. 323)

BSKU 96539, 68.5 mm SL, Yudomari; KAUM–I. 11590, 56.0 mm SL, Ambo; KAUM–I. 11616, 57.3 mm SL, Ambo; KAUM–I. 20077, 56.7 mm SL, Yudomari; KPM–NI 22509, 28.8 mm SL, Yudomari.

Matsumoto (2005): Isso.

Fig. 323. *Pomacentrus chrysurus* (upper: off Isso, 5 m, 3 Mar. 2005, S. Harazaki; middle: KPM–NI 22509, 28.8 mm SL; lower: BSKU 96539, 68.5 mm SL).

Pomacentrus coelestis Jordan and Starks, 1901
[Jpn name: Sorasuzumedai] (Fig. 324)

KAUM–I. 11267, 55.6 mm SL, Yudomari; KAUM–I. 20043, 47.8 mm SL, Yudomari; KAUM–I. 20328, 35.6 mm SL, Isso.

Arai and Ida (1975): NSMT–P 17864, 55.3 mm SL, Kusugawa. Matsumoto (2005): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

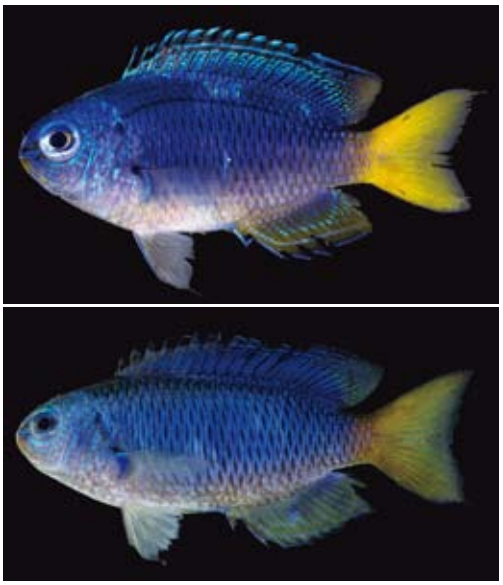

Fig. 324. *Pomacentrus coelestis* (upper: KAUM–I. 20328, 35.6 mm SL; lower: KAUM–I. 11267, 55.6 mm SL).

Pomacentrus lepidogenys Fowler and Bean, 1928
[Jpn name: Asadosuzumedai] (Fig. 325)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Tsumoi.

Pomacentrus moluccensis Bleeker, 1853
[Jpn name: Nettaisuzumedai] (Fig. 326)

Arai and Ida (1975): Kusugawa (one specimen was reported, but not found at NSMT). Kuniyasu (1999): Kurio. Matsumoto (2005): Isso.

Pomacentrus nagasakiensis Tanaka, 1917
[Jpn name: Nagasakisuzumedai] (Fig. 327)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Kurio (as *Neoglyphidodon meias*) and Isso.

Fig. 325. *Pomacentrus lepidogenys* (off Isso, 6 m, 4 Mar. 2005, S. Harazaki).

Fig. 326. *Pomacentrus moluccensis* (off Isso, 7 m, 4 Mar. 2005, S. Harazaki).

Fig. 327. *Pomacentrus nagasakiensis* (off Isso, 7 m, 26 Feb. 2005, S. Harazaki).

Pomacentrus nigromarginatus Allen, 1973
[Jpn name: Nisemontsukisuzumedai] (Fig. 328)

Fig. 328. *Pomacentrus nigromarginatus* (off Isso, 18 m, 4 Mar. 2005, S. Harazaki).

Pomacentrus phlippinus Evermann and Seale, 1907
[Jpn name: Firipinsuzumedai] (Fig. 329)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Tsumoi.

Fig. 329. *Pomacentrus phlippinus* (off Isso, 7 m, 4 Mar. 2005, S. Harazaki).

Pomacentrus vaiuli Jordan and Seale, 1906
[Jpn name: Kuromeganesuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Miyanoura. MOSC (2002): Isso, Ambo and Kurio.

***Pomacentrus* sp.**
[Jpn name: Minamiisosuzumedai]

Matsumoto (2005): Yoshida.

Pomachromis richardsoni (Snyder, 1909)
[Jpn name: Okinawasuzumedai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Tsumoi.

Stegastes altus (Okada and Ikeda, 1937)
[Jpn name: Sedakasuzumedai] (Fig. 330)

NSMT–P 95457, 35.6 mm SL, Haruo; NSMT–P 95464, 101.1 mm SL, Hirauchi; NSMT–P 95465, 101.3 mm SL, Hirauchi.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Matsumoto (2005): Yoshida.

Fig. 330. *Stegastes altus* (NSMT–P 95465, 101.3 mm SL, preserved specimen).

Stegastes fasciolatus (Ogilby, 1889)
[Jpn name: Fuchidorisuzumedai]

Kuniyasu (1999): Kurio.

Stegastes obreptus (Whitley, 1948)
[Jpn name: Aisuzumedai] (Fig. 331)

Teixeirichthys jordani (Rutter, 1897)
[Jpn name: Sujisuzumedai] (Fig. 332)

Remarks: Very rare; only a single individual (Fig. 332) was observed for recent six years at Yaku-shima Island.

Fig. 331. *Stegastes obreptus* (off Isso, 5 m, 22 Jan. 2010, S. Harazaki).

Fig. 332. *Teixeirichthys jordani* (off Isso, 20 m, 1 July 2005, S. Harazaki).

FAMILY LABRIDAE

Anampses caeruleopunctatus Rüppell, 1829
[Jpn name: Buchisusukibera] (Fig. 333)

KAUM–I. 11205, 24.1 mm SL, Kurio; KAUM–I. 11467, 199.1 mm SL, Isso; NSMT–P 58125, 43.2 mm SL, Kusugawa.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Remarks: NSMT–P 58125 (43.2 mm SL) was collected by Arai and Ida's (1975) Yaku-shima survey, but it was not listed in Arai and Ida (1975).

Anampses geographicus Valenciennes, 1840
[Jpn name: Mushibera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Anampses melanurus Bleeker, 1857
[Jpn name: Kurofuchisusukibera]

Ichikawa et al. (1992): Yaku-shima Island.

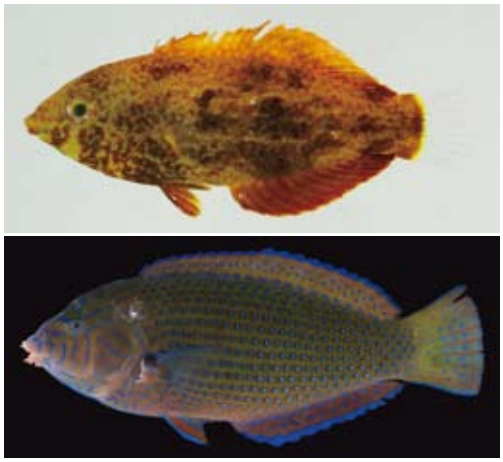

Fig. 333. *Anampses caeruleopunctatus* (upper: KAUM–I. 11205, 24.1 mm SL; lower: KAUM–I. 11467, 199.1 mm SL).

Anampses meleagrides Valenciennes, 1840
[Jpn name: Hokutobera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Anampses neoguinaicus Bleeker, 1878
[Jpn name: Nyuginiabera] (Fig. 334)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 334. *Anampses neoguinaicus* (off Isso, 15 m, 12 June 2004, S. Harazaki).

Anampses neoguinaicus Bleeker, 1878
x *Anampses twistii* Bleeker, 1856
[Jpn name: None] (Fig. 335)

Remarks: A hybrid individual; many individuals have been observed at Yaku-shima Island.

Anampses twistii Bleeker, 1856
[Jpn name: Hoshisusukibera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

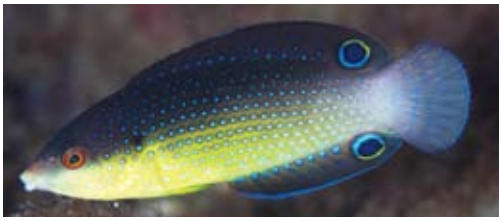

Fig. 335. *Anampses neoguinaicus* x *A. twistii* (off Isso, 15 m, 8 Sept. 2006, S. Harazaki).

Bodianus anthioides (Bennett, 1832)
[Jpn name: Hiodoshibera] (Fig. 336)

Fig. 336. *Bodianus anthioides* (off Isso, 20 m, 11 Oct. 2005, S. Harazaki).

Bodianus axillaris (Bennett, 1832)
[Jpn name: Sumitsukibera] (Fig. 337)

Arai and Ida (1975): NSMT–P 58108, 38.3 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 337. *Bodianus axillaris* (NSMT–P 58108, 38.3 mm SL, preserved specimen).

Bodianus bilunulatus (Lacepède, 1801)
[Jpn name: Kitsunebera]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Bodianus bimaculatus Allen, 1973
[Jpn name: Futahoshikitsunebera] (Fig. 338)

Fig. 338. *Bodianus bimaculatus* (off Isso, 30 m, 28 May 2009, S. Harazaki).

Bodianus diana (Lacepède, 1801)
[Jpn name: Montsukibera]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Bodianus loxozonus (Snyder, 1908)
[Jpn name: Hiregurobera]
Ichikawa et al. (1992, as *Bodianus hirsutus*): Yaku-shima Island.

Bodianus mesothorax (Bloch and Schneider, 1801)
[Jpn name: Kesagakebera] (Fig. 339)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.
Remarks: Common in depths of 10–15 m at Yaku-shima Island.

Fig. 339. *Bodianus mesothorax* (off Isso, 15 m, 17 Jan. 2010, S. Harazaki).

Bodianus oxycephalus (Bleeker, 1862)
[Jpn name: Kitsunedai]
Ichikawa et al. (1992): Yaku-shima Island.

Bodianus perditio (Quoy and Gaimard, 1834)
[Jpn name: Takibera]
Ichikawa et al. (1992): Yaku-shima Island.

Cheilinus chlorurus (Bloch, 1791)
[Jpn name: Akatemmochinouo] (Fig. 340)
KPM–NI 22526, 16.0 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.
Remarks: *C. chlorurus* is similar to *C. trilobatus* at juvenile stages. The former may be distinguished from the latter by having numerous small white spots on the anteroventral surface of the body.

Fig. 340. *Cheilinus chlorurus* (KPM–NI 22526, 16.0 mm SL).

Cheilinus trilobatus Lacepède, 1801
[Jpn name: Mitsubamochinouo] (Fig. 341)
BSKU 96551, 34.4 mm SL, Yudomari; KAUM–I. 20086, 55.1 mm SL, Yudomari; KAUM–I. 20197, 36.3 mm SL, Yudomari; KAUM–I. 20327, 28.9 mm SL, Isso.

Fig. 341. *Cheilinus trilobatus* (KAUM–I. 20086, 55.1 mm SL).

Cheilinus undulatus Rüppell, 1835
[Jpn name: Meganemochinouo]
Ichikawa et al. (1992): Yaku-shima Island.

Cheilio inermis (Forsskål, 1775)
[Jpn name: Kamasubera]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Choerodon fasciatus (Günther, 1867)
[Jpn name: Shichisembera]
Ichikawa et al. (1992, as *Lienardella fasciata*): Yaku-shima Island.

Choerodon jordani (Snyder, 1908)
[Jpn name: Kurakakebera] (Fig. 342)

Fig. 342. *Choerodon jordani* (off Isso, 12 m, 11 Sept. 2009, S. Harazaki).

Cirrhilabrus exquisitus Smith, 1957
[Jpn name: Nishikiitohikibera]
Kuniyasu (1999): Kurio.

Cirrhilabrus katherinae Randall, 1992
[Jpn name: Goishiitohikibera] (Fig. 343)

Fig. 343. *Cirrhilabrus katherinae* (off Isso, 15 m, 27 Aug. 2007, S. Harazaki).

Cirrhilabrus katoi Senou and Hirata, 2000
[Jpn name: Kurenaiitohikibera] (Fig. 344)

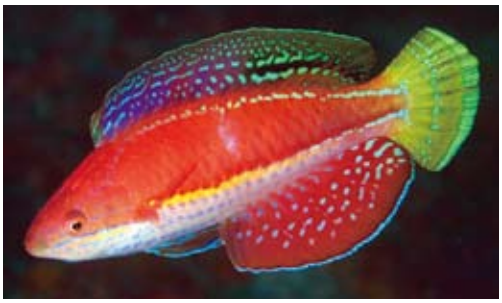

Fig. 344. *Cirrhilabrus katoi* (off Isso, 35 m, 15 Apr. 2005, S. Harazaki).

Cirrhilabrus lyukyuensis Ishikawa 1904
[Jpn name: Kuroheriitohikibera]
Ichikawa et al. (1992, as *Cirrhilabrus cyanopleura*): Yaku-shima Island. Kuniyasu (1999, as *Cirrhilabrus cyanopleura*): Kurio.
Remarks: Allen et al. (2008) provisionally regarded *C. lyukyuensis* as a valid species, rather than a junior synonym of *C. cyanopleura* (Bleeker, 1851).

Cirrhilabrus lunatus Randall and Masuda, 1991
[Jpn name: Tsukinowaitohikibera] (Fig. 345)

Fig. 345. *Cirrhilabrus lunatus* (off Isso, 35 m, 13 Dec. 2006, S. Harazaki).

Cirrhilabrus melanomarginatus Randall and Shen, 1978
[Jpn name: Tomoshibiitohikibera] (Fig. 346)
Kuniyasu (1999, as *Cirrhilabrus lanceolatus*): Kurio.

Remarks: Kuniyasu's (1999: photo 4-middle) *Cirrhilabrus lanceolatus* Randall and Masuda, 1991 (Yariitohikibera) is herein re-identified as *Cirrhilabrus melanomarginatus*.

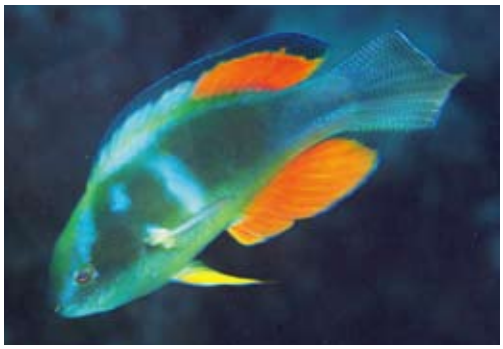

Fig. 346. *Cirrhilabrus melanomarginatus* (off Isso, 5 m, 22 July 2004, S. Harazaki).

Fig. 348. *Cirrhilabrus temminckii* (upper and lower: off Isso, 25 m, 22 Dec. 2006, S. Harazaki).

Cirrhilabrus rubrimarginatus Randall, 1992
[Jpn name: Benihireitohikibera] (Fig. 347)

Fig. 347. *Cirrhilabrus rubrimarginatus* (off Isso, 35 m, 21 Dec. 2004, S. Harazaki).

Fig. 349. *Cirrhilabrus* sp. 1 (upper: off Isso, 35 m, 9 Aug. 2004, S. Harazaki; lower: off Isso, 35 m, 10 Sept. 2007, S. Harazaki).

Cirrhilabrus temminckii Bleeker, 1853
[Jpn name: Itohikibera] (Fig. 348)

***Cirrhilabrus* sp. 1**
[Jpn name: None] (Fig. 349)

Remarks: This species is undescribed. Common in depths of deeper than 30 m at Yaku-shima Island.

***Cirrhilabrus* sp. 2**
[Jpn name: None] (Fig. 350)

Remarks: This species is similar to *C. katherinae*, but differs from the latter in having a blue stripe along the lateral line (often disappearing with condition). Currently known only from the Ryukyu Islands and Yaku-shima Island.

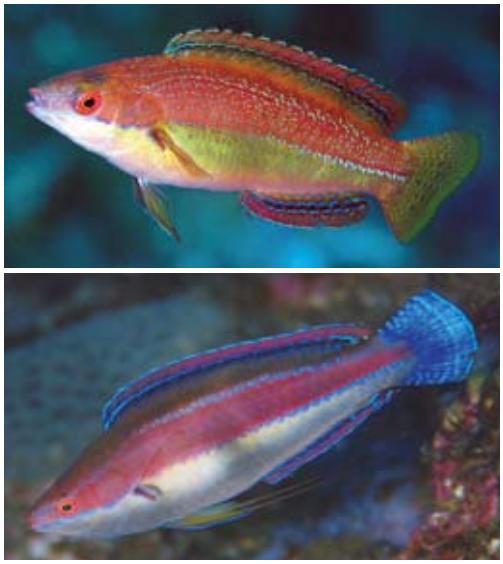

Fig. 350. *Cirrhilabrus* sp. 2 (upper and lower: off Isso, 25 m, 22 Dec. 2006, S. Harazaki).

Coris aygula Lacepède, 1801
[Jpn name: Kammuribera] (Fig. 351)

KAUM–I. 11591, 112.6 mm SL, Ambo; NSMT–P 77653, 290 mm SL, Nagata.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 351. *Coris aygula* (upper: KAUM–I. 11591, 112.6 mm SL; lower: NSMT–P 77653, 290 mm SL).

Coris batuensis (Bleeker, 1856–57)
[Jpn name: Shichisemmusumebera]

Kuniyasu (1999, as *Coris variegata*): Kurio.

Coris dorsomacula Fowler, 1908
[Jpn name: Sujibera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Coris gaimard (Quoy and Gaimard, 1824)
[Jpn name: Tsuyubera] (Fig. 352)

KAUM–I. 20304, 13.7 mm SL, Kurio; KAUM–I. 25204, 214.5 mm SL, Nagata.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Fig. 352. *Coris gaimard* (upper: KAUM–I. 20304, 13.7 mm SL; lower: KAUM–I. 25204, 214.5 mm SL).

Epibulus insidiator (Pallas, 1770)
[Jpn name: Gichibera] (Fig. 353)

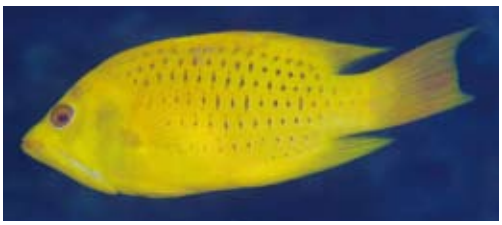

Fig. 353. *Epibulus insidiator* (off Isso, 15 m, 24 June 2009, S. Harazaki).

Gomphosus varius Lacepède, 1801
[Jpn name: Kugibera] (Fig. 354)

KAUM–I. 11587, 73.8 mm SL, Ambo; NSMT–P 95445, 70.7 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

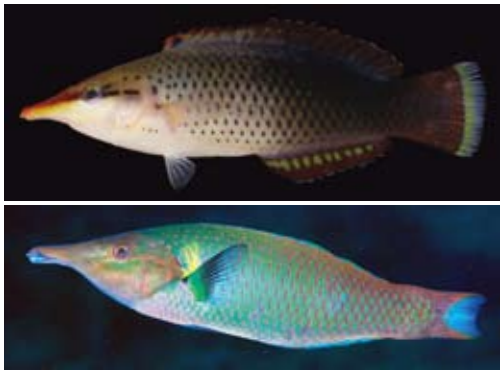

Fig. 354. *Gomphosus varius* (upper: KAUM–I. 11587, 73.8 mm SL; lower: off Isso, 6 m, 22 Jan. 2010, S. Harazaki).

Halichoeres argus (Bloch and Schneider, 1801)
[Jpn name: Kumadorikyusen] (Fig. 355)

Remarks: Common in depths of less than 3 m at Yaku-shima Island, but no specimens have been collected from the island.

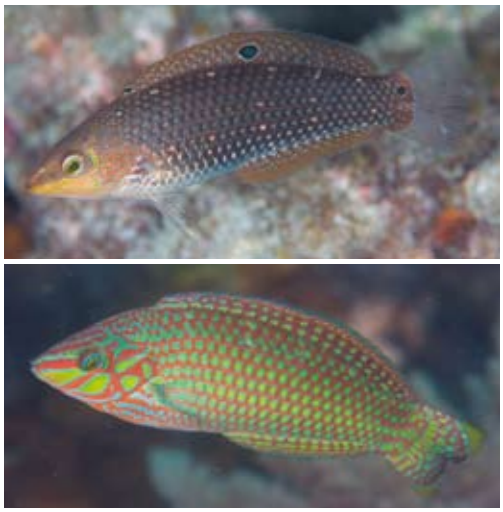

Fig. 355. *Halichoeres argus* (upper: female, off Isso, 3 m, 4 Oct. 2007, S. Harazaki; lower: male, same data as upper image).

Halichoeres biocellatus Schultz, 1960
[Jpn name: Nishikikyusen]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Halichoeres chrysus Randall, 1981
[Jpn name: Koganekyusen]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Halichoeres hortulanus (Lacepède, 1801)
[Jpn name: Tokarabera] (Fig. 356)

BSKU 96609, 33.1 mm SL, Kurio; KAUM–I. 11308, 32.6 mm SL, Yudomari; KAUM–I. 21771, 22.4 mm SL, Kurio; NSMT–P 77991, 14.1 mm SL, Kurio; NSMT–P 95467, 58.5 mm SL, Hirauchi.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 356. *Halichoeres hortulanus* (BSKU 96609, 33.1 mm SL).

Halichoeres margaritaceus (Valenciennes, 1839)
[Jpn name: Akanijibera] (Fig. 357)

KPM–NI 24797, 13.8 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 58095, 77.1 mm SL, Kusugawa; NSMT–P 58096, 48.6 mm SL, Kusugawa. Kuniyasu (1999): Kurio.

Halichoeres marginatus Rüppell, 1835
[Jpn name: Kanokobera] (Fig. 358)

KAUM–I. 11384, 17.8 mm SL, Kurio; KAUM–I. 21742, 24.9 mm SL, Kurio; KAUM–I. 21743, 21.5 mm SL, Kurio; KPM–NI 24905, 13.6 mm SL, Kurio.

Arai and Ida (1975, as *Halichoeres notopsis*, Hakusembera): NSMT–P 58098, 37.7 mm SL, Kusugawa; NSMT–P 58126, 42.2 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 357. *Halichoeres margaritaceus* (upper: KPM–NI 24797, 13.8 mm SL; middle: NSMT–P 58095, 77.1 mm SL, preserved specimen; lower: male and female just before spawning, off Isso, 4 m, 21 Apr. 2009, S. Harazaki).

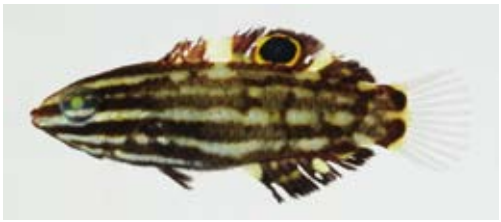

Fig. 358. *Halichoeres marginatus* (KAUM–I. 11384, 17.8 mm SL).

Halichoeres melanochir Fowler and Bean, 1928
[Jpn name: Munatembera] (Fig. 359)
NSMT–P 91661, 14.0 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Halichoeres melanurus (Bleeker, 1851)
[Jpn name: Kazarikyusen] (Fig. 360)
KPM–NI 22501, 77.4 mm SL, Yudomari.

Fig. 359. *Halichoeres melanochir* (NSMT–P 91661, 14 mm SL, preserved specimen).

Fig. 360. *Halichoeres melanurus* (KPM–NI 22501, 77.4 mm SL).

Halichoeres nebulosus (Valenciennes, 1839)
[Jpn name: Inazumabera] (Fig. 361)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

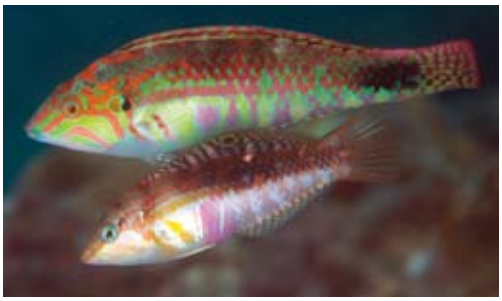

Fig. 361. *Halichoeres nebulosus* (male and female just before spawning, off Isso, 4 m, 21 Apr. 2009, S. Harazaki).

Halichoeres orientalis Randall, 1999
[Jpn name: Tsukibera]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Halichoeres prosopeion (Bleeker, 1853)
[Jpn name: Munatemberadamashi] (Fig. 362)
Kuniyasu (1999): Kurio.
Remarks: Relatively rare at Yaku-shima Island.

Fig. 362. *Halichoeres prosopeion* (off Isso, 10 m, 6 July 2006, S. Harazaki).

Halichoeres richmondi Fowler and Bean, 1928
[Jpn name: Goshikikyusen]
Kuniyasu (1999): Kurio.

Halichoeres scapularis (Bennett, 1831)
[Jpn name: Seitembera]
Ichikawa et al. (1992): Yaku-shima Island.

Halichoeres trimaculatus (Quoy and Gaimard, 1834)
[Jpn name: Mitsuboshikyusen] (Fig. 363)
KAUM–I. 11138, 125.3 mm SL, Kurio; KAUM–I. 11597, 138.9 mm SL, Ambo; KAUM–I. 11614, 115.0 mm SL, Ambo; KAUM–I. 11615, 106.3 mm SL, Ambo.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 363. *Halichoeres trimaculatus* (KAUM–I. 11138, 125.3 mm SL).

Hemigymnus fasciatus (Bloch, 1792)
[Jpn name: Shimatarekuchibera]
Arai and Ida (1975): Kusugawa [one specimen (33 mm SL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Hemigymnus melapterus (Bloch, 1791)
[Jpn name: Tarekuchibera] (Fig. 364)
BSKU 96580, 12.2 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island.

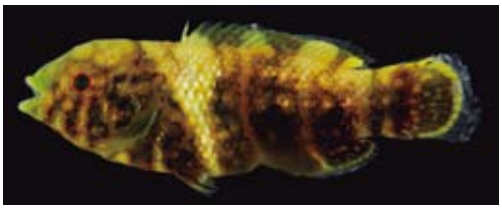

Fig. 364. *Hemigymnus melapterus* (BSKU 96580, 12.2 mm SL).

Hologymnosus annulatus (Lacepède, 1801)
[Jpn name: Namerabera] (Fig. 365)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 365. *Hologymnosus annulatus* (upper: off Isso, 5 m, 20 Jan. 2010, S. Harazaki; lower: off Isso, 15 m, 5 Nov. 2004, S. Harazaki).

Hologymnosus doliatus (Lacepède, 1801)
[Jpn name: Shirotasukibera]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Hologymnosus rhodonotus Randall and Yamakawa, 1988
[Jpn name: Ayatasukibera] (Fig. 366)

Fig. 366. *Hologymnosus rhodonotus* (off Isso, 35 m, 3 Mar. 2005, S. Harazaki).

Iniistius aneitensis (Günther, 1862)
[Jpn name: Hagehirabera] (Fig. 367)

Fig. 367. *Iniistius aneitensis* (off Isso, 25 m, 6 Sept. 2006, S. Harazaki).

Iniistius pavo (Valenciennes, 1840)
[Jpn name: Hoshitensu] (Fig. 368)

BSKU 96611, 21.5 mm SL, Kurio; NSMT–P 95405, 135.3 mm SL, Yaku-shima Island; NSMT–P 95406, 125.3 mm SL, Yaku-shima Island.

Ichikawa et al. (1992, as *Xyrichthys pavo*): Yaku-shima Island.

Remarks: Randall and Earle (2002) allocated this species to *Iniistius* from *Xyrichtys*.

Iniistius pentadactylus (Linnaeus, 1758)
[Jpn name: Hirabera]

Ichikawa et al. (1992, as *Xyrichthys pentadactylus*): Yaku-shima Island.

Remarks: Randall et al. (2002) considered this species to belong to *Iniistius*.

Fig. 368. *Iniistius pavo* (BSKU 96611, 21.5 mm SL).

Iniistius twistii (Bleeker, 1856)
[Jpn name: Hinomarutensu] (Fig. 369)

NSMT–P 95402, 145.5 mm SL, Yaku-shima Island; NSMT–P 95403, 3 specimens, 126.6–126.7 mm SL, Yaku-shima Island; NSMT–P 95404, 174.4 mm SL, Yaku-shima Island.

Ichikawa et al. (1992, as *Xyrichthys twistii*): Yaku-shima Island.

Remarks: Randall et al. (2002) considered this species to belong to *Iniistius*.

Fig. 369. *Iniistius twistii* (NSMT–P 95402, 145.5 mm SL).

***Iniistius* sp.**
[Jpn name: None] (Fig. 370)

NSMT–P 95407, 149.4 mm SL, Yaku-shima Island; NSMT–P 95408, 2 specimens, 138.3-139.1 mm SL, Yaku-shima Island.

Remarks: These specimens are similar to *Iniistius celebicus* (Bleeker, 1856) in coloration. However, the former has small scales widely covering from the mouth to behind the eye, whereas *I. celebicus* has a few scales only just below the eye. These Yaku-shima specimens probably represent an undescribed species.

Fig. 370. *Iniistius* sp. (NSMT–P 95407, 149.4 mm SL).

Labroides bicolor Fowler and Bean, 1928
[Jpn name: Somewakebera] (Fig. 371)

BSKU 96651, 10.1 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 371. *Labroides bicolor* (BSKU 96651, 10.1 mm SL).

Labroides dimidiatus (Valenciennes, 1839)
[Jpn name: Honsomewakebera] (Fig. 372)

KAUM–I. 11193, 54.7 mm SL, Kurio; KAUM–I. 11458, 26.7 mm SL, Isso; KAUM–I. 20347, 37.7 mm SL, Isso.

Arai and Ida (1975): NSMT–P 17849, 32.3 mm SL, Kusugawa; NSMT–P 58112, 58.7 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Labropsis manabei Schmidt, 1931
[Jpn name: Manabebera] (Fig. 373)

Macropharyngodon meleagris (Valenciennes, 1839)
[Jpn name: Nodogurobera] (Fig. 374)

Arai and Ida (1975, as *Macropharyngodon pardalis*, Goishibera): NSMT–P 17837, 31.9 mm SL, Kusugawa; NSMT–P 58111, 43.3 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 372. *Labroides dimidiatus* (upper: KAUM–I. 11458, 26.7 mm SL; lower: KAUM–I. 11193, 54.7 mm SL).

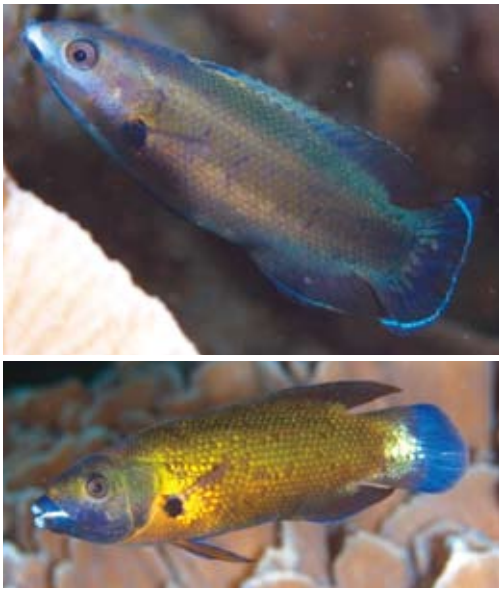

Fig. 373. *Labropsis manabei* (upper: off Isso, 10 m, 12 June 2006, S. Harazaki; lower: off Isso, 12 m, 20 Jan. 2010, S. Harazaki).

Fig. 374. *Macropharyngodon meleagris* (NSMT–P 58111, 43.3 mm SL, preserved specimen).

Macropharyngodon moyeri Shepard and Meyer, 1978
[Jpn name: Usubanodogurobera] (Fig. 375)

Remarks: This species occurs in depths of 10–15 m at Yaku-shima Island.

Fig. 375. *Macropharyngodon moyeri* (off Yoshida, 15 m, 8 June 2006, S. Harazaki).

Macropharyngodon negrosensis Herre, 1932
[Jpn name: Sejironodogurobera]

Kuniyasu (1999): Kurio.

Novaculichthys taeniurus (Lacepède, 1801)
[Jpn name: Obitensumodoki]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Oxycheilinus bimaculatus (Valenciennes, 1840)
[Jpn name: Takobera] (Fig. 376)

FRLM 34707, 92.0 mm SL, Yudomari; KAUM–I. 11256, 98.0 mm SL, Yudomari; KAUM–I. 11257, 97.0 mm SL, Yudomari; KAUM–I. 20061, 53.4 mm SL, Yudomari; MUFS 25548, 101 mm SL, Yudomari.

Ichikawa et al. (1992, as *Cheilinus bimaculatus*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 376. *Oxycheilinus bimaculatus* (KAUM–I. 11256, 98.0 mm SL).

Oxycheilinus digrammus (Lacepède, 1801)
[Jpn name: Hohosujimochinouo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Oxycheilinus unifasciatus (Steets, 1877)
[Jpn name: Hitosujimochinouo] (Fig. 377)

KAUM–I. 25206, 188.0 mm SL, Onoaida.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 377. *Oxycheilinus unifasciatus* (KAUM–I. 25206, 188.0 mm SL).

Paracheilinus carpenteri Randall and Lubbock, 1981
[Jpn name: Kujakubera] (Fig. 378)

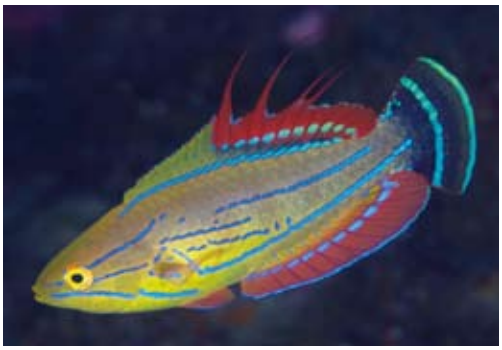

Fig. 378. *Paracheilinus carpenteri* (off Isso, 30 m, 5 July 2006, S. Harazaki).

Pseudocheilinus evanidus Jordan and Evermann, 1903
[Jpn name: Himenisemochinouo]

Ichikawa et al. (1992): Yaku-shima Island.

Pseudocheilinus hexataenia (Bleeker, 1857)
[Jpn name: Nisemochinouo]

Arai and Ida (1975): Kusugawa [one specimen (23 mm TL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pseudocheilinus octotaenia Jenkins, 1901
[Jpn name: Yasujinisemochinouo]

Ichikawa et al. (1992): Yaku-shima Island.

Pseudocoris philippina (Fowler and Bean 1928)
[Jpn name: Shiratakibera] (Fig. 379)

Fig. 379. *Pseudocoris philippina* (off Isso, 35 m, 26 Apr. 2004, S. Harazaki).

Pseudocoris yamashiroi (Schmidt, 1930)
[Jpn name: Yamashirobera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pseudodax moluccanus (Valenciennes, 1840)
[Jpn name: Budaibera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pseudojuloides mesostigma Randal and Randall, 1981
[Jpn name: Sumitsukiogurobera] (Fig. 380)

Pseudojuloides severnsi Bellwood and Randall, 2000
[Jpn name: Aosujiogurobera] (Fig. 381)

Remarks: Common in deeper than 30 m at Yaku-shima Island.

Fig. 380. *Pseudojuloides mesostigma* (off Nagata, 45 m, 19 Nov. 2009, S. Harazaki).

Fig. 381. *Pseudojuloides severnsi* (upper: off Isso, 35 m, 4 Mar. 2005, S. Harazaki; lower: off Isso, 35 m, 3 Mar. 2005, S. Harazaki).

Pseudolabrus sieboldi Mabuchi and Nakabo, 1997
[Jpn name: Hoshisasanohabera] (Fig. 382)

KAUM–I. 11370, 59.0 mm SL, Kurio; KAUM–I. 21775, 54.9 mm SL, Kurio.

Kuniyasu (1999, as *Pseudolabrus japonicus*): Kurio.

Remarks: Kuniyasu's (1999) *Pseudolabrus japonicus* is probably *P. sieboldi*, rather than *P. eoethinus* (Richardson, 1846).

Pteragogus enneacanthus (Bleeker, 1853)
[Jpn name: None] (Fig. 383)

Remarks: A common Japanese species, *Pteragogus aurigarius* (Richardson, 1845), is replaced with *P. enneacanthus* at Yaku-shima Island. Although the latter is common in depths of 5–10 m at Yaku-shima Island, no specimens have been collected.

Fig. 382. *Pseudolabrus sieboldi* (KAUM–I. 21775, 54.9 mm SL).

Fig. 383. *Pteragogus enneacanthus* (off Isso, 10 m, 3 June 2005, S. Harazaki).

Stethojulis bandanensis (Bleeker, 1851)
[Jpn name: Akaobibera] (Fig. 384)

KAUM–I. 11156, 29.1 mm SL, Kurio; KAUM–I. 11307, 45.1 mm SL, Yudomari; KAUM–I. 21796, 30.2 mm SL, Kurio; KPM–NI 24792, 17.1 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 384. *Stethojulis bandanensis* (KAUM–I. 11307, 45.1 mm SL).

Stethojulis strigiventer (Bennett, 1833)
[Jpn name: Harasujibera] (Fig. 385)

KAUM–I. 11155, 37.9 mm SL, Kurio; KAUM–I. 11311, 33.9 mm SL, Yudomari; KAUM–I. 11322, 56.8 mm SL, Nagakubo; KAUM–I. 11539, 15.0 mm SL, Ambo; KAUM–I. 11540, 16.2 mm SL, Ambo; KAUM–I. 20089, 77.2 mm SL, Yudomari; KAUM–I. 20114, 34.9 mm SL, Yudomari; KAUM–I. 20123, 75.4 mm SL, Yudomari; KAUM–I. 20124, 66.0 mm SL, Yudomari; KAUM–I. 20125, 87.0 mm SL, Yudomari; KAUM–I. 20198, 33.4 mm SL, Yudomari; KAUM–I. 21747, 22.6 mm SL, Kurio; KAUM–I. 21749, 18.0 mm SL, Kurio; KAUM–I. 21750, 11.9 mm SL, Kurio.

Arai and Ida (1975, as *Stethojulis interrupta*, Kaminaribera): NSMT–P 17807, 5 specimens, 33.9–40.8 mm SL, Kusugawa; NSMT–P 58097, 47.4 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 385. *Stethojulis strigiventer* (upper: KAUM–I. 20114, 34.9 mm SL; lower: KAUM–I. 11322, 56.8 mm SL).

Stethojulis terina Jordan and Snyder, 1902
[Jpn name: Kaminaribera] (Fig. 386)

KAUM–I. 20105, 64.0 mm SL, Yudomari; KAUM–I. 20273, 53.6 mm SL, Kurio; KAUM–I. 21797, 29.7 mm SL, Kurio.

