

## *Sayonara flavolineata* (Perciformes: Anthiadidae), a new deep-water anthiadid perchlet from Vietnam

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**Abstract.** A new species of deep-water anthiadid perchlet, *Sayonara flavolineata*, is described from seven specimens collected off Nha Trang, southeastern Vietnam. Based on morphological features, it is assigned to a recently resurrected genus *Sayonara* Jordan & Seale, 1906, a former junior synonym of *Plectranthias*. *Sayonara flavolineata*, new species is distinctive in having yellow and reddish orange stripes when fresh, a horizontal dusky stripe in the middle of spinous dorsal fin, and a slightly concave dorsal profile of the head. It is further distinguished from other anthiadids by the following combination of characters: dorsal-fin rays X, 15; pectoral-fin rays 15–16; branched caudal-fin rays 8+7; lateral-line scales 31–35; circumpeduncular scales 12; predorsal scales extending anteriorly to posterior nostrils; body scales bearing basal cteni; scales present on maxilla, infraorbital, and mandibles; presence of trisegmental pterygiophores in both dorsal and anal fins; and two supraneurals. We updated and revised the record of species previously classified under *Plectranthias* in Vietnam. Including the new species, five species are now known from Vietnam and are reclassified to recently resurrected genera including *Sayonara*, *Xenanthias*, and *Zalanthias*.

**Key words.** taxonomy, species diversity, *Plectranthias*

### INTRODUCTION

*Sayonara* Jordan & Seale, 1906 is a genus recently resurrected from *Plectranthias* Bleeker, 1873 (Tang & Chen, 2025). The conventional *Plectranthias* (or *Plectranthias* sensu lato) was previously reviewed by Randall (1980), in which he synonymised eight nominal genera with *Plectranthias* and described 13 new species. *Plectranthias* as subsequently defined represents a collection of benthic anthiadid species that are superficially or ecologically similar to each other. Tang & Chen (2025) reconstructed a phylogeny of Indo-West Pacific anthiadids using mitochondrial and nuclear markers, consolidating the non-monophyletic nature of *Plectranthias* presumed by previous studies (e.g., Baldwin, 1990; Anderson & Heemstra, 2012). To resolve the taxonomy of *Plectranthias* sensu lato, Tang & Chen (2025) re-circumscribed *Plectranthias*, described two new genera, and resurrected *Pelontrus* Smith, 1961, *Sayonara* Jordan & Seale,

1906, *Xenanthias* Regan, 1908, and *Zalanthias* Jordan & Richardson, 1910, from synonymy with *Plectranthias*. After the reallocation of former *Plectranthias* species, *Sayonara* encompasses seven valid species, namely *S. elongata* (Wu, Randall & Chen, 2011), *S. fijiensis* (Raj & Seeto, 1983), *S. japonica* (Steindachner in Steindachner & Döderlein, 1883), *S. lasti* (Randall & Hoese, 1995), *S. megalophthalma* (Fourmanoir & Randall, 1979), *S. robertsi* (Randall & Hoese, 1995), and *S. xanthomaculata* (Wu, Randall & Chen, 2011). *Sayonara* is a group of benthic and deep-dwelling species that inhabit hard, sandy, or muddy bottoms down to ca. 400 m. In addition, Tang & Chen (2025) identified five undescribed species in their study, suggesting *Sayonara* contains rich unrecognised diversity.

During surveys in fishing ports conducted regularly in Vietnam by the second author, an unidentified anthiadid was found collected by bottom trawls off southeast Vietnam. It was first identified as a species of *Plectranthias* sensu lato and subsequently regarded as a *Sayonara* based on its morphology. The finding of this potential new species also raised the authors' interest to review previous records of 'Plectranthias' in Vietnam. Studies of the marine ichthyofauna in Vietnam began with surveys in the early 20th century (e.g., Pellegrin, 1905; Chevey, 1932), followed by subsequent studies lasting to the mid-20th and the early 21st century (e.g., Fourmanoir & Do, 1965; Orsi, 1974; Nguyen et al., 1995; Nguyen, 2008). However, no 'Plectranthias' were recorded in Vietnamese waters until the early 21st century. Nguyen & Nguyen (2006) first documented two species, *Plectranthias longimanus* (Weber, 1913) and *Plectranthias megalophthalmus* Fourmanoir & Randall, 1979 based solely

