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## ***Pseudochromis yamasakii*, new species of dottyback fish from Japan (Teleostei: Pseudochromidae: Pseudochrominae)**

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Gill (2004) recognised fifty-seven species in the Indo-Pacific genus *Pseudochromis* Rüppell (1835) but noted that the genus is undiagnosed cladistically and effectively serves as a catch-all for species that can't be placed in other pseudochromine genera (sensu Gill 2013). Since publication of Gill's revision, 13 additional species of *Pseudochromis* have been described, mostly based on recent collections from the highly diverse Coral Triangle area of the West Pacific (Gill & Allen 2004, 2011; Allen *et al.* 2008; Gill *et al.* 2009, 2012a,b; Gill & Williams 2011; Gill & Zajonz 2011; Allen & Erdmann 2012). We herein describe an additional new species, which is known on the basis of a single specimen from Kii Peninsula, Honshu, Japan, and from several photographs from the Kii Peninsula and Izu Islands, Japan.

### **Materials and methods**

Methods of counting, measuring and presentation follow Gill (2004). The holotype is deposited in the Kanagawa Prefectural Museum of Natural History (KPM). The Image Database of Fishes in the Kanagawa Prefectural Museum of Natural History (KPM-NR) provided colour images of the holotype and other individuals of the new species. These were used for information on live colour variation and distribution and habitat. Comparisons with other similar species are based on specimens listed in Gill (2004).

### ***Pseudochromis yamasakii*, sp. nov.**

English common name: Dottybelly dottyback

New standard Japanese name: Haraten-nisesuzume

Figures 1–4

**Holotype.** KPM-NI 17772, 51.2 mm SL, Japan, Honshu, Kii Peninsula, Kushimoto, 23 m, K. Yamasaki, 1 October 2006.

**Diagnosis.** The following combination of characters distinguishes *P. yamasakii* from congeners: dorsal-fin rays III,25, all segmented rays branched; anal-fin rays III,15; anal-fin spines moderately stout and pungent, the second spine stouter than third; scales in lateral series 37–38; circumpeduncular scales 16; predorsal scales 15, extending anteriorly to anterior AIO pores; caudal fin rounded.

**Description.** Dorsal-fin rays III,25, all segmented rays branched; anal-fin rays III,15, all segmented rays branched; pectoral-fin rays 18/17; upper procurrent caudal-fin rays 6; lower procurrent caudal-fin rays 6; total caudal-fin rays 29; scales in lateral series 38/37; anterior lateral-line scales 27/26; anterior lateral line terminating beneath segmented dorsal-fin ray 17/16; posterior lateral-line scales 5 + 0/5 + 0; scales between lateral lines 3/3; horizontal scale rows above anal-fin origin 12 + 1 + 2/12 + 1 + 3; circumpeduncular scales 16; predorsal scales 12; scales behind eye 3; scales to preopercular angle 4; gill rakers 5 + 12; pseudobranch filaments 9; circumorbital pores 22/23; preopercular pores 11/12; dentary pores 4/4; posterior interorbital pores 1.

Lower lip weakly interrupted at symphysis; dorsal and anal fins without scale sheaths; predorsal scales extending anteriorly to anterior AIO pores; opercle with 5 indistinct serrations; teeth of outer ceratobranchial-1 gill rakers well developed only on raker tips; anterior dorsal-fin pterygiophore formula S/S/S + 3/1 + 1/1/1/1/1 + 1/1/1 + 1; dorsal-fin

spines moderately stout and pungent; anterior anal-fin pterygiophore formula 3/1 + 1/1/1 + 1/1/1 + 1; anal-fin spines moderately stout and pungent, the second spine stouter than third; pelvic-fin spine moderately stout and pungent; second segmented pelvic-fin ray slightly longer than third; caudal fin rounded; vertebrae 10 + 16; epineurals 14; epurals 3.



**FIGURE 1.** *Pseudochromis yamasakii*, KPM-NI 017772, 51.2 mm SL, holotype, Kushimoto, Kii Peninsula, Honshu, Japan (photo by K. Yamasaki).