Arai and Ida (1975, as *Stethojulis interrupta*): NSMT–P 58132, 56.5 mm SL, Kusugawa. Ichikawa et al. (1992, as *Stethojulis interrupta terina*): Yaku-shima Island. Kuniyasu (1999, as *Stethojulis interrupta terina*): Kurio.

Stethojulis trilineata (Bloch and Schneider, 1801)
[Jpn name: Onibera] (Fig. 387)

FRLM 34737, 49.7 mm SL, Kurio; KAUM–I. 11158, 36.0 mm SL, Kurio; KAUM–I. 11382,

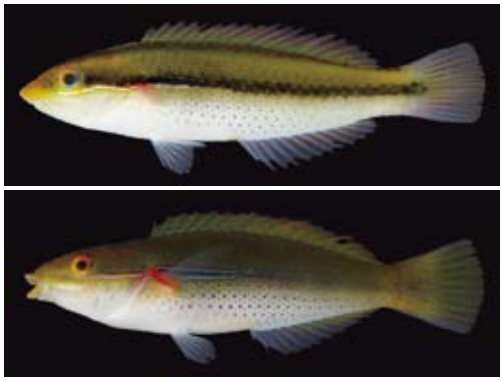

Fig. 386. *Stethojulis terina* (upper: KAUM–I. 20273, 53.6 mm SL; lower: KAUM–I. 20105, 64.0 mm SL).

29.0 mm SL, Kurio; KAUM–I. 11393, 21.3 mm SL, Kurio; KAUM–I. 11396, 23.2 mm SL, Kurio; KAUM–I. 21746, 24.0 mm SL, Kurio; KAUM–I. 21793, 39.7 mm SL, Kurio; NSMT–P 91662, 26 mm SL, Kurio; NSMT–P 91676, 2 specimens, 19–23 mm SL, Kurio.

Arai and Ida (1975, as *Stethojulis interrupta*, Kaminaribera): NSMT–P 17805, 15 specimens, 22.1–67.7 mm SL, Kusugawa; NSMT–P 58099, 44.1 mm SL, Kusugawa; NSMT–P 58136, 108.3 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island.

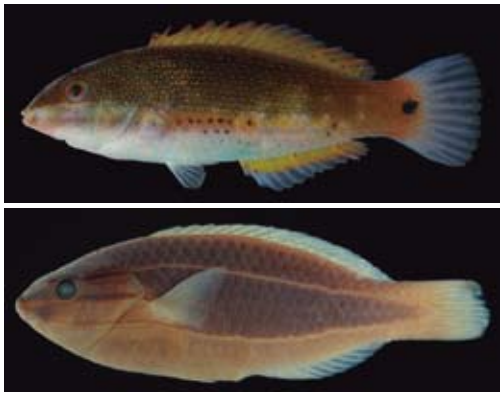

Fig. 387. *Stethojulis trilineata* (upper: KAUM–I. 11158, 36.0 mm SL; lower: NSMT–P 58136, 108.3 mm SL, preserved specimen).

Suezichthys gracilis (Steindachner and Döderlein, 1887)
[Jpn name: Itobera]

Kuniyasu (1999): Kurio.

***Terelabrus* sp.**
[Jpn name: None] (Fig. 388)

Remarks: The photographed individual can be distinguished from *Terelabrus* sp. reported from Hachijo-jima Island (Senou et al., 2002) and Izu-oshima Island (Senou et al., 2006b) and *Terelabrus rubrovittatus* Randall and Fourmanoir, 1998 by having a yellow stripe between red stripes on the lateral surface of the body (vs. yellow stripe absent in the latter two species). Photographed individuals taken off Kume-jima Island, Japan, and Bali, Indonesia (deposited at KPM Fish Image Database) are identified here as the same species with the Yaku-shima Island individual. The species is common around 60 m at Yaku-shima Island.

Fig. 388. *Terelabrus* sp. (off Nagata, 60 m, 28 Nov. 2009, S. Harazaki).

Thalassoma amblycephalum (Bleeker, 1856)
[Jpn name: Kogashirabera] (Fig. 389)

KAUM–I. 20265, 18.5 mm SL, Kurio; KAUM–I. 20266, 23.9 mm SL, Kurio; KAUM–I. 20275, 21.7 mm SL, Kurio; KAUM–I. 21736, 22.4 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 389. *Thalassoma amblycephalum* (KAUM–I. 20275, 21.7 mm SL).

Thalassoma cupido (Temminck and Schlegel, 1845) [Jpn name: Nishikibera] (Fig. 390)

BSKU 96662, 104.4 mm SL, Kurio; KAUM–I. 11142, 96.0 mm SL, Kurio; KAUM–I. 11394, 23.4 mm SL, Kurio; KAUM–I. 11619, 42.4 mm SL, Ambo; KAUM–I. 20121, 97.3 mm SL, Yudomari; KAUM–I. 20122, 105.6 mm SL, Yudomari; KAUM–I. 20231, 77.4 mm SL, Kurio; KAUM–I. 20232, 66.1 mm SL, Kurio; KAUM–I. 20233, 57.4 mm SL, Kurio; KAUM–I. 21692, 51.7 mm SL, Kurio; KAUM–I. 21693, 38.8 mm SL, Kurio; KAUM–I. 21694, 28.2 mm SL, Kurio; KAUM–I. 21884, 50.0 mm SL, Kurio; KAUM–I. 21885, 54.0 mm SL, Kurio; KAUM–I. 21886, 58.0 mm SL, Kurio; KAUM–I. 21887, 54.9 mm SL, Kurio; KAUM–I. 21888, 52.0 mm SL, Kurio; KAUM–I. 21889, 52.6 mm SL, Kurio; KAUM–I. 21890, 51.2 mm SL, Kurio; KAUM–I. 21891, 47.4 mm SL, Kurio; KAUM–I. 21892, 10 specimens, 25.2–36.6 mm SL, Kurio; KAUM–I. 21893, 10 specimens, 29.8–39.5 mm SL, Kurio; KAUM–I. 21894, 5 specimens, 39.5–45.4 mm SL, Kurio; KAUM–I. 21895, 5 specimens, 40.9–44.9 mm SL, Kurio; KAUM–I. 21896, 5 specimens, 40.4–47.6 mm SL, Kurio; KAUM–I. 21897, 4 specimens, 45.3–54.3 mm SL, Kurio; KAUM–I. 21898, 5 specimens, 43.6–52.3 mm SL, Kurio; KAUM–I. 21899, 68.8 mm SL, Kurio; MUFS 25433, 46.1 mm SL, Matsumine; NSMT–P 91360, 119 mm SL, Yudomari; NSMT–P 91361, 105 mm SL, Yudomari; NSMT–P 91506, 20 specimens, 28–93 mm SL, Kurio; NSMT–P 91582, 5 specimens, 39–65 mm SL, Kurio; NSMT–P 91590, 10 specimens, 47–94 mm SL, Yudomari; NSMT–P 91660, 12 specimens, 33–58 mm SL, Kurio; NSMT–P 91678, 16 specimens, 28–63 mm SL, Kurio; NSMT–P 95468, 98.6 mm SL, Hirauchi.

Jordan and Starks (1906): USNM 53536, 46 specimens, 16.1–118.4 mm SL, Miyanoura. Arai and Ida (1975): NSMT–P 17809, 19 specimens, 35.4–118.9 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Fig. 390. *Thalassoma cupido* (KAUM–I. 11142, 96.0 mm SL).

Thalassoma hardwicke (Bennett, 1830) [Jpn name: Senasujibera] (Fig. 391)

BSKU 96681, 32.5 mm SL, Kurio; FRLM 34739, 41.0 mm SL, Kurio; KAUM–I. 11204, 30.6 mm SL, Kurio; KAUM–I. 11309, 32.0 mm SL, Yudomari; KAUM–I. 11381, 32.3 mm SL, Kurio; KAUM–I. 11385, 14.2 mm SL, Kurio; KAUM–I. 20272, 47.6 mm SL, Kurio; NSMT–P 91507, 27 mm SL, Kurio; NSMT–P 91508, 2 specimens, 17–18 mm SL, Kurio; NSMT–P 91509, 20 mm SL, Kurio; NSMT–P 91677, 4 specimens, 22–35 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 391. *Thalassoma hardwicke* (KAUM–I. 20272, 47.6 mm SL).

Thalassoma jansenii (Bleeker, 1856) [Jpn name: Yansennishikibera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Thalassoma lunare (Linnaeus, 1758) [Jpn name: Otomebera] (Fig. 392)

KAUM–I. 11206, 22.4 mm SL, Kurio; KAUM–I. 11585, 70.0 mm SL, Ambo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

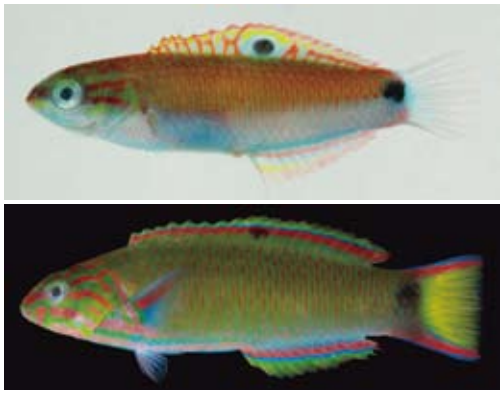

Fig. 392. *Thalassoma lunare* (upper: KAUM–I. 11206, 22.4 mm SL; lower: KAUM–I. 11585, 70.0 mm SL).

Thalassoma lutescens (Lay and Bennett, 1839)
[Jpn name: Yamabukibera] (Fig. 393)

Arai and Ida (1975): Kusugawa [one specimens (86 mm SL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 393. *Thalassoma lutescens* (off Isso, 15 m, 20 Jan. 2010, S. Harazaki).

Thalassoma purpureum (Forsskål, 1775)
[Jpn name: Kinubera] (Fig. 394)

KAUM–I. 11260, 90.8 mm SL, Yudomari; KAUM–I. 21748, 18.8 mm SL, Kurio; KAUM–I. 21795, 32.7 mm SL, Kurio; KAUM–I. 25223, 210.1 mm SL, Onoaida; KAUM–I. 25231, 197.0 mm SL, Isso; KPM–NI 24671, 147.1 mm SL, Onoaida; KPM–NI 24672, 195.2 mm SL, Onoaida; NSMT–P 17836, 29.0 mm SL, Kusugawa.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

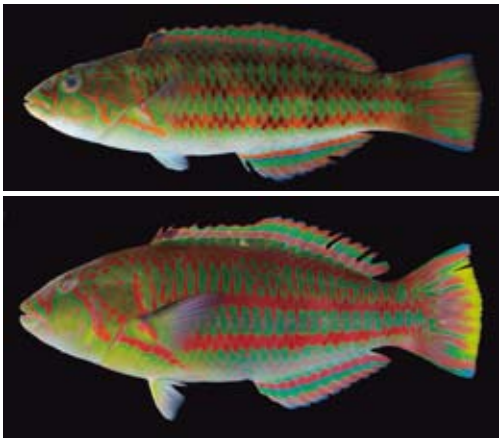

Fig. 394. *Thalassoma purpureum* (upper: KAUM–I. 11260, 90.8 mm SL; lower: KAUM–I. 25231, 197.0 mm SL).

Thalassoma quinquevittatum (Lay and Bennett, 1839)
[Jpn name: Hakobera]

Kuniyasu (1999): Kurio.

Thalassoma trilobatum (Lacepède, 1801)
[Jpn name: Ryugubera]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY SCARIDAE

Calotomus carolinus (Valenciennes, 1840)
[Jpn name: Taiwambudai]

Arai and Ida (1975, as *Cryptotomus spiniidens*): Kusugawa [one specimen (118 mm TL) was reported, but not found at NSMT]. Kuniyasu (1999): Kurio.

Calotomus japonicus (Valenciennes, 1840)
[Jpn name: Budai] (Fig. 395)

NSMT–P 77657, 250.0 mm SL, Miyanoura.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Cetoscarus bicolor (Rüppell, 1829)
[Jpn name: Irobudai]

Ichikawa et al. (1992, as *Bolbometopon bicolor*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 395. *Calotomus japonicus* (NSMT–P 77657, 250.0 mm SL).

Chlorurus bowersi (Snyder, 1909)
[Jpn name: Omonhagebudai]
Kuniyasu (1999): Kurio.

Chlorurus frontalis (Valenciennes, 1840)
[Jpn name: Onihagebudai] (Fig. 396)
FRLM 34714, 339.7 mm SL, Yudomari.
Ichikawa et al. (1992, as *Scarus frontalis*): Yaku-shima Island.

Fig. 396. *Chlorurus frontalis* (FRLM 34714, 339.7 mm SL).

Chlorurus japanensis (Bloch, 1789)
[Jpn name: Shijukara] (Fig. 397)
FRLM 34718, 267.1 mm SL, Yudomari.
Ichikawa et al. (1992, as *Scarus pyrrhurus*): Yaku-shima Island.

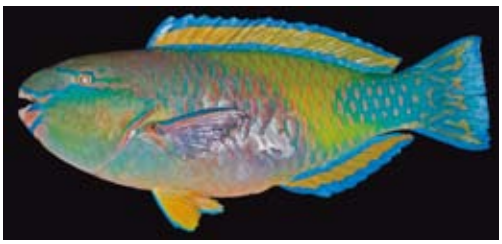

Fig. 397. *Chlorurus japanensis* (FRLM 34718, 267.1 mm SL).

Chlorurus microrhinos (Bleeker, 1854)
[Jpn name: Nan-yobudai]
Ichikawa et al. (1992, as *Scarus gibbus*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Chlorurus sordidus (Forsskål, 1775)
[Jpn name: Hagebudai]
Ichikawa et al. (1992, as *Scarus sordidus*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Scarus chameleon Choat and Randall, 1986
[Jpn name: Kamereombudai] (Fig. 398)

Fig. 398. *Scarus chameleon* (off Isso, 6 m, 14 Feb. 2010, S. Harazaki).

Scarus dimidiatus Bleeker, 1859
[Jpn name: Kawaribudai] (Fig. 399)

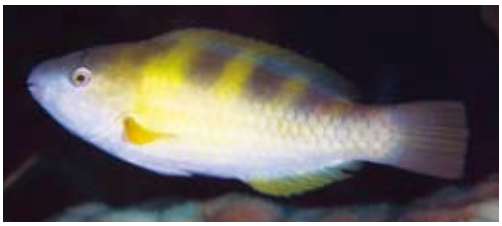

Fig. 399. *Scarus dimidiatus* (off Isso, 8 m, 6 Nov. 2007, S. Harazaki).

Scarus festivus Valenciennes, 1840
[Jpn name: Tsukinowabudai]
Ichikawa et al. (1992): Yaku-shima Island.

Scarus forsteni (Bleeker, 1861)
[Jpn name: Ichimonjibudai] (Fig. 400)
FRLM 34715, 328.2 mm SL, Yudomari; FRLM 34716, 331.5 mm SL, Yudomari; NSMT–P 77655, 247 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

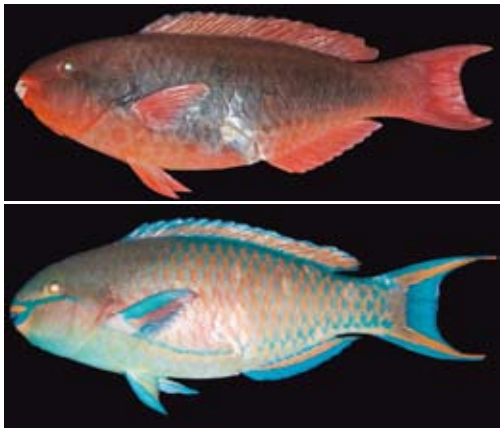

Fig. 400. *Scarus forsteni* (upper: FRLM 34715, 328.2 mm SL; lower: FRLM 34716, 331.5 mm SL).

Scarus frenatus Lacepède, 1802
[Jpn name: Amimebudai] (Fig. 401)
Ichikawa et al. (1992): Yaku-shima Island.

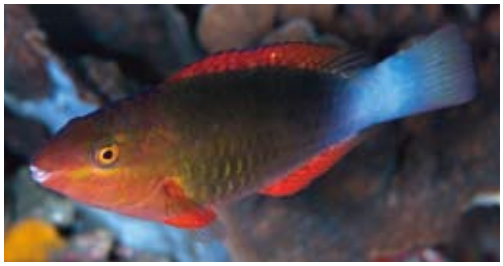

Fig. 401. *Scarus frenatus* (off Isso, 10 m, 18 Jan. 2010, S. Harazaki).

Scarus fuscocaudalis Randall and Myers, 2000
[Jpn name: Ogurobudai] (Fig. 402)

Fig. 402. *Scarus fuscocaudalis* (off Isso, 15 m, 15 Mar. 2006, S. Harazaki).

Scarus ghobban Forsskål, 1775
[Jpn name: Hibudai] (Fig. 403)
KAUM–I. 20056, 100.0 mm SL, Yudomari; KAUM–I. 20065, 122.9 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 403. *Scarus ghobban* (KAUM–I. 20056, 100.0 mm SL).

Scarus hypselopterus Bleeker, 1853
[Jpn name: Kibirebudai]
Kuniyasu (1999): Kurio.

Scarus niger Forsskål, 1775
[Jpn name: Buchibudai] (Fig. 404)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 404. *Scarus niger* (off Isso, 6 m, 22 Jan. 2010, S. Harazaki).

Scarus ovifrons Temminck and Schlegel, 1846
[Jpn name: Aobudai] (Fig. 405)
KAUM–I. 11137, 134.7 mm SL, Kurio; KAUM–I. 11149, 31.6 mm SL, Kurio; KAUM–I. 11153, 16.4 mm SL, Kurio; KAUM–I. 11264, 23.9 mm SL, Yudomari; KAUM–I. 11265, 43.1 mm SL, Yudomari; KAUM–I. 11297, 40.9 mm SL, Yudomari; KAUM–I. 11310, 28.4 mm SL, Yudomari; NSMT–P 91365, 33.0 mm SL, Yudo-

mari; NSMT–P 95430, 89.9 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 405. *Scarus ovifrons* (upper: KAUM–I. 11265, 43.1 mm SL; lower: KAUM–I. 11137, 134.7 mm SL).

Scarus prasiognathos Valenciennes, 1840
[Jpn name: Nishikibudai] (Fig. 406)

KAUM–I. 11327, 26.7 mm SL, Nagakubo; NSMT–P 91510, 25 mm SL, Kurio; NSMT–P 95429, 89.7 mm SL, Haruo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

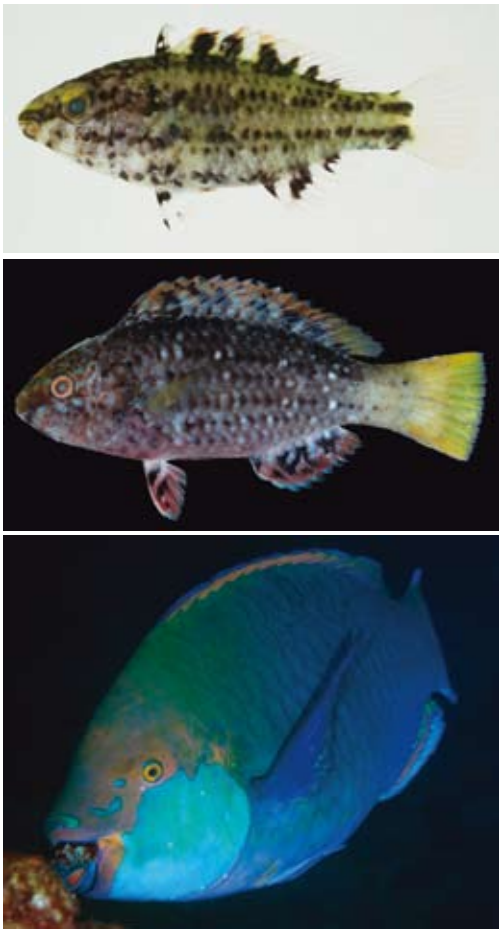

Fig. 406. *Scarus prasiognathos* (upper: KAUM–I. 11327, 26.7 mm SL; middle: NSMT–P 95429, 89.7 mm SL; lower: off Isso, 6 m, 15 Feb. 2010, S. Harazaki).

Scarus psittacus Forsskål, 1775
[Jpn name: Oumubudai] (Fig. 407)

KAUM–I. 11464, 126.4 mm SL, Isso.

Scarus quoyi Valenciennes, 1840
[Jpn name: Remombudai]

Kuniyasu (1999): Kurio.

Scarus rivulatus Valenciennes, 1840
[Jpn name: Sujibudai] (Fig. 408)

NSMT–P 77656, 340.0 mm SL, Miyanoura.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Scarus rubroviolaceus Bleeker, 1847
[Jpn name: Nagabudai]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

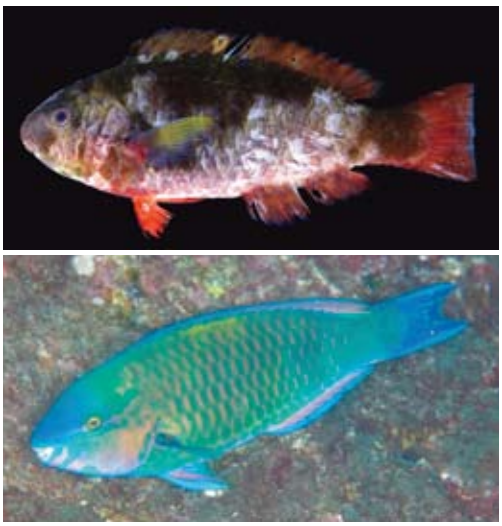

Fig. 407. *Scarus psittacus* (upper: KAUM–I. 11464, 126.4 mm SL; lower: off Isso, 8 m, 14 Feb. 2010, S. Harazaki).

Fig. 408. *Scarus rivulatus* (NSMT–P 77656, 340.0 mm SL).

Scarus schlegeli (Bleeker, 1861)
[Jpn name: Obibudai] (Fig. 409)

FRLM 34717, 256.3 mm SL, Yudomari; KAUM–I. 20092, 40.3 mm SL, Yudomari; NSMT–P 77641, 263 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 409. *Scarus schlegeli* (upper: KAUM–I. 20092, 40.3 mm SL; middle: FRLM 34717, 256.3 mm SL; lower: NSMT–P 77641, 263 mm SL).

FAMILY CHAMPSODONTIDAE

***Champsodon* sp.**
[Jpn name: Wanigisu-zoku]

Jordan and Starks (1906, as *Champsodon vorax*): A single specimen, its whereabouts unknown, Miyanoura.

Remarks: Jordan and Starks (1906) reported *Champsodon vorax* Günther, 1867 on the basis of a single specimen, but *C. vorax* has never been recorded from Japanese waters and the specimen's whereabouts is unknown. Thus we treat it as *Champsodon* sp.

FAMILY PINGUIPEDIDAE

Parapercis clathrata Ogilby, 1910
[Jpn name: Yotsumetoragisu] (Fig. 410)

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 410. *Parapercis clathrata* (off Isso, 10 m, 13 Feb. 2010, S. Harazaki).

Parapercis cylindrica (Bloch, 1792)
[Jpn name: Dandaratoragisu] (Fig. 411)

BSKU 96550, 62.7 mm SL, Yudomari; BSKU 96567, 99.7 mm SL, Yudomari; KAUM–I. 20052, 114.4 mm SL, Yudomari; KAUM–I. 20088, 97.2 mm SL, Yudomari; KAUM–I. 21695, 46.5 mm SL, Kurio; KPM–NI 22541, 72.4 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 411. *Parapercis cylindrica* (BSKU 96550, 62.7 mm SL).

Parapercis kamoharai Schultz, 1966
[Jpn name: Kamoharatoragisu]
Kuniyasu (1999): Kurio.

Parapercis millepunctata (Günther, 1860)
[Jpn name: Wanuketoragisu] (Fig. 412)
KAUM–I. 11468, 145.1 mm SL, Isso.
Ichikawa et al. (1992, as *Parapercis cephalopunctata*): Yaku-shima Island.
Remarks: *Parapercis cephalopunctata* (Seale, 1901) is a junior synonym of *Parapercis millepunctata* (see Randall, 2005).

Fig. 412. *Parapercis millepunctata* (KAUM–I. 11468, 145.1 mm SL).

Parapercis multiplicata Randall, 1984
[Jpn name: Sangotoragisu] (Fig. 413)

Fig. 413. *Parapercis multiplicata* (off Isso, 15 m, 1 Oct. 2004, S. Harazaki).

Parapercis natator Randall, Senou and Yoshino, 2008
[Jpn name: Oyogitoragisu] (Fig. 414)
Randall et al. (2008): KPM–NR 88527, Yaku-shima Island; KPM–NR 88528, Yaku-shima Island.

Fig. 414. *Parapercis natator* (off Isso, 35 m, 23 Aug. 2004, S. Harazaki; upper and lower, male and female respectively).

Parapercis pacifica Imamura and Yoshino, 2007
[Jpn name: Ogurotoragisu] (Fig. 415)
Ichikawa et al. (1992, as *Parapercis polyophthalma*): Yaku-shima Island. Kuniyasu (1999): Kurio. Motomura and Sakurai (2008): Isso.
Remarks: Imamura and Yoshino (2007) regarded that *Parapercis polyophthalma* (Cuvier, 1829) is a junior synonym of an Indian Ocean species, *Parapercis hexophtalma* (Cuvier, 1829).

Fig. 415. *Parapercis pacifica* (off Isso; from Motomura and Sakurai, 2008).

Parapercis schauinslandii (Steindachner, 1900)
[Jpn name: Hawaitoragisu] (Fig. 416)

Fig. 416. *Parapercis schauinslandii* (off Isso, 30 m, 13 Apr. 2005, S. Harazaki).

Parapercis snyderi Jordan and Starks, 1905
[Jpn name: Koraitoragisu] (Fig. 417)

Fig. 417. *Parapercis snyderi* (off Isso, 30 m, 18 Oct. 2005, S. Harazaki).

Parapercis tetracantha (Lacepède, 1801)
[Jpn name: Madaratoragisu] (Fig. 418)

KAUM–I. 20286, 71.0 mm SL, Kurio; KAUM–I. 25202, 136.2 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

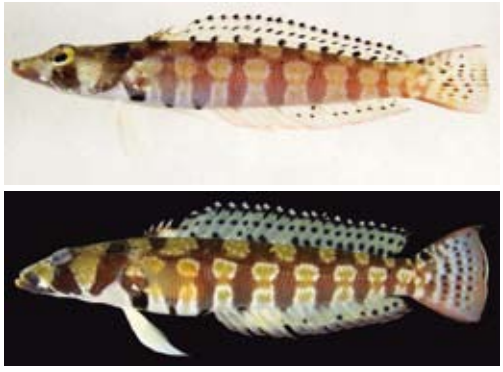

Fig. 418. *Parapercis tetracantha* (upper: KAUM–I. 20286, 71.0 mm SL; lower: KAUM–I. 25202, 136.2 mm SL).

FAMILY TRICHONOTIDAE

***Trichonotus* sp.**
[Jpn name: Beragimpo] (Fig. 419)

BSKU 96645, 44.9 mm SL, Isso; BSKU 96646, 108.4 mm SL, Isso; BSKU 96647, 43.8 mm SL, Isso; BSKU 96648, 30.0 mm SL, Isso; KAUM–I. 20380, 86.5 mm SL, Isso; KAUM–I. 20381, 95.5 mm SL, Isso; KAUM–I. 20382, 127.6 mm SL, Isso; KPM–NI 22584, 87.9 mm SL, Isso.

Ichikawa et al. (1992, as *Trichonotus setigerus*): Yaku-shima Island. Kuniyasu (1999, as *Trichonotus setiger*): Kurio.

Remarks: This species currently identified as *Trichonotus setiger* by many authors has been studied by E. Katayama of Kochi University, Japan.

Fig. 419. *Trichonotus* sp. (upper: KAUM–I. 20382, male, 127.6 mm SL; lower: KAUM–I. 20381, female, 95.5 mm SL).

FAMILY CREEDIIDAE

Limnichthys fasciatus Waite, 1904
[Jpn name: Tobigimpo] (Fig. 420)

KPM–NI 22548, 40.7 mm SL, Kurio.

Kuniyasu (1999): Kurio.

Fig. 420. *Limnichthys fasciatus* (KPM–NI 22548, 40.7 mm SL).

Limnichthys orientalis Yoshino, Kon and Okabe, 1999 [Jpn name: Sangotobigimpo] (Fig. 421)

BSKU 96616, 22.3 mm SL, Kurio; KAUM–I. 20312, 14.4 mm SL, Kurio.

Remarks: This species was originally described from the Yaeyama Islands and Kuchierabu Island. No specimens have been recorded from Japanese waters since the original description.

Fig. 421. *Limnichthys orientalis* (BSKU 96616, 22.3 mm SL).

FAMILY URANOSCOPIDAE

Uranoscopus bicinctus Temminck and Schlegel, 1843 [Jpn name: Meganeuo] (Fig. 422)

Fig. 422. *Uranoscopus bicinctus* (off Isso, 25 m, 3 June 2006, S. Harazaki).

FAMILY TRIPTERYGIIDAE

Enneapterygius bahasa Fricke, 1997 [Jpn name: Gomafuhebigimpo] (Fig. 423)

NSMT–P 95450, 30.9 mm SL, Haruo.

Kuniyasu (1999, as *Enneapterygius hemimelas*): Kurio.

Remarks: "Gomafuhebigimpo" has long been treated as *E. hemimelas* by Japanese authors (e.g., Hayashi, 2002). Shimojyo and Hayashi (2000) and Motomura et al. (2005) reidentified the Japanese *E. hemimelas* as *E. bahasa*.

Fig. 423. *Enneapterygius bahasa* (NSMT–P 95450, 30.9 mm SL, preserved specimen).

Enneapterygius etheostoma (Jordan and Snyder, 1902) [Jpn name: Hebigimpo] (Fig. 424)

BSKU 96582, 25.1 mm SL, Yudomari; BSKU 96688, 31.2 mm SL, Kurio; BSKU 96689, 31.6 mm SL, Kurio; BSKU 96883, 23.4 mm SL, Kurio; BSKU 96884, 24.0 mm SL, Kurio; BSKU 96885, 24.9 mm SL, Kurio; BSKU 96886, 21.7 mm SL, Kurio; KAUM–I. 3071, 27.3 mm SL, Isso; KAUM–I. 3074, 41.5 mm SL, Hirauchi; KAUM–I. 3075, 39.7 mm SL, Hirauchi; KAUM–I. 3076, 42.8 mm SL, Hirauchi; KAUM–I. 3077, 40.1 mm SL, Hirauchi; KAUM–I. 11115, 29.6 mm SL, Matsumine; KAUM–I. 11230, 40.4 mm SL, Kurio; KAUM–I. 11231, 44.3 mm SL, Kurio; KAUM–I. 11232, 29.4 mm SL, Kurio; KAUM–I. 11233, 27.9 mm SL, Kurio; KAUM–I. 11234, 29.1 mm SL, Kurio; KAUM–I. 11235, 25.4 mm SL, Kurio; KAUM–I. 11236, 32.4 mm SL, Kurio; KAUM–I. 11237, 26.4 mm SL, Kurio; KAUM–I. 11238, 28.7 mm SL, Kurio; KAUM–I. 11239, 26.6 mm SL, Kurio; KAUM–I. 11315, 25.8 mm SL, Yudomari; KAUM–I. 11316, 17.4 mm SL, Yudomari; KAUM–I. 11317, 24.5 mm SL, Yudomari; KAUM–I. 11526, 23.2 mm SL, Ambo; KAUM–I. 11527, 24.9 mm SL, Ambo; KAUM–I. 11528, 16.8 mm SL, Ambo; KAUM–I. 11538, 21.0 mm SL, Ambo; KAUM–I. 11572, 21.4 mm SL, Ambo; KAUM–I. 11573, 22.6 mm SL, Ambo; KAUM–I. 11574, 21.6 mm SL, Ambo; KAUM–I. 11575, 22.1 mm SL, Ambo; KAUM–I. 11576, 24.2 mm SL, Ambo; KAUM–I. 11728, 42.7 mm SL, Kurio; KAUM–I. 11729, 42.6 mm SL, Kurio; KAUM–I. 11730, 43.2 mm SL, Kurio; KAUM–I. 11747, 42.8 mm SL, Kurio; KAUM–I. 11748, 28.9 mm SL, Kurio; KAUM–I. 11749, 28.3 mm SL, Kurio; KAUM–I. 11750, 26.8 mm SL, Kurio; KAUM–I. 11751, 27.4 mm SL, Kurio; KAUM–I. 11752, 26.3 mm SL, Kurio; KAUM–I. 11753, 25.9 mm SL, Kurio; KAUM–I. 11754, 27.3 mm SL, Kurio; KAUM–I. 11755, 25.5 mm SL, Kurio; KAUM–I. 11756, 24.7 mm SL, Kurio; KAUM–I. 11757, 24.3 mm SL, Kurio; KAUM–I. 11758, 26.3 mm SL, Kurio; KAUM–I. 11759, 24.3 mm SL, Kurio; KAUM–I. 11760, 25.2 mm SL, Kurio; KAUM–I. 11761, 20.6 mm SL, Kurio; KAUM–I. 11762, 17.3 mm SL, Kurio; KAUM–I. 21616, 22.7 mm SL, Kurio; KAUM–I. 21617, 41.0 mm SL, Kurio; KAUM–I. 21618, 43.4 mm SL, Kurio;

KAUM–I. 21619, 29.3 mm SL, Kurio; KAUM–I. 21620, 21.3 mm SL, Kurio; KAUM–I. 21621, 26.8 mm SL, Kurio; KAUM–I. 21622, 27.2 mm SL, Kurio; KAUM–I. 21623, 26.9 mm SL, Kurio; KAUM–I. 21624, 27.0 mm SL, Kurio; KAUM–I. 21625, 24.4 mm SL, Kurio; KAUM–I. 21626, 19.3 mm SL, Kurio; KAUM–I. 21629, 26.6 mm SL, Kurio; KAUM–I. 21630, 25.7 mm SL, Kurio; KAUM–I. 21631, 25.6 mm SL, Kurio; KAUM–I. 21632, 28.1 mm SL, Kurio; KAUM–I. 21633, 25.0 mm SL, Kurio; KAUM–I. 21634, 24.3 mm SL, Kurio; KAUM–I. 21635, 21.2 mm SL, Kurio; KAUM–I. 21636, 26.7 mm SL, Kurio; KAUM–I. 21637, 24.4 mm SL, Kurio; KAUM–I. 21638, 22.2 mm SL, Kurio; KAUM–I. 21639, 38.9 mm SL, Kurio; KAUM–I. 21640, 27.9 mm SL, Kurio; KAUM–I. 21641, 27.8 mm SL, Kurio; KAUM–I. 21642, 26.4 mm SL, Kurio; KAUM–I. 21643, 41.4 mm SL, Kurio; KAUM–I. 21644, 23.5 mm SL, Kurio; KAUM–I. 21645, 20.9 mm SL, Kurio; KAUM–I. 21646, 20.6 mm SL, Kurio; KAUM–I. 21647, 25.0 mm SL, Kurio; KAUM–I. 21648, 24.4 mm SL, Kurio; KAUM–I. 21649, 22.0 mm SL, Kurio; KAUM–I. 21650, 24.2 mm SL, Kurio; KAUM–I. 21651, 22.9 mm SL, Kurio; KAUM–I. 21652, 23.6 mm SL, Kurio; KAUM–I. 21653, 26.3 mm SL, Kurio; KAUM–I. 21654, 24.5 mm SL, Kurio; KAUM–I. 21655, 20.0 mm SL, Kurio; KAUM–I. 21656, 21.5 mm SL, Kurio; KAUM–I. 21657, 22.2 mm SL, Kurio; KAUM–I. 21660, 22.0 mm SL, Kurio; KAUM–I. 21794, 25.3 mm SL, Kurio; KAUM–I. 21822, 22.2 mm SL, Kurio; KAUM–I. 21825, 28.0 mm SL, Kurio; KAUM–I. 21826, 24.0 mm SL, Kurio; KAUM–I. 21859, 26.6 mm SL, Kurio; KAUM–I. 21860, 22.8 mm SL, Kurio; KAUM–I. 21861, 21.7 mm SL, Kurio; KAUM–I. 21862, 26.3 mm SL, Kurio; KAUM–I. 21863, 23.8 mm SL, Kurio; KAUM–I. 23541, 23.3 mm SL, Kurio; KAUM–I. 23542, 20.9 mm SL, Kurio; NSMT–P 77911, 29.2 mm SL, Kurio; NSMT–P 77912, 26.7 mm SL, Kurio; NSMT–P 77913, 24.0 mm SL, Kurio; NSMT–P 77914, 24.5 mm SL, Kurio; NSMT–P 77915, 23.0 mm SL, Kurio; NSMT–P 77916, 21.4 mm SL, Kurio; NSMT–P 77917, 6 specimens, 9.8–15.7 mm SL, Kurio; NSMT–P 91364, 23.8 mm SL, Yudomari; NSMT–P 91382, 4 specimens, 18.5–24.7 mm SL, Kurio; NSMT–P 91579, 45 specimens, 22.0–31.1 mm SL, Kurio.

Arai and Ida (1975, as *Tripterygion etheostoma*): NSMT–P 17834, 16 specimens, 17.4–36.1 mm SL, Kusugawa. Ichikawa et al. (1992, as *Enneapterygius etheostomus*): Yaku-shima Island.

Remarks: The specific name *etheostomus* is in error because the original description used the name, *etheostoma*, as a noun in apposition (Motomura et al., 2005), although many authors have used the former for the species.

Fig. 424. *Enneapterygius etheostoma* (upper: KAUM–I. 21643, 41.4 mm SL; lower: off Isso, 6 m, 29 Jan. 2007, S. Harazaki).

Enneapterygius hemimelas (Kner and Steindachner, 1867) [Jpn name: Akegoromohebigimpo] (Fig. 425)

Meguro and Motomura (2010): KAUM–I. 11353, 19.3 mm SL, Kurio; KAUM–I. 11354, 18.7 mm SL, Kurio; KAUM–I. 11355, 21.0 mm SL, Kurio; KAUM–I. 21659, 22.8 mm SL, Kurio.

Remarks: Previous Japanese records of *E. hemimelas* were based on mis-identifications of *E. bahasa* or *E. flavoccipitis* Shen, 1994 and true *E. hemimelas* was reported from Yaku-shima Island by Meguro and Motomura (2010) as the first Japanese records of the species.

Enneapterygius leucopunctatus Shen, 1994 [Jpn name: Hakutenhebigimpo] (Fig. 426)

Endo et al. (2010): KAUM–I. 21837, 26.4 mm SL, Kurio; KAUM–I. 21838, 25.2 mm SL, Kurio.