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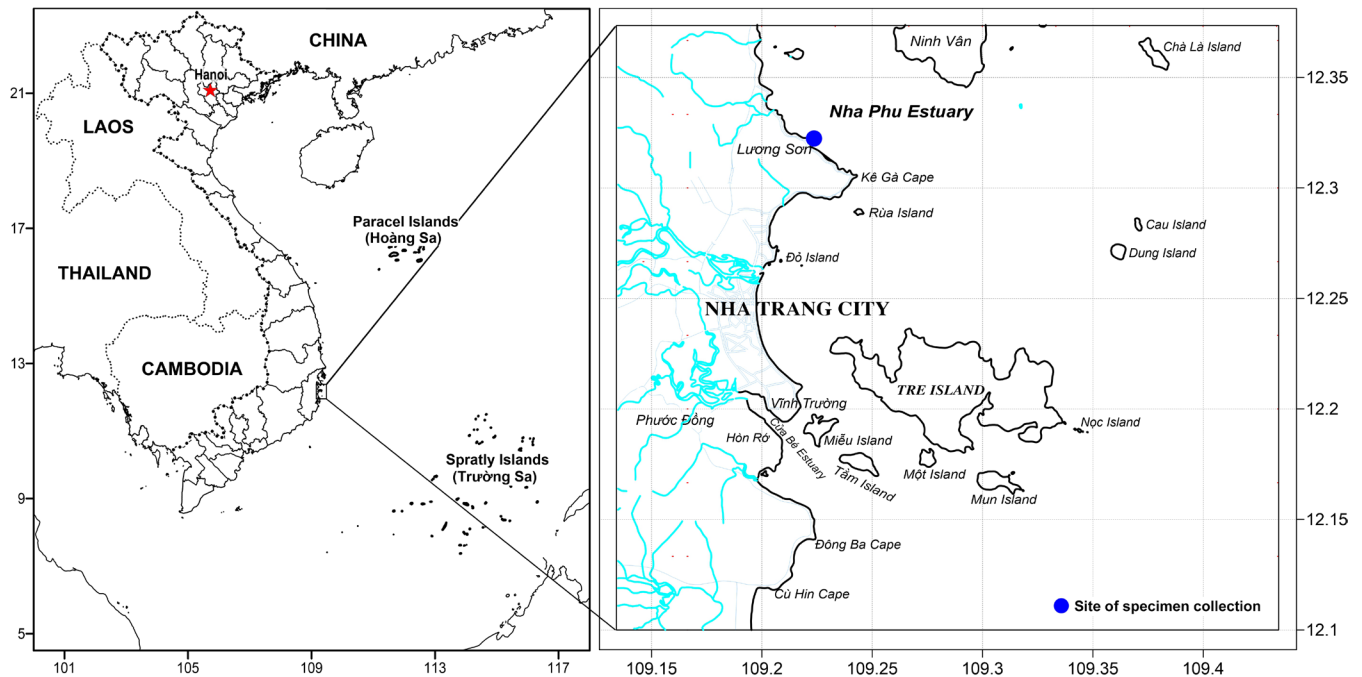


Fig. 1. Geographical location of the sampling site in Vietnam, indicated by a blue dot.

on underwater observations, but without voucher specimens. In addition, two other ‘*Plectranthias*’ species were discovered among museum collections and are newly recorded herein.

In this study, we formally describe the unidentified *Sayonara* species based on morphological characteristics. In addition, we update the list and nomenclature of *Plectranthias* sensu lato previously recorded from Vietnam, based on a comprehensive review of literature and the revised taxonomy of Anthiadidae.

## MATERIAL AND METHODS

All specimens in this study were collected from a fish landing site at Lương Sơn fishing port, Nha Trang, Khánh Hòa, southeastern Vietnam (Fig. 1). Specimens were first fixed in 10% formalin solution and transferred to 75% ethanol for long-term preservation. In morphological examinations, methods of counting and measuring generally follow Gill et al. (2021). In the description of pectoral-fin ray branching pattern, unsegmented rays are denoted by lowercase Roman numerals while branched rays are denoted by Arabic numerals. The formula is written from the uppermost to the lowermost pectoral-fin ray. Anterior dorsal-fin pterygiophore formula follows Gill (2022). External characters were observed under stereomicroscopes. Counts from both sides of the body were recorded when available. In the description, bilateral counts for the holotype are expressed in left/right format. Data are first given for holotype followed by data from paratypes in parentheses. Measurements were made with digital callipers, recorded to the nearest 0.1 mm. Morphometric proportions are expressed as percentages of standard length (SL). Osteological characters were examined through digital X-radiographs, captured using an X-ray imaging unit (PXS5-928WB microfocuss X-ray source [Thermo Scientific]) housed

in the National Museum of Marine Biology and Aquarium, Pingtung, Taiwan.

