

Nomeid fishes (Perciformes) from Kagoshima Prefecture, southern Kyushu, Japan

Roxanne A. Cabebe^{1,2} and Hiroyuki Motomura²

¹Institute of Marine Fisheries and Oceanology, College of Fisheries and Ocean Sciences, University of the Philippines Visayas, 5023 Miagao, Iloilo, Philippines

²The Kagoshima University Museum, 1–21–30 Korimoto, Kagoshima 890–0065, Japan

■ Introduction

The family Nomeidae, known as drift fishes, is distributed circumglobally in tropical and subtropical marine waters (Ahlstrom, 1976; Nelson, 2006). This family is characterized by a compressed body, a blunted or rounded snout, the terminal mouth, two associated dorsal fins, and a forked caudal fin with the absence of lateral keels (Last, 2001; Nelson, 2006). The three genera namely *Cubiceps* Lowe, 1843, *Nomeus* Cuvier, 1816, and *Psenes* Valenciennes, 1833 are regarded as valid: *Cubiceps* is characterized by an elongated body with long pectoral fins and 15–23 and 14–22 dorsal- and anal-fin soft rays respectively; *Nomeus* by a slender body with blotches on body and fins and 23–27 and 24–28 dorsal- and anal-fin soft rays respectively; and *Psenes* by a deep and compressed body with 19–32 and 20–35 dorsal- and anal-fin soft rays respectively (Last, 2001; Nakabo, 2002)

A total of 118 nomeid specimens collected from Kagoshima Prefecture and deposited at the Kagoshima University Museum (KAUM) was examined in this study. As a result, these specimens were identified as *C. whiteleggii* (Waite, 1894), *N. gronovii* (Gmelin, 1789), *P. arafurensis* Günther, 1889, *P. cyanophrys* Valenciennes, 1833, *P. maculatus* Lütken, 1880 and *P. pellucidus* Lütken, 1880. In this paper, morphological features, especially meristics, of nomeid fishes collected from Kagoshima Prefecture are provided for reference data.

■ Materials and Methods

Counts and measurements followed Hubbs and

Lagler (1958). Measurement on standard length (SL) was made to the nearest 0.1 mm with a digital caliper and meristic counts were recorded through direct counting with microscope. The samples were collected using set net, hand net and trawl from Kagoshima Prefecture and deposited at the Kagoshima University Museum (KAUM) for further taxonomic analysis. Curatorial procedures for the newly collected specimens followed Motomura and Ishikawa (2013).

■ Results and Discussion

Cubiceps whiteleggii (Waite, 1894)

Japanese name: Bozu-kon'nyaku (Fig. 2)

Material examined. 39 specimens, 51.1–174.2 mm SL. **West coast of Satsuma Peninsula:** KAUM-I. 40, 54.5 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 1 June 2005, M. Itou; KAUM-I. 3203, 51.1 mm SL, 24 Aug. 2006, same data as KAUM-I. 40; KAUM-I. 22796, 60.6 mm SL, 15 Apr. 2009, same data as KAUM-I. 40; KAUM-I. 32172, 110.2 mm SL, KAUM-I. 32173, 80.4 mm SL, KAUM-I. 32174, 104.5 mm SL, KAUM-I. 32175, 85.2 mm SL, KAUM-I. 32176, 85.9 mm SL, KAUM-I. 32177, 81.5 mm SL, KAUM-I. 32178, 87.7 mm SL, KAUM-I. 32179, 79.8 mm SL, off Nomaiké, Minami-satsuma (31°30'N, 129°53'E), 370–400 m, trawl, 10 Sept. 2010, M. Yamashita and Y. Ohashi; KAUM-I. 91077, 171.6 mm SL, Tsukurase (31°18'39"N, 129°56'21"E), 403 m, trawl, 29 Aug. 2016, M. Itou. **Kagoshima Bay:** KAUM-I. 294, 137.6 mm SL, off Tarumizu (31°28'08"–19"N, 130°37'82"–38'31"E), 220 m, trawl, 20 Apr. 2006, K. Nakahata; KAUM-I. 457, 151.5 mm SL, off Ryugamizu (31°37'41"–52"N, 130°37'14"–31"E), 128.5–130.9 m, trawl, 15 Mar. 2006, K. Nakahata; KAUM-I. 518, 146.0 mm SL, KAUM-I. 519, 153.0 mm SL, KAUM-I. 520, 84.7 mm SL, KAUM-I. 521, 158.0 mm SL, KAUM-I. 522, 104.0 mm SL, KAUM-I. 523, 129.0 mm SL, KAUM-I. 524, 130.0 mm SL, KAUM-I. 525, 122.0 mm SL, KAUM-I. 526, 123.0 mm SL, KAUM-I. 527, 129.0 mm SL, off Tarumizu (31°26'23"–32"N, 130°37'27"–58"E), 226.7–227.1 m, trawl, 11 Sept. 2006, RV *Nansei-maru*; KAUM-I. 6056, 136.8 mm SL, off Tarumizu (31°26'38"–55"N, 130°37'46"–58"E), 226.7–227.1 m, trawl, 20 Aug. 2007, RV *Nansei-maru*; KAUM-I. 8747, 135.1 mm SL, KAUM-I. 8749, 90.0 mm SL, off Tarumizu, 225 m, trawl, 7 Mar. 2008, J. Ohtomi; KAUM-I. 11943, 137.6 mm SL, off Tarumizu, trawl, July 2008, H. Hamashima; KAUM-I. 38751,