Fig. 425. *Enneapterygius hemimelas* (KAUM–I. 11353, 19.3 mm SL).

Remarks: Fricke (1997) synonymized *E. leucopunctatus* with *E. vexillarius* Fowler, 1946, but Chiang and Chen (2008) regarded the former as a valid species. Endo et al. (2010) reported *E. leucopunctatus* as the first records from Japan on the basis of 17 specimens, including two specimens from Yaku-shima Island.

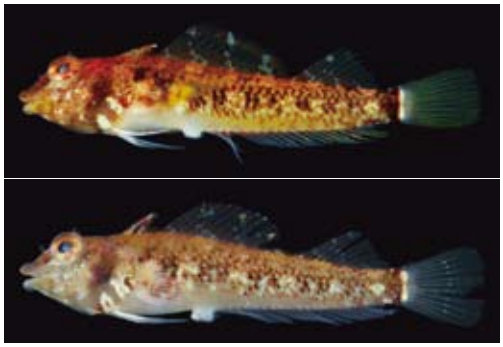

Fig. 426. *Enneapterygius leucopunctatus* (upper: KAUM–I. 21838, male, 25.2 mm SL; lower: KAUM–I. 21837, female, 26.4 mm SL).

Enneapterygius philippinus (Peters, 1868)
[Jpn name: Kusagimpo] (Fig. 427)

BSKU 96620, 23.0 mm SL, Kurio; KAUM–I. 11244, 20.9 mm SL, Kurio; KAUM–I. 11245, 19.8 mm SL, Kurio; KAUM–I. 11246, 24.2 mm SL, Kurio; KAUM–I. 11247, 23.8 mm SL, Kurio; KAUM–I. 11248, 19.7 mm SL, Kurio; KAUM–I. 11421, 20.7 mm SL, Kurio; KAUM–I. 11422, 21.9 mm SL, Kurio; KAUM–I. 11423, 20.7 mm SL, Kurio; KAUM–I. 11529, 22.6 mm SL, Ambo; KAUM–I. 11577, 19.9 mm SL, Ambo; KAUM–I. 11578, 16.8 mm SL, Ambo; KAUM–I. 21627, 20.7 mm SL, Kurio; KAUM–I. 21628, 22.5 mm SL, Kurio; KAUM–I. 21658, 23.0 mm SL, Kurio; KAUM–I. 21820, 22.5 mm SL, Kurio; KAUM–I. 21821, 22.1 mm SL, Kurio; KAUM–I. 21823, 27.5 mm SL, Kurio; KAUM–I. 21824, 26.1 mm SL, Kurio; KAUM–I. 21827, 21.6 mm SL, Kurio; KAUM–I. 21828, 21.8 mm SL, Kurio; KAUM–I. 21836, 28.3 mm SL, Kurio; KAUM–I. 21839, 21.9 mm SL, Kurio; KAUM–I. 21856, 23.0 mm SL, Kurio; KAUM–I. 25055, 23.4 mm SL, Kurio; NSMT–P 63688, 20.9 mm SL, Kusugawa.

Remarks: Although this species has long been treated as *E. minutus* (Günther, 1877) (e.g., Yoshino, 1984; Fricke, 1994a, b; Hayashi, 2002), Fricke (1997) regarded it as a junior synonym of *E. philippinus*.

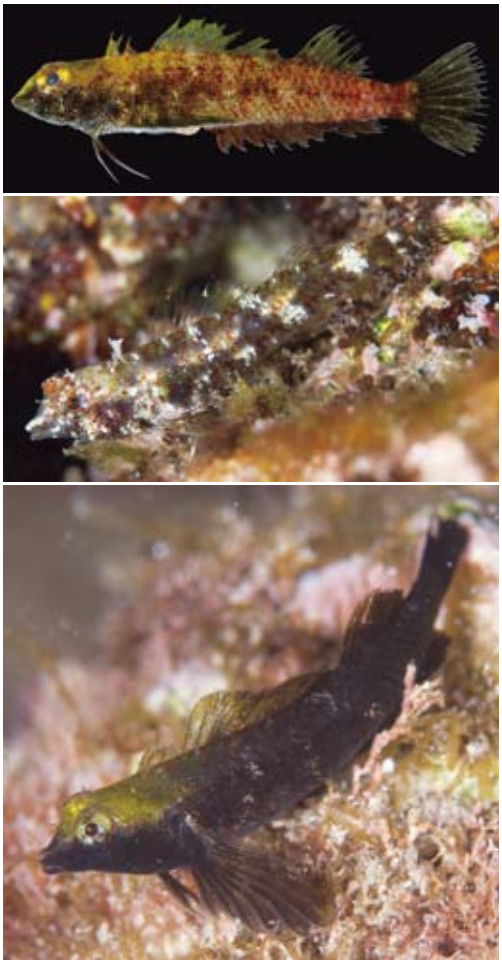

Fig. 427. *Enneapterygius philippinus* (upper: KAUM–I. 11244, 20.9 mm SL; middle: off Shitoko, 1 m, 13 Dec. 2009, S. Harazaki; lower: off Haruta, 1 m, 30 May, 2008, S. Harazaki).

Enneapterygius tutuilae Jordan and Seale, 1906
[Jpn name: Segurohebigimpo] (Fig. 428)

KAUM–I. 4041, 17.5 mm SL, Isso; KAUM–I. 4043, 13.6 mm SL, Isso; KAUM–I. 4044, 15.0 mm SL, Isso; KAUM–I. 4045, 11.0 mm SL, Isso; KAUM–I. 4046, 16.9 mm SL, Isso; KAUM–I. 4047, 19.1 mm SL, Isso; KAUM–I. 4048, 15.3 mm SL, Isso; KAUM–I. 4049, 11.7 mm SL, Isso; KAUM–I. 4050, 18.3 mm SL, Isso; KAUM–I. 4051, 12.0 mm SL, Isso; KAUM–I. 4052, 16.3 mm SL, Isso; KAUM–I. 4053, 17.3 mm SL, Isso; KAUM–I. 4054, 19.3 mm SL, Isso; KAUM–I. 4055, 18.5 mm SL, Isso; KAUM–I. 4057, 18.0 mm SL, Isso; KAUM–I. 4058, 20.6 mm SL, Isso; KAUM–I. 4059, 19.4 mm SL, Isso; KAUM–I. 4060, 12.5 mm SL, Isso; KAUM–I. 4062, 19.3 mm SL, Isso; KAUM–I. 4063, 15.1 mm SL, Isso; KAUM–I. 4069, 14.2 mm SL, Isso; KAUM–I. 4070, 18.0 mm SL, Isso; KAUM–I. 4071, 16.9 mm SL, Isso; KAUM–I. 4074, 17.4 mm SL, Isso; KAUM–I. 4075, 18.0 mm SL, Isso; KAUM–I. 4076, 18.4 mm SL, Isso; KAUM–I. 4080, 13.9 mm SL, Isso; KAUM–I. 4081, 20.1 mm SL, Isso; KAUM–I. 4083, 12.0 mm SL, Isso; KAUM–I. 4167, 17.7 mm SL, Isso; KAUM–I. 4169, 17.3 mm SL, Isso; KAUM–I. 4170, 14.7 mm SL, Isso; KAUM–I. 4171, 18.6 mm SL, Isso; KAUM–I. 4172, 13.5 mm SL, Isso; KAUM–I. 4174, 8.7 mm SL, Isso; KAUM–I. 4177, 11.6 mm SL, Isso; KAUM–I. 4179, 19.8 mm SL, Isso; KAUM–I. 21807, 14.3 mm SL, Isso; KAUM–I. 21808, 16.5 mm SL, Isso; KAUM–I. 21809, 17.2 mm SL, Isso; KAUM–I. 21810, 16.4 mm SL, Isso; KAUM–I. 21811, 16.9 mm SL, Isso.

Remarks: "Shimahirehebigimpo" (*E. mirabilis* Fricke, 1994) was first recorded from Japan by Shimojyo and Hayashi (2000). However, characters of Shimojyo and Hayashi's (2000) *E. mirabilis* are within the variation of characters for *E. tutuilae*; thus, their *E. mirabilis* is most likely to be identified as *E. tutuilae* (M. Meguro, unpub. data).

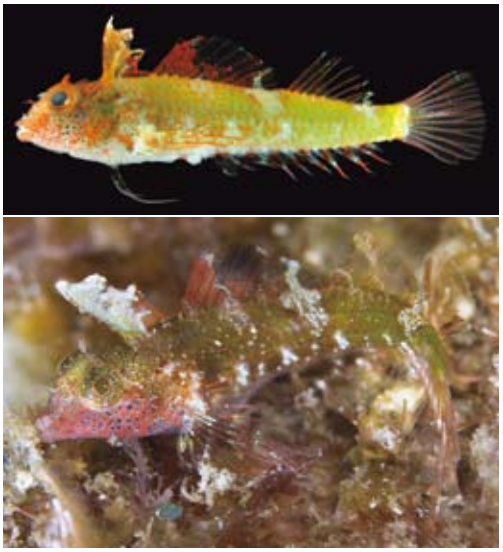

Fig. 428. *Enneapterygius tutuilae* (upper: KAUM–I. 4071, 16.9 mm SL; lower: same individual with the above, KAUM–I. 4071, off Isso, 7 m, 26 Apr. 2007, S. Harazaki).

***Enneapterygius* sp. 1**
[Jpn name: None] (Fig. 429)

BSKU 96623, 22.9 mm SL, Kurio; BSKU 96630, 21.6 mm SL, Kurio; BSKU 96887, 21.9 mm SL, Kurio; BSKU 96888, 19.3 mm SL, Kurio; BSKU 96889, 20.8 mm SL, Kurio; KAUM–I. 11352, 28.4 mm SL, Kurio; KAUM–I. 11429, 25.5 mm SL, Kurio; KAUM–I. 11430, 27.4 mm SL, Kurio; KAUM–I. 11431, 21.4 mm SL, Kurio; KAUM–I. 11470, 21.4 mm SL, Isso; KAUM–I. 11471, 20.1 mm SL, Isso; KAUM–I. 11477, 21.0 mm SL, Isso; KAUM–I. 11479, 20.3 mm SL, Isso; KAUM–I. 11743, 27.5 mm SL, Kurio; KAUM–I. 11744, 22.2 mm SL, Kurio; KAUM–I. 11745, 19.2 mm SL, Kurio; KAUM–I. 21662, 21.4 mm SL, Kurio; KAUM–I. 23544, 19.3 mm SL, Kurio; KPM–NI 22581, 21.4 mm SL, Isso.

Remarks: This species is similar to *E. bahasa* and *E. erythrosomus* Shen, 1994 in overall body appearance and general coloration, with distinct black blotches on the pectoral-fin base. However, *Enneapterygius* sp. 1 has a single symphyseal mandibular pore, whereas *E. bahasa* has 2–8 pores. The body, including head and fins, of mature males of *Enneapterygius* sp. 1 is uniformly black, but the trunk of mature male *E. bahasa* is never black. *Enneapterygius* sp. 1 is most likely to be *E. erythrosomus* (currently known only from Taiwan; Chiang and Chen, 2008), but comparison of mature male coloration of the two is required.

Fig. 429. *Enneapterygius* sp. 1 (upper: KAUM–I. 11352, 28.4 mm SL; middle: off Isso, 6 m, 16 Mar. 2009, S. Harazaki; lower: off Yoshida, 4 m, 1 Apr. 2005, S. Harazaki).

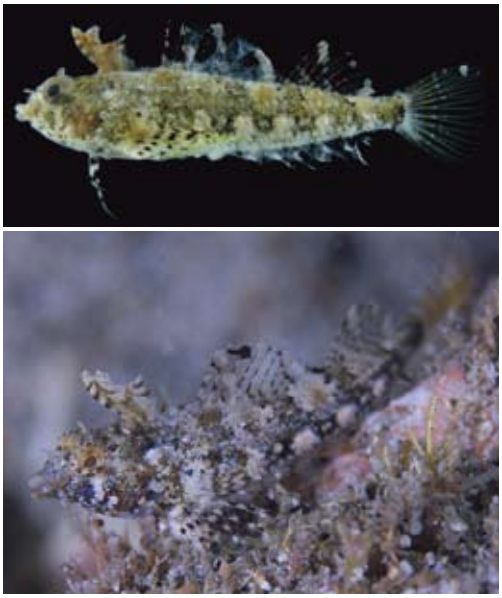

Fig. 430. *Enneapterygius* sp. 2 (upper: KAUM–I. 4168, 20.1 mm SL; lower: same individual with the above, KAUM–I. 4168, off Isso, 1.5 m, 27 Apr. 2007, S. Harazaki).

***Enneapterygius* sp. 2**

[Jpn name: None] (Fig. 430)

KAUM–I. 3069, 24.8 mm SL, Isso; KAUM–I. 3070, 15.6 mm SL, Isso; KAUM–I. 4056, 16.2 mm SL, Isso; KAUM–I. 4061, 19.9 mm SL, Isso; KAUM–I. 4064, 11.0 mm SL, Isso; KAUM–I. 4082, 11.9 mm SL, Isso; KAUM–I. 4168, 20.1 mm SL, Isso.

Remarks: This species is probably undescribed.

***Enneapterygius* sp. 3**

[Jpn name: None] (Fig. 431)

KAUM–I. 21815, 16.2 mm SL, Isso; KAUM–I. 21819, 19.3 mm SL, Isso.

Remarks: This species is probably an undescribed species.

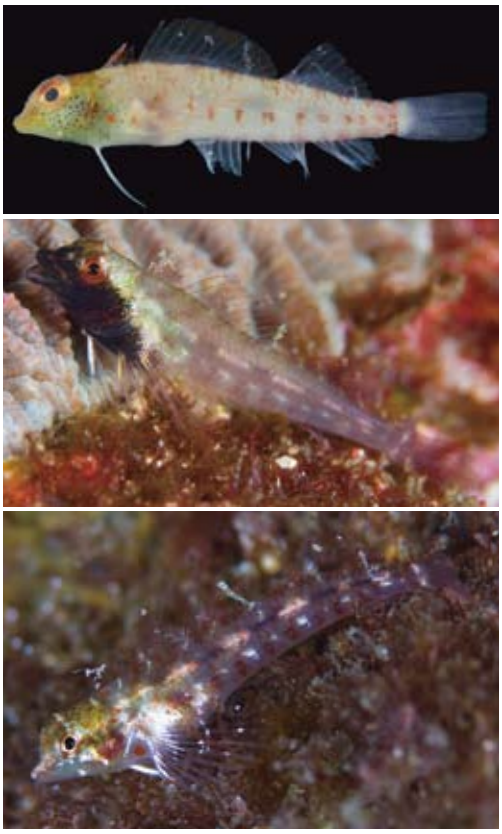

Fig. 431. *Enneapterygius* sp. 3 (upper: KAUM–I. 21815, 16.2 mm SL; middle: off Isso, 6 m, 19 Feb. 2006, S. Harazaki; lower: off Isso, 5 m, 18 Oct. 2009, S. Harazaki).

***Enneapterygius* sp. 4**

[Jpn name: None] (Fig. 432)

KAUM–I. 4040, 16.7 mm SL, Isso; KAUM–I. 4042, 19.2 mm SL, Isso; KAUM–I. 4065, 15.6 mm SL, Isso; KAUM–I. 4068, 22.7 mm SL, Isso; KAUM–I. 4072, 12.8 mm SL, Isso; KAUM–I. 4073, 16.8 mm SL, Isso; KAUM–I. 4077, 13.2 mm SL, Isso; KAUM–I. 4078, 9.0 mm SL, Isso; KAUM–I. 4079, 13.6 mm SL, Isso; KAUM–I. 4173, 12.5 mm SL, Isso; KAUM–I. 4175, 15.8 mm SL, Isso; KAUM–I. 4176, 21.1 mm SL, Isso; KAUM–I. 4178, 16.5 mm SL, Isso; KAUM–I. 21812, 16.9 mm SL, Isso; KAUM–I. 21813, 15.7 mm SL, Isso; KAUM–I. 21814, 16.2 mm SL, Isso; KAUM–I. 21816, 16.5 mm SL, Isso; KAUM–I. 21817, 15.1 mm SL, Isso; KAUM–I. 21818, 14.2 mm SL, Isso.

Remarks: This species is an undescribed species closely related to *E. tutuilae*, and is to be described by Meguro et al. (in prep.).

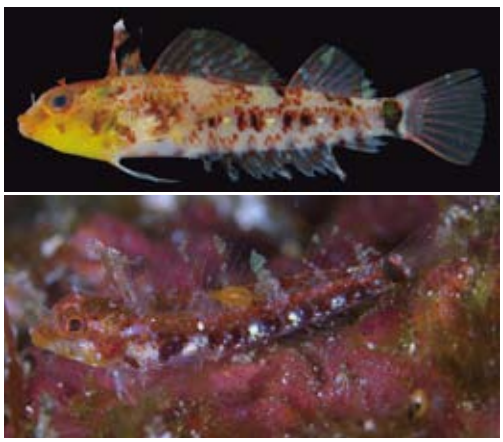

Fig. 432. *Enneapterygius* sp. 4 (upper: KAUM–I. 21814, 16.2 mm SL; lower: KAUM–I. 4042, off Isso, 30 m, 22 Apr. 2007, S. Harazaki).

***Enneapterygius* sp. 5**

[Jpn name: None] (Fig. 433)

BSKU 96619, 26.5 mm SL, Kurio; BSKU 96622, 23.2 mm SL, Kurio; KAUM–I. 3069, 25.3 mm SL, Isso; KAUM–I. 3072, 29.5 mm SL, Isso; KAUM–I. 21661, 23.7 mm SL, Kurio.

Remarks: This species is similar to *E. leucopunctatus* in overall body appearance and meristic ranges of the two completely overlap. However, the two species can be distinguished by coloration of mature males, including black and white vertical bands at the caudal-fin base (see Figs. 420, 427). *Enneapterygius* sp. 5 is most likely to be an undescribed species, and is currently studied by H. Endo (BSKU) and his colleagues.

Helcogramma inclinata (Fowler, 1946)

[Jpn name: Ayahebigimpo] (Fig. 434)

BSKU 96558, 35.4 mm SL, Yudomari; BSKU 96572, 33.1 mm SL, Yudomari; BSKU 96637, 33.7 mm SL, Isso; BSKU 96638, 34.9 mm SL, Isso; BSKU 96679, 29.4 mm SL, Kurio; BSKU 96680, 37.5 mm SL, Kurio; KAUM–I. 34, 45.0 mm SL, Isso; KAUM–I. 11189, 42.7 mm SL, Kurio; KAUM–I. 11190, 41.4 mm SL, Kurio; KAUM–I. 11242, 43.1 mm SL, Kurio; KAUM–I. 11243, 41.0 mm SL, Kurio; KAUM–I. 11424, 50.4 mm SL, Kurio; KAUM–I. 11425, 50.1 mm SL, Kurio; KAUM–I. 11426, 33.7 mm SL, Kurio; KAUM–I. 11427, 30.6 mm SL, Kurio; KAUM–I. 11428, 24.3 mm SL, Kurio; KAUM–I. 11472, 24.7 mm SL, Isso; KAUM–I. 11473, 22.4 mm SL, Isso; KAUM–I. 11474, 29.5 mm SL, Isso; KAUM–I. 11478, 22.8 mm SL, Isso; KAUM–I. 11731, 50.4 mm SL, Kurio; KAUM–I. 11732, 45.1 mm SL, Kurio; KAUM–I. 11733, 36.3 mm SL, Kurio; KAUM–I. 11734, 31.1 mm SL, Kurio; KAUM–I. 11735, 29.1 mm SL, Kurio; KAUM–I. 11736, 26.5 mm SL, Kurio; KAUM–I. 11737, 25.2 mm SL, Kurio; KAUM–I. 11738, 24.2 mm SL, Kurio; KAUM–I. 11763, 31.5 mm SL, Kurio; KAUM–I. 20192, 28.5 mm SL, Yudomari; KAUM–I. 20209, 36.2 mm SL, Yudomari; KAUM–I. 20210, 21.3 mm SL, Yudomari; KAUM–I. 20348, 28.4 mm SL, Isso; KAUM–I. 20349, 20.4 mm SL, Isso; KAUM–I. 20350, 29.9 mm SL, Isso; KAUM–I. 20351, 39.1 mm SL, Isso; KAUM–I. 21857, 24.0 mm SL, Kurio; KAUM–I. 21858, 21.7 mm SL, Kurio; NSMT–P 95423, 45.2 mm SL, Hirauchi; NSMT–P 95452, 49.3 mm SL, Haruo; NSMT–P 95447, 44.5 mm SL, Haruo.

Kuniyasu (1999, as *Helcogramma fuscopinna*): Kurio. Motomura et al. (2006): KAUM–I. 34, 45.0 mm SL, Isso. Motomura (2007): Yoshida.

Remarks: Motomura et al. (2006) assessed Japanese name for this species and described new diagnostic characters of the species.

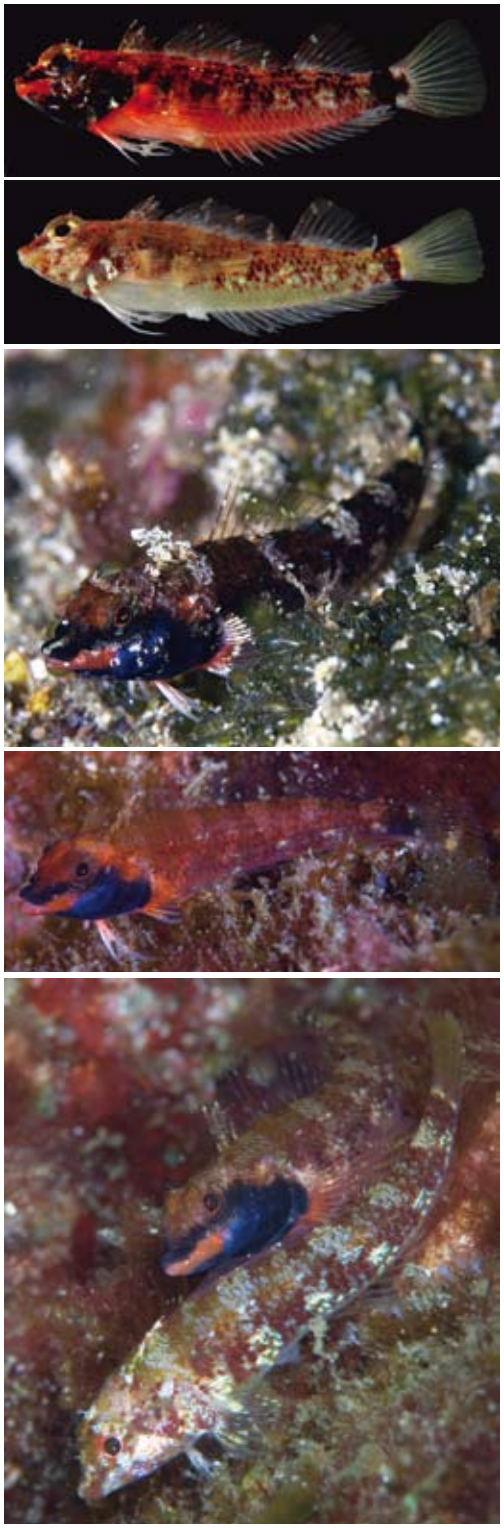

Fig. 433. *Enneapterygius* sp. 5 (upper to lower: BSKU 96622, male, 23.2 mm SL; BSKU 96619, female, 26.5 mm SL; KAUM–I. 3072, 29.5 mm SL, off Isso, 5 Feb. 2006, S. Harazaki; last two images: off Hirauchi, 2 m, 16 Feb. 2005, S. Harazaki).

Fig. 434. *Helcogramma inclinata* (upper: BSKU 96558, 35.4 mm SL; middle: off Yoshida, after Motomura et al., 2006; lower: off Yoshida, 5 m, 1 Apr. 2005, S. Harazaki).

Helcogramma obtusirostre (Klunzinger, 1871) [Jpn name: Kuromasuku] (Fig. 435)

BSKU 96621, 24.7 mm SL, Kurio; KAUM–I. 11240, 18.2 mm SL, Kurio; KAUM–I. 11241, 14.5 mm SL, Kurio; KAUM–I. 11361, 27.2 mm SL, Kurio; KAUM–I. 11432, 24.3 mm SL, Kurio; KAUM–I. 11433, 21.7 mm SL, Kurio; KAUM–I. 11739, 23.6 mm SL, Kurio; KAUM–I. 11740, 20.1 mm SL, Kurio; KAUM–I. 11741, 20.6 mm SL, Kurio; KAUM–I. 11742, 21.8 mm SL, Kurio; KAUM–I. 11764, 21.3 mm SL, Kurio; KAUM–

I. 11765, 20.5 mm SL, Kurio; KAUM–I. 11766, 19.9 mm SL, Kurio; KAUM–I. 23543, 20.8 mm SL, Kurio; NSMT–P 77916, 21.4 mm SL, Kurio; NSMT–P 91381, 43.2 mm SL, Kurio;.

Remarks: Hayashi (2002) described this species as *H. obtusirostris* in error (instead of *H. obtusirostre*).

Fig. 435. *Helcogramma obtusirostre* (upper: KAUM–I. 11361, 27.2 mm SL; middle: off Yoshida, 3 m, 22 Feb. 2006, S. Harazaki; lower: off Isso, 3 m, 27 Nov. 2004, S. Harazaki).

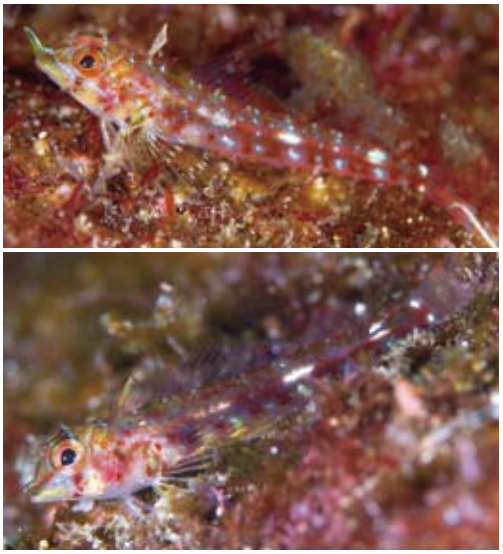

Fig. 436. *Helcogramma rhinoceros* (upper: male, off Yoshida, 3 m, 19 Oct. 2009, S. Harazaki; lower: female, off Yoshida, 3 m, 17 Jan. 2010, S. Harazaki).

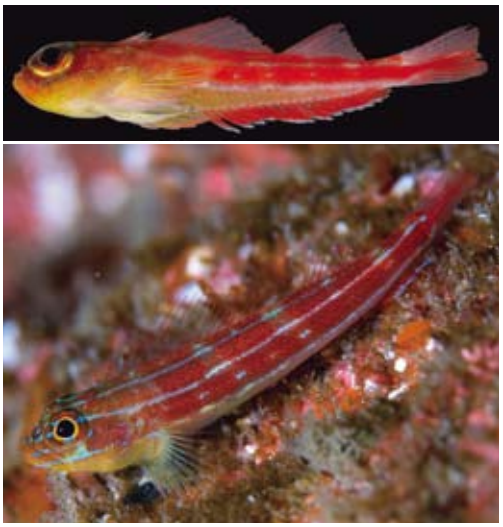

Fig. 437. *Helcogramma striata* (upper: KAUM–I. 20174, 20.9 mm SL; lower: off Isso, 10 m, 9 Feb. 2009, S. Harazaki).

Helcogramma rhinoceros Hansen, 1986
[Jpn name: Tenguhebigimpo] (Fig. 436)

Helcogramma striata Hansen, 1986
[Jpn name: Tatejimahebigimpo] (Fig. 437)
KAUM–I. 20174, 20.9 mm SL, Yudomari.
Kuniyasu (1999): Kurio.

Norfolkia brachylepis (Schultz, 1960)
[Jpn name: Kokutennisehebigimpo] (Fig. 438)

KAUM–I. 11398, 43.8 mm SL, Kurio; KAUM–I. 11399, 38.0 mm SL, Kurio; KAUM–I. 11400, 35.1 mm SL, Kurio; KAUM–I. 11401, 26.8 mm SL, Kurio; KAUM–I. 11438, 21.2 mm SL, Kurio; KAUM–I. 11439, 26.8 mm SL, Kurio.

Fig. 438. *Norfolkia brachylepis* (KAUM–I. 11398, 43.8 mm SL).

Norfolkia thomasi Whitley, 1964
[Jpn name: Nisehebigimpo] (Fig. 439)

KAUM–I. 3073, 24.6 mm SL, Isso; KAUM–I. 20257, 25.5 mm SL, Kurio; KPM–NI 22554, 32.5 mm SL, Kurio.

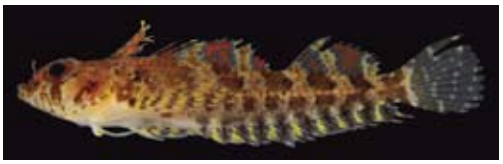

Fig. 439. *Norfolkia thomasi* (KAUM–I. 20257, 25.5 mm SL).

Ucla xenogrammus Holleman, 1993
[Jpn name: Kasurihebigimpo] (Fig. 440)

Fig. 440. *Ucla xenogrammus* (upper: off Isso, 10 m, 16 Jan. 2010, S. Harazaki; lower: off Isso, 10 m, 17 Jan. 2010, S. Harazaki).

FAMILY BLENNIIDAE

Andamia tetradactylus (Bleeker, 1858)
[Jpn name: Yodarekake] (Fig. 441)

KPM–NI 22758, 60.2 mm SL, Isso; KPM–NI 22759, 57.7 mm SL, Isso; KPM–NI 22767, 39.9 mm SL, Isso; KPM–NI 22768, 50.6 mm SL, Isso; KPM–NI 22854, 48.7 mm SL, Isso; KPM–NI 22855, 54.5 mm SL, Isso; KPM–NI 22856, 55.3 mm SL, Isso; KPM–NI 22857, 43.4 mm SL, Isso; KPM–NI 22858, 58.6 mm SL, Isso; KPM–NI 22863, 44.3 mm SL, Isso; KPM–NI 22864, 56.1 mm SL, Isso; KPM–NI 22865, 65.5 mm SL, Isso; KPM–NI 22866, 65.0 mm SL, Isso; KPM–NI 22928, 61.6 mm SL, Isso; KPM–NI 22929, 72.0 mm SL, Isso; KPM–NI 22930, 79.2 mm SL, Isso; KPM–NI 22937, 68.5 mm SL, Isso; KPM–NI 22938, 81.6 mm SL, Isso; NSMT–P 77622, 87.7 mm SL, mouth of Kurio River; NSMT–P 77623, 73.1 mm SL, mouth of Kurio River.

MOSC (2002): Isso.

Fig. 441. *Andamia tetradactylus* (upper: KPM–NI 22937, male, 68.5 mm SL; lower: KPM–NI 22856, female, 55.3 mm SL).

Aspidontus dussumieri (Valenciennes, 1836)
[Jpn name: Kurosujigimpo]

Ichikawa et al. (1992): Yaku-shima Island.

Aspidontus taeniatus taeniatus Quoy and Gaimard, 1834
[Jpn name: Nisekurosujigimpo]

Ichikawa et al. (1992): Yaku-shima Island.

Blenniella chrysospilos (Bleeker, 1857)
[Jpn name: Montsukikaeruuo] (Fig. 442)

Blenniella periophthalmus (Valenciennes, 1836)
[Jpn name: Hanakaeruuo] (Fig. 443)

KPM–NI 22884, 90.7 mm SL, Ambo.

Fig. 442. *Blenniella chrysospilos* (off Isso, 5 m, 16 May 2008, S. Harazaki).

Fig. 443. *Blenniella periophthalmus* (KPM–NI 22884, 90.7 mm SL).

Cirripectes filamentosus (Alleyne and Macleay, 1877)
[Jpn name: Oborogetategamikaeruuo] (Fig. 444)

Murase et al. (2009): KAUM–I. 11586, 52.5 mm SL, Ambo.

Remarks: This specimen from Yaku-shima Island was reported by Murase et al. (2009) as the first Japanese record and northernmost record in the western Pacific Ocean of *C. filamentosus*.

Fig. 444. *Cirripectes filamentosus* (KAUM–I. 11586, 52.5 mm SL).

Cirripectes kuwamurai Fukao, 1984
[Jpn name: Sujitategamikaeruuo]

Kuniyasu (1999): Kurio.

Cirripectes polyzona (Bleeker, 1868)
[Jpn name: Minokaeruuo]

Kuniyasu (1999): Kurio.

Ecsenius bicolor (Day, 1888)
[Jpn name: Futairokaeruuo]

Ichikawa et al. (1992): Yaku-shima Island.

Ecsenius lineatus Klausewitz, 1962
[Jpn name: Hitosujigimpo]

Kuniyasu (1999): Kurio.

Ecsenius midas Starck, 1969
[Jpn name: Hanadaigimpo] (Fig. 445)

Remarks: In Japanese waters, this species has been recorded only from southern part of the Ryukyu Island. The photograph (Fig. 439) represents the northernmost record for the species. Relatively rare at Yaku-shima Island; subadults were observed at 15 m off Kurio and 10 m off Nagata by S. Harazaki.

Fig. 445. *Ecsenius midas* (off Isso, 25 m, 15 July 2009, S. Harazaki).

Ecsenius namiyei (Jordan and Evermann, 1902)
[Jpn name: Niramigimpo] (Fig. 446)

Ecsenius oculus Springer, 1971
[Jpn name: Goishigimpo] (Fig. 447)

Fig. 446. *Ecsenius namiyei* (off Isso, 10 m, 11 Sept. 2009, S. Harazaki).

Fig. 447. *Ecsenius oculus* (off Nagata, 5 m, 19 Nov. 2009, S. Harazaki).

Ecsenius yaeyamaensis (Aoyagi, 1954)
[Jpn name: Ishigakikaeruuo] (Fig. 448)

BSKU 96568, 22.9 mm SL, Yudomari.

Kuniyasu (1999): Kurio.

Fig. 448. *Ecsenius yaeyamaensis* (BSKU 96568, 22.9 mm SL).

Enchelyurus kraussii (Klunzinger, 1871)
[Jpn name: Kurogimpo] (Fig. 449)

NSMT–P 95451, 26.0 mm SL, Haruo.

Arai and Ida (1975): NSMT–P 17860, 23.6 mm SL, Kusugawa.

Fig. 449. *Enchelyurus kraussii* (upper: NSMT–P 17860, 23.6 mm SL, preserved specimen; lower: NSMT–P 95451, 26.0 mm SL, preserved specimen).

Entomacrodus caudofasciatus (Regan, 1909)
[Jpn name: Aomongimpo] (Fig. 450)

NSMT–P 95444, 40.2 mm SL, Haruo.

Fig. 450. *Entomacrodus caudofasciatus* (NSMT–P 95444, 40.2 mm SL).

Entomacrodus striatus (Valenciennes, 1836)
[Jpn name: Sujigimpo] (Fig. 451)

KAUM–I. 20255, 61.7 mm SL, Kurio; KAUM–I. 20269, 65.3 mm SL, Kurio; NSMT–P 91374, 60 mm SL, Kurio.

Fig. 451. *Entomacrodus striatus* (KAUM–I. 20269, 65.3 mm SL).

Entomacrodus thalassinus thalassinus (Jordan and Seale, 1906)
[Jpn name: Gotenkaeruuo] (Fig. 452)

KPM–NI 24787, 30.9 mm SL, Kurio; KPM–NI 24788, 35.8 mm SL, Kurio.

Fig. 452. *Entomacrodus thalassinus thalassinus* (KPM–NI 24788, 35.8 mm SL).

Istiblennius dussumieri (Valenciennes, 1836) [Jpn name: Kaeruuomodoki] (Fig. 453)

KAUM–I. 25051, 51.6 mm SL, Kurio; KAUM–I. 25059, 35.0 mm SL, Ambo; KPM–NI 23023, 53.4 mm SL, Kurio; NSMT–P 77740, 73.7 mm SL, Nagakubo.

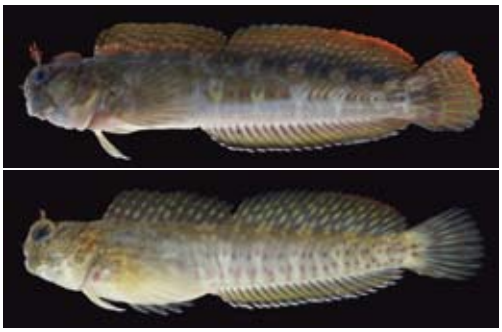

Fig. 453. *Istiblennius dussumieri* (upper: KAUM–I. 25051, male, 51.6 mm SL; lower: KAUM–I. 25059, female, 35.0 mm SL).

Istiblennius edentulus (Forster and Schneider, 1801) [Jpn name: Nisekaeruuo] (Fig. 454)

KAUM–I. 11218, 67.5 mm SL, Kurio; KAUM–I. 11338, 108.5 mm SL, Kurio; KAUM–I. 11530, 67.5 mm SL, Ambo; KAUM–I. 21686, 104.4 mm SL, Kurio; KAUM–I. 21687, 102.2 mm SL, Kurio; KAUM–I. 21688, 76.5 mm SL, Kurio; KAUM–I. 25050, 56.5 mm SL, Kurio; NSMT–P 77989, 3 specimens, 18.1–28.1 mm SL, Kurio; NSMT–P 91506, 3 specimens, 60–85 mm SL, Nagakubo; NSMT–P 91629, 3 specimens, 45–62 mm SL, Kurio; USNM 317438, 56.2 mm SL.

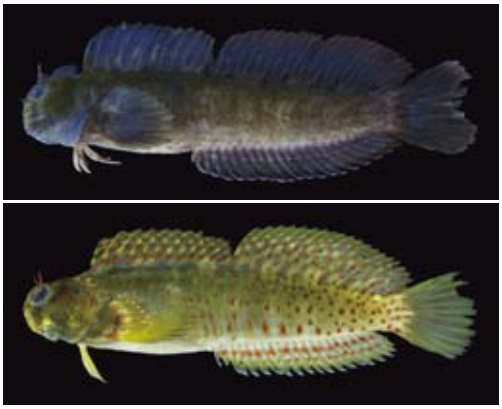

Fig. 454. *Istiblennius edentulus* (upper: KAUM–I. 11338, male, 108.5 mm SL; lower: KAUM–I. 11530, female, 67.5 mm SL).