Type specimens were deposited the Institute of Oceanography, Vietnam Academy of Science and Technology, Nha Trang (OIM-E) and the National Museum of Marine Biology & Aquarium, Pingtung (NMMB-P). Data of comparative specimens were taken from the Australian Museum, Sydney (AMS), the Australian National Fish Collection (CSIRO), Museum Victoria, Melbourne, Australia (NMV), the ichthyological collections of National Taiwan University Museums, Taipei (NTUM), and the National Museum of Natural History, Smithsonian Institution, Washington D. C. (USNM).

## TAXONOMY

### Family Anthiadidae Poey, 1861

### Genus *Sayonara* Jordan & Seale, 1906

#### *Sayonara flavolineata*, new species

English name: Yellow-striped Perchlet

Vietnamese name: Cá mú vàng dải đỏ

(Figs. 2–4, Tables 1–4)

**Holotype.** OIM-E.55852 (field code: Q.01204-2), 101.1 mm SL, Lương Sơn fishing port, Nha Trang, Khánh Hòa, off southeast coast of Vietnam, bottom trawl, depth ca. 120–180 m, 17 March 2024.

**Paratypes.** Six specimens: NMMB-P 41621 (field code: Q.01204-1), 107.9 mm SL, NMMB-P 41622 (field code: Q.1204-3), 92.5 mm SL, NMMB-P 41623 (field code: Q.1204-4), 80.0 mm SL, NMMB-P 41624 (field code: Q.1204-5),

81.8 mm SL, collected with holotype; OIM-E.55851 (field code: Q.01205-2), 107.0 mm SL, NMMB-P 41625 (field code: Q.1205-1), 117.5 mm SL, same collection location with holotype, 16 March 2024.

**Diagnosis.** The following combination of characters distinguishes *S. flavolineata* from other anthiadids: dorsal profile of head inclined, slightly concave; dorsal-fin rays X, 15, fourth or fifth spine longest; pectoral-fin rays 15–16, at least 6 upper rays branched (excluding uppermost 1–2 unbranched rays); lateral-line scales 31–35; scales above lateral line to dorsal-fin origin 2; scales below lateral line to anal-fin origin 10–11; circumpeduncular scales 12; most body scales with basal (transforming) cteni; predorsal scales extend to level of posterior nostril; infraorbital series, maxilla, mandibles (dentary and anguloarticular) scaled; presence of yellow and reddish orange stripes on body when fresh; horizontal dusky stripe in middle of dorsal fin. In addition, the new species possesses the following combination of osteological characters: two supraneurals; trisegmental pterygiophores present, 7–11 and 4–5 associated with soft dorsal and anal fins, respectively; branched caudal-fin rays 8+7.

**Description.** Dorsal-fin rays X, 15, all segmented rays branched except first, last ray branched to base; anal-fin rays III, 7, all segmented rays branched, last ray branched to base; pectoral-fin rays 15/15 (15–16), segmented, at least some rays branched, branching patterns i+7+vi+1/i+6+viii (i+7+vi+1, ii+6+vi+1, ii+6+viii, i+7+viii, i+7+iv+4, i+7+i+2, i+15); pelvic-fin rays I, 5; upper procurent caudal-fin rays 5 (5–6); lower procurent caudal-fin rays 5 (4–5); principal caudal-fin rays 9+8; branched caudal fin rays 8+7 (one paratype with only 8+6); total caudal-fin rays 27 (26–28); lateral line complete with 31/31 (31–35) tubed and pored scales; scales above lateral line to dorsal-fin origin 2/2; scales above lateral line to base of fifth dorsal spine 2/- (2), uppermost half-sized; scales below lateral line to anal-fin origin 10/10 (10–11); diagonal rows of scales on cheek 7/6 (6–8); circumpeduncular scales 12; gill rakers 4/5 + 13/12 (4–7+11–14=16–20), upper 3/4 (3–6) and lower 5/4 (4–7) rudiments; pseudobranchial filaments 19/- (14–19); branchiostegal rays 7.