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✉ RAC: e-mail: racabebe@up.edu.ph

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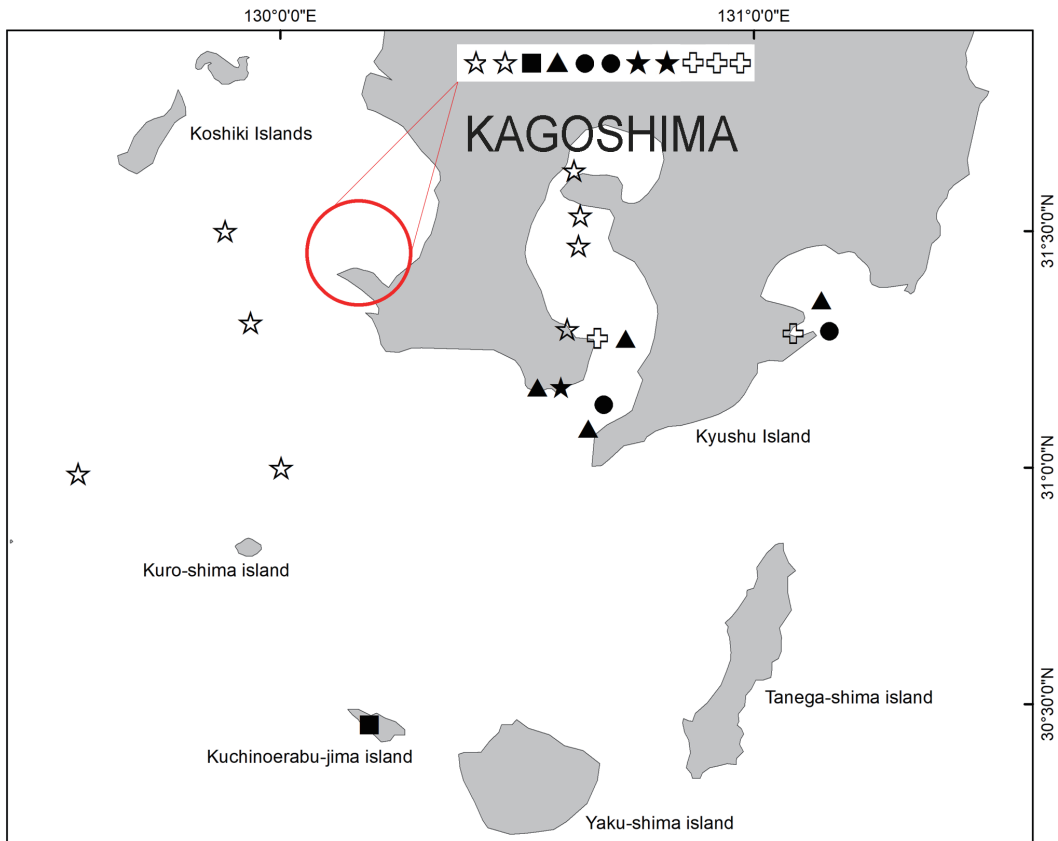


Fig. 1. Collection localities of specimens of the nomeid fishes in Kagoshima Prefecture, Japan; *Cubiceps whiteleggii* (open stars), *Nomeus gronovii* (square), *Psenes arafurensis* (triangles), *P. cyanophrys* (circles), *P. maculatus* (closed stars), and *P. pellucidus* (crosses). Specimens of *P. cyanophrys* and *P. maculatus* from the Koshiki Islands were not included in this map because of unknown coordinates.