Istiblennius enosimae (Jordan and Snyder, 1902) [Jpn name: Kaeruuo] (Fig. 455)

KAUM–I. 11325, 31.4 mm SL, Nagakubo; KAUM–I. 11417, 12.4 mm SL, Kurio; KAUM–I. 11420, 25.4 mm SL, Kurio; KAUM–I. 11684, 23.6 mm SL, Ambo; KAUM–I. 20254, 97.7 mm SL, Kurio; KAUM–I. 20258, 101.8 mm SL, Kurio; KAUM–I. 21805, 112.0 mm SL, Kurio; NSMT–P 91350, 83 mm SL, Yudomari; NSMT–P 91605, 80 mm SL, Nagakubo; NSMT–P 95462, 24.4 mm SL, Haruo.

Jordan and Starks (1906, as *Salarias enosimae*): SU 9779, 2 specimens, 93.4–124.9 mm SL, Miyanoura. Ichikawa et al. (1992): Yaku-shima Island.

Remarks: Jordan and Starks (1906) referred to "numerous specimens collected at Miyanoura, Yakushima, and at Tanegashima", but only two specimens from Yaku-shima Island exist at the California Academy of Sciences.

Fig. 455. *Istiblennius enosimae* (KAUM–I. 21805, 112.0 mm SL).

Istiblennius lineatus (Valenciennes, 1836)
[Jpn name: Senkaeruuo] (Fig. 456)

KPM–NI 24798, 30.0 mm SL, Kurio; NSMT–P 77990, 5 specimens, 20.2–28.0 mm SL, Kurio.

Arai and Ida (1975): Kusugawa [one specimen (46 mm TL) was reported, but not found at NSMT].

Fig. 456. *Istiblennius lineatus* (KPM–NI 24798, 30.0 mm SL).

Meiacanthus atrodorsalis (Günther, 1877)
[Jpn name: Ogonnijigimpo]

Ichikawa et al. (1992): Yaku-shima Island.

Meiacanthus ditrema Smith-Vaniz, 1976
[Jpn name: Satsukigimpo]

Kuniyasu (1999): Kurio.

Meiacanthus grammistes (Valenciennes, 1836)
[Jpn name: Higenijigimpo] (Fig. 457)

Fig. 457. *Meiacanthus grammistes* (off Isso, 6 m, 5 Nov. 2007, S. Harazaki).

Meiacanthus kamoharai Tomiyama, 1956
[Jpn name: Kamoharagimpo] (Fig. 458)

KAUM–I. 20145, 53.5 mm SL, Yudomari; KAUM–I. 20146, 30.9 mm SL, Yudomari; KPM–NI 22543, 42.5 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

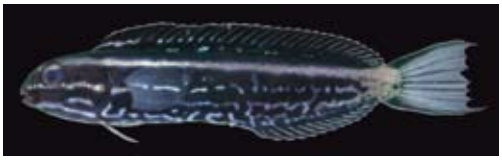

Fig. 458. *Meiacanthus kamoharai* (KAUM–I. 20145, 53.5 mm SL).

Nannosalarias nativitatus (Regan, 1909)
[Jpn name: Hinagimpo] (Fig. 459)

Fig. 459. *Nannosalarias nativitatus* (off Nagata, 4 m, 5 June 2009, S. Harazaki).

Omobranchus loxozonus (Jordan and Starks, 1906)
[Jpn name: Kumogimpo] (Fig. 460)

KAUM–I. 11534, 46.1 mm SL, Ambo; KAUM–I. 11569, 45.4 mm SL, Ambo; KAUM–I. 11570, 44.4 mm SL, Ambo; KAUM–I. 11571, 49.5 mm SL, Ambo; KAUM–I. 11662, 41.8 mm SL, Ambo; KAUM–I. 11667, 45.1 mm SL, Ambo; KAUM–I. 11668, 43.9 mm SL, Ambo; KAUM–I. 11669, 42.9 mm SL, Ambo; KAUM–I. 11670, 41.8 mm SL, Ambo; KAUM–I. 11671, 43.7 mm SL, Ambo; KAUM–I. 11672, 36.7 mm SL, Ambo; KAUM–I. 11673, 39.6 mm SL, Ambo; KAUM–I. 11674, 36.8 mm SL, Ambo; KAUM–I. 11675, 35.9 mm SL, Ambo; KAUM–I. 11676, 34.9 mm SL, Ambo; KAUM–I. 11677, 34.4 mm SL, Ambo; KAUM–I. 11678, 29.5 mm SL, Ambo; KAUM–I. 11679, 19.1 mm SL, Ambo; KAUM–I. 11680, 24.2 mm SL, Ambo; KAUM–I. 11681, 21.3 mm SL, Ambo; KAUM–I. 11682, 18.6 mm SL, Ambo; KAUM–I. 11683, 21.6 mm SL, Ambo; KAUM–I. 11685, 44.6 mm SL, Ambo; KAUM–I. 11686, 38.7 mm SL, Ambo; KAUM–I. 11687, 34.9 mm SL, Ambo; KAUM–I. 11688, 39.2 mm SL, Ambo;

KAUM–I. 11689, 39.2 mm SL, Ambo; KAUM–I. 11690, 29.9 mm SL, Ambo; KAUM–I. 11691, 32.1 mm SL, Ambo; KAUM–I. 11692, 40.0 mm SL, Ambo; KAUM–I. 11693, 36.1 mm SL, Ambo; KAUM–I. 22831, 40.5 mm SL, Ambo; KAUM–I. 22832, 39.8 mm SL, Ambo; KAUM–I. 22833, 38.3 mm SL, Ambo; KAUM–I. 22834, 37.9 mm SL, Ambo; KAUM–I. 22835, 37.5 mm SL, Ambo; KAUM–I. 22836, 36.7 mm SL, Ambo; KAUM–I. 22838, 43.7 mm SL, Kurio; KAUM–I. 22839, 47.3 mm SL, Kurio; KAUM–I. 22840, 49.8 mm SL, Kurio; KAUM–I. 23468, 42.1 mm SL, Kurio; KAUM–I. 23469, 44.4 mm SL, Kurio; KAUM–I. 23470, 47.4 mm SL, Kurio; KAUM–I. 23532, 18.7 mm SL, Ambo; NSMT–P 77567, 48.2 mm SL, Kurio; NSMT–P 77752, 23.5 mm SL, Nagakubo; NSMT–P 77779, 54.8 mm SL, Kurio.
Arai and Ida (1975): NSMT–P 17817, 3 specimens, 35.8–49.0 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island.

Fig. 460. *Omobranchus loxozonus* (KAUM–I. 11570, 44.4 mm SL).

Petroscirtes breviceps (Valenciennes, 1836)
[Jpn name: Nijigimpo]
Ichikawa et al. (1992): Yaku-shima Island.

Petroscirtes mitratus Rüppell, 1830
[Jpn name: Hatatategimpo] (Fig. 461)
BSKU 96555, 31.5 mm SL, Yudomari; KAUM–I. 20022, 52 mm SL, Yudomari; KAUM–I. 20023, 43 mm SL, Yudomari.

Plagiotremus laudandus laudandus (Whitley, 1961)
[Jpn name: Inasegimpo]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 461. *Petroscirtes mitratus* (BSKU 96555, 31.5 mm SL).

Plagiotremus rhinorhijnchos (Bleeker, 1852)
[Jpn name: Minamigimpo] (Fig. 462)
Arai and Ida (1975, as *Runula rhinorhijnchos*): NSMT–P 17848, 40.6 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 462. *Plagiotremus rhinorhijnchos* (NSMT–P 17848, 40.6 mm SL, preserved specimen).

Plagiotremus tapeinosoma (Bleeker, 1857)
[Jpn name: Tenkurosujigimpo]
Ichikawa et al. (1992): Yaku-shima Island.

Praealticus margaritarius (Snyder, 1908)
[Jpn name: Tamagimpo] (Fig. 463)
KAUM–I. 11221, 57.0 mm SL, Kurio; KAUM–I. 11224, 55.2 mm SL, Kurio; KAUM–I. 11225, 60.1 mm SL, Kurio; KAUM–I. 11226, 59.4 mm SL, Kurio; KAUM–I. 11418, 32.6 mm SL, Kurio; KAUM–I. 11419, 25.1 mm SL, Kurio; KAUM–I. 11695, 47.4 mm SL, Ambo; KAUM–I. 11696, 40.7 mm SL, Ambo; KAUM–I. 11697, 42.8 mm SL, Ambo; KAUM–I. 11698, 36.5 mm SL, Ambo; KAUM–I. 11699, 41.0 mm SL, Ambo; KAUM–I. 20274, 49.5 mm SL, Kurio; KAUM–I. 21745, 28.4 mm SL, Kurio; KAUM–I. 22822, 67.7 mm SL, Ambo; KAUM–I. 22823, 64.7 mm SL, Ambo; KAUM–I. 22824, 55.7 mm SL, Ambo; KAUM–I. 22825, 58.6 mm SL, Ambo; KAUM–I. 22826, 57.1 mm SL, Ambo; KAUM–I. 22827,

56.0 mm SL, Ambo; KAUM–I. 22828, 52.3 mm SL, Ambo; KAUM–I. 22829, 51.2 mm SL, Ambo; KAUM–I. 22830, 44.0 mm SL, Ambo; KAUM–I. 23585, 60.3 mm SL, Kurio; KAUM–I. 23586, 52.8 mm SL, Kurio; KAUM–I. 23587, 55.4 mm SL, Kurio; KAUM–I. 23588, 54.8 mm SL, Kurio; KAUM–I. 23589, 66.0 mm SL, Kurio; KAUM–I. 23590, 49.4 mm SL, Kurio; KAUM–I. 23591, 53.3 mm SL, Kurio; KAUM–I. 23592, 50.3 mm SL, Kurio; KAUM–I. 23593, 60.7 mm SL, Kurio; KAUM–I. 23594, 50.3 mm SL, Kurio; KAUM–I. 23595, 65.2 mm SL, Kurio; KAUM–I. 23596, 47.1 mm SL, Kurio; KAUM–I. 23597, 58.4 mm SL, Kurio; KAUM–I. 23598, 54.0 mm SL, Kurio; KAUM–I. 23599, 60.1 mm SL, Kurio; KAUM–I. 23600, 49.0 mm SL, Kurio; KAUM–I. 23601, 50.0 mm SL, Kurio; KAUM–I. 23602, 52.4 mm SL, Kurio; KAUM–I. 23603, 55.7 mm SL, Kurio; KAUM–I. 23604, 55.2 mm SL, Kurio; KAUM–I. 23605, 48.4 mm SL, Kurio; KAUM–I. 23606, 49.8 mm SL, Kurio; KAUM–I. 23607, 40.7 mm SL, Kurio; KAUM–I. 23608, 41.8 mm SL, Kurio; KAUM–I. 23609, 47.7 mm SL, Kurio; KAUM–I. 23610, 45.7 mm SL, Kurio; KAUM–I. 23611, 49.1 mm SL, Kurio; KAUM–I. 23612, 45.6 mm SL, Kurio; KAUM–I. 23613, 47.8 mm SL, Kurio; KAUM–I. 23614, 52.0 mm SL, Kurio; KAUM–I. 24850, 56.1 mm SL, Kurio; KAUM–I. 24851, 64.1 mm SL, Kurio; KAUM–I. 24852, 66.2 mm SL, Kurio; KAUM–I. 24853, 53.6 mm SL, Kurio; KAUM–I. 24854, 51.8 mm SL, Kurio; KAUM–I. 24855, 58.5 mm SL, Kurio; KAUM–I. 24856, 61.1 mm SL, Kurio; KAUM–I. 24857, 53.7 mm SL, Kurio; KAUM–I. 24858, 64.2 mm SL, Kurio; KAUM–I. 24859, 50.5 mm SL, Kurio; KAUM–I. 24860, 48.5 mm SL, Kurio; KAUM–I. 24861, 53.0 mm SL, Kurio; KAUM–I. 24862, 53.2 mm SL, Kurio; KAUM–I. 24863, 54.7 mm SL, Kurio; KAUM–I. 24864, 48.8 mm SL, Kurio; KAUM–I. 24865, 47.7 mm SL, Kurio; KAUM–I. 24866, 57.6 mm SL, Kurio; KAUM–I. 24867, 62.0 mm SL, Kurio; KAUM–I. 24868, 53.4 mm SL, Kurio; KAUM–I. 24869, 60.4 mm SL, Kurio; KAUM–I. 24870, 59.1 mm SL, Kurio; KAUM–I. 24871, 51.3 mm SL, Kurio; KAUM–I. 24872, 53.6 mm SL, Kurio; KAUM–I. 24873, 72.5 mm SL, Kurio; KAUM–I. 24874, 65.2 mm SL, Kurio; KAUM–I. 24875, 60.7 mm SL, Kurio; KAUM–I. 24876, 59.7 mm SL, Kurio; KAUM–I. 24877, 60.8 mm SL, Kurio; KAUM–I. 24878, 60.2 mm SL, Kurio; KAUM–I. 24879, 58.5 mm SL, Kurio; KAUM–I. 24880, 65.5 mm SL, Kurio; KAUM–I. 24881, 55.8 mm SL, Kurio; KAUM–I. 24882, 57.4 mm SL, Kurio; KAUM–I. 24883, 63.0 mm SL, Kurio; KAUM–I. 24884, 62.1 mm SL, Kurio; KAUM–I. 24885, 59.0 mm SL, Kurio; KAUM–I. 24886, 54.2 mm SL, Kurio; KAUM–I. 24887, 56.3 mm SL, Kurio; KAUM–I. 24888, 59.8 mm SL, Kurio; KAUM–I. 24889, 51.7 mm SL, Kurio; KAUM–I. 24890, 53.1 mm SL, Kurio; KAUM–I. 24891, 54.2 mm SL, Kurio; KAUM–I. 24892, 58.6 mm SL, Kurio; KAUM–I. 24893, 56.0 mm SL, Kurio; KAUM–I. 24894, 48.7 mm SL, Kurio; KAUM–I. 24895, 55.8 mm SL, Kurio; KAUM–I. 24896, 51.1 mm SL, Kurio; KAUM–I. 24897, 54.8 mm SL, Kurio; KAUM–I. 24898, 50.3 mm SL, Kurio; KAUM–I. 24899, 48.9 mm SL, Kurio; KAUM–I. 24900, 54.5 mm SL, Kurio; KAUM–I. 24901, 62.6 mm SL, Kurio; KAUM–I. 24902, 56.7 mm SL, Kurio; KAUM–I. 24903, 45.5 mm SL, Kurio; KAUM–I. 24904, 44.7 mm SL, Kurio; KAUM–I. 24905, 49.5 mm SL, Kurio; KAUM–I. 24906, 41.2 mm SL, Kurio; KAUM–I. 24907, 46.7 mm SL, Kurio; KAUM–I. 24908, 49.1 mm SL, Kurio; KAUM–I. 24909, 52.2 mm SL, Kurio; KAUM–I. 24910, 43.8 mm SL, Kurio; KAUM–I. 24911, 49.0 mm SL, Kurio; KAUM–I. 24912, 42.2 mm SL, Kurio; KAUM–I. 24913, 42.5 mm SL, Kurio; KAUM–I. 24914, 45.1 mm SL, Kurio; KAUM–I. 24915, 45.5 mm SL, Kurio; KAUM–I. 24916, 49.5 mm SL, Kurio; KAUM–I. 24917, 49.7 mm SL, Kurio; KAUM–I. 24918, 50.4 mm SL, Kurio; KAUM–I. 24919, 50.7 mm SL, Kurio; KAUM–I. 24920, 42.3 mm SL, Kurio; KAUM–I. 24921, 43.9 mm SL, Kurio; KAUM–I. 24922, 53.3 mm SL, Kurio; KAUM–I. 24923, 43.3 mm SL, Kurio; KAUM–I. 24924, 53.2 mm SL, Kurio; KAUM–I. 24925, 45.3 mm SL, Kurio; KAUM–I. 24926, 57.7 mm SL, Kurio; KAUM–I. 24927, 48.6 mm SL, Kurio; KAUM–I. 24928, 51.3 mm SL, Kurio; KAUM–I. 24929, 50.2 mm SL, Kurio; KAUM–I. 24930, 43.1 mm SL, Kurio; KAUM–I. 24931, 52.2 mm SL, Kurio; KAUM–I. 24932, 47.9 mm SL, Kurio; KAUM–I. 24933, 45.2 mm SL, Kurio; MUFS 25512, 48.0 mm SL, Kurio; MUFS 25513, 62.0 mm SL, Kurio; NSMT–P 77735, 55.5

mm SL, Nagakubo; NSMT–P 77736, 58.4 mm SL, Nagakubo; NSMT–P 77737, 40.3 mm SL, Nagakubo; NSMT–P 77775, 45.6 mm SL, Kurio; NSMT–P 91363, 47 mm SL, Yudomari; NSMT–P 91371, 60 specimens, 22–59 mm SL, Kurio; NSMT–P 91583, 5 specimens, 29–47 mm SL, Kurio; NSMT–P 91604, 8 specimens, 38–58 mm SL, Nagakubo; NSMT–P 91612, 68 specimens, 16–55 mm SL, Kurio; NSMT–P 91674, 6 specimens, 16–25 mm SL, Kurio; USNM 313686, 19 specimens, 39.1–63.3 mm SL, Miyanoura.

Arai and Ida (1975): NSMT–P 17811, 16 specimens, 23.3–50.7 mm SL, Kusugawa; NSMT–P 17829, 2 specimens, 58.5–63.0 mm SL, Kusugawa; NSMT–P 17857, 3 specimens, 47.1–60.1 mm SL, Kusugawa. MOSC (2002): Ambo and Kurio.

Fig. 463. *Praealticus margaritarius* (KAUM–I. 11221, 57.0 mm SL).

Praealticus striatus Bath, 1992
[Jpn name: Kabukigimpo] (Fig. 464)

FRLM 34688, 53.0 mm SL, Kurio; KAUM–I. 11217, 65.0 mm SL, Kurio.

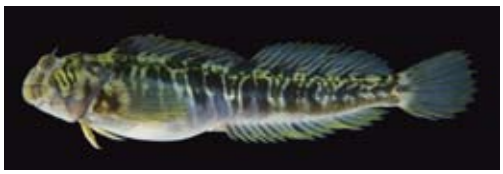

Fig. 464. *Praealticus striatus* (KAUM–I. 11217, female, 65.0 mm SL).

Praealticus tanegasimae (Jordan and Starks, 1906)
[Jpn name: Tanegimpo] (Fig. 465)

FRLM 34685, 73.7 mm SL, Kurio; FRLM 34686, 73.3 mm SL, Kurio; FRLM 34687, 61.1 mm SL, Kurio; FRLM 34691, 48.5 mm SL, Kurio; FRLM 34692, 62.2 mm SL, Kurio; FRLM 34693, 52.0 mm SL, Kurio; KAUM–I. 11219, 75.8 mm SL, Kurio; KAUM–I. 11220, 62.6 mm SL, Kurio; KAUM–I. 11223, 59.9 mm SL, Kurio; KAUM–I. 23550, 74.8 mm SL, Kurio; KAUM–I. 23551, 81.6 mm SL, Kurio; KAUM–I. 23552, 77.3 mm SL, Kurio; KAUM–I. 23553, 67.2 mm SL, Kurio; KAUM–I. 23554, 64.5 mm SL, Kurio; KAUM–I. 23555, 66.2 mm SL, Kurio; KAUM–I. 23556, 73.7 mm SL, Kurio; KAUM–I. 23557, 66.8 mm SL, Kurio; KAUM–I. 23558, 69.0 mm SL, Kurio; KAUM–I. 23559, 69.2 mm SL, Kurio; KAUM–I. 23560, 60.3 mm SL, Kurio; KAUM–I. 23561, 64.3 mm SL, Kurio; KAUM–I. 23562, 57.2 mm SL, Kurio; KAUM–I. 23563, 57.1 mm SL, Kurio; KAUM–I. 23564, 65.1 mm SL, Kurio; KAUM–I. 23565, 68.7 mm SL, Kurio; KAUM–I. 23566, 54.2 mm SL, Kurio; KAUM–I. 23567, 60.7 mm SL, Kurio; KAUM–I. 23568, 62.2 mm SL, Kurio; KAUM–I. 23569, 53.0 mm SL, Kurio; KAUM–I. 23570, 59.8 mm SL, Kurio; KAUM–I. 23571, 54.4 mm SL, Kurio; KAUM–I. 23572, 58.1 mm SL, Kurio; KAUM–I. 23573, 55.5 mm SL, Kurio; KAUM–I. 23574, 57.5 mm SL, Kurio; KAUM–I. 23575, 51.1 mm SL, Kurio; KAUM–I. 23576, 61.8 mm SL, Kurio; KAUM–I. 23577, 55.3 mm SL, Kurio; KAUM–I. 23578, 59.4 mm SL, Kurio; KAUM–I. 23579, 60.6 mm SL, Kurio; KAUM–I. 23580, 62.6 mm SL, Kurio; KAUM–I. 23581, 56.3 mm SL, Kurio; KAUM–I. 23582, 51.3 mm SL, Kurio; KAUM–I. 23583, 58.1 mm SL, Kurio; KAUM–I. 23584, 50.6 mm SL, Kurio; KPM–NI 22879, 65.1 mm SL, Ambo; NSMT–P 77738, 41.0 mm SL, Nagakubo; NSMT–P 77739, 57.2 mm SL, Nagakubo; NSMT–P 77988, 44.3 mm SL, Kurio; NSMT–P 91377, 36 specimens, 25–76 mm SL, Kurio; NSMT–P 91603, 10 specimens, 50–65 mm SL, Nagakubo; NSMT–P 91613, 178 specimens, 25–85 mm SL, Kurio.

Jordan and Starks (1906, as *Salarias tanegasimae*): SU 14690, 3 specimens, 50.7–63.2 mm SL, Miyanoura; USNM 53537, 6 specimens, 45.0–68.3 mm SL, Miyanoura. Arai and Ida (1975): NSMT–P 17818, 8 specimens, 33.2–82.4 mm SL, Kusugawa; NSMT–P 17965, 5 specimens, 61.3–70.4 mm SL, Kusugawa; NSMT–P 58100, 50.2 mm SL, Kusugawa; NSMT–P 58104,

2 specimens, 50.1–57.8 mm SL, Kusugawa.

Remarks: The original description of *S. tanegasimae* by Jordan and Starks (1906) stated that specimens were collected from Tanegashima and Yakushima. The holotype and seven paratypes were from Tanega-shima Island. The six Yakushima Island specimens registered as USNM 53537 are non-types.

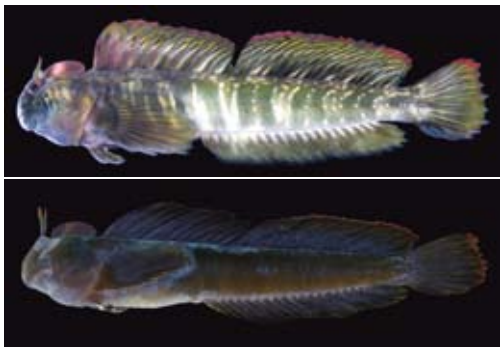

Fig. 465. *Praealticus tanegasimae* (upper: KPM–NI 22879, male, 65.1 mm SL; lower: KAUM–I. 11219, male, 75.8 mm SL).

Rhabdoblennius nitidus (Günther, 1861)
[Jpn name: Rousokugimpo] (Fig. 466)

BSKU 96685, 44.2 mm SL, Kurio; BSKU 96686, 45.2 mm SL, Kurio; BSKU 96687, 40.8 mm SL, Kurio; FRLM 34689, 29.3 mm SL, Kurio; FRLM 34690, 42.6 mm SL, Kurio; FRLM 34697, 60.4 mm SL, Kurio; KAUM–I. 11212, 15.7 mm SL, Kurio; KAUM–I. 11779, 51.9 mm SL, Nagakubo; KAUM–I. 11780, 51.6 mm SL, Nagakubo; KAUM–I. 20256, 53.7 mm SL, Kurio; KAUM–I. 20270, 60.7 mm SL, Kurio; KAUM–I. 20271, 55.1 mm SL, Kurio; KAUM–I. 21689, 41.0 mm SL, Kurio; KAUM–I. 21690, 44.4 mm SL, Kurio; KAUM–I. 21744, 28.4 mm SL, Kurio; KAUM–I. 23471, 48.1 mm SL, Kurio; KAUM–I. 23472, 52.5 mm SL, Kurio; KAUM–I. 23473, 57.4 mm SL, Kurio; KAUM–I. 23474, 50.0 mm SL, Kurio; KAUM–I. 23475, 42.1 mm SL, Kurio; KAUM–I. 23476, 26.9 mm SL, Kurio; KAUM–I. 23477, 49.9 mm SL, Kurio; KAUM–I. 23478, 48.6 mm SL, Kurio; KAUM–I. 23479, 47.4 mm SL, Kurio; KAUM–I. 23480, 53.7 mm SL, Kurio; KAUM–I. 23481, 63.1 mm SL, Kurio; KAUM–I. 23482, 43.3 mm SL, Kurio; KAUM–I. 23483, 50.9 mm SL, Kurio; KAUM–I. 23484, 52.0 mm SL, Kurio; KAUM–I. 23485, 52.3 mm SL, Kurio; KAUM–I. 23486, 45.1 mm SL, Kurio; KAUM–I. 23487, 48.9 mm SL, Kurio; KAUM–I. 23488, 48.4 mm SL, Kurio; KAUM–I. 23489, 27.7 mm SL, Kurio; KAUM–I. 23490, 40.9 mm SL, Kurio; KAUM–I. 23491, 46.1 mm SL, Kurio; KAUM–I. 23492, 44.7 mm SL, Kurio; KAUM–I. 23493, 56.4 mm SL, Kurio; KAUM–I. 23494, 50.6 mm SL, Kurio; KAUM–I. 23495, 44.9 mm SL, Kurio; KAUM–I. 23496, 33.3 mm SL, Kurio; KAUM–I. 23497, 46.1 mm SL, Kurio; KAUM–I. 23498, 56.1 mm SL, Kurio; KAUM–I. 23499, 54.1 mm SL, Kurio; KAUM–I. 23500, 47.1 mm SL, Kurio; KAUM–I. 23501, 48.0 mm SL, Kurio; KAUM–I. 23502, 56.6 mm SL, Kurio; KAUM–I. 23503, 32.8 mm SL, Kurio; KAUM–I. 23504, 52.2 mm SL, Kurio; KAUM–I. 23505, 60.3 mm SL, Kurio; KAUM–I. 23506, 38.1 mm SL, Kurio; KAUM–I. 23507, 42.8 mm SL, Kurio; KAUM–I. 23508, 48.6 mm SL, Kurio; KAUM–I. 23509, 45.3 mm SL, Kurio; KAUM–I. 23510, 47.6 mm SL, Kurio; KAUM–I. 23511, 53.9 mm SL, Kurio; KAUM–I. 23512, 47.2 mm SL, Kurio; KAUM–I. 23513, 51.3 mm SL, Kurio; KAUM–I. 23514, 40.6 mm SL, Kurio; KAUM–I. 23515, 44.7 mm SL, Kurio; KAUM–I. 23516, 52.2 mm SL, Kurio; KAUM–I. 23517, 42.5 mm SL, Kurio; KAUM–I. 23518, 28.0 mm SL, Kurio; KAUM–I. 23519, 32.8 mm SL, Kurio; KAUM–I. 23520, 42.5 mm SL, Kurio; KAUM–I. 23521, 46.7 mm SL, Kurio; KAUM–I. 23522, 75.2 mm SL, Kurio; MUFS 25514, 57.2 mm SL, Kurio; NSMT–P 77748, 50.8 mm SL, Nagakubo; NSMT–P 77749, 52.5 mm SL, Nagakubo; NSMT–P 77750, 45.9 mm SL, Nagakubo; NSMT–P 77751, 3 specimens, 13.7–21.6 mm SL, Nagakubo; NSMT–P 91376, 41 specimens, 25–62 mm SL, Kurio; NSMT–P 91584, 26 specimens, 28–66 mm SL, Kurio; NSMT–P 91611, 39 specimens, 25–56 mm SL, Kurio; NSMT–P 91673, 15 mm SL, Kurio.

Jordan and Starks (1906 as *Blennius ellipes*): USNM 61164, 4 paratypes of *Blennius ellipes*, 35.5–48.9 mm SL, Yaku-shima Island. Arai and Ida (1975): NSMT–P 17839 (as *Istiblennius bilitonensis*, Hohogurogimpo), 42.1 mm SL, Kusugawa; NSMT–P 17856, 7 specimens, 31.3–61.2 mm

SL, Kusugawa; NSMT–P 58103, 51.5 mm SL, Kusugawa.

Remarks: Bath (2004) regarded *Blennius ellipes* Jordan and Starks, 1906 (= *Rhabdoblennius ellipes*) as a junior synonym of *Salarias nitidus*.

Fig. 466. *Rhabdoblennius nitidus* (KAUM–I. 20271, 55.1 mm SL).

Salarias luctuosus Whitley, 1929
[Jpn name: Shimagimpo] (Fig. 467)

KAUM–I. 11313, 32.4 mm SL, Yudomari; KAUM–I. 11651, 56.8 mm SL, Ambo; KAUM–I. 11663, 52.5 mm SL, Ambo; KAUM–I. 11664, 49.4 mm SL, Ambo; KAUM–I. 11665, 48.1 mm SL, Ambo; KAUM–I. 11666, 33.1 mm SL, Ambo; KAUM–I. 11702, 20.6 mm SL, Ambo; KAUM–I. 11703, 22.8 mm SL, Ambo; KAUM–I. 11704, 21.4 mm SL, Ambo; KAUM–I. 11705, 21.6 mm SL, Ambo; KAUM–I. 21829, 68.7 mm SL, Kurio; KAUM–I. 22837, 45.9 mm SL, Kurio; KPM–NI 22883, 45.0 mm SL, Ambo; KPM–NI 22887, 60.5 mm SL, Ambo; NSMT–P 91375, 53 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 17810, 15 specimens, 27.4–64.2 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island.

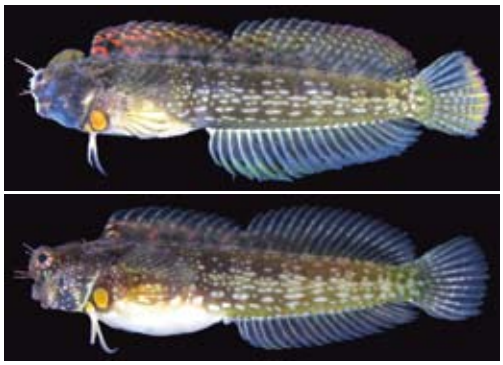

Fig. 467. *Salarias luctuosus* (upper: KPM–NI 22887, male, 60.5 mm SL; lower: KPM–NI 22883, female, 45.0 mm SL).

Salarias sinuosus Snyder, 1908
[Jpn name: Hirenagakaeruuo] (Fig. 468)

KPM–NI 22872, 44.8 mm SL, Ambo; KPM–NI 22873, 43.4 mm SL, Ambo; KPM–NI 22874, 47.7 mm SL, Ambo; KPM–NI 22886, 47.7 mm SL, Ambo; KPM–NI 22932, 42.4 mm SL, Ambo; KPM–NI 24791, 47.2 mm SL, Kurio; KPM–NI 24794, 23.8 mm SL, Kurio.

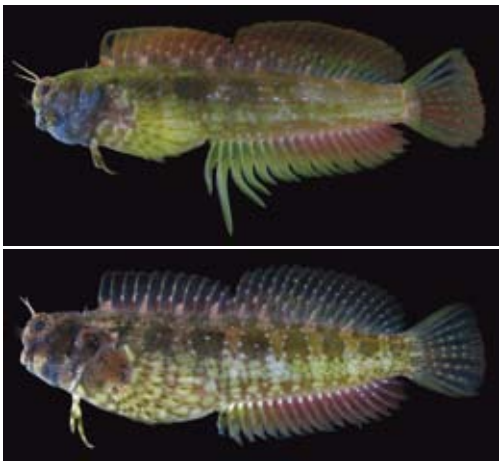

Fig. 468. *Salarias sinuosus* (upper: KPM–NI 22932, male, 42.4 mm SL; lower: KPM–NI 22886, female, 47.7 mm SL).

FAMILY CHAENOPSIDAE

Neoclinus bryope (Jordan and Snyder, 1902)
[Jpn name: Kokegimpo]

Aizawa (2002): Yaku-shima Island.

Neoclinus nudus Stephens and Springer, 1971
[Jpn name: Hadakakokegimpo] (Fig. 469)

Fig. 469. *Neoclinus nudus* (off Isso, 8 m, 11 June 2007, S. Harazaki).

***Neoclinus* sp.**

[Jpn name: None] (Fig. 470)

Remarks: This species is very similar to *Neoclinus chihiroe* Fukao, 1987, but differs from the latter in several aspects, including the number of cephalic sensory pores; currently studied by A. Murase of Tokyo University of Marine Science and Technology.

Fig. 470. *Neoclinus* sp. (off Onoaida, 8 m, 2 Mar. 2005, S. Harazaki).

FAMILY GOBIESOCIDAE

Conidens laticephalus (Tanaka, 1909)

[Jpn name: Ankoubauo] (Fig. 471)

KAUM–I. 11210, 17.7 mm SL, Kurio; KAUM–I. 11294, 23.9 mm SL, Yudomari; KAUM–I. 11413, 20.0 mm SL, Kurio; KAUM–I. 21833, 25.8 mm SL, Kurio; KAUM–I. 22816, 24.8 mm SL, Kurio.

Arai and Ida (1975): Kusugawa [three specimens (25–56 mm TL) were reported, but not found at NSMT].

Fig. 471. *Conidens laticephalus* (KAUM–I. 11210, 17.7 mm SL).

Lepadichthys frenatus Waite, 1904

[Jpn name: Misakiubauo] (Fig. 472)

BSKU 96653, 42.0 mm SL, Isso; BSKU 96654, 12.2 mm SL, Isso; FRLM 34741, 27.2 mm SL, Kurio; KAUM–I. 11163, 29.2 mm SL, Kurio; KAUM–I. 11266, 51.1 mm SL, Yudomari; KAUM–I. 11330, 25.7 mm SL, Nagakubo; KAUM–I. 11621, 44.0 mm SL, Ambo; KAUM–I. 20276, 37.8 mm SL, Kurio; KAUM–I. 21757, 29.7 mm SL, Kurio; KAUM–I. 21758, 31.9 mm SL, Kurio; KAUM–I. 21832, 29.3 mm SL, Kurio; MUFS 25605, 29.9 mm SL, Kurio; MUFS 25606, 30.3 mm SL, Kurio; MUFS 25607, 29.6 mm SL, Kurio; NSMT–P 91670, 29 mm SL, Kurio; NSMT–P 91671, 16 mm SL, Kurio; NSMT–P 95455, 45.6 mm SL, Haruo.

Arai and Ida (1975): NSMT–P 58109, 57.4 mm SL, Kusugawa; NSMT–P 58118, 54.3 mm SL, Kusugawa; NSMT–P 58121, 44.0 mm SL, Kusugawa.

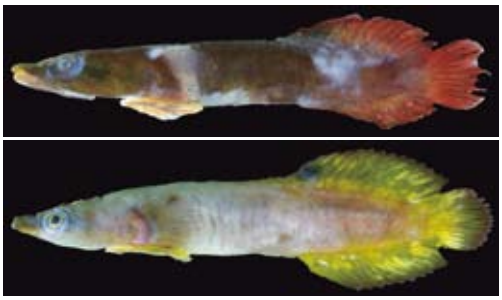

Fig. 472. *Lepadichthys frenatus* (upper: KAUM–I. 11163, 29.2 mm SL; lower: KAUM–I. 11266, 51.1 mm SL).

Pherallodus indicus (Weber, 1913)

[Jpn name: Hosoubauo] (Fig. 473)

KAUM–I. 11391, 14.1 mm SL, Kurio.

Fig. 473. *Pherallodus indicus* (KAUM–I. 11391, 14.1 mm SL).

FAMILY CALLIONYMIDAE

Callionymus curvicornis Valenciennes, 1837
[Jpn name: Nezumigochi] (Fig. 474)

USNM 111598, 88.6 mm SL, off southeast of Yaku-shima Island.

Remarks: This species has often been treated as *Callionymus richardsoni* Bleeker, 1854, *Repomucenus richardsonii*, or *Repomucenus curvicornis*.

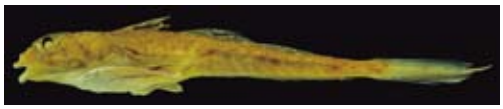

Fig. 474. *Callionymus curvicornis* (USNM 111598, 88.6 mm SL, preserved specimen).

Diplogrammus goramensis (Bleeker, 1858)
[Jpn name: Minamikobunumeri]

Kuniyasu (1999): Kurio.

Diplogrammus xenicus (Jordan and Thompson, 1914)
[Jpn name: Kobunumeri] (Fig. 475)

BSKU 96602, 83.6 mm SL, Kurio; BSKU 96657, 62.9 mm SL, Isso; BSKU 96658, 40.8 mm SL, Isso; BSKU 96610, 36.5 mm SL, Kurio; KAUM–I. 20379, 84.2 mm SL, Isso.

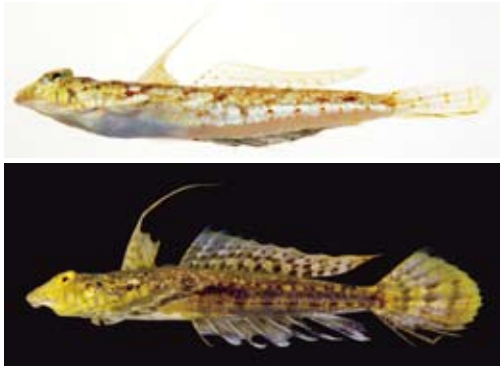

Fig. 475. *Diplogrammus xenicus* (upper: BSKU 96610, 36.5 mm SL; lower: KAUM–I. 20379, 84.2 mm SL).

Minysynchiropus kiyoae (Fricke and Zaiser, 1983)
[Jpn name: Himeteguri]

Kuniyasu (1999): Kurio.

Remarks: This species has often been treated as *Synchiropus kiyoae* Fricke and Zaiser, 1983.

Neosynchiropus ocellatus (Pallas, 1770)
[Jpn name: Kouwanteguri] (Fig. 476)

KAUM–I. 21769, 32.0 mm SL, Kurio; KPM–NI 24906, 11.6 mm SL, Kurio.

Arai and Ida (1975, as *Synchiropus ocellatus*): NSMT–P 58116, 40.5 mm SL, Kusugawa; NSMT–P 58130, 44.8 mm SL, Kusugawa; NSMT–P 58137, 40.8 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island.

Remarks: This species has often been treated as *Synchiropus ocellatus*.