Vertebrae 10+16; no parapophyses on first caudal vertebra (vertebra 11); ribs present on vertebrae 3 through 10; epineurals present on vertebrae 1 through 10 (10–11); supraneurals 2; anterior dorsal-fin pterygiophore formula S/S/3/1+1; dorsal pterygiophores in interneural spaces 9–13 1/1/1+1/1+1/1+1 (1/1/1+1/1+1/1 or 1/1/1+1/1+1/1+1); 8 (7–11) trisegmental pterygiophores associated with dorsal fin; terminal dorsal pterygiophore in interneural space 17; 5 (4–5) trisegmental pterygiophores associated with anal fin; terminal anal pterygiophore in interhaemal space 4; parhypural and hypurals autogenous; well-developed hypurapophysis on parhypural; epurals 3; single uroneural (posterior uroneural absent); ventral tip of cleithrum with well-developed posteroventral process; proximal tip of first

anal-fin pterygiophore near distal tips of parapophyses on vertebra 10 (Fig. 4).

Dorsal-fin spines without short fleshy tabs on their distal tips; fourth or fifth dorsal-fin spine longest; dorsal fin incised before first segmented fin ray, last dorsal-fin spine (10th) shorter or subequal to first spine; profile of soft dorsal-fin rounded, fifth to eighth segmented ray longest, not filamentous; second anal-fin spine longest and stoutest, reaching terminus of anal-fin base or slightly beyond when appressed; profile of soft anal fin rounded with second or third segmented ray longest; caudal fin truncated or slightly emarginated with filamentous extensions from a few uppermost branched rays; pectoral-fin rays not thickened; eighth, ninth or tenth (counting from dorsal-most) ray longest, reaching a vertical through origin to middle of anal-fin base; pelvic fins short, not reaching anus, second segmented ray longest.

Dorsal profile of head inclined, slightly concave; mouth large, slightly oblique, posterior margin of maxilla reaching vertical through posterior edge of eye; maxilla expanded posteriorly, with long, low, lateral ridge running parallel to dorsal margin; supramaxilla present; upper jaw with band of villiform teeth, 7–8 rows wide anteriorly, with 1–4 small curved canines on each side at front of jaw, teeth progressively longer and becoming depressible towards inner rows near symphysis, tooth band narrowing and reduced to 5 rows posteriorly; lower jaw with band of villiform teeth, 5–7 rows wide anteriorly, narrowing and reducing to 3–5 rows posteriorly with 1–3 enlarged canine teeth each side on middle of jaw; vomer with a V-shaped band of 3–4 rows of small conical or villiform teeth; palatine with a band of 3–5 rows of small conical or villiform teeth; ectopterygoid and mesopterygoid edentate; tongue narrow, pointed and edentate.

Opercle with three flat spines, middle spine longest, upper spine partially concealed by scales; preopercle an open groove, with ca. 22–36 weak or developed serrations on outer margin, no antrorse spine on ventral margin; interopercle with 7–19 indistinct serrations; subopercle with a rough margin, or with 3–9 indistinct serrations; posttemporal smooth or with 1–4 irregular serrations. Anterior nostril positioned at middle of snout with a short membranous tubule; posterior nostril at anterior border of orbit, with slightly raised rim but no flap.

Scales ctenoid, most (i.e., to posterior body) with basal (transforming) cteni; lateral line broadly arched over pectoral fin following body contour to caudal-fin base; predorsal scales extending anteriorly, reaching a vertical through posterior to anterior nostril; infraorbital series (including lachrymal), branchiostegal membranes, maxilla, mandibles (dentary and anguloarticular) scaled; no scales on chin and snout; no auxiliary scales on head or body; dorsal fin with intermittent row of scales along base of fin; anal fin with low scaly sheath basally, with some small scales extending onto fin membranes anteriorly; caudal and pectoral fin with scaly basal sheath but most scales lost in all specimens; inner side of pelvic fin with low scaly basal sheath.

Table 1. Morphometric proportions of *Sayonara flavolineata*, new species, *S. japonica*, and *S. robertsi*.