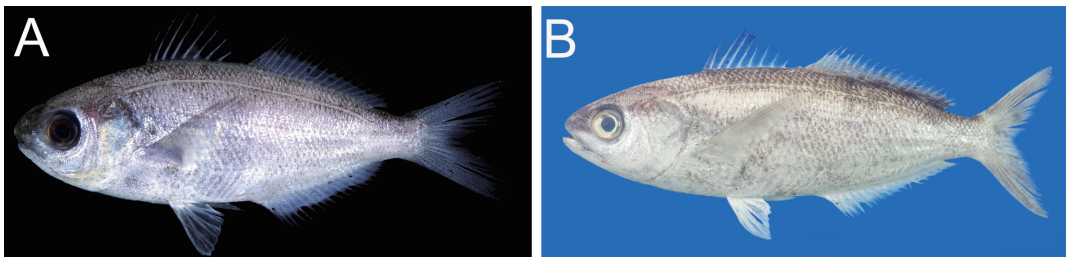


Fig. 2. Photographs of *Cubiceps whiteleggii*. A: KAUM-I. 32173, young, 80.4 mm SL, off Nomaike, Minami-satsuma; B: KAUM-I. 91077, adult, 171.6 mm SL, northeast of Tsukurase.



Fig. 3. Photograph of *Nomeus gronovii*. KAUM-I. 99408, 76.5 mm SL, Hommura Port, Kuchinoerabu-jima island.

99.0 mm SL, KAUM-I. 38753, 103.5 mm SL, KAUM-I. 38776, 110.8 mm SL, south of Okiko-jima island (31°32'N, 130°38'E), 190 m, trawl, 26 Feb. 2011, M. Yamada; KAUM-I. 62461, 54.1 mm SL, KAUM-I. 62462, 148.4 mm SL, off Iwamoto, Ibusuki (31°17'56"N, 130°36'36"E), 24 June 2014, trawl, H. Hata and K. Eguchi; KAUM-I. 76692, 150.9 mm SL, KAUM-I. 76693, 165.7 mm SL, off Iwamoto, Ibusuki (31°17'56"N, 130°36'36"E), 7 July 2015, trawl, H. Hata. **Osumi Islands:** KAUM-I. 104911, 159.1 mm SL, KAUM-I. 104949, 145.0 mm SL, Kuro-shima island, Mishima (31°00'00"N, 130°00'11"E), 403 m, trawl, 26 July 2017, M. Itou; KAUM-I. 55558, 174.2 mm SL, KAUM-I. 55724, 156.0 mm SL, KAUM-I. 55766, 152.0 mm SL, Kuro-shima island,