Fig. 476. *Neosynchiropus ocellatus* (KAUM–I. 21769, 32.0 mm SL).

Paradiplogrammus enneactis (Bleeker, 1879)
[Jpn name: Kogatahanabinumeri]

Kuniyasu (1999): Kurio.

Remarks: This species has often been treated as *Callionymus enneactis*.

FSMILY ELEOTRIDAE

Butis amboinensis (Bleeker, 1853)
[Jpn name: Yaeyamanokogirihaze] (Fig. 477)

KAUM–I. 11503, 20.9 mm SL, mouth of Miyanoura River.

Fig. 477. *Butis amboinensis* (KAUM–I. 11503, 20.9 mm SL).

Eleotris acanthopoma Bleeker, 1853
[Jpn name: Chichibumodoki] (Fig. 478)

BSKU 96881, 71.0 mm SL, Kurio; BSKU 96882, 38.4 mm SL, Kurio; KAUM–I. 11202, 77.5 mm SL, mouth of Kurio River; KAUM–I. 11303, 92.0 mm SL, Yudomari; KAUM–I. 11304, 63.0 mm SL, Yudomari; KAUM–I. 11715, 36.8 mm SL, mouth of Miyanoura River; KAUM–I. 11771, 23.0 mm SL, mouth of Miyanoura River; KAUM–I. 11772, 25.5 mm SL, mouth of Miyanoura River; KAUM–I. 20298, 37.9 mm SL, mouth of Kurio River; KAUM–I. 20318, 36.8 mm SL, mouth of Kurio River; KAUM–I. 20321, 92.9 mm SL, mouth of Kurio River; KAUM–I. 20322, 77 mm SL, mouth of Kurio River; KAUM–I. 20370, 36.9 mm SL, mouth of Kurio River; KAUM–I. 21597, 38.8 mm SL, mouth of Ambo River; KAUM–I. 21598, 73.3 mm SL, mouth of Ambo River; KAUM–I. 21599, 54.3 mm SL, mouth of Ambo River; KAUM–I. 21600, 47.9 mm SL, mouth of Ambo River; KAUM–I. 24711, 49.0 mm SL, mouth of Kurio River; KAUM–I. 24712, 25.8 mm SL, mouth of Kurio River; KAUM–I. 24713, 22.0 mm SL, mouth of Kurio River; KAUM–I. 24714, 19.3 mm SL, mouth of Kurio River; KAUM–I. 24715, 42.4mm SL, mouth of Kurio River; KAUM–I. 24716, 31.9 mm SL, mouth of Kurio River; KAUM–I. 24717, 30.3 mm SL, mouth of Kurio River; MUFS 25443, 13.5 mm SL, Matsumine.

Fig. 478. *Eleotris acanthopoma* (KAUM–I. 20298, 37.9 mm SL).

FAMILY XENISTHMIDAE
***Xenisthmus* sp.**
[Jpn name: None] (Fig. 479)

KPM–NI. 22558, 18.0 mm SL, Kurio.

Remarks: The Yaku-shima specimen is similar to *X. polyzonatus* (Klunzinger, 1871), but differs in having the vertical bars on the lateral surface of the body not reaching to the ventral, yellowish ventrolateral body surface, and a dark band across the dorsal and anal fins.

Fig. 479. *Xenisthmus* sp. (KPM–NI. 22558, 18.0 mm SL).

FAMILY GOBIIDAE
Acentrogobius audax Smith, 1959
[Jpn name: Nisetsumugihaze] (Fig. 480)

BSKU 96627, 39.5 mm SL, mouth of Kurio River.

Fig. 480. *Acentrogobius audax* (BSKU 96627, 39.5 mm SL).

Acentrogobius suluensis (Herre, 1927)
[Jpn name: Hohogurosujihaze] (Fig. 481)

KPM–NI 22568, 30.4 mm SL, mouth of Kurio River.

Fig. 481. *Acentrogobius suluensis* (KPM–NI 22568, 30.4 mm SL).

Amblyeleotris fontanesii (Bleeker, 1852)
[Jpn name: Nyudodatehaze] (Fig. 482)

Fig. 482. *Amblyeleotris fontanesii* (off Isso, 12 m, 18 Oct. 2009, S. Harazaki).

Amblyeleotris japonica Takagi, 1957
[Jpn name: Datehaze] (Fig. 483)
KAUM–I. 20141, 44.3 mm SL, Yudomari.

Fig. 483. *Amblyeleotris japonica* (KAUM–I. 20141, 44.3 mm SL).

Amblyeleotris periophthalma (Bleeker, 1853)
[Jpn name: Dandaradatehaze] (Fig. 484)

Fig. 484. *Amblyeleotris periophthalma* (off Isso, 18 m, 28 Mar. 2004, S. Harazaki).

Amblyeleotris wheeleri (Polunin and Lubbock, 1977)
[Jpn name: Kubiakahaze]
Ichikawa et al. (1992, as *Amblyeleotris fasciata*): Yaku-shima Island. Kuniyasu (1999): Kurio. Suzuki and Shibukawa (2004): Yaku-shima Island.

Amblygobius linki Herre, 1927
[Jpn name: Wakakesarasahaze] (Fig. 485)
Ogihara et al. (2009): mouth of Ambo River.

Fig. 485. *Amblygobius linki* (mouth of Ambo River; after Ogihara et al., 2009).

Amblygobius nocturnus (Herre, 1945)
[Jpn name: Hohobenisarasahaze] (Fig. 486)
KAUM–I. 11277, 24.8 mm SL, Yudomari; KPM–NI 22539, 20.6 mm SL, Yudomari.
Remarks: These specimens are probably the same as *Amblygobius* sp. A of Suzuki and Shibukawa (2004).

Fig. 486. *Amblygobius nocturnus* (KPM–NI 22539, 20.6 mm SL).

Amblygobius phalaena (Valenciennes, 1837)
[Jpn name: Sarasahaze] (Fig. 487)
BSKU 96545, Yudomari; BSKU 96624, mouth of Kurio River; KAUM–I. 20024, 40.8 mm SL, Yudomari; KAUM–I. 20055, 99.7 mm

SL, Yudomari; KAUM–I. 20084, 91.1 mm SL, Yudomari; KAUM–I. 20153, 39.4 mm SL, Yudomari; KAUM–I. 20195, 45.5 mm SL, Yudomari; KAUM–I. 20217, 30.4 mm SL, Yudomari; KAUM–I. 20316, 39.8 mm SL, mouth of Kurio River; KAUM–I. 20319, 33.4 mm SL, Kurio; KAUM–I. 20320, 38.8 mm SL, Kurio; KAUM–I. 20536, 38 mm SL, Yudomari; KAUM–I. 21603, 101.2 mm SL, mouth of Ambo River; KPM–NI 22540, 68.6 mm SL, Yudomari.

Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 487. *Amblygobius phalaena* (KAUM–I. 20055, 99.7 mm SL).

***Amblygobius* sp.**

[Jpn name: None] (Fig. 488)

Remarks: The photographed individual is identified as *Amblygobius* sp. 1 of Suzuki and Shibukawa (2004).

Fig. 488. *Amblygobius* sp. (off Isso, 4 m, 20 Oct. 2007, S. Harazaki).

Asterropteryx semipunctata Rüppell, 1830

[Jpn name: Hoshihaze] (Fig. 489)

BSKU 96576, 20.6 mm Sl, Yudomari; KAUM–I. 11258, 37.3 mm SL, Yudomari; KAUM–I. 11389, 12.3 mm SL, Kurio; KAUM–I. 11514, 29.0 mm SL, Ambo; KAUM–I. 20157, 25.4 mm SL, Yudomari; KAUM–I. 20173, 23 mm SL, Yudomari; KAUM–I. 20218, 25.4 mm SL, Yudomari; KAUM–I. 20219, 21.4 mm SL, Yudomari; KAUM–I. 20220, 19.8 mm SL, Yudomari; KAUM–I. 20538, 26.6 mm SL, Yudomari; KAUM–I. 21754, 18.9 mm SL, Kurio; KAUM–I. 21787, 31.6 mm SL, Isso; KAUM–I. 21867, 21.2 mm SL, Kurio; KAUM–I. 23530, 18.9 mm SL, Ambo; KAUM–I. 23531, 30.5 mm SL, Ambo; KPM–NI 22525, 21.3 mm SL, Yudomari.

Fig. 489. *Asterropteryx semipunctata* (upper: KAUM–I. 11258, 37.3 mm SL; lower: KPM–NI 22525, 21.3 mm SL).

Awaous ocellaris (Broussonet, 1782)

[Jpn name: Minamihaze]

Suzuki and Shibukawa (2004): Yaku-shima Island.

Bathygobius coalitus (Bennett, 1832)

[Jpn name: Kuroyahazuhaze] (Fig. 490)

KAUM–I. 11184, 25.7 mm SL, Kurio; KAUM–I. 11329, 15.7 mm SL, Nagakubo; KAUM–I. 11331, 15.1 mm SL, Nagakubo;

KAUM–I. 25052, 32.8 mm SL, Kurio; NSMT–P 77570, 40.0 mm SL, Kurio; NSMT–P 77572, 50.6 mm SL, Kurio; NSMT–P 77573, 61.7 mm SL, Kurio; NSMT–P 77574, 52.0 mm SL, Kurio; NSMT–P 77575, 45.8 mm SL, Kurio; NSMT–P 77576, 38.2 mm SL, Kurio; NSMT–P 77577, 34.6 mm SL, Kurio; NSMT–P 77578, 36.1 mm SL, Kurio; NSMT–P 91578, 24.3 mm SL, Kurio.

Suzuki and Shibukawa (2004): Yaku-shima Island.

Remarks: *Bathygobius padangensis* (Bleeker, 1851) has recently regarded as a junior synonym of *Bathygobius coalitus* by Hoese and Larson (2006).

Fig. 490. *Bathygobius coalitus* (KAUM–I. 11331, 15.1 mm SL).

Bathygobius cocosensis (Bleeker, 1854)
[Jpn name: Sujikumohaze] (Fig. 491)

KAUM–I. 11118, 22.6 mm SL, Matsumine; KAUM–I. 11179, 31.4 mm SL, Kurio; KAUM–I. 11182, 21.5 mm SL, Kurio; KAUM–I. 11378, 34.1 mm SL, Kurio; KAUM–I. 11379, 31.1 mm SL, Kurio; KAUM–I. 11380, 26.8 mm SL, Kurio; KAUM–I. 11773, 24.9 mm SL, mouth of Miyanoura River; KAUM–I. 20537, 31.7 mm SL, Yudomari; KAUM–I. 21697, 27.7 mm SL, Kurio; KAUM–I. 23545, 22.4 mm SL, Kurio; KAUM–I. 23546, 27.9 mm SL, Kurio; KAUM–I. 23547, 30.5 mm SL, Kurio; KAUM–I. 23548, 26.3 mm SL, Kurio; KAUM–I. 25053, 29.6 mm SL, Kurio; KAUM–I. 25054, 26.7 mm SL, Kurio; NSMT–P 17845, 43.7 mm SL, Kusugawa; NSMT–P 17858, 4 specimens, 27.8–31.5 mm SL, Kusugawa; NSMT–P 77571, 35.5 mm SL, Kurio; NSMT–P 77719, 30.4 mm SL, Kurio; NSMT–P 77720, 36.7mm SL, Kurio; NSMT–P 77721, 27.4 mm SL, Kurio; NSMT–P 77722, 30.1 mm SL, Kurio; NSMT–P 77723, 26.2 mm SL, Kurio; NSMT–P 77724, 29.4 mm SL, Kurio; NSMT–P 77918, 33.2 mm SL, Kurio; NSMT–P 77919, 36.9 mm SL, Kurio; NSMT–P 77920, 33.2 mm SL, Kurio; NSMT–P 77921, 25.5 mm SL, Kurio; NSMT–P 77922, 19.8 mm SL, Kurio; NSMT–P 77923, 19.7 mm SL, Kurio; NSMT–P 77924, 14.7 mm SL, Kurio; NSMT–P 77925, 24.2 mm SL, Kurio.

Fig. 491. *Bathygobius cocosensis* (KAUM–I. 11118, 22.6 mm SL).

Bathygobius cotticeps (Steindachner, 1879)
[Jpn name: Kusabihaze] (Fig. 492)

KAUM–I. 11114, 15.4 mm SL, Matsumine; KPM–NI 22931, 63.0 mm SL, Isso; MUFS 25619, 30.4 mm SL, Kurio.

Fig. 492. *Bathygobius cotticeps* (upper: KAUM–I. 11114, 15.4 mm SL; lower: KPM–NI 22931, 63.0 mm SL).

Bathygobius cyclopterus (Valenciennes, 1837)
[Jpn name: Yahazuhaze] (Fig. 493)

KAUM–I. 11183, 21.5 mm SL, Kurio; KAUM–I. 11517, 30.4 mm SL, Ambo; KAUM–I. 21803, 21.3 mm SL, Kurio; KPM–NI 24907, 8.6 mm SL, Kurio; KPM–NI 24908, 13.2 mm SL, Kurio; NSMT–P 17838, 34.1 mm SK, Kusugawa; NSMT–P 77926, 51.6 mm SL, Kurio; NSMT–P

91623, 30 mm SL, Kurio; NSMT–P 91623, 28.7 mm SL, Kurio; NSMT–P 91624, 28.2 mm SL, Kurio.

Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 493. *Bathygobius cyclopterus* (KAUM–I. 11517, 30.4 mm SL).

Bathygobius fuscus (Rüppell, 1830)
[Jpn name: Kumohaze] (Fig. 494)

KAUM–I. 11185, 54.7 mm SL, Kurio; KAUM–I. 11521, 47.0 mm SL, Ambo; KAUM–I. 21854, 61.5 mm SL, Kurio; NSMT–P 77778, 35.6 mm SL, Kurio; NSMT–P 91626, 25.3 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. MOSC (2002): Isso, Ambo and Kurio.

Fig. 494. *Bathygobius fuscus* (KAUM–I. 11521, 47.0 mm SL).

Bathygobius hongkongensis (Fowler, 1931)
[Jpn name: Kurohoshiyahazuhaze]

Akihito et al. (2002): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Bryaninops natans Larson, 1985
[Jpn name: Akamehaze] (Fig. 495)

Bryaninops yongei (Davis and Cohen, 1969)
[Jpn name: Garasuhaze]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 495. *Bryaninops natans* (off Isso, 12 m, 16 Sept. 2006, S. Harazaki).

Cabillus tongarevae (Fowler, 1927)
[Jpn name: Yorimehaze] (Fig. 496)

KPM–NI 24793, 21.3 mm SL, Kurio.

Fig. 496. *Cabillus tongarevae* (KPM–NI 24793, 21.3 mm SL).

***Cabillus* sp.**
[Jpn name: None] (Fig. 497)

KAUM–I. 11180, 20.0 mm SL, Kurio; KAUM–I. 21729, 20.6 mm SL, Kurio; KAUM–I. 21756, 14.4 mm SL, Kurio.

Remarks: These specimens were identified as *Cabillus* sp. 3 of Suzuki and Shibukawa (2004).

Fig. 497. *Cabillus* sp. (KAUM–I. 11180, 20.0 mm SL).

Callogobius hasseltii (Bleeker, 1851)
[Jpn name: Okinawahaze] (Fig. 498)

BSKU 96593, 15.0 mm SL, Yudomari; BSKU 96596, 17.0 mm SL, Yudomari; KAUM–I. 20178, 19.4 mm SL, Yudomari; KAUM–I. 20179, 14.7 mm SL, Yudomari; KAUM–I. 20180, 19.8 mm SL, Yudomari; KAUM–I. 20181, 18.7 mm SL, Yudomari; KAUM–I. 20215, 17 mm SL, Yudomari; KAUM–I. 20216, 21 mm SL, Yudomari; KPM–NI 22523, 21.4 mm SL, Yudomari.

Fig. 498. *Callogobius hasseltii* (KAUM–I. 20181, 18.7 mm SL).

Callogobius okinawae (Snyder, 1908)
[Jpn name: Namerahaze] (Fig. 499)

KAUM–I. 11178, 43.3 mm SL, Kurio; KAUM–I. 11188, 48.2 mm SL, Kurio; KAUM–I. 11215, 11.2 mm SL, Kurio; KAUM–I. 11332, 10.7 mm SL, Nagakubo; NSMT–P 77726, 31.8 mm SL, Kurio; NSMT–P 77727, 25.6 mm SL, Kurio; NSMT–P 77728, 33.1 mm SL, Kurio; NSMT–P 77776, 43.7 mm SL, Kurio; NSMT–P 77777, 58.4 mm SL, Kurio; NSMT–P 91625, 30.5 mm SL, Kurio.

Fig. 499. *Callogobius okinawae* (upper: KAUM–I. 11215, 11.2 mm SL; lower: KAUM–I. 11178, 43.3 mm SL).

Callogobius tanegasimae (Snyder, 1908)
[Jpn name: Tanehaze] (Fig. 500)

KAUM–I. 11318, 54.2 mm SL, Nagakubo; KAUM–I. 11320, 50.0 mm SL, Nagakubo; KAUM–I. 11326, 45.2 mm SL, Nagakubo; KAUM–I. 11333, 42.1 mm SL, Nagakubo; KAUM–I. 20368, 41.4 mm SL, mouth of Kurio River; KAUM–I. 20369, 28.5 mm SL, mouth of Kurio River; KPM–NI 22564, 47.5 mm SL, mouth of Kurio River; NSMT–P 91595, 48.6 mm SL, Nagakubo; NSMT–P 91596, 50.0 mm SL, Nagakubo.

Fig. 500. *Callogobius tanegasimae* (upper: KAUM–I. 11333, 42.1 mm SL; lower: KPM–NI 22564, 47.5 mm SL).

***Callogobius* sp. 1**
[Jpn name: None] (Fig. 501)

KPM–NI 22535, 13.8 mm SL, Yudomari.

Remarks: This individual is a close relative of *Callogobius maculipinnis* (Fowler, 1918).

Fig. 501. *Callogobius* sp. 1 (KPM–NI 22535, 13.8 mm SL).

***Callogobius* sp. 2**
[Jpn name: None]

Suzuki and Shibukawa (2004, as *Callogobius* sp. 1): Yaku-shima Island.

***Callogobius* sp. 3**
[Jpn name: None]

Suzuki and Shibukawa (2004, as *Callogobius* sp. 3): Yaku-shima Island.

Chaenogobius annularis Gill, 1859
[Jpn name: Agohaze] (Fig. 502)

KAUM–I. 11122, 42.2 mm SL, Matsumine.

Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 502. *Chaenogobius annularis* (KAUM–I. 11122, 42.2 mm SL).

Clariger exilis Snyder, 1911
[Jpn name: Shimofurisejirohaze] (Fig. 503)

KAUM–I. 11397, 19.3 mm SL, Kurio; KAUM–I. 11536, 17.5 mm SL, Ambo; KAUM–I. 11701, 20.9 mm SL, Ambo.

Arai and Ida (1975): Kusugawa [one specimen (23 mm TL) were reported, but not found at NSMT]. Akihito et al. (2002): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 503. *Clariger exilis* (KAUM–I. 11536, 17.5 mm SL).

Cristatogobius lophius Herre, 1927
[Jpn name: Tosakahaze]

Yonezawa (2003a): a fishing port, Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Cryptocentrus albidorsus (Yanagisawa, 1978)
[Jpn name: Shiroobihaze] (Fig. 504)

BSKU 96642, 38.9 mm SL, Isso.

Cryptocentrus caeruleomaculatus (Herre, 1933)
[Jpn name: Takanohahaze] (Fig. 505)

BSKU 96546, 45.4 mm SL, Yudomari; KAUM–I. 20139, 40.7 mm SL, Yudomari.

Fig. 504. *Cryptocentrus albidorsus* (BSKU 96642, 38.9 mm SL).

Fig. 505. *Cryptocentrus caeruleomaculatus* (KAUM–I. 20139, 40.7 mm SL).

Cryptocentrus nigrocellatus (Yanagisawa, 1978)
[Jpn name: Kurohoshihaze] (Fig. 506)

BSKU 96604, 67.1 mm SL, Kurio; BSKU 96659, 44.7 mm SL, Isso; KAUM–I. 20377, 70.2 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 506. *Cryptocentrus nigrocellatus* (KAUM–I. 20377, 70.2 mm SL).

Discordipinna griessingeri Hoese and Fourmanoir, 1978
[Jpn name: Homurahaze] (Fig. 507)

KPM–NI 22514, 18.0 mm SL, Yudomari.

Drombus **sp.**
[Jpn name: Kurokohaze] (Fig. 508)

BSKU 96631, 47.3 mm SL, mouth of Kurio River; KAUM–I. 20302, 33.3 mm SL, mouth of Kurio River; KAUM–I. 20371, 34.9 mm SL, mouth of Kurio River; KAUM–I. 20372, 35.4 mm SL, mouth of Kurio River; KAUM–I. 20373, 32.2 mm SL, mouth of Kurio River; KAUM–I. 20374, 33.1 mm SL, mouth of Kurio River; KAUM–

Fig. 507. *Discordipinna griessingeri* (KPM–NI 22514, 18.0 mm SL).

I. 20375, 23.8 mm SL, mouth of Kurio River; KAUM–I. 21601, 49.5 mm SL, mouth of Ambo River; KPM–NI 22565, 34.3 mm SL, mouth of Kurio River; KPM–NI 22566, 35.2 mm SL, mouth of Kurio River.

Suzuki and Shibukawa (2004): Yaku-shima Island.

Remarks: These individuals appear to be the species identified as *Drombus* sp. A of Suzuki and Shibukawa (2004).

Fig. 508. *Drombus* sp. (upper: KAUM–I. 20302, 33.3 mm SL; lower: KPM–NI 22565, 34.3 mm SL).

Eviota abax (Jordan and Snyder, 1901)
[Jpn name: Isohaze] (Fig. 509)

BSKU 96586, 19.1 mm SL, Yudomari; BSKU 96587, 14.9 mm SL, Yudomari; BSKU 96589, 15.5 mm SL, Yudomari; KAUM–I. 11175, 30.5 mm SL, Kurio; KAUM–I. 11278, 27.4 mm SL, Yudomari; KAUM–I. 11372, 27.8 mm SL, Kurio; KAUM–I. 11373, 17.0 mm SL, Kurio; KAUM–I. 11518, 17.4 mm SL, Ambo; KAUM–I. 11519, 15.2 mm SL, Ambo; KAUM–I. 20353, 21 mm SL, Yudomari; KAUM–I. 20354, 20.9 mm SL, Yudomari; KAUM–I. 20355, 18.6 mm SL, Yudomari; KAUM–I. 20356, 19.7 mm SL, Yudomari; KAUM–I. 20357, 17.1 mm SL, Yudomari; KAUM–I. 20358, 19.4 mm SL, Yudomari; KAUM–I. 20359, 17.5 mm SL, Yudomari; KAUM–I. 20360, 15.6 mm SL, Yudomari; KAUM–I. 20361, 16 mm SL, Yudomari; KAUM–I. 20362, 16.6 mm SL, Yudomari; KAUM–I. 20363, 15.7 mm SL, Yudomari; KAUM–I. 20364, 15.3 mm SL, Yudomari; KAUM–I. 20365, 14.7 mm SL, Yudomari; KAUM–I. 20366, 14.4 mm SL, Yudomari; KAUM–I. 25061, 27.3 mm SL, Ambo; KAUM–I. 25062, 25.6 mm SL, Ambo; KAUM–I. 25063, 21.2 mm SL, Ambo; KPM–NI 22530, 18.6 mm SL, Yudomari; KPM–NI 22531, 16.6 mm SL, Yudomari; KPM–NI 22585, 12.6 mm SL, Isso; NSMT–P 91593, 15 mm SL, Nagakubo; NSMT–P 91614, 33 mm SL, Kurio; NSMT–P 91615, 22 specimens, 9–32 mm SL, Kurio.

Arai and Ida (1975): Kusugawa (five specimens were reported, but not found at NSMT). Ichikawa et al. (1992): Yaku-shima Island.

Fig. 509. *Eviota abax* (KPM–NI 22530, 18.6 mm SL).

Eviota distigma Jordan and Seale, 1906
[Jpn name: Kobitoisohaze] (Fig. 510)

BSKU 96890, 17.8 mm SL, Kurio; BSKU 96891, 17.6 mm Sl, Kurio; KAUM–I. 11276, 15.3 mm SL, Yudomari.

Eviota epiphanes Jenkins, 1903
[Jpn name: Midorihaze]

Arai and Ida (1975): Kusugawa [seven specimens (21–23 mm TL) were reported, but not found at NSMT].

Fig. 510. *Eviota distigma* (KAUM–I. 11276, 15.3 mm SL).

Eviota japonica Jewett and Lachner, 1983
[Jpn name: Minamiisohaze] (Fig. 511)

KAUM–I. 11177, 18.8 mm SL, Kurio; KAUM–I. 11214, 13.2 mm SL, Kurio; KAUM–I. 11700, 17.3 mm SL, Ambo; KAUM–I. 23536, 16.9 mm SL, Ambo; NSMT–P 91685, 30 mm SL, Kurio; NSMT–P 91686, 10 specimens, 09–29 mm SL, Kurio.

Fig. 511. *Eviota japonica* (KAUM–I. 11177, 18.8 mm SL).

Eviota melasma Lachner and Karnella, 1980
[Jpn name: Akahoshiisohaze]

Kuniyasu (1999): Kurio.

Eviota pellucida Larson, 1976
[Jpn name: Shiroobiisohaze]

Suzuki and Shibukawa (2004): Yaku-shima Island.

Eviota prasina (Klunzinger, 1871)
[Jpn name: Nan-youmidorihaze] (Fig. 512)

BSKU 96585, 18.5 mm SL, Yudomari; BSKU 96590, 14.6 mm SL, Yudomari; KAUM–I. 11176, 22.0 mm SL, Kurio; KAUM–I. 11374, 18.4 mm SL, Kurio; KAUM–I. 11375, 15.2 mm SL, Kurio; KAUM–I. 11392, 15.8 mm SL, Kurio; KAUM–I. 11395, 15.8 mm SL, Kurio; KAUM–I. 11415, 17.5 mm SL, Kurio; KAUM–I. 11416, 10.9 mm SL, Kurio; KAUM–I. 20267, 17.1 mm SL, Kurio; KAUM–I. 21722, 17.8 mm SL, Kurio; KAUM–I. 21723, 17.4 mm SL, Kurio; KAUM–I. 21724, 13.5 mm SL, Kurio; KAUM–I. 21725, 15.5 mm SL, Kurio; KAUM–I. 21726, 23.2 mm SL, Kurio; KAUM–I. 21727, 16.7 mm SL, Kurio; KAUM–I. 21728, 14.0 mm SL, Kurio; KAUM–I. 21834, 20.0 mm SL, Kurio; KAUM–I. 21868, 10.9 mm SL, Kurio; KAUM–I. 23537, 15.9 mm SL, Kurio; KAUM–I. 23538, 19.1 mm SL, Kurio; KAUM–I. 23539, 17.2 mm SL, Kurio; KPM–NI 22532, 20.1 mm SL, Yudomari; KPM–NI 22533, 15.5 mm SL, Yudomari; NSMT–P 91383, 19.3 mm SL, Kurio; NSMT–P 91384, 4 specimens, 11.0–17.3 mm SL, Kurio; NSMT–P 91628, 3 specimens, 15.1–18.2 mm SL, Kurio; NSMT–P 91687, 58 specimens, 10.2–21.6 mm SL, Kurio.

Fig. 512. *Eviota prasina* (KPM–NI 22532, 20.1 mm SL).

Eviota sebreei Jordan and Seale, 1906
[Jpn name: Kurosujiisohaze] (Fig. 513)

KPM–NI 22534, 14.5 mm SL, Yudomari.

Fig. 513. *Eviota sebreei* (KPM–NI 22534, 14.5 mm SL).

Eviota **sp.**
[Jpn name: None] (Fig. 514)

BSKU 96579, 28.1 mm SL, Yudomari; KAUM–I. 20175, 15.7 mm SL, Yudomari; KPM–NI 22538, 18.7 mm SL, Yudomari.

Remarks: T. Suzuki of Amagasaki Senior High School has prepared the manuscript for this species as the first Japanese records, based on specimens from Iriomote-jima, Amami-oshima and Yaku-shima Islands.

Fig. 514. *Eviota* sp. (upper: KAUM–I. 20175, 15.7 mm SL; lower: KPM–NI 22538, 18.7 mm SL).

Exyrias puntang (Bleeker, 1851)
[Jpn name: Inkohaze] (Fig. 515)

BSKU 96625, 41.2 mm SL, mouth of Kurio River; BSKU 96876, 48.5 mm SL, Kurio; BSKU 96877, 26.5 mm SL, Kurio; BSKU 96878, 85.7 mm SL, Kurio; BSKU 96879, 19.5 mm SL, Kurio; KAUM–I. 20299, 33 mm SL, mouth of Kurio River; KAUM–I. 20300, 34.5 mm SL, mouth of Kurio River; KAUM–I. 20301, 32.2 mm SL, mouth of Kurio River; KAUM–I. 20317, 41.7 mm SL, mouth of Kurio River; KAUM–I. 20367, 36.9 mm SL, mouth of Kurio River; KAUM–I. 21604, 67.2 mm SL, mouth of Ambo River; KAUM–I. 21605, 68.8 mm SL, mouth of Ambo River; KAUM–I. 21606, 89.6 mm SL, mouth of Ambo River; KPM–NI 22563, 84.0 mm SL, mouth of Kurio River.

Fig. 515. *Exyrias puntang* (KAUM–I. 20301, 32.2 mm SL).

Favonigobius reichei (Bleeker, 1853)
[Jpn name: Minamihimehaze]

Suzuki and Shibukawa (2004): Yaku-shima Island.

***Feia* sp.**
[Jpn name: None]

Suzuki and Shibukawa (2004): Yaku-shima Island.

***Flabelligobius* sp. 1**
[Jpn name: Hotatetsunohaze] (Fig. 516)

Remarks: Same species with *Flabelligobius* sp. A of Suzuki and Shibukawa (2004).

Fig. 516. *Flabelligobius* sp. 1 (off Isso, 20 m, 14 July 2006, S. Harazaki).

***Flabelligobius* sp. 2**
[Jpn name: None] (Fig. 517)

Remarks: Probably same species with *Flabelligobius* sp. 4 of Suzuki and Shibukawa (2004).

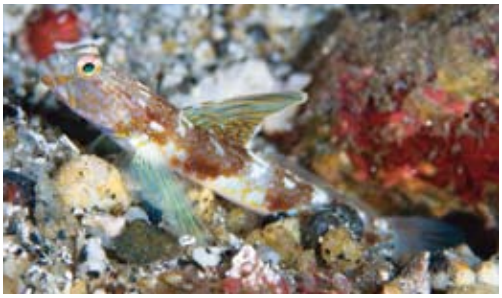

Fig. 517. *Flabelligobius* sp. 2 (off Isso, 35 m, 15 Sept. 2007, S. Harazaki).

Fusigobius duospilus Hoese and Reader, 1985
[Jpn name: Sehoshisankakuhaze] (Fig. 518)

KAUM–I. 20278, 24.9 mm SL, Kurio; KAUM–I. 20279, 30 mm SL, Kurio; KPM–NI 22550, 35.5 mm SL, Kurio.

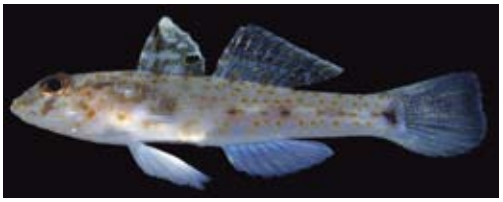

Fig. 518. *Fusigobius duospilus* (KPM–NI 22550, 35.5 mm SL).

Fusigobius gracilis (Randall, 2001)
[Jpn name: Sesujisankakuhaze]

Kuniyasu (1999, as *Fusigobius* sp.): Kurio.

Fusigobius humeralis (Randall, 2001)
[Jpn name: Kataboshisankakuhaze] (Fig. 519)

BSKU 96561, 24.5 mm SL, Yudomari; KAUM–I. 20176, 14.8 mm SL, Yudomari; KAUM–I. 20177, 21.7 mm SL, Yudomari; KAUM–I. 20277, 23.3 mm SL, Kurio; KPM–NI 22524, 21.0 mm SL, Yudomari.

Fig. 519. *Fusigobius humeralis* (KAUM–I. 20277, 23.3 mm SL).

Fusigobius inframaculatus (Randall, 1994)
[Jpn name: Hatatatesankakuhaze] (Fig. 520)

BSKU 96601, 47.6 mm SL, Kurio; KAUM–I. 20253, 42.7 mm SL, Kurio; KPM–NI 22549, 48.1 mm SL, Kurio.

Ichikawa et al. (1992, as *Fusigobius longispinus*): Yaku-shima Island. Kuniyasu (1999): Kurio. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 520. *Fusigobius inframaculatus* (KPM–NI 22549, 48.1 mm SL).

Fusigobius neophytus (Günther, 1877)
[Jpn name: Sankakuhaze] (Fig. 521)

BSKU 96544, 40.7 mm SL, Yudomari; BSKU 96597, 22.9 mm SL, Yudomari; KAUM–I. 20140, 45.2 mm SL, Yudomari; KAUM–I. 20252, 47.7 mm SL, Kurio; KPM–NI 22512, 38.1 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 521. *Fusigobius neophytus* (KAUM–I. 20252, 47.7 mm SL).

Glossogobius biocellatus (Valenciennes)
[Jpn name: Hitomihaze] (Fig. 522)

BSKU 96626, 43.9 mm SL, mouth of Kurio River; KAUM–I. 11508, 34.9 mm SL, mouth of Miyanoura River; KAUM–I. 21590, 53.5 mm SL, mouth of Ambo River; KAUM–I. 21591, 65.4 mm SL, mouth of Ambo River; KAUM–I. 21592, 68.8 mm SL, mouth of Ambo River; KPM–NI 22567, 37.5 mm SL, mouth of Kurio River.

Remarks: This species has often been treated as a member of *Psammogobius* (*P. biocellatus*).

Glossogobius circumspectus (Macleay, 1883)
[Jpn name: Sudareurohaze] (Fig. 523)

BSKU 96628, 44.4 mm SL, mouth of Kurio River; BSKU 96880, 19.8 mm SL, Kurio; KAUM–I. 20297, 40.6 mm SL, mouth of Kurio River.

Fig. 522. *Glossogobius biocellatus* (KAUM–I. 11508, 34.9 mm SL).

Fig. 523. *Glossogobius circumspectus* (KAUM–I. 20297, 40.6 mm SL).

Gnatholepis anjerensis (Bleeker, 1851)
[Jpn name: Omonhaze] (Fig. 524)

KAUM–I. 11181, 18.7 mm SL, Kurio; KAUM–I. 20169, 24 mm SL, Yudomari; KAUM–I. 20170, 17.1 mm SL, Yudomari; KAUM–I. 20171, 18.9 mm SL, Yudomari; KAUM–I. 21691, 49.1 mm SL, Kurio; KPM–NI 22522, 25.5 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 524. *Gnatholepis anjerensis* (KPM–NI 22522, 25.5 mm SL).

Gnatholepis cauerensis cauerensis (Bleeker, 1853)
[Jpn name: Kataboshiomonhaze] (Fig. 525)

KAUM–I. 11305, 47.2 mm SL, Yudomari; KAUM–I. 11306, 47.1 mm SL, Yudomari; KAUM–I. 11595, 38.5 mm SL, Ambo; KAUM–I. 11601, 47.5 mm SL, Ambo; KAUM–I. 20222, 25.6 mm SL, Yudomari; KAUM–I. 20305, 16.1 mm SL, Kurio; KAUM–I. 20352, 27.6 mm SL, Isso; KAUM–I. 20534, 55 mm SL, Yudomari; KPM–NI 22552, 33.9 mm SL, Kurio; KPM–NI 22576, 30.5 mm SL, Isso.

Kuniyasu (1999, as *Gnatholepis scapulostigma*): Kurio.

Remarks: *Gnatholepis scapulostigma* Herre, 1953 was recently recognized as a junior synonym of *Gnatholepis cauerensis cauerensis* by Randall and Greenfield (2001).

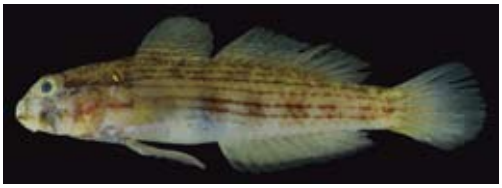

Fig. 525. *Gnatholepis cauerensis cauerensis* (KAUM–I. 11305, 47.2 mm SL).

Gobiodon atrangulatus Garman, 1903
[Jpn name: Seakakobanhaze] (Fig. 526)

BSKU 96613, 19.6 mm SL, Kurio.

Arai and Ida (1975): Kusugawa [five specimens (20–30 mm TL) were reported, but not found at NSMT]. Akihito et al. (2002): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 526. *Gobiodon atrangulatus* (BSKU 96613, 19.6 mm SL).

Gobiodon oculolineatus Wu, 1979
[Jpn name: Kumadorikobanhaze] (Fig. 527)

BSKU 96575, 19.3 mm SL, Yudomari.

Fig. 527. *Gobiodon oculolineatus* (BSKU 96575, 19.3 mm SL).

Gobiodon quinquestrigatus (Valenciennes, 1837)
[Jpn name: Futairosangohaze] (Fig. 528)

BSKU 96592, 16.3 mm SL, Yudomari; BSKU 96595, 23.4 mm SL, Yudomari; KAUM–I. 20182, 24.8 mm SL, Yudomari.

Arai and Ida (1975): Kusugawa (eight specimens were reported, but not found at NSMT). Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 528. *Gobiodon quinquestrigatus* (BSKU 96595, 23.4 mm SL).

***Gobiodon* sp.**
[Jpn name: Akatenkobanhaze]

Arai and Ida (1975, as *Gobiodon rivulatus rivulatus*): Kusugawa (two specimens were reported, but not found at NSMT).

Gobiopsis arenaria (Snyder, 1908)
[Jpn name: Isagohaze] (Fig. 529)

KAUM–I. 11516, 23.6 mm SL, Ambo.

Fig. 529. *Gobiopsis arenaria* (KAUM–I. 11516, 23.6 mm SL).

Grallenia arenicola Shibukawa and Iwata, 2007
[Jpn name: Sazarehaze] (Fig. 530)

KAUM–I. 21840, 16.2 mm SL, Isso.

Remarks: This specimen is tentatively identified as *G. arenicola*, but further examination is needed.