Upper jaw with 2 pairs of curved, enlarged caniniform teeth anteriorly, inner pair smaller, and 5 (at symphysis) to 2 or 3 (on sides of jaw) inner rows of small conical teeth, outermost of rows of conical teeth much larger and more curved than inner rows; lower jaw with 2 pairs of curved, enlarged caniniform teeth anteriorly, inner pair smaller, and 4 (at symphysis) to 1 (on sides of jaw) inner rows of small conical teeth, teeth on middle of jaw slightly larger; vomer with a row of small conical teeth, forming chevron; palatines with 1–3 rows of small conical teeth arranged in elongate, suboval patch, anterior part of tooth patch more-or-less contiguous with posterolateral arm of vomerine tooth patch; ectopterygoid edentate; tongue moderately rounded and edentate.

As percentage of SL: head length 26.4; orbit diameter 8.4; snout length 6.4; fleshy interorbital width 6.3; bony interorbital width 4.3; body width 12.7; snout tip to posterior tip of retroarticular bone 15.4; predorsal length 32.8; prepelvic length 32.4; posterior tip of retroarticular bone to pelvic-fin origin 20.3; dorsal-fin origin to pelvic-fin origin 28.7; dorsal-fin origin to middle dorsal-fin ray 35.4; dorsal-fin origin to anal-fin origin 42.8; pelvic-fin origin to anal-fin origin 28.3; middle dorsal-fin ray to dorsal-fin termination 28.9; middle dorsal-fin ray to anal-fin origin 28.1; anal-fin origin to dorsal-fin termination 37.9; anal-fin base length 31.1; dorsal-fin termination to anal-fin termination 17.6; dorsal-fin termination to caudal peduncle dorsal edge 9.8; dorsal-fin termination to caudal peduncle ventral edge 19.7; anal-fin termination to caudal peduncle dorsal edge 19.9; anal-fin termination to caudal peduncle ventral edge 11.1; first dorsal-fin spine 2.5; second dorsal-fin spine 5.7; third dorsal-fin spine 7.8; first segmented dorsal-fin ray 12.9; fourth last segmented dorsal-fin ray 20.9; first anal-fin spine 1.4; second anal-fin spine 4.5; third anal-fin spine 7.6; first segmented anal-fin ray 11.5; fourth last segmented anal-fin ray 18.8; third pectoral-fin ray 16.8; pelvic-fin spine 11.7; second segmented pelvic-fin ray 22.7; caudal-fin length 29.7.

*Live coloration* (based on photographs of the holotype when freshly dead (Figs 1–2) and on underwater photos of individuals in the Kii Peninsula, Honshu (Figs 3–4, KPM-NR 89808, KPM-NR 92463) and the Izu Islands (KPM-NR 70230)): head dark bluish or greenish grey, becoming pale grey to pale yellow or orange ventrally; posterior and ventral part of orbital rim narrowly bright yellow, this edged with blue to bluish or purplish grey curved bar; remainder of cheek with two or three curved series of blue to bluish or purplish grey spots; operculum with scattered blue to bluish or purplish grey spots, and series of three to nine very short reddish brown bars on anterior margin; iris yellow to yellowish grey with bright blue suboval ring around pupil; nape and dorsal part of body above anterior lateral line dark greenish or bluish grey, the remainder of body orange to bright red or crimson, usually paler ventrally; scales of anterior lateral line each with a pale pink to bright red basal spot; each scale of lower half of body with a blue to bluish or purplish grey spot, these sometimes present only as a few rows of spots on midside; pectoral-fin base sometimes grey, becoming darker grey in axil of fin; breast sometimes dark bluish grey; first one or two dorsal-fin spines dark grey, the remaining rays reddish grey to bright red; dorsal-fin membranes bluish grey to blue on basal one third to half, the remainder hyaline to pinkish

hyaline, sometimes with blue distal margin; anal fin spines pale to dark blue, remaining rays pale blue to hyaline; anal-fin membranes pale blue to pale pink along basal part of fin, the remainder of fin hyaline to pinkish or bluish hyaline, with blue distal margin; caudal fin base reddish grey to bright red on central part, bordered dorsally and ventrally with dusky grey, the remainder of fin reddish or greyish hyaline to hyaline; pectoral fins pinkish hyaline; pelvic-fin rays hyaline to pale blue, with fin membranes hyaline to pinkish hyaline, sometimes with distal tips pale blue.