	<i>Sayonara flavolineata</i> , new species			<i>S. japonica</i>	<i>S. robertsi</i>	
	Holotype	Paratypes		Non-types	Holotype	Types and non-types
Standard length (SL, in mm)	101.1	80.0–117.5		66.7–144.0	87.1	62.7–112.6
<b>Morphometrics (% SL)</b>		Range	Mean (all types, n=7)	Mean (range, n=12)		Mean (range, n=10, including holotype)
Greatest body depth	35.6	33.2–36.7	34.7	35.9 (32.3–39.1)	32.5	33.6 (31.1–38.9)
Body depth at anal-fin origin	31.3	29.0–32.2	30.6	32.0 (29.5–34.1)	30.8	29.6 (27.3–30.8)
Body width	16.0	13.2–16.6	15.3	18.0 (16.1–20.8)	18.0	18.6 (16.3–20.7)
Head length	41.2	39.6–41.9	41.0	41.8 (39.9–43.5)	42.3	42.4 (38.9–46.4)
Snout length	9.3	8.1–9.4	8.9	8.8 (7.3–10.8)	9.6	10.2 (8.2–12.9)
Orbit diameter	10.2	10.0–12.3	10.9	10.6 (9.0–11.6)	12.1	12.7 (12.1–13.5)
Bony interorbital width	4.4	3.2–4.7	4.1	4.4 (3.6–5.4)	5.2	5.5 (4.6–7.1)
Upper jaw length	20.8	19.7–21.6	20.5	20.4 (19.0–21.4)	20.9	21.1 (20.2–22.2)
Maxilla width	6.9	6.1–7.3	6.7	6.6 (6.0–7.1)	6.9	6.9 (6.3–7.3)
Caudal peduncle length	18.8	18.6–19.8	19.2	18.4 (16.4–19.9)	21.1	20.4 (18.9–22.1)
Caudal peduncle depth	12.4	10.5–12.9	11.9	13.4 (12.8–14.3)	13.3	12.8 (12.1–13.8)
Predorsal length	39.2	39.9–41.5	40.4	39.5 (37.7–40.7)	39.4	40.2 (39.1–42.1)
Preanal length	69.5	67.5–70.5	69.3	69.7 (66.6–72.6)	74.1	70.2 (66.0–74.1)
Prepelvic length	36.7	34.7–36.6	36.0	38.6 (35.4–40.8)	39.8	39.3 (34.1–44.5)
Dorsal-fin base length	49.7	48.3–50.7	49.6	51.8 (49.5–53.5)	48.0	48.8 (45.6–51.8)
1st dorsal-fin spine	4.9	4.5–5.8	5.1	5.8 (4.9–6.8)	5.4	5.6 (4.4–6.3)
3rd (")	11.3	9.5–11.8	11.2	10.3 (9.6–11.5)	11.8	11.6 (10.2–12.9)
4th (")	13.2	11.8–14.5	12.9	11.8 (11.0–12.6)	13.7	14.3 (12.2–15.8)
5th (")	13.0	12.4–13.6	13.1	12.7 (11.4–14.3)	14.0	15.2 (14.0–16.4)
10th (")	4.9	4.3–5.4	4.9	3.2 (2.4–3.8)	4.5	5.6 (4.4–6.3)
First segmented dorsal-fin ray	12.5	12.2–12.2	12.3	13.7 (11.0–15.2)	–	7.2 (6.3–8.0)
Longest segmented dorsal-fin ray	16.6	15.1–17.4	16.0	18.5 (16.9–20.7)	–	24.4 (16.6–30.7)
Anal-fin base length	14.5	12.4–14.6	13.6	15.4 (13.8–16.7)	14.0	14.1 (12.9–15.2)
1st anal-fin spine	7.0	6.2–7.3	6.7	6.0 (4.9–6.9)	7.6	7.2 (6.3–8.0)
2nd (")	13.5	11.2–14.8	13.1	13.6 (11.6–15.5)	16.6	17.1 (15.5–18.4)
3rd (")	10.5	9.8–11.1	10.5	11.3 (9.5–12.5)	12.5	13.2 (12.0–14.4)
First segmented anal-fin ray	17.1	15.2–17.4	16.4	17.0 (15.7–19.8)	–	20.5 (18.4–21.4)
Longest segmented anal-fin ray	19.8	17.4–20.0	19.0	19.5 (17.5–24.5)	–	23.1 (21.6–25.3)
Caudal-fin length	37.7	26.2–35.7	31.3	27.3 (25.7–30.3)	–	31.1 (26.1–36.0)
Caudal concavity	13.8	2.8–9.1	7.2	Truncated or rounded	–	9.0 (5.4–19.3)
Longest pectoral-fin ray	33.9	28.6–34.6	33.3	35.3 (31.8–38.1)	38.2	37.0 (35.1–38.3)
Pelvic-fin spine	13.2	11.6–13.9	12.9	13.4 (12.4–14.5)	15.5	15.2 (14.3–16.1)
Pelvic-fin length	22.4	20.3–22.6	21.7	25.1 (22.0–33.9)	31.1	38.8 (29.9–58.3)