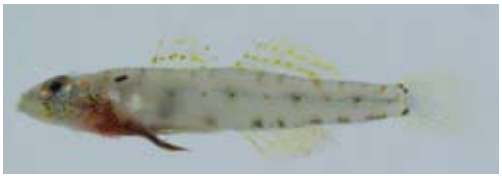

Fig. 530. *Grallenia arenicola* (KAUM–I. 21840, 16.2 mm SL).

Gymnogobius petschiliensis (Rendahl, 1924)
[Jpn name: Sumiukigori] (Fig. 531)

NSMT–P 29120, 12 specimens, 42.5–65.7 mm SL, Yaku-shima Island; NSMT–P 29368, 53.2 mm SL, Yaku-shima Island.

Akihito et al. (2002, as *Gymnogobius* sp. 1): Yaku-shima Island. Yonezawa (2003c): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

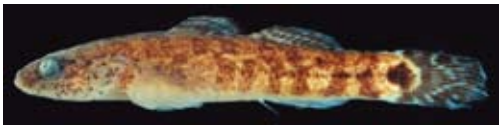

Fig. 531. *Gymnogobius petschiliensis* (NSMT–P 29120, 42.5 mm SL, preserved specimen).

Gymnogobius urotaenia (Hilgendorf 1879)
[Jpn name: Ukigori]

Ichikawa et al. (1992, as *Chaenogobius urotaenia*): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Istigobius decoratus (Herre, 1927)
[Jpn name: Hoshikazarihaze] (Fig. 532)

BSKU 96560, 29.1 mm SL, Yudomari; BSKU 96636, 64.5 mm SL, Isso; KAUM–I.11592, 71.5 mm SL, Ambo; KAUM–I. 11593, 58.9 mm SL, Ambo; KAUM–I. 11594, 34.3 mm SL, Ambo;

KAUM–I. 20138, 59.0 mm SL, Yudomari; KAUM–I. 20221, 32.8 mm SL, Yudomari; KPM–NI 22553, 24.0 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

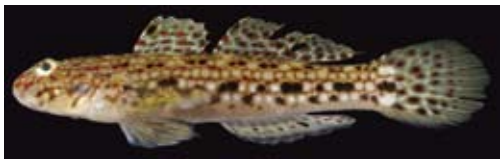

Fig. 532. *Istigobius decoratus* (KAUM–I.11592, 71.5 mm SL).

Istigobius ornatus (Rüppell, 1830)
[Jpn name: Kazarihaze] (Fig. 533)

NSMT–P 77569, 62.8 mm SL, Kurio.

Kuniyasu (1999): Kurio.

Fig. 533. *Istigobius ornatus* (NSMT–P 77569, 62.8 mm SL).

Istigobius rigilius (Herre, 1953)
[Jpn name: Madarakazarihaze]

Kuniyasu (1999): Kurio.

Lotilia graciliosa Klausewitz 1960
[Jpn name: Odorihaze] (Fig. 534)

Luciogobius guttatus Gill, 1859
[Jpn name: Mimizuhaze]

Suzuki and Shibukawa (2004): Yaku-shima Island.

Luciogobius platycephalus Shiogaki and Dotsu, 1976
[Jpn name: Yarimimizuhaze] (Fig. 535)

KAUM–I. 11563, 34.2 mm SL, Ambo.

Fig. 534. *Lotilia graciliosa* (off Isso, 18 m, 25 June 2006, S. Harazaki).

Fig. 535. *Luciogobius platycephalus* (KAUM–I. 11563, 34.2 mm SL).

***Luciogobius* sp.**
[Jpn name: None] (Fig. 536)

NSMT–P 29062, 2 specimens, 42.7–50.5 mm SL, Kusugawa; NSMT–P 29101, 56.4 mm SL, Isso; NSMT–P 29369, 42.1 mm SL, Kusugawa.

Suzuki and Shibukawa (2004, as *Luciogobius* sp. 2): Yaku-shima Island.

Fig. 536. *Luciogobius* sp. (NSMT–P 29369, 42.1 mm SL, preserved specimen).

Oxyurichthys cornutus McCulloch and Waite, 1918
[Jpn name: Kamahirematsugehaze] (Fig. 537)

KPM–NI 22569, 32.2 mm SL, mouth of Kurio River.

Fig. 537. *Oxyurichthys cornutus* (KPM–NI 22569, 32.2 mm SL).

***Pandaka* sp.**

[Jpn name: Gomahaze] (Fig. 538)

KAUM–I. 11213, 16.7 mm SL, Kurio; KAUM–I. 11506, 16.7 mm SL, mouth of Miyanoura River; KAUM–I. 11774, 17.8 mm SL, mouth of Miyanoura River; KAUM–I. 11775, 13.2 mm SL, mouth of Miyanoura River; KAUM–I. 11776, 16.5 mm SL, mouth of Miyanoura River; KAUM–I. 11777, 14.5 mm SL, mouth of Miyanoura River; KAUM–I. 11778, 15.9 mm SL, mouth of Miyanoura River; NSMT–P 29477, 4 specimens, 14.2–16.4 mm SL, mouth of Miyanoura River; NSMT–P 67099, 9 specimens, 9.4–12.2 mm SL, mouth of Kurio River; NSMT–P 67101, 36 specimens, 10.9–13.3 mm SL, mouth of Miyanoura River.

Ichikawa et al. (1992, as *Pandaka lidwilli*): Yaku-shima Island. Yonezawa (2003c, as *Pandaka lidwilli*): Yaku-shima Island. Mukai et al. (2004): 4 specimens, Yaku-shima Island (used for molecular analysis). Suzuki and Shibukawa (2004): Yaku-shima Island.

Remarks: These individuals appear to be the species identified as *Pandaka* sp. A of Suzuki and Shibukawa (2004).

Fig. 538. *Pandaka* sp. (KAUM–I. 11506, 16.7 mm SL).

Paragobiodon echinocephalus (Rüppell, 1830)

[Jpn name: Darumahaze] (Fig. 539)

BSKU 96565, 24.3 mm SL, Yudomari.

Fig. 539. *Paragobiodon echinocephalus* (BSKU 96565, 24.3 mm SL).

Paragobiodon lacunicolus (Kendall and Goldsborough, 1911)

[Jpn name: Pandadarumahaze] (Fig. 540)

BSKU 96591, 11.1 mm SL, Yudomari.

Fig. 540. *Paragobiodon lacunicolus* (upper: BSKU 96591, 11.1 mm SL; lower: off Isso, 6 m, 23 June 2006, S. Harazaki).

Paragobiodon modestus (Regan, 1908)

[Jpn name: Yogoredarumahaze] (Fig. 541)

BSKU 96581, 12.0 mm SL, Yudomari; KAUM–I. 20172, 10.9 mm SL, Yudomari; KAUM–I. 20184, 11.1 mm SL, Yudomari; KPM–NI 22527, 11.1 mm SL, Yudomari.

Paragobiodon xanthosoma (Bleeker, 1852)

[Jpn name: Akanedarumahaze] (Fig. 542)

Fig. 541. *Paragobiodon modestus* (BSKU 96581, 12.0 mm SL).

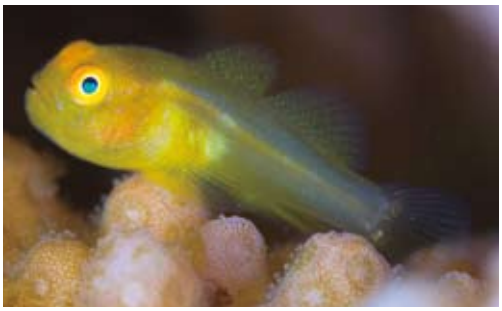

Fig. 542. *Paragobiodon xanthosoma* (off Isso, 10 m, 4 Sept. 2006, S. Harazaki).

Periophthalmus argentilineatus Valenciennes, 1837
[Jpn name: Minamitobihaze] (Fig. 543)

KAUM–I. 20308, 36.1 mm SL, mouth of Kurio River.

Yonezawa (2003c): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 543. *Periophthalmus argentilineatus* (KAUM–I. 20308, 36.1 mm SL).

Pleurosicya micheli Fourmanoir, 1971
[Jpn name: Akasujiumitakehaze] (Fig. 544)

KAUM–I. 21782, 19.8 mm SL, Kurio.

Pleurosicya mossambica Smith, 1959
[Jpn name: Seboshiumitakehaze] (Fig. 545)

BSKU 96584, 13.1 mm SL, Yudomari; BSKU 96607, 20.5 mm SL, Kurio; KAUM–I. 20168, 13.6 mm SL, Yudomari.

Kuniyasu (1999): Kurio.

Fig. 544. *Pleurosicya micheli* (KAUM–I. 21782, 19.8 mm SL).

Fig. 545. *Pleurosicya mossambica* (BSKU 96607, 20.5 mm SL).

Priolepis cincta (Regan, 1908)
[Jpn name: Benkeihaze] (Fig. 546)

BSKU 96669, 40.6 mm SL, Kurio; BSKU 96670, 40.1 mm SL, Kurio; FRLM 34682, 36.9 mm SL, Kurio; KAUM–I. 11187, 40.5 mm SL, Kurio; KAUM–I. 11371, 49.9 mm SL, Kurio; KAUM–I. 11437, 29.3 mm SL, Kurio; KAUM–I. 20287, 40.2 mm SL, Kurio; KAUM–I. 20294, 21.7 mm SL, Yudomari; KAUM–I. 20539, 35.8 mm SL, Yudomari; KPM–NI 22556, 19.6 mm SL, Kurio; MUFS 25602, 43.7 mm SL, Kurio; MUFS 25603, 48.9 mm SL, Kurio; MUFS 25604, 53.3 mm SL, Kurio; NSMT–P 91616, 29 mm SL, Kurio; NSMT–P 91675, 6 specimens, 31–49 mm SL, Kurio.

Arai and Ida (1975, as *Quisquilius eugenius*, Benkeihaze): NSMT–P 58110, 34.0 mm SL, Kusugawa; NSMT–P 58114, 45.9 mm SL, Kusugawa.

Fig. 546. *Priolepis cincta* (KAUM–I. 20287, 40.2 mm SL).

Priolepis fallacincta Winterbottom and Burridge, 1993
[Jpn name: Kobenkeihaze] (Fig. 547)

KPM–NI 22504, 12.2 mm SL, Yudomari.

Fig. 547. *Priolepis fallacincta* (KPM–NI 22504, 12.2 mm SL).

Priolepis inhaca (Smith, 1949)
[Jpn name: Amimebenkeihaze] (Fig. 548)

KAUM–I. 20295, 10.7 mm SL, Yudomari; KPM–NI 22537, 18.3 mm SL, Yudomari.

Fig. 548. *Priolepis inhaca* (KPM–NI 22537, 18.3 mm SL).

Priolepis nocturna (Smith, 1957)
[Jpn name: Izayoibenkeihaze] (Fig. 549)

Fig. 549. *Priolepis nocturna* (off Isso, 20 m, 8 Nov. 2008, S. Harazaki).

Priolepis semidoliata (Valenciennes, 1837)
[Jpn name: Irezumihaze] (Fig. 550)

BSKU 96559, 21.2 mm SL, Yudomari; BSKU 96569, 15.8 mm SL, Yudomari; KAUM–I. 20167, 20.2 mm SL, Yudomari; KAUM–I. 20223, 18.8 mm SL, Yudomari; KAUM–I. 20224, 21.2 mm SL, Yudomari; KAUM–I. 20225, 17.1 mm SL, Yudomari; KAUM–I. 20291, 13.3 mm SL, Yudomari; KAUM–I. 20292, 14.3 mm SL, Yudomari; KAUM–I. 20293, 10.3 mm SL, Yudomari; KAUM–I. 21696, 25.7 mm SL, Kurio; KAUM–I. 21866, 16.1 mm SL, Kurio; KPM–NI 22521, 19.4 mm SL, Yudomari; MUFS 25620, 17.1 mm SL, Kurio.

Arai and Ida (1975): Kusugawa [three specimens (24–39 mm TL) were reported, but not found at NSMT]. Suzuki and Shibukawa (2004): Yaku-shima Island.

Fig. 550. *Priolepis semidoliata* (BSKU 96559, 21.2 mm SL).

Redigobius bikolanus (Herre, 1927)
[Jpn name: Hinahaze] (Fig. 551)

KAUM–I. 11507, 20.0 mm SL, mouth of Miyanoura River; KAUM–I. 11549, 29.7 mm SL, Ambo; KAUM–I. 11564, 30.9 mm SL, Ambo; KAUM–I. 17850, 15.2 mm SL, mouth of Isso River; KAUM–I. 20326, 14.3 mm SL, mouth of Kurio River; KAUM–I. 21607, 27.6 mm SL, mouth of Ambo River; KAUM–I. 21608, 25.8 mm SL, mouth of Ambo River; KAUM–I. 21609, 25.4 mm SL, mouth of Ambo River; KAUM–I. 21610, 25.5 mm SL, mouth of Ambo River; KAUM–I. 21611, 23.4 mm SL, mouth of Ambo River; KAUM–I. 21612, 12.3 mm SL, mouth of Ambo River; KPM–NI 22570, 16.3 mm SL, mouth of Kurio River.

Rhinogobius giurinus (Rutter, 1897)
[Jpn name: Gokurakuhaze] (Fig. 552)

KAUM–I. 11714, 45.3 mm SL, mouth of Miyanoura River; KAUM–I. 11716, 35.7 mm SL, mouth of Miyanoura River; KAUM–I. 15463,

Fig. 551. *Redigobius bikolanus* (KAUM–I. 11507, 20.0 mm SL).

59.3 mm SL, Yaku-shima Island; KAUM–I. 15471, 27.5 mm SL, Yaku-shima Island; KAUM–I. 21595, 58.0 mm SL, mouth of Ambo River; NSMT–P 77780, 50.8 mm SL, mouth of Ambo River; NSMT–P 77781, 78.5 mm SL, mouth of Ambo River; NSMT–P 77782, 68.4 mm SL, mouth of Ambo River; NSMT–P 77783, 54.5 mm SL, mouth of Ambo River; NSMT–P 77784, 62.3 mm SL, mouth of Ambo River; NSMT–P 77785, 59.0 mm SL, mouth of Ambo River; NSMT–P 77786, 58.3 mm SL, mouth of Ambo River; NSMT–P 77787, 58.5 mm SL, mouth of Ambo River; NSMT–P 77788, 56.4 mm SL, mouth of Ambo River; NSMT–P 77789, 54.6 mm SL, mouth of Ambo River; NSMT–P 77790, 66.2 mm SL, mouth of Ambo River; NSMT–P 77791, 54.7 mm SL, mouth of Ambo River; NSMT–P 77792, 53.5 mm SL, mouth of Ambo River; NSMT–P 77793, 50.8 mm SL, mouth of Ambo River; NSMT–P 77794, 80.8 mm SL, mouth of Ambo River; NSMT–P 77795, 71.6 mm SL, mouth of Kurio River; NSMT–P 77796, 60.9 mm SL, mouth of Kurio River; NSMT–P 77797, 67.3 mm SL, mouth of Kurio River; NSMT–P 77798, 62.2 mm SL, mouth of Kurio River; NSMT–P 77799, 56.6 mm SL, mouth of Kurio River; NSMT–P 77800, 57.9 mm SL, mouth of Kurio River; NSMT–P 77801, 46.3 mm SL, mouth of Kurio River;.

Jordan and Starks (1906, as *Rhinogobius hadropterus*): numerous specimens, but their whereabouts unknown, mouth of Miyanoura River.

Fig. 552. *Rhinogobius giurinus* (NSMT–P 77799, 56.6 mm SL).

***Rhinogobius* sp. DA**

[Jpn name: Kuroyoshinobori] (Fig. 553)

KAUM–I. 11120, 25.5 mm SL, Matsumine; KAUM–I. 11121, 30.6 mm SL, Matsumine; KAUM–I. 11543, 43.9 mm SL, Ambo; KAUM–I. 11544, 40.2 mm SL, Ambo; KAUM–I. 11545, 41.5 mm SL, Ambo; KAUM–I. 11546, 44.3 mm SL, Ambo; KAUM–I. 11547, 33.7 mm SL, Ambo; KAUM–I. 11548, 60.0 mm SL, Ambo; KAUM–I. 11566, 50.4 mm SL, Ambo; KAUM–I. 11567, 56.1 mm SL, Ambo; KAUM–I. 11568, 39.3 mm SL, Ambo; MUFS 25439, 28.3 mm SL, Matsumine.

Fig. 553. *Rhinogobius* sp. DA (KAUM–I. 11543, 43.9 mm SL).

Stiphodon percnopterygionus Watson and Chen, 1998

[Jpn name: Nan-youbouzuhaze] (Fig. 554)

KAUM–I. 11542, 24.2 mm SL, Ambo; KAUM–I. 11565, 49.0 mm SL, Ambo.

Fig. 554. *Stiphodon percnopterygionus* (KAUM–I. 11542, 24.2 mm SL).

Stonogobiops nematodes Hoese and Randall, 1982

[Jpn name: Hirenaganejirimbo] (Fig. 555)

***Sueviota* sp.**

[Jpn name: None] (Fig. 556)

KPM–NI 22560, 15.0 mm SL, Kurio.

Remarks: This specimen was identified as *Sueviota* sp. 1 of Suzuki and Shibukawa (2004).

Fig. 555. *Stonogobiops nematodes* (off Isso, 30 m, 25 Aug. 2006, S. Harazaki).

Fig. 556. *Sueviota* sp. (KPM–NI 22560, 15.0 mm SL).

Fig. 557. *Tridentiger kuroiwae* (KAUM–I. 21596, 81.4 mm SL, preserved specimen).

Fig. 558. *Trimma anaima* (off Isso, 30 m, 29 Apr. 2009, S. Harazaki).

Tridentiger kuroiwae Jordan and Tanaka, 1927
[Jpn name: Naganogori] (Fig. 557)

KAUM–I. 11694, 70.0 mm SL, mouth of Miyanoura River; KAUM–I. 11706, 44.2 mm SL, mouth of Miyanoura River; KAUM–I. 11707, 40.9 mm SL, mouth of Miyanoura River; KAUM–I. 11708, 54.4 mm SL, mouth of Miyanoura River; KAUM–I. 11709, 57.4 mm SL, mouth of Miyanoura River; KAUM–I. 11710, 40.9 mm SL, mouth of Miyanoura River; KAUM–I. 11711, 70.1 mm SL, mouth of Miyanoura River; KAUM–I. 11712, 38.7 mm SL, mouth of Miyanoura River; KAUM–I. 11713, 29.8 mm SL, mouth of Miyanoura River; KAUM–I. 21596, 81.4 mm SL, mouth of Ambo River; KAUM–I. 21602, 48.4 mm SL, mouth of Ambo River; KAUM–I. 23528, 79.9 mm SL, mouth of Ambo River; KAUM–I. 23529, 66.3 mm SL, mouth of Ambo River.

Yonezawa (2003c): Yaku-shima Island. Suzuki and Shibukawa (2004): Yaku-shima Island.

Trimma anaima Winterbottom, 2000
[Jpn name: Himeniramibenihaze] (Fig. 558)

Trimma annosum Winterbottom, 2003
[Jpn name: Pegasusubenihaze] (Fig. 559)

BSKU 96583, 16.1 mm SL, Yudomari; KAUM–I. 20306, 16.3 mm SL, Kurio; KPM–NI 22520, 21.5 mm SL, Yudomari.

Remarks: Suzuki et al. (2008) reported *T. annosum* from Iriomote-jima and Hachijo-jima Islands as the first Japanese records for the species.

Fig. 559. *Trimma annosum* (KPM–NI 22520, 21.5 mm SL).

Trimma caesiura Jordan and Seale, 1906
[Jpn name: Benihaze] (Fig. 560)

KAUM–I. 11436, 26.9 mm SL, Kurio.

Fig. 560. *Trimma caesiura* (KAUM–I. 11436, 26.9 mm SL).

Trimma macrophthalma (Tomiyama, 1936)
[Jpn name: Omehaze]
Kuniyasu (1999): Kurio.

Trimma naudei Smith, 1957
[Jpn name: Chigobenihaze] (Fig. 561)
BSKU 96614, 12.7 mm SL, Kurio.

Fig. 561. *Trimma naudei* (BSKU 96614, 12.7 mm SL).

Trimma okinawae (Aoyagi, 1949)
[Jpn name: Okinawabenihaze] (Fig. 562)
KAUM–I. 20040, 22.9 mm SL, Yudomari.
Kuniyasu (1999): Kurio.

Fig. 562. *Trimma okinawae* (KAUM–I. 20040, 22.9 mm SL).

Trimma stobbsi Winterbottom, 2001
[Jpn name: None] (Fig. 563)

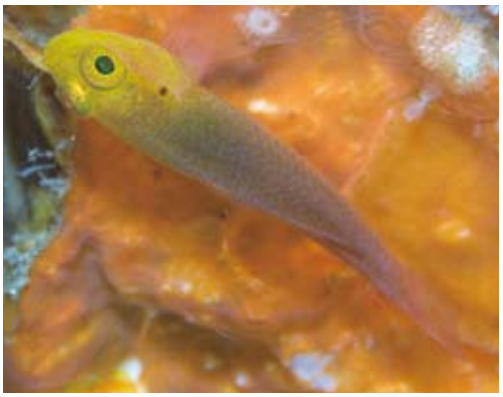

Fig. 563. *Trimma stobbsi* (off Isso, 25 m, 3 Dec. 2007, S. Harazaki).

Trimma tevegae Cohen and Davis, 1969
[Jpn name: Aogihaze] (Fig. 564)
BSKU 96612, 28.3 mm SL, Kurio.
Remarks: *T. caudomaculata* Yoshino and Araga, 1975 is a junior synonym of *T. tevegae*.

Fig. 564. *Trimma tevegae* (BSKU 96612, 28.3 mm SL).

***Trimma* sp. 1**
[Jpn name: None] (Fig. 565)
BSKU 96608, 18.7 mm SL, Kurio; KAUM–I. 20307, 12.3 mm SL, Kurio; KAUM–I. 20314, 10.8 mm SL, Kurio; KAUM–I. 20315, 9.4 mm SL, Kurio; KPM–NI 22559, 20.1 mm SL, Kurio.
Remarks: These individuals appear to be the species identified as *Trimma* sp. 2 of Suzuki and Shibukawa (2004). D. Hoese at the Australian Museum, Sydney, has prepared a manuscript for this undescribed species.

Fig. 565. *Trimma* sp. 1 (upper: KPM–NI 22559, 20.1 mm SL; lower: off Isso, 10 m, 19 Jan. 2010, S. Harazaki).

***Trimmatom* sp. 1**

[Jpn name: None] (Fig. 566)

BSKU 96639, 15.1 mm SL, Isso; BSKU 96656, 19.8 mm SL, Isso; BSKU 96660, 9.8 mm SL, Isso; BSKU 96661, 13.6 mm SL, Isso.

Suzuki and Shibukawa (2004, as *Trimmatom* sp. A): Yaku-shima Island.

Remarks: These individuals appear to be the species identified as *Trimmatom* sp. A of Suzuki and Shibukawa (2004).

Fig. 566. *Trimmatom* sp. 1 (BSKU 96639, 15.1 mm SL).

***Trimmatom* sp. 2**

[Jpn name: None] (Fig. 567)

KPM–NI 22561, 12.9 mm SL, Kurio; KPM–NI 22562, 10.7 mm SL, Kurio.

Remarks: T. Suzuki of Amagasaki Senior High School is studying this species on the basis of specimens from Iriomote-jima and Yaku-shima Islands.

Fig. 567. *Trimmatom* sp. 2 (upper: KPM–NI 22562, 10.7 mm SL; lower: KPM–NI 22561, 12.9 mm SL).

Valenciennea longipinnis (Lay and Bennett, 1839)

[Jpn name: Sazanamihaze] (Fig. 568)

KAUM–I. 11596, 132.1 mm SL, Ambo; KAUM–I. 21755, 19.7 mm SL, Kurio.

Fig. 568. *Valenciennea longipinnis* (KAUM–I. 11596, 132.1 mm SL).

Valenciennea sexguttata (Valenciennes, 1837)

[Jpn name: Mizutamahaze]

Kuniyasu (1999): Kurio.

Valenciennea strigata (Broussonet, 1782)

[Jpn name: Akahachihaze]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Suzuki and Shibukawa (2004): Yaku-shima Island.

***Vanderhorstia* sp.**

[Jpn name: None] (Fig. 569)

Remarks: The photographed individuals appears to be the same species with Randall (2007)'s *Vanderhorstia* sp. (fig. 1, BPBM 36706, 33 mm SL, Bali, Indonesia).

Fig. 569. *Vanderhorstia* sp. (off Isso, 12 m, 2 Oct. 2007, S. Harazaki).

FAMILY MICRODESMIDAE

Navigobius dewa Hoses and Motomura, 2009
[Jpn name: None] (Fig. 570)

Remarks: This species was described on the basis of three specimens from Kagoshima Bay, Kyushu, Japan, and also reported from Amami-oshima Island (underwater observation). Figure 570 represents the first record of the species from Yaku-shima Island.

Fig. 570. *Navigobius dewa* (off Nagata, 45 m, 19 Nov. 2009, S. Harazaki).

Nemateleotris decora Randall and Allen, 1973
[Jpn name: Akebonohaze] (Fig. 571)

Nemateleotris magnifica Fowler, 1938
[Jpn name: Hatatatehaze]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. Suzuki and Shibukawa (2004): Yaku-shima Island.

Parioglossus dotui Tomiyama, 1958
[Jpn name: Satsukihaze] (Fig. 572)

KAUM–I. 11515, 29.4 mm SL, Ambo; KAUM–I. 11717, 25.0 mm SL, MB; KAUM–I. 11718, 24.5 mm SL, mouth of Miyanoura River; KAUM–I. 11719, 24.5 mm SL, mouth of Miyanoura River; KAUM–I. 11720, 23.0 mm SL, mouth of Miyanoura River; KAUM–I. 11721, 23.8 mm SL, mouth of Miyanoura River; KAUM–I. 11722, 23.7 mm SL, mouth of Miyanoura River; KAUM–I. 11723, 25.3 mm SL, mouth of Miyanoura River; KAUM–I. 11724, 17.9 mm SL, mouth of Miyanoura River; KAUM–I. 11725, 23.5 mm SL, mouth of Miyanoura River; KAUM–I. 11726, 20.7 mm SL, mouth of Miyanoura River; KAUM–I. 11727, 22.4 mm SL, mouth of Miyanoura River; KAUM–I. 11767, 30.5 mm SL, Nagakubo; KAUM–I. 21613, 22.5 mm SL, mouth of Ambo River; KAUM–I. 21614, 19.5 mm SL, mouth of Ambo River; KAUM–I. 21615, 23.7 mm SL, mouth of Ambo River.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 571. *Nemateleotris decora* (off Nagata, 35 m, 16 May 2008, S. Harazaki).

Fig. 572. *Parioglossus dotui* (KAUM–I. 11515, 29.4 mm SL).

Ptereleotris evides (Jordan and Hubbs, 1925)
[Jpn name: Kuroyurihaze]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Ptereleotris grammica grammica Randall and Lubbock, 1982
[Jpn name: Sujikuroyurihaze] (Fig. 573)

Fig. 573. *Ptereleotris grammica grammica* (off Nagata, 45 m, 19 Nov. 2009, S. Harazaki).

Ptereleotris hanae (Jordan and Snyder, 1901)
[Jpn name: Hanahaze]
Ichikawa et al. (1992): Yaku-shima Island.

Ptereleotris heteroptera (Bleeker, 1855)
[Jpn name: Ogurokuroyurihaze] (Fig. 574)
BSKU 96615, 35.0 mm SL, Kurio.

Fig. 574. *Ptereleotris heteroptera* (BSKU 96615, 35.0 mm SL).

FAMILY EPHIPPIDAE
Platax orbicularis (Forsskål, 1775)
[Jpn name: Nan-yotsubameuo] (Fig. 575)
KAUM–I. 11360, 54.3 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. MOSC (2002): Isso and Kurio.

Platax teira (Forsskål, 1775)
[Jpn name: Tsubameuo] (Fig. 576)
NSMT–P 77658, 216.0 mm SL, Miyanoura.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 575. *Platax orbicularis* (KAUM–I. 11360, 54.3 mm SL).

Fig. 576. *Platax teira* (NSMT–P 77658, 216.0 mm SL).

FAMILY SCATOPHAGIDAE

Scatophagus argus (Linnaeus, 1766)

[Jpn name: Kurohoshimanjyudai] (Fig. 577)

KAUM–I. 21734, 20.2 mm SL, Kurio.

Fig. 577. *Scatophagus argus* (KAUM–I. 21734, 20.2 mm SL).

FAMILY SIGANIDAE

Siganus argenteus (Quoy and Gaimard, 1825)

[Jpn name: Hanaaigo] (Fig. 578)

NSMT–P 77638, 268.0 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 578. *Siganus argenteus* (NSMT–P 77638, 268.0 mm SL).

Siganus fuscescens (Houttuyn, 1782)

[Jpn name: Aigo]

Ichikawa et al. (1992): Yaku-shima Island.

Remarks: Ichikawa et al. (1992) mentioned their *Siganus fuscescens* might be *Siganus canaliculatus* (Park, 1797).

Siganus spinus (Linnaeus, 1758)

[Jpn name: Amiaigo]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Siganus vermiculatus (Valenciennes, 1835)

[Jpn name: Mushikuiaigo]

Kuniyasu (1999): Kurio.

Siganus woodlandi Randall and Kulbicki, 2005

[Jpn name: Sedakahanaaigo] (Fig. 579)

NSMT–P 91950, 321.0 mm SL, Kurio.

Kuniyasu (1999, as *Siganus* sp.): Kurio.

Fig. 579. *Siganus woodlandi* (NSMT–P 91950, 321.0 mm SL).

FAMILY ZANCLIDAE

Zanclus cornutus (Linnaeus, 1758)

[Jpn name: Tsunodashi] (Fig. 580)

FRLM 34711, 67.1 mm SL, Yudomari; KAUM–I. 11198, 106.4 mm SL, Kurio; KAUM–I. 20097, 74.4 mm SL, Yudomari; KAUM–I. 20098, 77.9 mm SL, Yudomari; KAUM–I. 20099, 70.3 mm SL, Yudomari; KAUM–I. 20100, 71.2 mm SL, Yudomari; KAUM–I. 20101, 79.3 mm SL, Yudomari; NSMT–P 77579, 111 mm SL, Nagata; NSMT–P 91353, 2 specimens, 59–60 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso and Kurio.

FAMILY ACANTHURIDAE

Acanthurus bariene Lesson, 1831

[Jpn name: Kanranhagi]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 580. *Zanclus cornutus* (KAUM–I. 11198, 106.4 mm SL).

Fig. 581. *Acanthurus dussumieri* (KAUM–I. 21777, 54.2 mm SL).

Acanthurus blochii Valenciennes, 1835
[Jpn name: Osujikurohagi]
Kuniyasu (1999): Kurio.

Acanthurus dussumieri Valenciennes, 1835
[Jpn name: Nisekanranhagi] (Fig. 581)
FRLM 34712, 160.5 mm SL, WP; FRLM 34719, 257.0 mm SL, WP; KAUM–I. 11270, 79.8 mm SL, Yudomari; KAUM–I. 11588, 87.2 mm SL, Ambo; KAUM–I. 21777, 54.2 mm SL, Kurio; NSMT–P 77661, 224 mm SL, Miyanoura; NSMT–P 91588, 37 mm SL, Yudomari; NSMT–P 91589, 3 specimens, 84–98 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus leucopareius (Jenkins, 1903)
[Jpn name: Sujikurohagi]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus lineatus (Linnaeus, 1758)
[Jpn name: Nijihagi]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus maculiceps (Ahl, 1923)
[Jpn name: Irezuminiza]
Arai and Ida (1975): Kusugawa [one specimen (90 mm TL) was reported, but not found at NSMT]. Ichikawa et al. (1992): Yaku-shima Island.

Acanthurus mata Cuvier, 1829
[Jpn name: Hiraniza]
Ichikawa et al. (1992, as *Acanthurus bleekeri*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus nigricans (Linnaeus, 1758)
[Jpn name: Meganekurohagi]
Ichikawa et al. (1992, as *Acanthurus glaucopareius*): Yaku-shima Island.

Acanthurus nigricauda Duncker and Mohr, 1929
[Jpn name: Kuromontsuki]
Kuniyasu (1999): Kurio.

Acanthurus nigrofuscus (Forsskål, 1775)
[Jpn name: Naganiza] (Fig. 582)
KAUM–I. 11280, 66.7 mm SL, Yudomari; KAUM–I. 11348, 69.1 mm SL, Kurio; MUFS 25571, 69.3 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus olivaceus Bloch and Schneider, 1801
[Jpn name: Montsukihagi] (Fig. 583)
NSMT–P 77643, 263.0 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

Fig. 582. *Acanthurus nigrofuscus* (KAUM–I. 11280, 66.7 mm SL).

Fig. 583. *Acanthurus olivaceus* (NSMT–P 77643, 263.0 mm SL).

Acanthurus pyroferus Kittlitz, 1834
[Jpn name: Kuroguchiniza]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus triostegus (Linnaeus, 1758)
[Jpn name: Shimahagi] (Fig. 584)

FRLM 34676, 46.0 mm SL, Kurio; FRLM 34681, 29.2 mm SL, Kurio; KAUM–I. 11170, 44.7 mm SL, Kurio; KAUM–I. 11268, 56.4 mm SL, Yudomari; KAUM–I. 11611, 57.4 mm SL, Ambo; KAUM–I. 21877, 39.3 mm SL, Kurio; KAUM–I. 21878, 45.8 mm SL, Kurio; KAUM–I. 21879, 46.2 mm SL, Kurio; NSMT–P 91587, 43 mm SL, Yudomari; NSMT–P 91656, 2 specimens, 27–58 mm SL, Kurio.

Arai and Ida (1975): NSMT–P 58115, 46.1 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Acanthurus xanthopterus Valenciennes, 1835
[Jpn name: Kurohagi]

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 584. *Acanthurus triostegus* (KAUM–I. 11268, 56.4 mm SL).

Ctenochaetus binotatus Randall, 1955
[Jpn name: Kokutensazanamihagi]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Ctenochaetus striatus (Quoy and Gaimard, 1825)
[Jpn name: Sazanamihagi] (Fig. 585)

KAUM–I. 11281, 57.4 mm SL, Yudomari; KAUM–I. 11350, 59.8 mm SL, Kurio; MUFS 25611, 55.3 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 585. *Ctenochaetus striatus* (KAUM–I. 11281, 57.4 mm SL).

Naso annulatus (Quoy and Gaimard, 1825)
[Jpn name: Himetenguhagi]

Kuniyasu (1999): Kurio.

Naso brachycentron (Valenciennes, 1835)
[Jpn name: Onitenguhagi]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Naso brevirostris (Cuvier, 1829)
[Jpn name: Tsumaritenguhagi]
Kuniyasu (1999): Kurio.

Naso hexacanthus (Bleeker, 1855)
[Jpn name: Tenguhagimodoki]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Naso lituratus (Forster, 1801)
[Jpn name: Miyakotenguhagi]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Naso lopezi Herre, 1927
[Jpn name: Nagatenguhagimodoki]
Kuniyasu (1999): Kurio.

Naso maculatus Randall and Struhsaker, 1981
[Jpn name: Gomatenguhagimodoki]
Ichikawa et al. (1992): Yaku-shima Island.

Naso unicornis (Forsskål, 1775)
[Jpn name: Tenguhagi] (Fig. 586)
KAUM–I. 11598, 398.2 mm SL, Ambo; NSMT–P 77581, 330.0 mm SL, Nagata.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Paracanthurus hepatus (Linnaeus, 1766)
[Jpn name: Nan-youhagi]
Ichikawa et al. (1992): Yaku-shima Island.

Prionurus scalprum Valenciennes, 1835
[Jpn name: Nizadai] (Fig. 587)
KAUM–I. 11167, 60.7 mm SL, Kurio; KAUM–I. 11263, 93.4 mm SL, Yudomari; KAUM–I. 11349, 66.8 mm SL, Kurio; KAUM–I. 11610, 80.0 mm SL, Ambo; KAUM–I. 20081, 116.7 mm SL, Yudomari; KAUM–I. 21674, 57.5 mm SL, Kurio; KAUM–I. 21675, 49.6 mm SL, Kurio; KAUM–I. 21880, 66.6 mm SL, Kurio; KAUM–I. 21881, 51.3 mm SL, Kurio; KAUM–I. 21882, 45.1 mm SL, Kurio; KAUM–I. 21883, 44.5 mm SL, Kurio; NSMT–P 77635, 382.0 mm SL, Miyanoura.

Fig. 586. *Naso unicornis* (upper: NSMT–P 77581, 330.0 mm SL; lower: KAUM–I. 11598, 398.2 mm SL).

Arai and Ida (1975, as *Prionurus microlepidotus*): Kusugawa (four specimens were reported, but not found at NSMT). Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 587. *Prionurus scalprum* (upper: KAUM–I. 11167, 60.7 mm SL; lower: NSMT–P 77635, 382.0 mm SL).

Zebrasoma scopas (Cuvier, 1829)
[Jpn name: Gomahagi] (Fig. 588)
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 588. *Zebrasoma scopas* (off Isso, 6 m, 17 Jan. 2010, S. Harazaki).

Zebrasoma veliferum (Bloch, 1795)
[Jpn name: Hirenagahagi] (Fig. 589)
NSMT–P 77640, 280.0 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 589. *Zebrasoma veliferum* (NSMT–P 77640, 280.0 mm SL).

FAMILY SPHYRAENIDAE
Sphyraena barracuda (Edwards, 1771)
[Jpn name: Onikamasu] (Fig. 590)
KAUM–I. 11407, 21.1 mm SL, Kurio Beach; KAUM–I. 11505, 47.6 mm SL, mouth of Miyanoura River; KAUM–I. 25230, 260.5 mm SL, mouth of Miyanoura River; KPM–NI 24272, 218.0 mm SL, mouth of Nagata River.
Ichikawa et al. (1992): Yaku-shima Island.

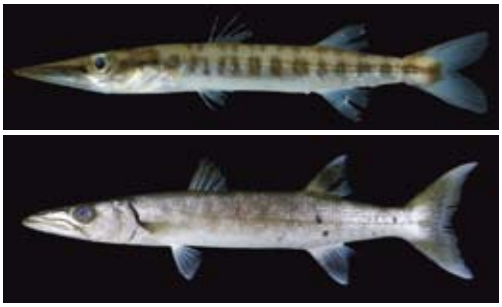

Fig. 590. *Sphyraena barracuda* (upper: KAUM–I. 11505, 47.6 mm SL; lower: KAUM–I. 25230, 260.5 mm SL).