*Preserved coloration of holotype:* head and dorsal part of body dark grey-brown, becoming pale tan on lower half of body; blue to grey spots on sides of body become grey-brown; dorsal and anal fins dusky greyish to brownish hyaline basally, the remainder of fins pale greyish hyaline; caudal fin pale tan basally, bordered dorsally and ventrally by dusky grey-brown stripes, with dorsal and ventral edges of fin broadly pale tan to hyaline; pectoral and pelvic fins pale brownish hyaline.



**FIGURE 2.** *Pseudochromis yamasakii*, holotype, KPM-NI 17772, 51.2 mm SL, detail of head of holotype (photo by K. Yamasaki).

**Habitat and distribution.** *Pseudochromis yamasakii* is known only from Kushimoto (type locality) and Minabe on the Kii Peninsula of Honshu, and from Hachijo-jima in the Izu Islands (KPM-NR 70230, KPM-NR 8893, KPM-NR 8897). It has been recorded from reefs in 18–45 m.

**Comparisons.** *Pseudochromis yamasakii* presents an ambiguous combination of characters at couplet 55 of Gill's (2004) key to *Pseudochromis* species. It has 25 segmented dorsal-fin rays, characteristic of couplet 55a (which identifies *P. litus* Gill & Randall 1998), and sometimes has a dark spot in the pectoral fin axil, which is characteristic of couplet 55b (leading to *P. aurulentus* Gill & Randall 1998 and *P. pylei* Randall & McCosker 1989). It differs from all three species in having: fewer predorsal scales (15 versus 21–23 in *P. litus*, 21–26 in *P. aurulentus*, and 20–25 in *P. pylei*), with less extensive predorsal scalation (scales extending anteriorly only to anterior AIO pores versus to a point ranging from the posterior nasal pores to the posterior nostrils in the other three species).





**FIGURE 3.** *Pseudochromis yamasakii*, KPM-NR 90532A, underwater photo of individual in 18 m, Kushimoto, Kii Peninsula, Honshu, Japan (photo by K. Yamasaki).



**FIGURE 4.** *Pseudochromis yamasakii*, KPM-NR 166546, underwater photo of individual in 18 m, Kushimoto, Kii Peninsula, Honshu, Japan (photo by K. Yamasaki).

The live coloration of *P. yamasakii*, in particular the orange to red flanks and lower body adorned with blue to purplish grey spots, is distinctive and readily distinguishes the species from all other *Pseudochromis*. The live coloration is superficially similar to female *Cypho zaps* Gill (2004), with which it possibly co-occurs. However, *C. zaps* differs in numerous details, such as having fewer dorsal-fin rays (III,22–23 versus III,25), fewer anal-fin rays (III,14 versus III,15), and at least some segmented dorsal-fin rays unbranched (versus all branched).

**Remarks.** The recorded distribution of *P. yamasakii* is of higher latitude than almost any other pseudochromid. Although other pseudochromid species have been recorded from the same localities (*P. marshallensis* Schultz 1953 from Hachijo-jima (e.g., KPM-NR 11509, KPM-NR 70229) and Kushimoto (KPM-NR 42034) and *L. cyclophthalmus* Müller & Troschel 1849 from Kushimoto (e.g., KPM-NR 25943, KPM-NR 35246)), those species extend much farther south into more tropical areas. Water temperatures of 18°C and 21°C were recorded at two of the photograph sites, which suggest *P. yamasakii* is tolerant of relatively low temperatures.

**Etymology.** This species is named for Kimihiro Yamasaki, a professional diver and excellent underwater photographer. Mr Yamasaki collected the holotype and provided photographs of the new species.

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