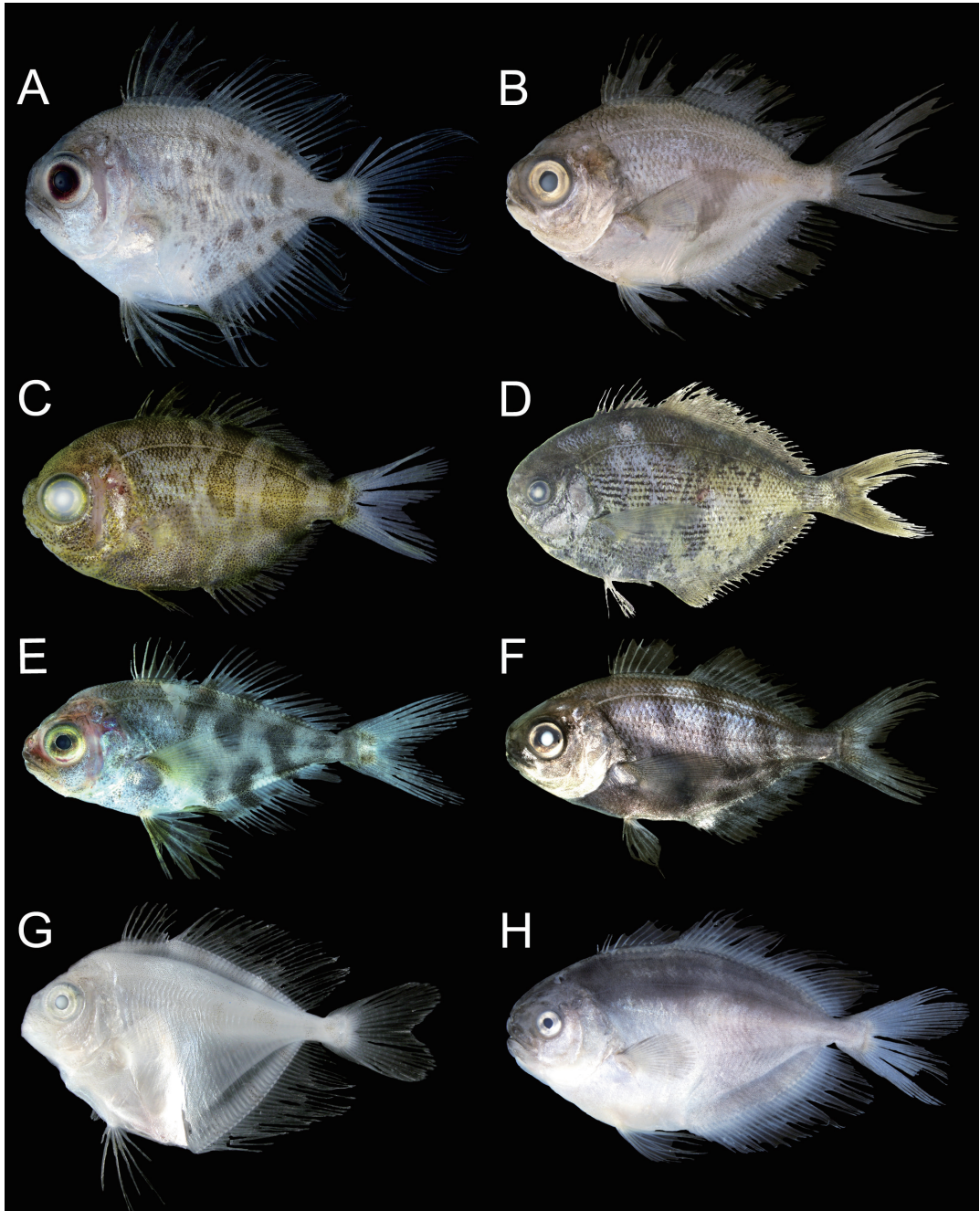


Fig. 4. Photographs of fresh specimens of the genus *Psenes*. *Psenes arafurensis* (A: KAUM-I. 10178, young, 34.5 mm SL, off Kaimon, Ibusuki; B: KAUM-I. 11889, adult, 83.4 mm SL, east of Sakinoyama, Minami-satsuma), *P. cyanophrys* (C: KAUM-I. 30673, young, 25.1 mm SL, east of Sakinoyama, Minami-satsuma; D: KAUM-I. 22768, adult, 111.4 mm SL, east of Sakinoyama, Minami-satsuma), *P. maculatus* (E: KAUM-I. 9402, young, 38.6 mm SL, off Kaimon, Ibusuki; F: KAUM-I. 22797, adult, 76.8 mm SL, east of Sakinoyama, Minami-satsuma), and *P. pellucidus* (G: KAUM-I. 3231, young, 29.4 mm SL, Kaihama Beach, Minami-satsuma; H: KAUM-I. 93450, adult, 108.4 mm SL, east of Sakinoyama, Minami-satsuma).

Mishima (30°59'26"N, 129°34'35"E), 300–400 m, trawl, 16 July 2013, Y. Fukui and M. Matsumura.

Distribution. Pacific, Indian and Atlantic Oceans;

Hokkaido to Kyushu in the Pacific coast, the Sea of Japan, and the East China Sea (Haedrich, 1986; Nakabo and Doiuchi, 2013; this study), and the Osumi Islands

(this study).

Remarks. These specimens were identified as *C. whiteleggii* based on the following characters: deep, slightly elongated body, deepest between 5th and 8th first dorsal-fin spine bases; convex ventral profile of body; slightly arched forehead; large eyes (its diameter subequal to snout length); moderately blunted snout; small teeth on both jaws; pointed teeth on anterior part of vomer; short tongue with single row of teeth; deep caudal peduncle; forked caudal fin; dorsal fins not connected; spines firm; long pectoral fin; 2 discrete sizes of pre-dorsal scales extending toward to anterior part of eye.

Nomeus gronovii (Gmelin, 1789)

Japanese name: Eboshidai (Fig. 3)

Material examined. KAUM-I. 89898, 103.7 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 18 May 2016, M. Itou; KAUM-I. 99408, 76.5 mm SL, Hommura Port, Kuchinoerabu-jima island, Osumi Islands (30°27'41"N, 130°11'29"E), 1 m, hand net, 1 May 2017, K. Yamaguchi.

Distribution. Pacific, Indian and Atlantic Oceans; Fukushima to Kagoshima in the Pacific coast, Hyogo

Prefecture, and the East China Sea (Nakabo, 2002; Nakabo and Doiuchi, 2013; Hata et al., 2017; this study), and the Osumi Islands (Kimura et al., 2017; this study).

Remarks. The specimens were identified as *N. gronovii* based on the following characters: slightly elongated body; rounded snout; teeth on vomer but not on tongue, small conical teeth on both jaws; deeply forked caudal fin with long lobes; dorsal fins almost connected, with weak spines, 3rd soft ray longest; fan-like structure pelvic fin; long pectoral fin; pre-dorsal scales small, extending onto anterior margin of eye. The two specimens examined in this study were reported by Hata et al. (2017) and Kimura et al. (2017).