Sphyraena flavicauda Rüppell, 1838
[Jpn name: Taiwankamasu] (Fig. 591)
KPM–NI 24955, 283.0 mm SL, mouth of Ambo River; NSMT–P 77645, 277 mm SL, mouth of Kurio River; NSMT–P 77646, 278 mm SL, mouth of Kurio River; NSMT–P 77647, 313 mm SL, mouth of Kurio River.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 591. *Sphyraena flavicauda* (KPM–NI 24955, 283.0 mm SL).

Sphyraena pinguis Günther, 1874
[Jpn name: Akakamasu]
Ichikawa et al. (1992, as *Sphyraena obtusata*): Yaku-shima Island.

SCOMBRIDAE

Acanthocybium solandri (Cuvier, 1832)
[Jpn name: Kamasusawara]
Ichikawa et al. (1992): Yaku-shima Island.

Auxis rochei rochei (Risso, 1810)
[Jpn name: Marusoda]
Ichikawa et al. (1992, as *Auxis rochei*): Yaku-shima Island.

Auxis thazard thazard (Lacepède, 1800)
[Jpn name: Hirasoda]
Ichikawa et al. (1992, as *Auxis thazard*): Yaku-shima Island.

Euthynnus affinis (Cantor, 1849)
[Jpn name: Suma]
Ichikawa et al. (1992): Yaku-shima Island.

Gymnosarda unicolor (Rüppell, 1836)
[Jpn name: Isomaguro]
Ichikawa et al. (1992): Yaku-shima Island.

Katsuwonus pelamis (Linnaeus, 1758)
[Jpn name: Katsuo]
Ichikawa et al. (1992): Yaku-shima Island.

Rastrelliger kanagurta (Cuvier, 1816)
[Jpn name: Gurukuma]
Ichikawa et al. (1992): Yaku-shima Island.

Sarda orientalis (Temminck and Schlegel, 1844)
[Jpn name: Hagatsuo]
Ichikawa et al. (1992): Yaku-shima Island.

Scomber australasicus Cuvier, 1832
[Jpn name: Gomasaba]
Ichikawa et al. (1992): Yaku-shima Island.

Scomber japonicus Houttuyn, 1782
[Jpn name: Masaba]
Ichikawa et al. (1992): Yaku-shima Island.

Thunnus albacares (Bonnaterre, 1788)
[Jpn name: Kihada]
Ichikawa et al. (1992): Yaku-shima Island.

Thunnus obesus (Lowe 1839)
[Jpn name: Mebachi]
Ichikawa et al. (1992): Yaku-shima Island.

ISTIOPHORIDAE

Istiophorus platypterus (Shaw, 1792)
[Jpn name: Bashokajiki]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER PLEURONECTIFORMES

FAMILY PARALICHTHYIDAE

Paralichthys olivaceus (Temminck and Schlegel, 1846)
[Jpn name: Hirame]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY BOTHIDAE

Arnoglossus japonicus Hubbs, 1915
[Jpn name: Nihondarumagarei] (Fig. 592)
Hubbs (1915): USNM 75671, holotype of *Arnoglossus japonicus*, 74.7 mm SL, off southeast of Yaku-shima Island.

Fig. 592. *Arnoglossus japonicus* (USNM 75671, holotype, 74.7 mm SL, preserved specimen).

Bothus pantherinus (Rüppell, 1830)
[Jpn name: Togedarumagarei] (Fig. 593)
BSKU 96644, 130.8 mm SL, Isso; KAUM–I. 20376, 150.7 mm SL, Isso.
Ichikawa et al. (1992): Yaku-shima Island.

Crossorhombus kobensis (Jordan and Starks, 1906)
[Jpn name: Kobedarumagarei] (Fig. 594)
USNM 77187, 3 specimens, 55.4–91.1 mm SL, off southeast of Yaku-shima Island.

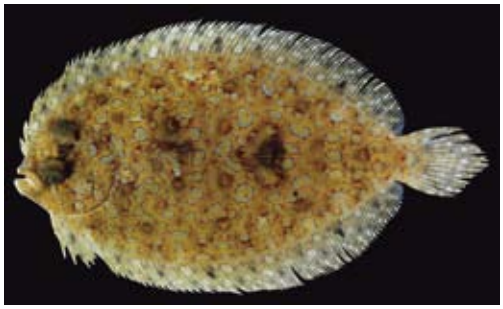

Fig. 593. *Bothus pantherinus* (BSKU 96644, 130.8 mm SL).

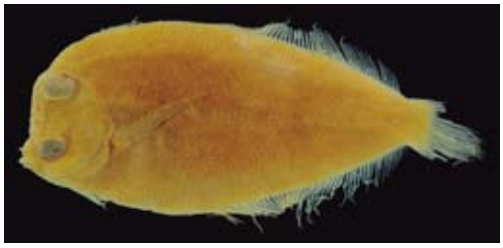

Fig. 594. *Crossorhombus kobensis* (USNM 77187, 91.1 mm SL, preserved specimen).

Engyprosopon xystrias Hubbs, 1915
[Jpn name: Nisedarumagarei] (Fig. 595)

Hubbs (1915): USNM 75672, holotype of *Engyprosopon xystrias*, 68.2 mm SL, off southeast of Yaku-shima Island.

Fig. 595. *Engyprosopon xystrias* (USNM 75672, holotype, 68.2 mm SL, preserved specimen).

FAMILY SOLEIDAE

***Aseraggodes* sp.**
[Jpn name: Musumeushinoshita] (Fig. 596)

BSKU 96617, 43.4 mm SL, Kurio; KAUM–I. 20247, 41.7 mm SL, Kurio.

Remarks: Randall and Desoutter-Meniger (2007) allocated some species of *Parachirus* to *Aseraggodes*. We regard that the present species also belongs to *Aseraggodes*.

Fig. 596. *Aseraggodes* sp. (KAUM–I. 20247, 41.7 mm SL).

Pardachirus pavoninus (Lacepède, 1802)
[Jpn name: Minamiushinoshita] (Fig. 597)

BSKU 96632, 199.2 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 597. *Pardachirus pavoninus* (BSKU 96632, 199.2 mm SL).

Soleichthys heterorhinos (Bleeker, 1856)
[Jpn name: Sazanamiushinoshita] (Fig. 598)

KAUM–I. 20333, 45.1 mm SL, Isso; KPM–NI 22510, 53.9 mm SL, Yudomari.

Fig. 598. *Soleichthys heterorhinos* (KAUM–I. 20333, 45.1 mm SL).

Synaptura marginata Boulenger, 1900
[Jpn name: Amamiushinoshita]
Ichikawa et al. (1992): Yaku-shima Island.

ORDER TETRAODONTIFORMES
FAMILY TRIACANTHIDAE
Triacanthus biaculeatus (Bloch, 1786)
[Jpn name: Gima]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY BALISTIDAE
Balistapus undulatus (Park, 1797)
[Jpn name: Kumadori]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Balistoides conspicillum (Bloch and Schneider, 1801)
[Jpn name: Mongarakawahagi] (Fig. 599)
KAUM–I. 20066, 128.7 mm SL, Yudomari; NSMT–P 77619, 188 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 599. *Balistoides conspicillum* (KAUM–I. 20066, 128.7 mm SL).

Balistoides viridescens (Bloch and Schneider, 1801)
[Jpn name: Gomamongara] (Fig. 600)
Arai and Ida (1975, as *Balistes flavimarginatus*, Kiherimongara): NSMT–P 58127, 38.1 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

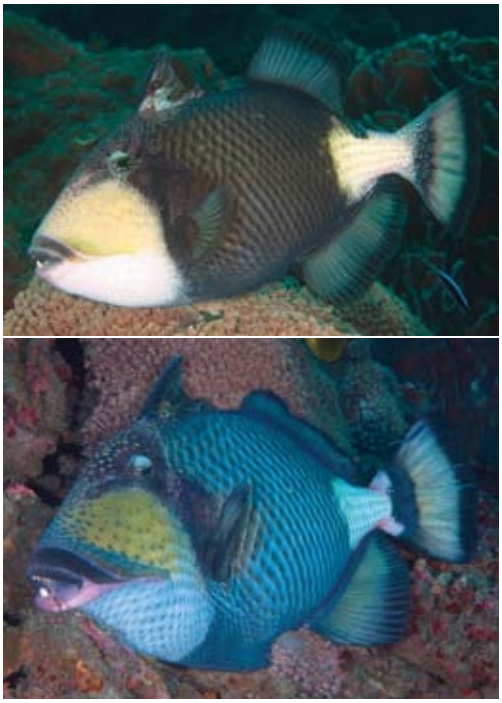

Fig. 600. *Balistoides viridescens* (upper and lower: off Isso, 12 m, 17 Jan. 2010, S. Harazaki).

Canthidermis maculata (Bloch, 1786)
[Jpn name: Amimongara] (Fig. 601)
KPM–NI 24795, 54.8 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 601. *Canthidermis maculata* (KPM–NI 24795, 54.8 mm SL).

Melichthys vidua (Richardson, 1845)
[Jpn name: Kuromongara]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Odonus niger (Rüppell, 1836)
[Jpn name: Akamongara]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Pseudobalistes flavimarginatus (Rüppell, 1829)
[Jpn name: Kiherimongara] (Fig. 602)
NSMT–P 77565, 34.8 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island.

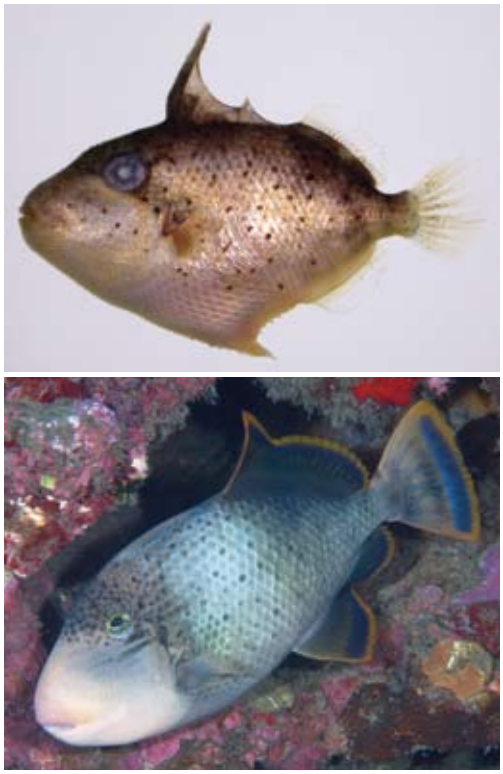

Fig. 602. *Pseudobalistes flavimarginatus* (upper: NSMT–P 77565, 34.8 mm SL; lower: off Isso, 12 m, 17 Jan. 2010, S. Harazaki).

Pseudobalistes fuscus (Bloch and Schneider, 1801)
[Jpn name: Isomongara] (Fig. 603)

Rhinecanthus aculeatus (Linnaeus, 1758)
[Jpn name: Murasamemongara] (Fig. 604)
KAUM–I. 21677, 27.6 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Yaku-shima Island.

Fig. 603. *Pseudobalistes fuscus* (off Isso, 15 m, 20 Jan. 2010, S. Harazaki).

Fig. 604. *Rhinecanthus aculeatus* (KAUM–I. 21677, 27.6 mm SL).

Rhinecanthus rectangulus (Bloch and Schneider, 1801)
[Jpn name: Tasukimongara]
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Yaku-shima Island.

Rhinecanthus verrucosus (Linnaeus, 1758)
[Jpn name: Kurakakemongara] (Fig. 605)
KAUM–I. 20047, 49.8 mm SL, Yudomari; KAUM–I. 20246, 28.8 mm SL, Kurio; KAUM–I. 21678, 33.7 mm SL, Kurio; KAUM–I. 21683, 31.0 mm SL, Kurio; KAUM–I. 21684, 28.9 mm SL, Kurio; KAUM–I. 21685, 31.6 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso, Ambo and Kurio.

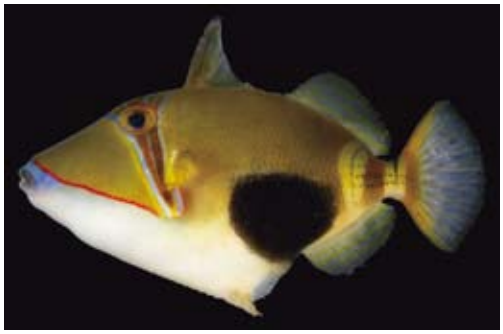

Fig. 605. *Rhinecanthus verrucosus* (KAUM–I. 20047, 49.8 mm SL).

Fig. 607. *Sufflamen chrysopterum* (KAUM–I. 11336, 133.8 mm SL).

Sufflamen bursa (Bloch and Schneider, 1801)
[Jpn name: Musumehagi] (Fig. 606)

BSKU 96598, 127.9 mm SL, Kurio; KAUM–I. 20290, 35.1 mm SL, Kurio; KAUM–I. 20311, 138.5 mm SL, Kurio; MUFS 25517, 152.5 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 606. *Sufflamen bursa* (KAUM–I. 20290, 35.1 mm SL).

Sufflamen chrysopterum (Bloch and Schneider, 1801)
[Jpn name: Tsumajiromongara] (Fig. 607)

KAUM–I. 11336, 133.8 mm SL, Kurio; NSMT–P 77663, 146.9 mm SL, Miyanoura.

Arai and Ida (1975): NSMT–P 58107, 62.6 mm SL, Kusugawa; NSMT–P 58128, 44.2 mm SL, Kusugawa.

Sufflamen fraenatum (Latreille, 1804)
[Jpn name: Meganehagi] (Fig. 608)

KAUM–I. 25207, 163.2 mm SL, Onoaida.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 608. *Sufflamen fraenatum* (KAUM–I. 25207, 163.2 mm SL).

FAMILY MONACANTHIDAE

Aluterus monoceros (Linnaeus, 1758)
[Jpn name: Usubahagi]

Ichikawa et al. (1992): Yaku-shima Island.

Aluterus scriptus (Osbeck, 1765)
[Jpn name: Soushihagi] (Fig. 609)

NSMT–P 77620, 437.0 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 609. *Aluterus scriptus* (NSMT–P 77620, 437.0 mm SL).

Brachaluteres ulvarum Jordan and Fowler, 1902
[Jpn name: Aosahagi] (Fig. 610)

Fig. 610. *Brachaluteres ulvarum* (off Isso, 18 m, 23 June 2009, S. Harazaki).

Cantherhines dumerilii (Hollard, 1854)
[Jpn name: Hakuseihagi] (Fig. 611)
FRLM 34727, 189.1 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 611. *Cantherhines dumerilii* (FRLM 34727, 189.1 mm SL).

Cantherhines pardalis (Rüppell, 1837)
[Jpn name: Amimeumazurahagi] (Fig. 612)
MUFS 25516, 102.1 mm SL, Kurio.
Kuniyasu (1999): Kurio.

Fig. 612. *Cantherhines pardalis* (MUFS 25516, 102.1 mm SL).

Chaetodermis penicilligera (Cuvier, 1816)
[Jpn name: Higehagi]
Ichikawa et al. (1992): Yaku-shima Island.

Paraluteres prionurus (Bleeker, 1851)
[Jpn name: Nokogirihagi] (Fig. 613)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 613. *Paraluteres prionurus* (off Isso, 5 m, 19 Jan. 2010, S. Harazaki).

Paramonacanthus japonicus (Tilesius, 1809)
[Jpn name: Yosogi] (Fig. 614)

Fig. 614. *Paramonacanthus japonicus* (off Isso, 12 m, 1 Sept. 2009, S. Harazaki).

Pervagor janthinosoma (Bleeker, 1854)
[Jpn name: Nishikikawahagi] (Fig. 615)
BSKU 96562, 74.2 mm SL, Yudomari; KAUM–I. 20079, 66.8 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island.

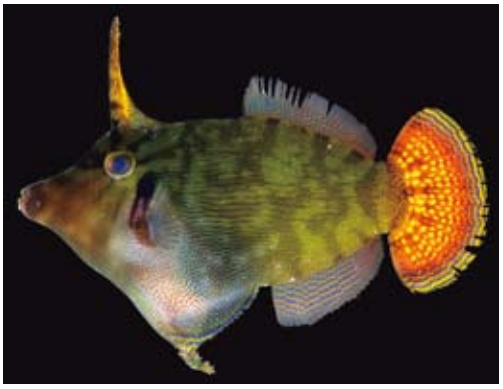

Fig. 615. *Pervagor janthinosoma* (KAUM–I. 20079, 66.8 mm SL).

Pervagor melanocephalus (Bleeker, 1853)
[Jpn name: Nuriwakekawahagi]
Kuniyasu (1999): Kurio.

Thamnaconus modestus (Günther, 1877)
[Jpn name: Umazurahagi]
Ichikawa et al. (1992): Yaku-shima Island.

FAMILY OSTRACIIDAE

Lactoria cornuta (Linnaeus, 1758)
[Jpn name: Kongoufugu]
Ichikawa et al. (1992): Yaku-shima Island.

Lactoria diaphana (Bloch and Schneider, 1801)
[Jpn name: Umisuzume]
Ichikawa et al. (1992): Yaku-shima Island.

Lactoria fornasini (Bianconi, 1846)
[Jpn name: Shimaumisuzume]
Ichikawa et al. (1992): Yaku-shima Island.

Ostracion cubicus Linnaeus, 1758
[Jpn name: Minamihakofugu] (Fig. 616)
KAUM–I. 20106, 42.4 mm SL, Yudomari; NSMT–P 95449, 21.6 mm SL, Haruo.
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso and Kurio.

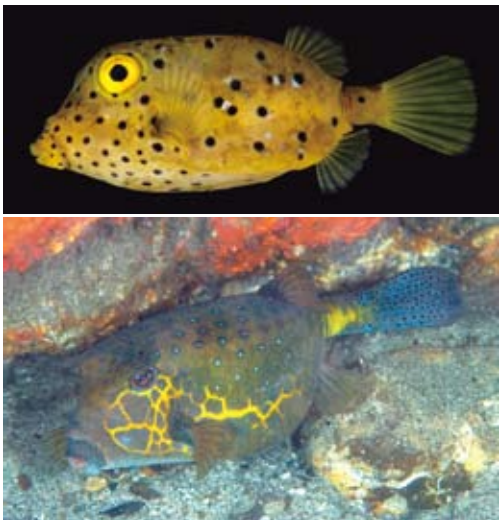

Fig. 616. *Ostracion cubicus* (upper: KAUM–I. 20106, 42.4 mm SL; lower: off Isso, 10 m, 12 Dec. 2006, S. Harazaki).

Ostracion immaculatus Temminck and Schlegel, 1850
[Jpn name: Hakofugu] (Fig. 617)
KAUM–I. 11481, 147.7 mm SL, Isso.
Arai and Ida (1975, as *Ostracion tuberculatus*): NSMT–P 58124, 2 specimens, 26.0–26.9 mm SL, Kusugawa. Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 617. *Ostracion immaculatus* (KAUM–I. 11481, 147.7 mm SL).

Ostracion meleagris meleagris Shaw, 1796
[Jpn name: Kurohakofugu]

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

FAMILY TETRAODONTIDAE

Arothron firmamentum (Temminck and Schlegel, 1850)
[Jpn name: Hoshifugu]

Ichikawa et al. (1992): Yaku-shima Island.

Arothron hispidus (Linnaeus, 1758)
[Jpn name: Sazanamifugu] (Fig. 618)

BSKU 96677, 77.0 mm SL, Kurio; KAUM–I. 11123, 17.7 mm SL, Matsumine; KAUM–I. 11172, 51.9 mm SL, Kurio; KAUM–I. 11655, 66.2 mm SL, Ambo; KAUM–I. 11656, 57.9 mm SL, Ambo; KAUM–I. 20085, 95.5 mm SL, Yudomari; KAUM–I. 21804, 41.6 mm SL, Kurio; MUFS 25440, 12.8 mm SL, Matsumine; MUFS 25608, 32.0 mm SL, Kurio; MUFS 25609, 40.6 mm SL, Kurio; NSMT–P 91354, 59 mm SL, Yudomari; NSMT–P 91591, 33 mm SL, Nagakubo; NSMT–P 91592, 2 specimens, 14–15 mm SL, Nagakubo.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 618. *Arothron hispidus* (KAUM–I. 11172, 51.9 mm SL).

Arothron nigropunctatus (Bloch and Schneider, 1801)
[Jpn name: Kokutenfugu]

Ichikawa et al. (1992): Yaku-shima Island.

Arothron stellatus (Bloch and Schneider, 1801)
[Jpn name: Moyofugu] (Fig. 619)

Fig. 619. *Arothron stellatus* (off Isso, 10 m, 11 July 2006, S. Harazaki).

Canthigaster axiologus Whitley, 1933
[Jpn name: Hanakinchakufugu] (Fig. 620)

KAUM–I. 11476, 59.9 mm SL, Isso; KAUM–I. 20080, 77.2 mm SL, Yudomari; KAUM–I. 20346, 64.6 mm SL, Isso; NSMT–P 93180, 68.7 mm SL, Yudomari.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Remarks: This species has long been regarded as *Canthigaster coronata* (Vaillant and Sauvage, 1875). However, Randall et al. (2008) reviewed *C. cornata* and divided it into three species, *C. cornata* (Hawaiian Islands), *C. axiologus* Whitley, 1933 (western Pacific), and their new species, *C. cyanospilota* (Indian Ocean and Red Sea). The Yaku-shima specimens are herein identified as *C. axiologus*.

Fig. 620. *Canthigaster axiologus* (KAUM–I. 11476, 59.9 mm SL).

Canthigaster janthinoptera (Bleeker, 1855)
[Jpn name: Shiborikinchakufugu] (Fig. 621)
BSKU 96606, 60.4 mm SL, Kurio; KAUM–I. 20296, 51 mm SL, Kurio.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 621. *Canthigaster janthinoptera* (KAUM–I. 20296, 51 mm SL).

Canthigaster rivulata (Temminck and Schlegel, 1850)
[Jpn name: Kitamakura] (Fig. 622)
KAUM–I. 11288, 73.6 mm SL, Yudomari.
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 622. *Canthigaster rivulata* (KAUM–I. 11288, 73.6 mm SL).

Canthigaster valentini (Bleeker, 1853)
[Jpn name: Shimakinchakufugu] (Fig. 623)
Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Lagocephalus gloveri Abe and Tabeta, 1983
[Jpn name: Kurosabafugu]
Ichikawa et al. (1992): Yaku-shima Island.

Fig. 623. *Canthigaster valentini* (off Isso, 10 m, 12 Jan. 2010, S. Harazaki).

Lagocephalus lagocephalus oceanicus Jordan and Evermann, 1903
[Jpn name: Kumasakafugu]
Ichikawa et al. (1992): Yaku-shima Island.

Lagocephalus sceleratus (Gmelin, 1789)
[Jpn name: Senninfugu]
Ichikawa et al. (1992): Yaku-shima Island.

Sphoeroides pachygaster (Müller and Troschel, 1848)
[Jpn name: Yoritofugu]
Ichikawa et al. (1992): Yaku-shima Island.

Takifugu niphobles (Jordan and Snyder, 1901)
[Jpn name: Kusafugu] (Fig. 624)
KAUM–I. 11491, 64.3 mm SL, mouth of Miyanoura River; KAUM–I. 15416, 103.4 mm SL, Yaku-shima Island; KAUM–I. 15436, 62.9 mm SL, Yaku-shima Island; KAUM–I. 15585, 61.4 mm SL, Yaku-shima Island; KAUM–I. 15590, 74.0 mm SL, Yaku-shima Island; KAUM–I. 23524, 50.1 mm SL, mouth of Ambo River; KAUM–I. 23525, 49.1 mm SL, mouth of Ambo River; KAUM–I. 23526, 39.5 mm SL, mouth of Ambo River; KAUM–I. 23527, 40.6 mm SL, mouth of Ambo River; NSMT–P 77583, 90 mm SL, mouth of Ambo River; NSMT–P 77584, 111.7 mm SL, mouth of Ambo River; NSMT–P 77585, 83 mm SL, mouth of Ambo River; NSMT–P 77586, 79 mm SL, mouth of Ambo River; NSMT–P 77587, 78 mm SL, mouth of Ambo River; NSMT–P 77588, 86 mm SL, mouth of Ambo River; NSMT–P 77589, 73 mm SL, mouth of Ambo River; NSMT–P 77590, 80 mm SL, mouth of Ambo River; NSMT–P 77591, 82 mm SL, mouth of Ambo River; NSMT–P 77592, 69 mm SL, mouth of Ambo River; NSMT–P 77593, 72 mm SL, mouth of Ambo River; NSMT–P 77594, 69

mm SL, mouth of Ambo River; NSMT–P 77595, 73 mm SL, mouth of Ambo River; NSMT–P 77596, 71 mm SL, mouth of Ambo River; NSMT–P 77597, 36 mm SL, mouth of Ambo River; NSMT–P 77598, 34 mm SL, mouth of Ambo River; NSMT–P 77599, 31 mm SL, mouth of Ambo River; NSMT–P 77600, 25 mm SL, mouth of Ambo River; NSMT–P 77601, 30 mm SL, mouth of Ambo River; NSMT–P 77602, 29 mm SL, mouth of Ambo River; NSMT–P 77603, 23 mm SL, mouth of Ambo River; NSMT–P 77604, 27 mm SL, mouth of Ambo River; NSMT–P 77605, 31 mm SL, mouth of Ambo River; NSMT–P 77606, 30 mm SL, mouth of Ambo River; NSMT–P 77607, 26 mm SL, mouth of Ambo River; NSMT–P 77608, 21 mm SL, mouth of Ambo River; NSMT–P 77609, 29 mm SL, mouth of Ambo River; NSMT–P 77610, 22 mm SL, mouth of Ambo River; NSMT–P 77611, 24 mm SL, mouth of Ambo River; NSMT–P 77612, 25 mm SL, mouth of Ambo River; NSMT–P 77613, 21 mm SL, mouth of Ambo River; NSMT–P 77614, 20 mm SL, mouth of Ambo River; NSMT–P 77615, 24 mm SL, mouth of Ambo River; NSMT–P 77616, 25 mm SL, mouth of Ambo River; NSMT–P 77617, 21 mm SL, mouth of Ambo River; NSMT–P 77618, 18.7 mm SL, mouth of Ambo River; NSMT–P 77733, 30 mm SL, Nagakubo; NSMT–P 77734, 28 mm SL, Nagakubo; NSMT–P 77773, 30 mm SL, Kurio; NSMT–P 77774, 28 mm SL, Kurio.

Ichikawa et al. (1992): Yaku-shima Island.

Fig. 624. *Takifugu niphobles* (KAUM–I. 11491, 64.3 mm SL).

FAMILY DIODONTIDAE

Chilomycterus reticulatus (Linnaeus, 1758)
[Jpn name: Ishigakifugu] (Fig. 625)

MUFS 25518, 288.2 mm SL, Kurio.

Ichikawa et al. (1992, as *Chilomycterus affinis*): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 625. *Chilomycterus reticulatus* (MUFS 25518, 288.2 mm SL).

Diodon eydouxii Brissout and Barneville, 1846
[Jpn name: Yaseharisembon]

Ichikawa et al. (1992): Yaku-shima Island.

Diodon holocanthus Linnaeus, 1758
[Jpn name: Harisembon] (Fig. 626)

KAUM–I. 11512, 165.0 mm SL, Ambo; KAUM–I. 15714, 18.5 mm SL, off northwest of Yaku-shima Island; KAUM–I. 15861, 20.0 mm SL, off northwest of Yaku-shima Island; KAUM–I. 15862, 19.3 mm SL, off northwest of Yaku-shima Island; KAUM–I. 15873, 17.2 mm SL, off northwest of Yaku-shima Island; KAUM–I. 20345, 135.7 mm SL, Isso.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio. MOSC (2002): Isso and Kurio.

Fig. 626. *Diodon holocanthus* (KAUM–I. 11512, 165.0 mm SL).

Diodon hystrix Linnaeus, 1758
[Jpn name: Nezumifugu] (Fig. 627)

KAUM–I. 11511, 291.6 mm SL, Ambo.

Ichikawa et al. (1992): Yaku-shima Island. Kuniyasu (1999): Kurio.

Fig. 627. *Diodon hystrix* (KAUM–I. 11511, 291.6 mm SL).

Diodon liturosus Shaw, 1804
[Jpn name: Hitozuraharisembon]

Ichikawa et al. (1992): Yaku-shima Island.

Discussion

In this study, 951 fish species were confirmed to occur in the marine and estuarine waters of Yaku-shima Island, with 374 and 89 species representing the first records from the island based on collected specimens and underwater photographs respectively. The most speciose families of fishes in Yaku-shima Island are listed in Table 1. The top 24 families comprise 75.6% of the total fish fauna. The Gobiidae and Labridae are clearly the dominant families, with a total of 208 species representing more than one-fifth of total fish fauna.

Senou et al. (2006a: table 1; 2007: table 1) ranked the most speciose families of Ie-jima Island and the Miyako Group, the Ryukyu Islands. There are no major differences in the ranking and number of species for most families among Yaku-shima Island, Ie-jima Island, and the Miyako Group. In fact, the top eight families occurring in Yaku-shima and Ie-jima Islands were identical in ranking (one to eight: Gobiidae, Labridae, Pomacentridae, Apogonidae, Serranidae, Blenniidae, Chaetodontidae, and Acanthuridae), and the percentage of the total fish fauna that these families represent are similar (48.5% in Yaku-shima Island vs. 53.6% in Ie-jima Island). On the other hand, there are noteworthy differences in the family ranking between Yaku-shima Island and the Sagami Sea (Senou et al., 2006b: Table 1 and revised table as erratum attached to reprint). The Sagami Sea is located off the Pacific coast of central Honshu, Japan, and Yaku-shima Island is located almost midway (based on latitude) between the Sagami Sea and the Ryukyu Islands (Ie-jima Island and the Miyako Group). Whereas the Pomacentridae was ranked as the fifth most speciose family occurring in the Sagami Sea, with 2.9% of total fish fauna, the family was ranked third in the lists of fishes of Yaku-shima and Ie-jima Islands, and the Miyako Group, with 6.9–9.6% of the total fish fauna. Apogonidae, the fourth ranked family in Yaku-shima and Ie-jima Islands, and the Miyako Group, was ranked eighth in the Sagami Sea. These two families are primarily tropical fishes.

In addition, although the Myctophidae and Cottidae were listed as the fourteenth and fifteenth most speciose families respectively in the Sagami Sea, they were not listed from Yaku-shima and Ie-jima Islands, and the Miyako Group. The former was not recorded from Yaku-shima and Ie-jima

Table1. Most speciose families of fishes in Yaku-shima Island.

Family	Number of species	% of total fish fauna
Gobiidae	110	11.6
Labridae	98	10.3
Pomacentridae	66	6.9
Apogonidae	45	4.7
Serranidae	43	4.5
Blenniidae	38	4.0
Chaetodontidae	34	3.6
Acanthuridae	28	2.9
Muraenidae	24	2.5
Scaridae	24	2.5
Carangidae	23	2.4
Lutjanidae	21	2.2
Scorpaenidae	20	2.1
Tripterygiidae	18	1.9
Syngnathidae	16	1.7
Balistidae	14	1.5
Pomacanthidae	14	1.5
Holocentridae	13	1.4
Tetraodontidae	13	1.4
Haemulidae	12	1.3
Mullidae	12	1.3
Scombridae	12	1.3
Monacanthidae	11	1.2
Exocoetidae	10	1.1
Subtotal	719	75.6
Other 87 families	232	24.4
Total	951	100.0

Islands, and the Miyako Group, because no deep-water or offshore fisheries exist there. The latter is a primarily temperate and cold water family and does not occur in Yaku-shima Island and southward.

These results indicate that the fish fauna of Yaku-shima Island is more similar to that of the Ryukyu Islands, rather than the Sagami Sea, although cluster analyses of UPGMA (Senou et al., 2006b: fig. 11) showed that there are two distinctive biogeographical regions in Japanese waters: one is the Japanese mainland and associated islands, including the Sagami Sea and Yaku-shima Island, and the other is the Ryukyu Islands. Because Senou et al.'s (2006b) analysis incorporated only 567 species from Yaku-shima Island (mostly based on a list by Ichikawa et al., 1992), similarities between the fish faunas of Yaku-shima Island and the Ryukyu Islands at least family composition level were probably underestimated. The Kuroshio Current flows from off the east of the Philippines to the Pacific coast of southern Japan, via Taiwan and west of the Ryukyu Islands, and regularly reaches along the coast of Yaku-shima Island (Fig. 1). The similarity between the fish faunas of Yaku-shima Island and the Ryukyu Islands is most likely caused by transportation of tropical fishes, such as the above mentioned families Apogonidae and Pomacentridae, by the Kuroshio Current from Taiwan or China to Yaku-shima Island.

However, some temperate species that occur off the Japanese mainland (and often off Taiwan) and do not occur in the Ryukyu Islands, are well established in Yaku-shima Island. For example, *Acanthoplesiops psilogaster* (Plesiopidae), *Parupeneus spilurus* (Mullidae), *Istiblennius enosimae* (Blenniidae), *Parapercis kamoharai* (Pinguipedidae), *Amblyeleotris fontanesii* (Gobiidae), *Pandaka* sp. (Gobiidae), and *Gymnogobius petschiliensis* (Gobiidae) are quite common at Yaku-shima Island, but no records of these species have been published from the Ryukyu Islands. Furthermore, Yaku-shima Island is the southern distributional limit of *Plecoglossus altivelis altivelis* (Osmeridae), a diadromous species widely distributed around the Japanese mainland, and this species is replaced with *Plecoglossus altivelis ryukyuensis* in the Ryukyu Islands. Occurrence of such species in Yaku-shima Island may be caused by the transportation of fishes (especially at larval and juvenile stages) from southern Kyushu by the Osumi Branch Current that irregularly occurs between Osumi Peninsula and Yaku-shima Island, and some species possibly from Taiwan by the Kuroshio Current (Fig. 1).

In southern Japan, several species are known to have speciated in the north and south of the Tokara Islands (e.g., Senou et al., 2006b), resulting in two sister species being allopatrically distributed in the Japanese mainland with associated islands, including Yaku-shima Island (north of the Tokara Islands), and the Ryukyu Islands (south of the Tokara Islands). However, our surveys unexpectedly revealed that, in some cases, two sister species occur sympatrically at Yaku-shima Island. For example, two closely related gerreids, *Gerres equulus* (primarily distributed around the Japanese mainland) and *G. oyena* (Ryukyu Islands); two sparids, *Acanthopagrus schlegelii* (Japanese mainland) and *A. sivicolus* (Ryukyu Islands); and two ostraciids, *Ostracion immaculatus* (Japanese mainland) and *O. cubicus* (Ryukyu Islands) occur at Yaku-shima Island. This is the first discovery in southern Japan where two primarily allopatric sister species in several families occur at the same island.

As mentioned above, the marine and estuarine fish fauna of Yaku-shima Island is composed of a mixture of fishes primarily distributed in the Japanese mainland (and Taiwan) and the Ryukyu Islands, indicating that the species composition in Yaku-shima Island is clearly accounted for by the location of the island relative to the Kuroshio Current. The Kuroshio Current around Yaku-shima Island works not only as a kind of conveyor belt for fishes of the Ryukyu Islands and Taiwan but also as a strong barrier for fishes of the Japanese mainland. The latter role of the current inhibits fishes of Yaku-shima Island from extending their distribution southward to the Ryukyu Islands.

Incidentally, we found that some species considered to be relatively rare or observed sporadically in Japanese waters, have considerably large populations around Yaku-shima Island. For example, *Pomadasys quadrilineatus* (Haemulidae)

and *Pentapodus aureofasciatus* (Nemipteridae) form numerous schools, each with more than 100 individuals, and were observed throughout the year at various life stages off Yaku-shima Island (Motomura and Harazaki, 2007; Matsunuma et al., 2009). Although these species are common in Taiwan and Yaku-shima Island, they have only sporadically been collected and never observed in schools off the Pacific coast of the Japanese mainland. This suggests that the Yaku-shima Island populations of these species probably originated in Taiwan and/or adjacent waters, and most of the sporadically collected individuals along the Japanese mainland may have been supplied from the established populations at Yaku-shima Island. So, Yaku-shima Island appears to be a major source of some tropical fish supply to the Pacific coast of the Japanese mainland.

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Freshwater fishes of Yaku-shima Island, Kagoshima Prefecture, southern Japan

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Abstract An annotated checklist of freshwater fishes of Yaku-shima Island, Kagoshima Prefecture, southern Japan, was compiled from field and literature surveys. A total of 32 species (22 genera, 11 families, 7 orders) are listed with citation of literature, registration numbers, sizes, localities in the island, ecological notes, and color photographs if available.

Key words: Freshwater fishes, checklist, Yaku-shima Island, Kagoshima, Japan.

Introduction

Yaku-shima Island has well-developed mountains, including the highest peak in Kyushu, Mt. Miyanoura, at 1936 m. Annual precipitation is high, 2,400–5,000 mm in lowland areas and 5,000–7,400 mm in the mountains (Takahara and Matsumoto, 2002). Therefore, the island's rivers are well developed, especially the Ambo River, which is more than 10 km long. In addition, the island has very limited flatlands and in its entirety appears as one large, steep mountain, with the mountain slope continuing under the sea. Thus, the estuaries are poorly developed, and the rapid mountain streams flow directly into the sea without any obvious estuarine area.

The water temperature in the larger rivers of the lowland areas drops below 10°C in the winter season because the headwaters of these rivers are fed by snowmelt. On the other hand, the water temperature in some small-scale rivers with hot springs exceeds 15°C even in winter.

The freshwater ichthyofauna of Yaku-shima Island is poorly known, with only a few faunal studies published (e.g., Jordan and Starks, 1906; Kuroiwa, 1927; Ogawa, 1937). During recent surveys of freshwater fishes of Yaku-shima Island by the first author, a gobiid, *Stiphodon surrufus*, was discovered from a small river with a hot spring (Yonezawa and Iwata, 2001) and the species is currently known only from the island in Japan. However, no other survey results (except for Yonezawa, 2002; Yonezawa and Shinomiya, 2002) have been published.

This paper provides a list of 32 species of freshwater fishes occurring in the upper and middle reaches of rivers on Yaku-shima Island on the basis of published papers, collected specimens, and underwater photographs and observations during the surveys.