Psenes arafurensis Günther, 1889

Japanese name: Kurageuo (Fig. 4A, B)

Material examined. 8 specimens, 29.7–83.8 mm SL. **West coast of Satsuma Peninsula:** KAUM-I. 11889, 83.4 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 14 July 2008, M. Itou; KAUM-I. 22971, 29.7 mm SL, 6 June 2009, same data as KAUM-I. 11889; KAUM-I. 27766, 74.3 mm SL, 12 May 2010, same data as KAUM-I. 11889; KAUM-I. 31086, 59.2 mm SL, 15 May 2010, same data as KAUM-I.

Table 1. Frequency distribution of dorsal-fin spine counts in Nomeidae from Kagoshima Prefecture, Japan.

	n	1st dorsal-fin spines				2nd dorsal-fin spines	
		9	10	11	12	1	2
<i>C. whiteleggii</i>	39	1	19	19		22	17
<i>N. gronovii</i>	2			2		1	1
<i>P. arafurensis</i>	8		7	1		2	6
<i>P. cyanophrys</i>	27	21	6			27	
<i>P. maculatus</i>	31		30	1		31	
<i>P. pellucidus</i>	12	2	4	5	1	6	6

Table 2. Frequency distribution of dorsal-fin soft ray counts in Nomeidae from Kagoshima Prefecture, Japan.

	n	Dorsal-fin soft rays												
		18	19	20	21	22	23	24	25	26	27	28	29	30
<i>C. whiteleggii</i>	39	14	21	1	3									
<i>N. gronovii</i>	2								1	1				
<i>P. arafurensis</i>	8			2	6									
<i>P. cyanophrys</i>	27						13	6	2	3	2	1		
<i>P. maculatus</i>	31				3	28								
<i>P. pellucidus</i>	12											3	5	4

Table 3. Frequency distribution of anal-fin spines and soft ray counts in Nomeidae from Kagoshima Prefecture, Japan.

	n	Anal-fin spines			Anal-fin soft rays											
		2	3	5	17	18	19	20	21	22	24	25	26	27	28	29
<i>C. whiteleggii</i>	39		39		6	21	10	2								
<i>N. gronovii</i>	2	1		1									2			
<i>P. arafurensis</i>	8		8					2	6							
<i>P. cyanophrys</i>	27	16	11								13	3	8	2	1	
<i>P. maculatus</i>	31		31						26	5						
<i>P. pellucidus</i>	12	5	7											1	4	7

11889; KAUM-I. 91644, 83.8 mm SL, 17 May 2016, same data as KAUM-I. 11889. **Kagoshima Bay:** KAUM-I. 10178, 34.5 mm SL, off Kaimon, Ibusuki (31°10'20"N, 130°32'56"E), 50 m, set net, 4 June 2008, G. Ogihara; KAUM-I. 29257, 54.2 mm SL, off Chiringa-jima island, Ibusuki (31°16'38"N, 130°40'18"E), 25 m, set net, 12 May 2010, Orita Fishery. **East coast of Osumi Peninsula:** KAUM-I. 73961, 43.4 mm SL, Uchinoura Bay, Kimotsuki (31°17'29"N, 131°06'59"E), 30–35 m, set net, 10 June 2015, K. Koeda and H. Hata.

Distribution. Indo-West Pacific and tropical and subtropical Atlantic; Chiba to Kagoshima prefectures in the Pacific coast, and Nagasaki Prefecture to Noto Peninsula in the Sea of Japan coast (Nakabo, 2002; Nakabo and Doiuchi, 2013). In Kagoshima waters, this species was collected only from the mainland (this study).

Remarks. These specimens were identified here as *P. arafurensis* by having the following combination of characters: relatively deep, slightly compressed body; eye diameter greater than snout length; short and rounded snout; both jaws with small and conical teeth, teeth on lower jaw twice length of those of upper jaw; extremely forked caudal fin; almost connected dorsal fins; frail anal-fin spines; short pectoral fin; long pelvic fin rays; pre-dorsal scales (similar in size) extending anteriorly onto middle of eye. Young specimens had poorly defined brownish black blotches scattered on the body surface (Fig. 4A), these blotches disappear with growth (Fig. 4B).

Psenes cyanophrys Valenciennes, 1833

Japanese name: Suji-hanabirauo (Fig. 4C, D)

Material examined. 27 specimens, 24.6–140.3 mm SL.