Materials and methods

The systematic arrangement of families follows Nelson (2006). Species in families are arranged in alphabetical order of species name. Standard Japanese names generally follow Nakabo (2002), and are transliterated using the Hepburn system. Each species record was compiled from voucher specimens and literature sources related to freshwater fishes recorded from the upper and middle reaches of the island's rivers. Each voucher specimen includes registration number, number of specimens registered if more than one, standard length (abbreviated as SL), and locality on Yaku-shima Island (Fig. 1). Nishi and Imai

Fig. 1. Map of Yaku-shima Island, with major rivers. Names of places and rivers given in this map are used in text.

(1969) listed 11 species from Yaku-shima Island. However, these fishes are not listed in this study because some or most species might be collected from estuaries of the Isso River.

Specimens used in this paper have been deposited at the following collections: Biological Laboratory, Imperial Household, Tokyo (BLIP); Kagoshima University Museum, Kagoshima (KAUM); National Museum of Nature and Science, Tokyo (NSMT); and Museum Support Center of the Smithsonian Institution National Museum of Natural History, Suitland (USNM).

List of freshwater fishes

ORDER ANGUILLIFORMES

FAMILY ANGUILLIDAE

Anguilla japonica Temminck and Schlegel, 1846 [Japanese name: Unagi] (Fig. 2)

USNM 53542, 2 specimens, 247.1–256.5 mm SL, Miyanoura River.

Jordan and Starks (1906); Kuroiwa (1927); Ogawa (1937); Sakai et al. (2001).

Remarks. The species usually inhabits gently flowing rivers and is relatively rare at Yaku-shima Island. Classified as 'data deficient (DD)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 2. *Anguilla japonica*. USNM 53542, 247.1 mm SL, Miyanoura River (preserved specimen).

Anguilla marmorata Quoy and Gaimard, 1824 [Japanese name: Ounagi] (Fig. 3)

Kuroiwa (1927); Ogawa (1937); Sakai et al. (2001); Mizuno and Nagasawa (2009).

Remarks. In small streams at Yaku-shima Island, the species occurs from the headwaters to river mouths. The population of *A. marmorata* is larger than that of *A. japonica* at Yaku-shima Island.

Fig. 3. *Anguilla marmorata*. Isso River, 0.5 m, 16 Oct. 1999, T. Yonezawa.

ORDER CYPRINIFORMES

FAMILY CYPRINIDAE

Tribolodon hakonensis (Günther, 1877) [Jpn name: Ugui] (Fig. 4)

Yonezawa et al. (2003).

Remarks. An introduced species; released together with *Oncorhynchus masou masou* into the Ambo River in 1971 (T. Oyama, pers. comm.). The Yaku-shima Island population of the species is most likely to be landlocked because its spawning has been confirmed from an upstream dam. Catadromous and landlocked populations are known for the species.

Fig. 4. *Tribolodon hakonensis*. Ara River, 0.5 m, 23 Nov. 2005, K. Morita.

Carassius langsdorfi (Temminck and Schlegel, 1846) [Japanese name: Gimbuna]

Ogawa (1937, as *Carassius carassius*).

Remarks. No records of the species have been reported from Yaku-shima Island since Ogawa (1937). He reported it as "Funa, *C. carassius*" without voucher specimens, and provided a photograph of a fish collected from Okinoerabu-jima Island (not Yaku-shima Island). If his record of "Funa" was certain, his fish was probably *C. langsdorfi* (rather than *C. carassius*) because *C. langsdorfi* is widely distributed in the islands, including Tanega-shima and Amami-oshima Islands, and on the mainland of Kagoshima Prefecture.

FAMILY COBITIDAE

Misugumus anguillicaudatus Cantor, 1842 [Japanese name: Dojo]

Kuroiwa (1927); Ogawa (1937).

Remarks. No records of the species have been reported from Yaku-shima Island since Ogawa (1937). This species is probably very rare or extinct on Yaku-shima Island because preferred habitats of the species, e.g., reservoirs, ponds, and rice fields with small channels, are limited on the island. It has been classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office.

ORDER OSMERIFORMES

FAMILY OSMERIDAE

Plecoglossus altivelis altivelis Temminck and Schlegel, 1846 [Japanese name: Ayu] (Fig. 5)

KAUM–I. 19101, 146.0 mm SL, Isso River; KAUM–I. 19102, 83.7 mm SL, Isso River; KAUM–I. 19103, 100.4 mm SL, Isso River; KAUM–I. 19104, 80.3 mm SL, Isso River; KAUM–I. 24679, 93.5 mm SL, Miyanoura River; KAUM–I. 24680, 84.3 mm SL, Miyanoura River; KAUM–I. 24681, 84.4 mm SL, Miyanoura River.

Kuroiwa (1927); Ogawa (1937); Sawashi et al. (1993); Sakai et al. (2001); Yonezawa et al. (2003).

Remarks. Occurs in relatively large rivers on Yaku-shima Island. The Yaku-shima Island population represents the southernmost distributional range of *P. altivelis altivelis* (see Yonezawa et al., 2003). A closely related subspecies, *P. altivelis ryukyuensis*, is distributed on Amami-oshima Island but has never been recorded from Yaku-shima Island; this is probably because the survival rate of juvenile *P. a. ryukyuensis* is extremely low when sea water temperature exceeds 20°C (Kishino et al., 2008) and they usually stay in coastal areas and do not venture offshore (Tsukamoto, 1988). *Plecoglossus a. altivelis* is classified as 'vulnerable (VU)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office.

ORDER SALMONIFORMES

FAMILY SALMONIDAE

Oncorhynchus masou masou (Brevoort, 1856) [Japanese name: Yamame] (Fig. 6)

Kawanabe and Mizuno (1989); Yonezawa et al. (2003).

Remarks. A landlocked population in the Ambo River; introduced into the upstream area of the Arakawa Dam in 1971 by the Freshwater Fish Protection Society in cooperation with the Faculty of Fisheries, Kagoshima University, and Fisheries Department, Kagoshima Prefectural Office.

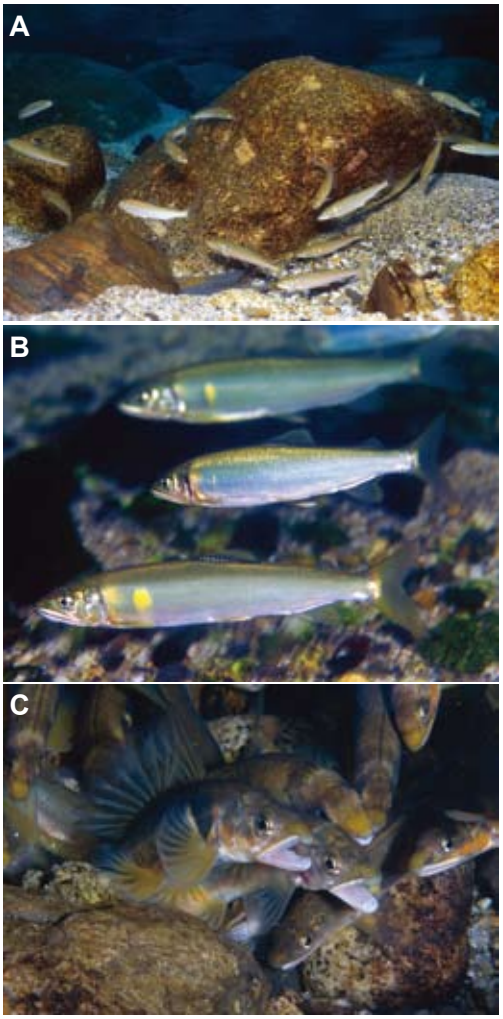

Fig. 5. *Plecoglossus altivelis altivelis*. **A**, Miyanoura River, 0.5 m, 15 Oct. 1999, T. Yonezawa; **B**, Isso River, 0.5 m, 16 Oct. 1999, T. Yonezawa; **C**, Isso River, 0.8 m, 23 Dec. 2009, S. Harazaki.

Fig. 6. *Oncorhynchus masou masou*. Ara River, 0.5 m, 23 Nov. 2005, K. Morita.

ORDER BELONIFORMES

FAMILY ADRIANICHTHYOIDAE

Oryzias latipes (Temminck and Schlegel, 1846)

[Japanese name: Medaka]

Sakai et al. (2001).

Remarks. This species is probably very rare or extinct on Yaku-shima Island because preferred habitats of the species, e.g., reservoirs, ponds, and rice fields with small channels, are limited on the island. There are three distinct genetic populations of *O. latipes* (Satsuma, Osumi, and Ryukyu populations) in Kagoshima Prefecture (Sakaizumi, 1997). *Oryzias latipes* at Yaku-shima Island is most likely to be the Ryukyu population. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'vulnerable (VU)' in the 2007 Red List by the Ministry of Environment, Japan.

ORDER SYGNATHIFORMES

FAMILY SYNGNATHIDAE

Microphis leiaspis (Bleeker, 1853)

[Japanese name: Issen-yoji]

Sakai et al. (2001).

Remarks. At Yaku-shima Island, the species apparently disappears during winter.

ORDER PERCIFORMES

FAMILY KUHLIIDAE

Kuhlia marginata (Cuvier, 1829)

[Japanese name: Yugoi] (Fig. 7)

KAUM–I. 17823, 47.3 mm SL, a stream at Kusugawa; KAUM–I. 17833, 46.9 mm SL, a stream at Kusugawa; KAUM–I. 17858, 32.3 mm SL, Isso River; KAUM–I. 25049, 78.4 mm SL, Ambo River.

Ogawa (1937); Sakai et al. (2001).

Remarks. Common at Yaku-shima Island.

Fig. 7. *Kuhlia marginata*. KAUM–I. 17833, 46.9 mm SL, a stream at Kusugawa (preserved specimen).

Kuhlia munda (De Vis, 1884)
[Japanese name: Togenagayugoi]

Kawanabe and Mizuno (1989); Sakai et al. (2001).

Remarks. Extremely rare at Yaku-shima Island. No specimens were confirmed during this study. The species is classified as 'data deficient (DD)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'endangered (EN)' in the 2007 Red List by the Ministry of Environment, Japan. Sato et al. (2004) synonymized *K. boninensis* (Fowler, 1907) with *K. munda*.

Kuhlia rupestris (Lacepède, 1802)
[Japanese name: Okuchiyugoi] (Fig. 8)

KAUM–I. 19094, 79.5 mm SL, Hide River.

Kuroiwa (1927); Ogawa (1937); Sakai et al. (2001).

Remarks. Often occurs with *Kuhlia marginata* at Yaku-shima Island. The population of *K. rupestris* is much smaller than that of *K. marginata* at the island. The species apparently disappears during winter at Yaku-shima Island and adults have never been observed.

Fig. 8. *Kuhlia rupestris*. KAUM–I. 19094, 79.5 mm SL, Hide River (preserved specimen).

at Yaku-shima Island, possibility of reproduction at the island is relatively low. The northernmost recorded range of the species is probably Yaku-shima Island. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'endangered (CR)' in the 2007 Red List by the Ministry of Environment, Japan.

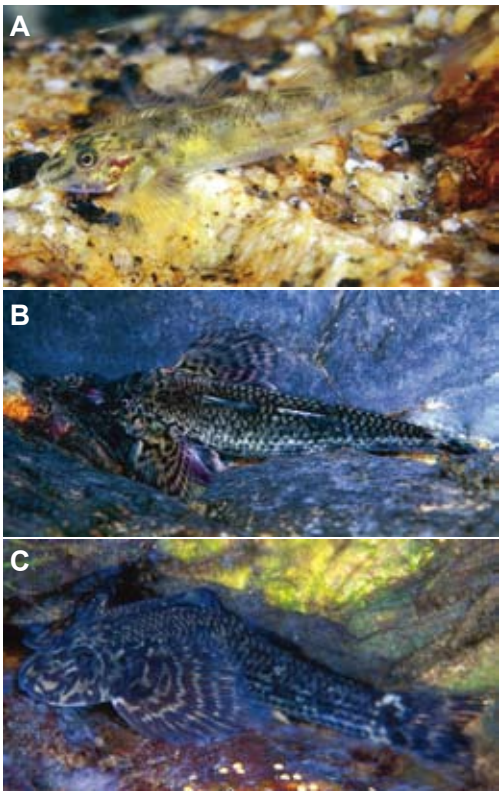

Fig. 9. *Rhyacichthys aspro*. **A**, Nagata River, 0.3 m, 14 Oct. 1999, T. Yonezawa; **B** and **C**, a stream at Onoaida, 0.5 m, 25 Dec. 1999, T. Yonezawa.

FAMILY RHYACICHTHYDAE
Rhyacichthys aspro (Valenciennes, 1837)
[Japanese name: Tsubasahaze] (Fig. 9)

BLIP 1999194, 24.9 mm SL, Okawa River; BLIP 1999195, 24.5 mm SL, Nagata River.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. Rare at Yaku-shima Island; have been observed at small waterfalls near mouths of small rivers. Although the species can overwinter

FAMILY ELEOTRIDAE
Eleotris fusca (Forster, 1801)
[Japanese name: Tenjikukawaanago] (Fig. 10)

Remarks. Occurs in the lower portions of the middle reaches of small-scale rivers; relatively rare at Yaku-shima Island. The species cannot overwinter at the island and dead individuals can be observed on the bottom of rivers in winter.

Fig. 10. *Eleotris fusca*. A stream at Onoaida, 0.3 m, 25 Dec. 1999, T. Yonezawa.

***Ophieleotris* sp.**

[Japanese name: Tametomohaze] (Fig. 11)

Akihito et al. (2002); Yonezawa and Shinomiya (2002); Suzuki and Shibukawa (2004).

Remarks. Occurs in the lower potions of the middle reaches of small-scale rivers; very rare at Yaku-shima Island. The individuals found at Yaku-shima Island are probably transported by the Kuroshio Current from the south. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'endangered (EN)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 11. *Ophieleotris* sp. A stream at Harumaki, 0.5 m, 14 Oct. 1999, T. Yonezawa.

FAMILY GOBIIDAE

Awaous ocellaris (Broussonet, 1782)

[Japanese name: Minamihaze] (Fig. 12)

Suzuki and Shibukawa (2004).

Remarks. This relatively rare species inhabits the lower portions of the middle reaches of gently flowing rivers on Yaku-shima Island.

Fig. 12. *Awaous ocellaris*. Nagata River, 0.5 m, 14 Oct. 1999, T. Yonezawa.

Gymnogobius petschiliensis (Rendahl, 1924)

[Japanese name: Sumiukigori] (Fig. 13)

KAUM–I. 17865, 67.3 mm SL, Isso River; NSMT–P 29077, 3 specimens, 55.6–73.0 mm SL, Nagata River; NSMT–P 29082, 45.0 mm SL, Nagata River; NSMT–P 29091, 4 specimens, 38.3–44.3 mm SL, Nagata River; NSMT–P 29120, 12 specimens, 41.5–63.8 mm SL, Isso River; NSMT–P 29368, 53.8 mm SL, Yaku-shima Island.

Kawanabe and Mizuno (1989); Sakai et al. (2001); Akihito et al. (2002, as *Gymnogobius* sp. 1); Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. The southernmost recorded range of the species in Japan is considered to be Yaku-shima Island (Suzuki and Shibukawa, 2004).

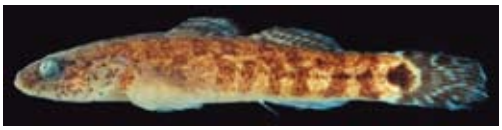

Fig. 13. *Gymnogobius petschiliensis*. NSMT–P 29120, 42.5 mm SL, Isso River (preserved specimen).

Gymnogobius urotaenia (Hilgendorf, 1879)

[Japanese name: Ukigori]

Suzuki and Shibukawa (2004).

Remarks. No specimens were confirmed during this study. The southernmost recorded range of the species is considered to be Yaku-shima Island (Suzuki and Shibukawa, 2004).

Lentipes armatus Sakai and Nakamura, 1979

[Japanese name: Yoroibozuhaze] (Fig. 14)

BLIP 1999196, 19.2 mm SL, Okawa River.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. Rare at Yaku-shima Island; have been observed at small waterfalls near mouths of small rivers. Although individuals with nuptial coloration are observed at Yaku-shima Island, the possibility of reproduction at the island is unknown. The northernmost recorded range of the species is probably Yaku-shima and Tanega-shima Islands. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'critically endangered (CR)' in the 2007 Red List by the Ministry of Environment, Japan.

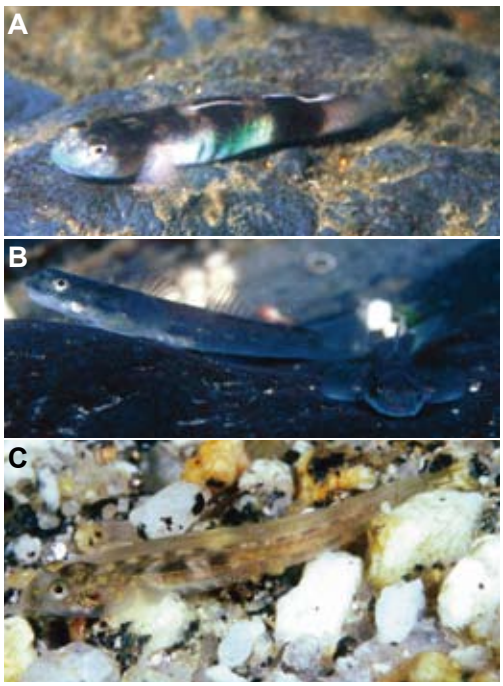

Fig. 14. *Lentipes armatus*. **A**, male, a stream at Onoaida, 0.3 m, Oct. 2000, T. Yonezawa; **B**, female, a stream at Onoaida, 0.3 m, Oct. 2000, T. Yonezawa; **C**, juvenile, Okawa River, 0.5 m, 16 Dec. 1999, T. Yonezawa.

Rhinogobius giurinus (Rutter, 1897)

[Japanese name: Gokurakuhaze] (Fig. 15)

KAUM–I. 17818, 39.8 mm SL, a stream at Kusugawa; KAUM–I. 17819, 42.2 mm SL, a stream at Kusugawa; KAUM–I. 17820, 39.0 mm SL, a stream at Kusugawa; KAUM–I. 17821, 40.5 mm SL, a stream at Kusugawa; KAUM–I. 17822, 64.0 mm SL, a stream at Kusugawa; KAUM–I. 19097, 47.4 mm SL, Isso River; NSMT–P. 29045, 5 specimens, 54.2–79.9 mm SL, Nagata River; NSMT–P 29055, 41.2 mm SL, a stream at Torigoe; NSMT–P 29069, 2 specimens, 39.0–58.6 mm SL, a stream at Torigoe; NSMT–P 29076, 58.3 mm SL, Nagata River; NSMT–P 29081, 2 specimens, 41.2–55.2 mm SL, Nagata River; NSMT–P 29085, 54.4 mm SL, Nagata River; NSMT–P 29090, 4 specimens, 40.9–47.5 mm SL, Nagata River; NSMT–P 29099, 27 specimens, 47.5–88.9 mm SL, Isso River; NSMT–P 29107, 12 specimens, 42.2–72.9 mm SL, Isso River; NSMT–P 29119, 9 specimens, 22.1–75.8 mm SL, Isso River; NSMT–P 29126, 2 specimens, 39.6–80.8 mm SL, Miyanoura River; NSMT–P 29132, 3 specimens, 38.7–47.0 mm SL, Miyanoura River; NSMT–P 29136, 51.6 mm SL, Miyanoura River.

Kuroiwa (1927); Ogawa (1937).

Remarks. Common at Yaku-shima Island.

Fig. 15. *Rhinogobius giurinus*. **A**, male, Nagata River, 0.5 m, 14 Oct. 1999, T. Yonezawa; **B**, female, Nagata River, 0.5 m, 14 Oct. 1999, T. Yonezawa.

***Rhinogobius* sp. DA**

[Japanese name: Kuroyoshinobori] (Fig. 16)

KAUM–I. 17834, 52.6 mm SL, a stream at Kusugawa; KAUM–I. 17835, 64.5 mm SL, a stream at Kusugawa; KAUM–I. 17836, 63.1 mm SL, a stream at Kusugawa ; KAUM–I. 17837, 42.7 mm SL, a stream at Kusugawa ; KAUM–I. 17859, 53.7 mm SL, Isso River; KAUM–I. 17860, 37.5 mm SL, Isso River; KAUM–I. 19098, 48.8 mm SL, Isso River; KAUM–I. 19099, 57.8 mm SL, Isso River; KAUM–I. 19100, 59.8 mm SL, Isso River; KAUM–I. 19648, 49.6 mm SL,

Isso River; KAUM–I. 19649, 50.5 mm SL, Isso River; KAUM–I. 19650, 40.9 mm SL, Isso River; KAUM–I. 19651, 40.6 mm SL, Isso River; KAUM–I. 19652, 41.4 mm SL, Isso River; KAUM–I. 19653, 37.6 mm SL, Isso River; KAUM–I. 19654, 37.7 mm SL, Isso River; KAUM–I. 19655, 41.0 mm SL, Isso River; KAUM–I. 19656, 34.5 mm SL, Isso River; KAUM–I. 19657, 27.6 mm SL, Isso River; KAUM–I. 19658, 28.6 mm SL, Isso River; KAUM–I. 19659, 34.0 mm SL, Isso River; KAUM–I. 19660, 42.3 mm SL, Isso River; KAUM–I. 19661, 43.2 mm SL, Isso River; KAUM–I. 19662, 24.8 mm SL, Isso River; KAUM–I. 19663, 23.9 mm SL, Isso River; KAUM–I. 19664, 44.1 mm SL, Isso River; KAUM–I. 19665, 26.9 mm SL, Isso River; KAUM–I. 19666, 27.5 mm SL, Isso River; KAUM–I. 19667, 23.4 mm SL, Isso River; KAUM–I. 19668, 24.3 mm SL, Isso River; KAUM–I. 19669, 26.3 mm SL, Isso River; KAUM–I. 19670, 24.6 mm SL, Isso River; KAUM–I. 24718, 38.4 mm SL, a stream at Yudomari; KAUM–I. 24719, 46.2 mm SL, Miyanoura River; KAUM–I. 24720, 25.9 mm SL, Miyanoura River; NSMT–P 29059, 9 specimens, 43.1–58.7 mm SL, a stream at Torigoe.

Sakai et al. (2001).

Remarks. Common at Yaku-shima Island.

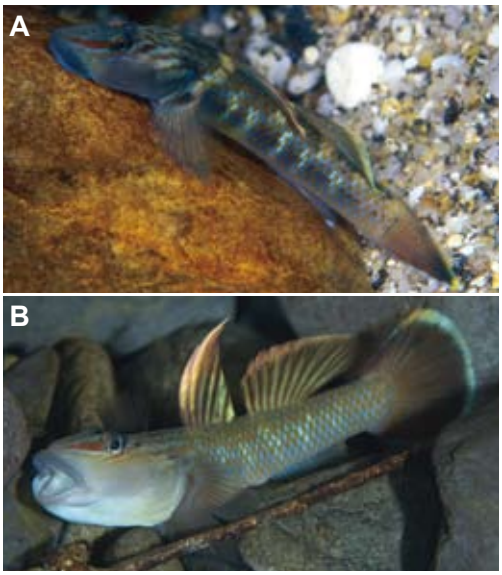

Fig. 16. *Rhinogobius* sp. DA. **A**, male, Nagata River, 0.5 m, 14 Dec. 1999, T. Yonezawa; **B**, male, Tabu River, 2 m, 6 July 2007, S. Harazaki.

***Rhinogobius* sp. DL**

[Japanese name: Hirayoshinobori] (Fig. 17)

KAUM–I. 24721, 34.7 mm SL, Miyanoura River; KAUM–I. 24722, 31.7 mm SL, Miyanoura River; KAUM–I. 24723, 33.8 mm SL, Miyanoura River; KAUM–I. 24724, 30.1 mm SL, Miyanoura River; KAUM–I. 24725, 30.0 mm SL, Miyanoura River; KAUM–I. 24726, 27.6 mm SL, Miyanoura River; KAUM–I. 24727, 20.6 mm SL, Miyanoura River.

Sakai et al. (2001); Yonezawa (2002); Suzuki and Shibukawa (2004).

Remarks. Occurs in the relatively large-scale rivers of Yaku-shima Island. The population of the species at the island is smaller than that of *Rhinogobius* sp. DA. The northernmost distributional range is probably Yaku-shima and Tanega-shima Islands. The species is classified as 'near threatened (NT)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office.

Fig. 17. *Rhinogobius* sp. DL. Juvenile, Nagata River, 0.5 m, 14 Dec. 1999, T. Yonezawa.

Schismatogobius ampluvinculus Chen, Shao and Fang, 1995

[Japanese name: Shimaesohaze] (Fig. 18)

BLIP 1999191, 2 specimens, 14.8–15.6 mm SL, Nagata River.

Yonezawa and Shinomiya (2002); Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. Extremely rare at Yaku-shima Island. The species is observed in or on sandy bottoms in the rapids. Although the northernmost distributional range is probably Yaku-shima and Tanega-shima Islands, the species does not reproduce there. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Pre-

fectural Office, and as 'endangered (EN)' in the 2007 Red List by the Ministry of Environment, Japan.

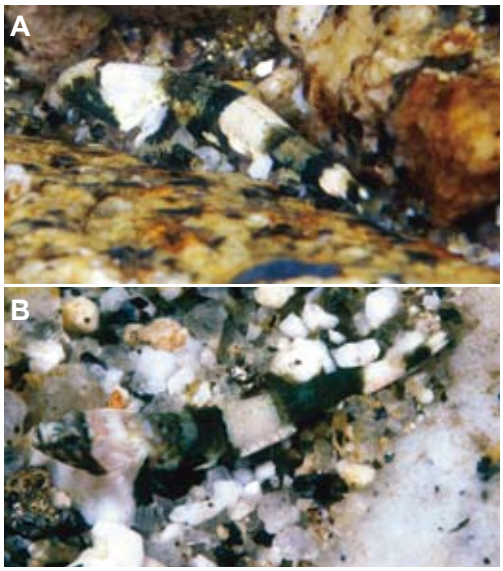

Fig. 18. *Schismatogobius ampluvinculus*. **A** and **B**, Nagata River, 0.5 m, 14 Oct. 1999, T. Yonezawa.

Sicyopterus japonicus (Tanaka, 1909)
[Japanese name: Bozuhaze] (Fig. 19)

KAUM–I. 17816, 50.9 mm SL, a stream at Kusugawa; KAUM–I. 17817, 46.0 mm SL, a stream at Kusugawa; KAUM–I. 17855, 65.0 mm SL, Isso River; KAUM–I. 17856, 56.2 mm SL, Isso River; KAUM–I. 17857, 68.0 mm SL, Isso River; KAUM–I. 19095, 81.1 mm SL, Isso River; KAUM–I. 19096, 78.5 mm SL, Isso River; NSMT–P 29057, 4 specimens, 51.1–63.1 mm SL, a stream at Torigoe; NSMT–P 29063, 53.3 mm SL, a stream at Kusugawa; NSMT–P 29071, 2 specimens, 44.3–48.2 mm SL, a stream at Torigoe; NSMT–P 29078, 8 specimens, 43.2–63.0 mm SL, Nagata River; NSMT–P 29083, 6 specimens, 36.0–79.6 mm SL, Nagata River; NSMT–P 29109, 2 specimens, 52.3–68.6 mm SL, Isso River; NSMT–P. 29122, 4 specimens, 45.7–65.8 mm SL, Isso River; NSMT–P 29133, 57.6 mm SL, Miyanoura River; NSMT–P 29137, 4 specimens, 56.5–81.2 mm SL, Miyanoura River; NSMT–P 29139, 6 specimens, 38.7–62.7 mm SL, Okawa River.

Sakai et al. (2001).

Remarks. Common at Yaku-shima Island.

Fig. 19. *Sicyopterus japonicus*. KAUM–I. 17856, 56.2 mm SL, Isso River (preserved specimen).

Sicyopterus lagocephalus (Pallas, 1770)
[Japanese name: Ruribozuhaze] (Fig. 20)

BLIP 1999200, 27.7 mm SL, a stream at Onoaida.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. This rare species appears not to overwinter at the island. The northernmost distributional range is probably Yaku-shima and Tanega-shima Islands. The species is classified as 'vulnerable (VU)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and classified as 'endangered (EN)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 20. *Sicyopterus lagocephalus*. A stream at Onoaida, 0.3 m, Nov. 1996, T. Yonezawa

Sicyopus leprurus Sakai and Nakamura, 1979
[Japanese name: Kaeruhaze] (Fig. 21)

BLIP 1999197, 2 specimens, 28.0–32.1 mm SL, a stream at Onoaida.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. The species usually inhabits small waterfalls in the forests and valleys of Yaku-shima Island, and appears to overwinter at the island. Nuptial-colored individuals are observed at the island. The northernmost distributional range is probably Yaku-shima Island. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'critically endangered (CR)' in the 2007 Red List by the Ministry of Environment, Japan.

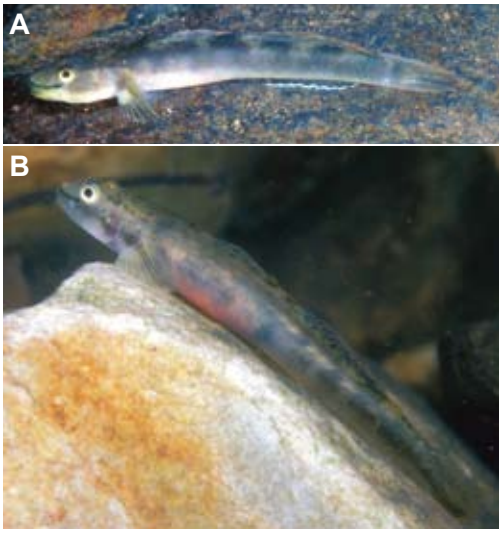

Fig. 21. *Sicyopus leprurus*. **A**, male, a stream at Onoaida, 0.2 m, 13 Oct. 1999, T. Yonezawa; **B**, female, a stream at Onoaida, 0.2 m, 13 Oct. 1999, T. Yonezawa.

Sicyopus zosterophorus (Bleeker, 1857)
[Japanese name: Akabozuhaze] (Fig. 22)

BLIP 1999198, 2 specimens, 28.8–33.2 mm SL, a stream at Onoaida; BLIP 1999199, 7 specimens, 22.0–26.9 mm SL, a stream at Yudomari.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. The species usually inhabits small waterfalls in the forests and valleys of Yaku-shima Island, and appears to overwinter at the island. Nuptial-colored individuals are also observed at the island. The species often occurs with *Sicyopus leprurus*. The northernmost distributional range is probably Yaku-shima and Tanega-shima Islands. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'critically endangered (CR)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 22. *Sicyopus zosterophorus*. **A**, male, a stream at Onoaida, 0.2 m, Oct. 1996, T. Yonezawa; **B**, female, a stream of Onoaida, 0.2 m, 13 Oct. 1999, T. Yonezawa.

***Stenogobius* sp.**
[Japanese name: Tanekawahaze]

Suzuki and Shibukawa (2004).

Remarks. The species usually occurs in the lower portions of the middle reaches of gently flowing rivers and is relatively rare at Yaku-shima Island.

Stiphodon atropurpureus (Herre, 1927)
[Japanese name: Konteribozuhaze] (Fig. 23)

BLIP 1999201, 24.4 mm SL, a stream at Onoaida.

Yonezawa et al. (2003); Suzuki and Shibukawa (2004).

Remarks. The Yaku-shima Island population of the species is extremely small. The species inhabits the same areas as *Stiphodon percnopterygionus*. The species is classified as 'critically endangered + endangered (CR+EN)' in the 2003 Kagoshima Red Data Book by the Environment

and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'critically endangered (CR)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 23. *Stiphodon atropurpureus*. Male, Okawa River, 0.5 m, 16 Oct. 1999, T. Yonezawa.

Stiphodon percnopterygionus Watson and Chen, 1998 [Japanese name: Nan-yobozuhaze] (Fig. 24)

KAUM–I. 24730, 18.9 mm SL, a stream at Yudomari; KAUM–I. 24731, 23.4 mm SL, Okawa River.

Kawanabe and Mizuno (1989); Sakai et al. (2001); Suzuki and Shibukawa (2004).

Remarks. The species inhabits the middle reaches of small-scale rivers on Yaku-shima Island. It prefers to stay on stones in full sun, but swims to deeper water when threatened.

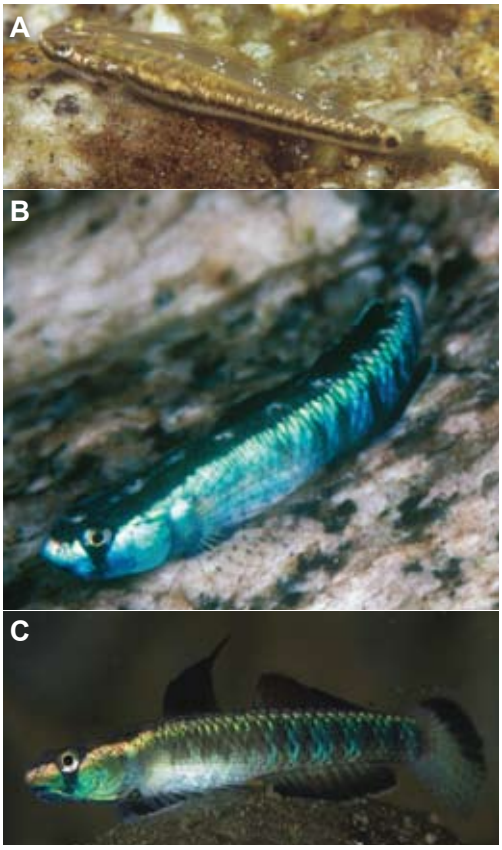

Fig. 24. *Stiphodon percnopterygionus*. **A**, female, Nagata River, 0.5 m, 14 Oct. 1999, T. Yonezawa; **B**, male, Okawa River, 0.5 m, 16 Oct. 1999, T. Yonezawa; **C**, male, Tabu River, 0.5 m, 12 Sept. 2007, S. Harazaki.

Stiphodon surrufus (Watson, 1995)
[Japanese name: Kakiirohimebozuhaze] (Fig. 25)

NSMT–P 61273, 20.0 mm SL, a stream at Onoaida.

Yonezawa and Iwata (2001); Suzuki and Shibukawa (2004).

Remarks. Currently known only from a single Yaku-shima Island specimen from Japan (Yonezawa and Iwata, 2001). The collected specimen was observed to occur with *Sicyopus leprurus* and *Sicyopus zosterophorus*. The species is classified as 'data deficient (DD)' in the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and as 'data deficient (DD)' in the 2007 Red List by the Ministry of Environment, Japan.

Fig. 25. *Stiphodon surrufus*. **A** and **B**, male (same individual), a stream at Onoaida, 0.3 m, 3 Oct. 2000, T. Yonezawa.

Tridentigers kuroiwae Jordan and Tanaka, 1927 [Japanese name: Naganogori] (Fig. 26)

KAUM–I. 17839, 33.3 mm SL, Isso River; KAUM–I. 17840, 40.1 mm SL, Isso River; KAUM–I. 24732, 27.3 mm SL, Miyanoura River.

Kuroiwa (1927); Sakai et al. (2001); Suzuki and Shibukawa (2004).

Remarks. Common in the middle and lower reaches of the relatively large-scale rivers of Yaku-shima Island.

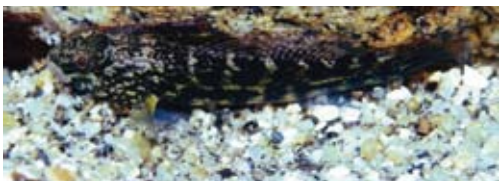

Fig. 26. *Tridentigers kuroiwae*. Miyanoura River, 0.3 m, 15 Oct. 1999, T. Yonezawa.

Conclusion

A total of 32 fish species (22 genera, 11 families, 7 orders) was confirmed from the upper and middle reaches of the freshwater rivers of Yaku-shima Island in this study. Only three species, *Plecoglossus altivelis altivelis*, *Gymnogobius petschiliensis*, and *G. urotaenia*, occurring at Yaku-shima Island represent the southernmost records for each species. On the other hand, 12 species, *Kuhlia boninensis*, *Rhyacichthys aspro*, *Ophieleotris* sp., *Lentipes armatus*, *Rhinogobius* sp. DL, *Schismatogobius ampluvinculus*, *Sicyopterus lagocephalus*, *Sicyopus leprurus*, *S. zosterophorus*, *Stiphodon atropurpureus*, *S. surrufus*, and *Tridentigers kuroiwae*, represent the northernmost records for each species. This indicates that the Yaku-shima Island freshwater ichthyofauna is strongly influenced by southern faunal elements.

No reliable records of two species, *Carassius langsdorfi* and *Misugumus anguillicaudatus*, have been reported from Yaku-shima Island for the last 70 years since Ogawa (1937). These species are most likely to be already extinct or exist only as an extremely small population on the island. Two introduced species, *Oncorhynchus masou masou* and *Tribolodon hakonensis*, were confirmed to be established at Yaku-shima Island. Interestingly, however, major introduced species, such as two centrarchids, *Lepomis macrochirus* Rafinesque, 1819 and *Micropterus salmoides* (Lacepède, 1802) and a poeciliid, *Gambusia affinis* (Baird and Girard, 1853), widely distributed elsewhere in Japan, have never been recorded from Yaku-shima Island.

Of the 32 fish species recorded from Yaku-shima Island, the following 15 are listed on the 2003 Kagoshima Red Data Book by the Environment and Citizens Affairs Department, Kagoshima Prefectural Office, and/or the 2007 Red List by the Ministry of Environment, Japan: *Anguilla japonica* (— in 2003 Kagoshima Red Data Book/DD in 2007 Red List), *Misugumus anguillicaudatus* (CR+EN/—), *Plecoglossus altivelis altivelis* (VU/—), *Oryzias latipes* (CR+EN/VU), *Kuhlia boninensis* (DD/EN), *Rhyacichthys aspro* (CR+EN/CR), *Ophieleotris* sp. (CR+EN/EN), *Lentipes armatus* (CR+EN/CR), *Rhinogobius* sp. DL (NT/—), *Schismatogobius ampluvinculus* (CR+EN/EN), *Sicyopterus lagocephalus* (VU/EN), *Sicyopus leprurus* (CR+EN/CR), *Sicyopus zosterophorus* (CR+EN/CR), *Stiphodon atropurpureus* (CR+EN/CR), and *Stiphodon surrufus* (DD/DD). In addition to more research of Yaku-shima Island's freshwater ichthyofauna, conservation measures are required to protect rare species and populations from threats such as water pollution and introduced species.

Acknowledgments

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Kurio, Yaku-shima Island (photos by H. Motomura)

Back cover image: *Microcanthus strigatus*, off Isso, Yaku-shima Island (photo by S. Harazaki)