Koshiki Islands: KAUM-I. 1949, 35.1 mm SL, KAUM-I. 13210, 31.6 mm SL, KAUM-I. 13211, 28.9 mm SL, KAUM-I. 13215, 24.6 mm SL, KAUM-I. 13216, 25.2 mm SL, KAUM-I. 14632, 30.9 mm SL, KAUM-I. 14633, 31.9 mm SL, KAUM-I. 14634, 32.9 mm SL, KAUM-I. 14635, 14.8 mm SL, KAUM-I. 2104, 45.5 mm SL, KAUM-I. 20829, 33.5 mm SL, KAUM-I. 20830, 34.1 mm SL, KAUM-I. 20831, 30.2 mm SL, KAUM-I. 2110, 48.3 mm SL, KAUM-I. 4087, 30.1 mm SL, KAUM-I. 4088, 26.2 mm SL, KAUM-I. 4089, 30.8 mm SL, Koshiki Islands, Satsuma-sendai, 13–14 May 1955. **West coast of Satsuma Peninsula:** KAUM-I. 10599, 92.3 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 28 Apr. 2008, M. Itou; KAUM-I. 11890, 69.4 mm SL, 5 July 2008, same data as KAUM-I. 10599; KAUM-I. 22768, 111.4 mm SL, KAUM-I. 22769, 63.2 mm SL, 29 May 2009, same data as KAUM-I. 10599; KAUM-I. 30672, 42.2 mm SL, KAUM-I. 30673, 25.1 mm SL, KAUM-I. 30705, 73.0 mm SL, KAUM-I. 30706, 51.9 mm SL, 8 May 2010, same data as KAUM-I. 10599; KAUM-I. 31483, 86.8 mm SL, 21 Apr. 2010, same data as KAUM-I. 10599; KAUM-I. 62450, 130.7 mm SL, 1 May 2014, same data as KAUM-I. 10599; KAUM-I. 77237, 84.1 mm SL, 25 May 2015, same data as KAUM-I. 10599; KAUM-I. 10468, 118.4 mm SL, Matsu-shima island, Minami-satsuma (31°25'06"N, 130°12'32"E), 20 m, set net, 24 June 2008, M. Taniyama. **East coast of Osumi Peninsula:** KAUM-I. 790, 78.3 mm SL, Izashiki Port, Kimotsuki (31°05'N, 130°41'E), 30–40 m, set net, 25 Sept. 2006, M. Chikuchishin; KAUM-I. 86541, 79.7 mm SL, Uchinoura Bay, Kimotsuki (31°17'29"N, 131°06'59"E), 30–35 m, set net, 6 Apr. 2016, K. Koeda et al.

Distribution. Southward from Sagami Bay and Wakasa Bay to the Ryukyu Islands (Nakabo, 2002; Nakabo and Doiuchi, 2013; this study).

Remarks. These specimens were identified as *P. cyanophrys* on the basis of the following combination of characters: relatively deep and compressed body; eye small (less than snout); rounded snout; small, pointed teeth in both jaws; deeply forked caudal fin; pelvic fin short; extended sheath of scales in dorsal fin

Table 4. Frequency distribution of pectoral- and pelvic-fin ray counts in Nomeidae from Kagoshima Prefecture, Japan.

	n	Pectoral-fin rays						Pelvic-fin spines		Pelvic-fin soft rays	
		17	18	19	20	21	22	1	5		
<i>C. whiteleggii</i>	39	1	9	19	9	1		39		39	
<i>N. gronovii</i>	2					1	1	2		2	
<i>P. arafurensis</i>	8		4	4				8		8	
<i>P. cyanophrys</i>	27	3	7	13	4			27		27	
<i>P. maculatus</i>	31				1	27	3	31		31	
<i>P. pellucidus</i>	12		7	1	3	1		12		12	

Table 5. Frequency distribution of scale row counts above the lateral line in Nomeidae from Kagoshima Prefecture, Japan.

	n	Scale rows above lateral line											
		4	5	6	7	8	9	10	–	13	14		
<i>C. whiteleggii</i>	39												
<i>N. gronovii</i>	1	1											
<i>P. arafurensis</i>	8					3	5						
<i>P. cyanophrys</i>	27					15	4	6	2				
<i>P. maculatus</i>	31				28	2	1						
<i>P. pellucidus</i>	12										11	1	

(6–8 scale high) and anal fin (5–7 scales high); two distinct sizes of pre-dorsal scales; small anterior scales extending toward to nostril; cheeks covered with small scales extended onto posterior margin of eye. Young specimens (Fig. 4C) had brown colored patches over the body and numerous pigments covering the abdomen area while adults (Fig. 4D) had dark horizontal lines over its body surface, below the lateral line.

***Psenes maculatus* Lütken, 1880**

Japanese name: Shima-hanabirauo (Fig. 4E, F)

Material examined. 30 specimens, 17.9–82.5 mm SL. **Koshiki Islands:** KAUM-I. 13212, 20 mm SL, KAUM-I. 14646, 19.5 mm SL, KAUM-I. 20832, 22.7 mm SL, KAUM-I. 20833, 17.9 mm SL, Koshiki Islands, Satsuma-sendai. **West coast of Satsuma Peninsula:** KAUM-I. 9504, 51.9 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 14 Apr. 2008, M. Itou; KAUM-I. 9506, 51.9 mm SL, 23 Apr. 2008, same data as KAUM-I. 9504; KAUM-I. 10600, 104.7 mm SL, 28 Apr. 2008, same data as KAUM-I. 9504; KAUM-I. 17341, 41.4 mm SL, 17 Apr. 2008, same data as KAUM-I. 9504; KAUM-I. 20963, 55.6 mm SL, 21 May 2009, same data as KAUM-I. 9504; KAUM-I. 22797, 76.8 mm SL, 15 Apr. 2009, same data as KAUM-I. 9504; KAUM-I. 24428, 47.3 mm SL, 16 May 2009, same data as KAUM-I. 9504; KAUM-I. 24230, 25.8 mm SL, 23 May 2009, same data as KAUM-I. 9504; KAUM-I. 30020, 57.8 mm SL, 20 Apr. 2010, same data as KAUM-I. 9504; KAUM-I. 30445, 61.1 mm SL, KAUM-I. 30458, 51.5 mm SL, 6 May 2010, same data as KAUM-I. 9504; KAUM-I. 31481, 68.0 mm SL, KAUM-I. 31482, 44.2 mm SL, 1 May 2010, same data as KAUM-I. 9504; KAUM-I. 55996, 71.8 mm SL, 18 Apr. 2013, same data as KAUM-I. 9504; KAUM-I. 11818, 60.9 mm SL, KAUM-I. 11819, 36.8 mm SL, KAUM-I. 11830, 72.5 mm SL, KAUM-I. 11831, 65.1 mm SL, KAUM-I. 11832, 56.5 mm SL, KAUM-I. 11833, 53.1 mm SL, 25 Apr. 2008, same data as KAUM-I. 9504; KAUM-I. 9505, 66.3 mm SL, off Kozakiyama, Minami-satsuma (31°26'00"N, 130°10'05"E),

36 m, set net, 16 Apr. 2008, M. Terada; KAUM-I. 77828, 46.3 mm SL, 22 Apr. 2015, K. Nishida, same data as KAUM-I. 9505; KAUM-I. 17340, 50.5 mm SL, 17 Apr. 2008, M. Itou, same data as KAUM-I. 9505; KAUM-I. 88413, 101.1 mm SL, 1 May 2016, M. Itou, same data as KAUM-I. 9505. **Kagoshima Bay:** KAUM-I. 9402, 38.6 mm SL, KAUM-I. 9403 49.7 mm SL, off Kaimon, Ibusuki (31°10'20"N, 130°32'56"E), 50 m, set net, 23 Apr. 2008, M. Hamada. **East coast of Osumi Peninsula:** KAUM-I. 3936, 43.2 mm SL, Izashiki Port, Kimotsuki (31°05'N, 130°41"E), 30–40 m, set net, 23 Apr. 2007, M. Yamada.

Distribution. Pacific, Indian and Atlantic oceans; Kuril Islands to Kyushu in the Pacific coast, Hyogo Prefecture, and the East China Sea (Nakabo, 2002; Nakabo and Doiuchi, 2013; this study).

Remarks. These specimens were identified as *P. maculatus* based on the following characters: compressed, oval body with vertical bands; eye greater than snout; moderately rounded snout; smaller, sharper, wide spaced teeth in upper jaw; thicker, longer teeth in lower jaw not connected but arranged adjacent to one another; sharp palatine teeth; dorsal-fin spines weak; frontal margin of pre-dorsal scales cover above mid-eye with similar size. Young specimens (Fig. 4E) had brownish black blotches, becoming four blackish vertical bands with growth (Fig. 4F).

***Psenes pellucidus* Lütken, 1880**

Japanese name: Hanabirauo (Fig. 4G, H)

Material examined. 12 specimens, 29.4–248.0 mm SL. **West coast of Satsuma Peninsula:** KAUM-I. 21031, 177.8 mm SL, Matsu-shima island, Minami-satsuma (31°25'06"N, 130°12'32"E), 20 m, set net, 21 Apr. 2008, M. Itou; KAUM-I. 3231, 29.4 mm SL, Kaihama Beach, Minami-satsuma (31°24'37"N, 130°11'32"E), 0.5 m, hand net, 17 Mar. 2007, M. Itou; KAUM-I. 26268, 34.5

Table 6. Frequency distribution of scale row counts below the lateral line in Nomeidae from Kagoshima Prefecture, Japan.

n	Scale rows below lateral line																			
	15	16	17	18	19	20	21	22	23	24	25	26	–	50	52	54	–	57	59	
<i>C. whiteleggii</i>	39		24	10	1	4														
<i>N. gronovii</i>	1							1												
<i>P. arafurensis</i>	8	2	3	3																
<i>P. cyanophrys</i>	27				1	7		2	4	3	4	3	3							
<i>P. maculatus</i>	31		1				5	1		13	9	2								
<i>P. pellucidus</i>	12													2	6	2			1	1

Table 7. Frequency distribution of lateral-line scale counts in Nomeidae from Kagoshima Prefecture, Japan.

n	Lateral-line scales																			
	44	45	–	52	53	54	55	56	57	58	59	60	61	62	63	67	–	115	117	
<i>C. whiteleggii</i>	39				4		2	13	1	4	6	2	2	2	3					
<i>N. gronovii</i>	1													1						
<i>P. arafurensis</i>	8	6	2																	
<i>P. cyanophrys</i>	27			8	1	1	1	2	2	1	1	3	2		5					
<i>P. maculatus</i>	31					4	10	12	1	1			1			3				
<i>P. pellucidus</i>	12																		11	1

Table 8. Frequency distribution of gill-raker counts in Nomeidae from Kagoshima Prefecture, Japan.

n	Upper gill rakers						Lower gill rakers						Total gill rakers										
	7	8	9	10	14	15	16	17	18	19	20	21	22	23	24	25	26	27	11	17	2	30	31
<i>C. whiteleggii</i>	39	1	1	31	6	4	6	11	17	1					1	1	7	11	17	2			
<i>N. gronovii</i>	2	2				1		1							1			1					
<i>P. arafurensis</i>	8	8				7	1								7	1							
<i>P. cyanophrys</i>	27	1	18	8				18	8	1								1	11	13	1	1	
<i>P. maculatus</i>	31		5	26		2	1	1	26						2	1	1		2	25			
<i>P. pellucidus</i>	12	11	1		4	6	1	1				3	7	1	1	1							

mm SL, KAUM-I. 26269, 28.4 mm SL, 20 Feb. 2010, same data as KAUM-I. 3231; KAUM-I. 93450, 108.4 mm SL, east of Sakinoyama, Minami-satsuma (31°25'44"N, 130°11'49"E), 27 m, set net, 28 May 2016, M. Itou; KAUM-I. 11817, 75.8 mm SL, KAUM-I. 11829, 82.5 mm SL, 25 Apr. 2008, same data as KAUM-I. 93450; KAUM-I. 55995, 180.0 mm SL, 18 Apr. 2013, same data as KAUM-I. 93450; KAUM-I. 32075, 41.8 mm SL, 30 Apr. 2010, same data as KAUM-I. 93450; KAUM-I. 32076, 123.7 mm SL, 21 May 2010, same data as KAUM-I. 93450; KAUM-I. 62481, 248.0 mm SL, 24 Apr. 2014, same data as KAUM-I. 93450; KAUM-I. 65203, 47.3 mm SL, KAUM-I. 65204 49.1 mm SL, 28 Apr. 2014, same data as KAUM-I. 93450. **Kagoshima Bay:** KAUM-I. 9902, 187.7 mm SL, off Chiringa-jima island, Ibusuki (31°16'38"N, 130°40'18"E), 25 m, set net, 14 May 2008, Orita Fishery. **East coast of Osumi Peninsula:** KAUM-I. 29874, 107.3 mm SL, Uchinoura Bay, Kimotsuki (31°17'29"N, 131°06'59"E), 15 m, set net, Apr. 2010, M. Yamada.

Distribution. Northwestern Pacific, Indian, and Atlantic oceans; southward from Kushiro to the Ryukyu Islands (Nakabo, 2002; Nakabo and Doiuchi, 2013; this study).

Remarks. These specimens were recognized as *P. pellucidus* based on the following characters: flabby, compressed body; dark blue eyes, its diameter less than snout; moderately blunted snout; small, pointed teeth with great distance in upper jaw; long, sharp, knifelike, continues teeth in lower jaw; slender caudal peduncle; translucent to white fin bases; forked caudal fin; short, rounded pectoral fin; long pelvic fin; similar sized predorsal scales extended forward to eye margin; very small body scales. Young specimens (Fig. 4G) had translucent body, becoming a darker body with growth (Fig. 4H).

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