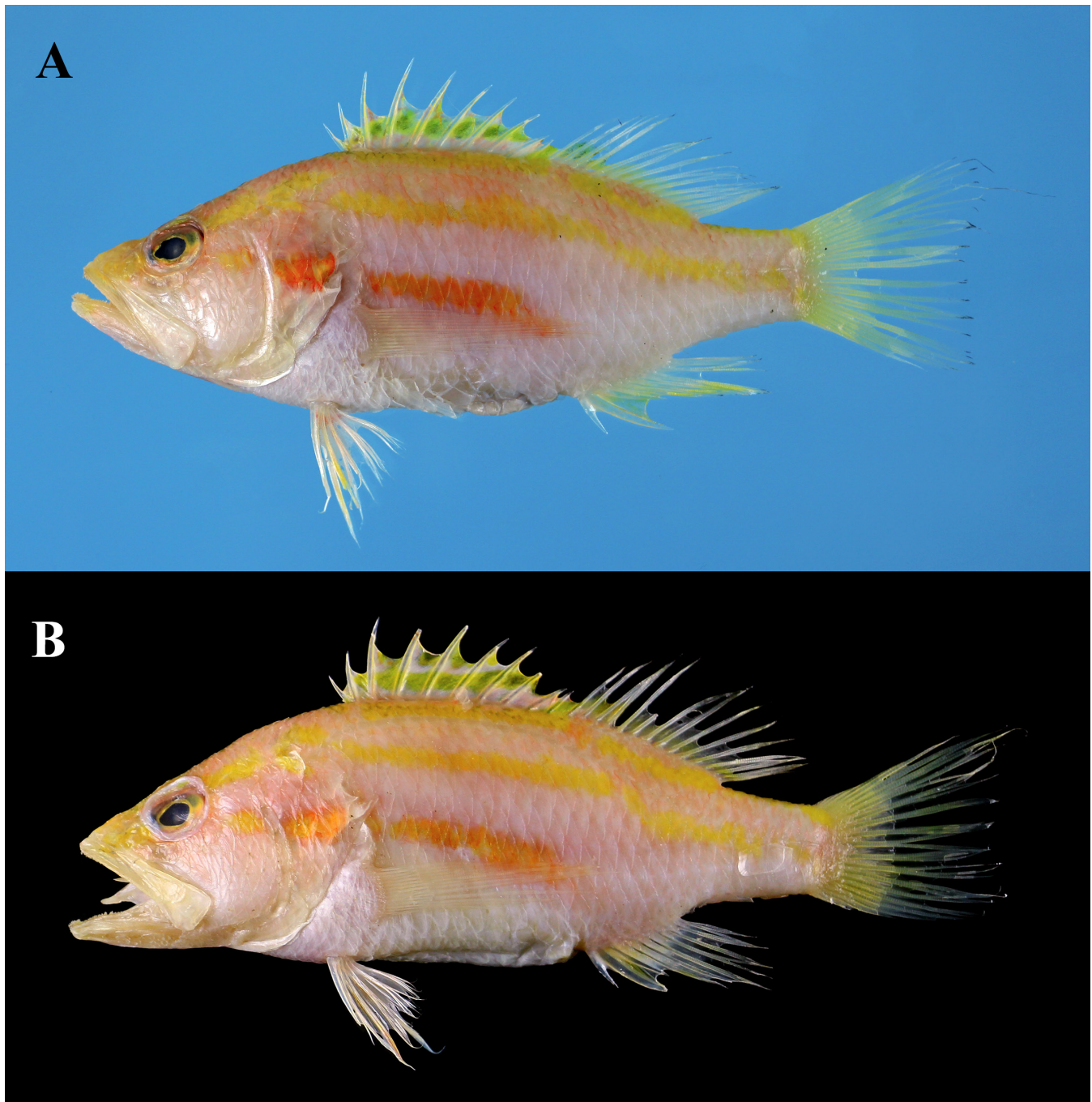


Fig. 2. Fresh colouration of *Sayonara flavolineata*, new species. A, holotype, OIM-E.55852 (field code: Q.01204-2), 101.1 mm SL; B, paratype, NMMB-P 41621 (field code: Q.01204-1), 107.9 mm SL. Photos by Q. V. Vo.

Morphometric proportions are summarised in Table 1.

**Colouration when fresh (Fig. 2).** Head pale pink; snout yellow; two stripes on head; upper stripe yellow, extending dorsoposteriorly from posterior edge of orbit to nape; lower stripe extending from ventroposterior edge of orbit to opercle, becoming reddish or orangish yellow posteriorly; body pale pink with three stripes; uppermost stripe dusky yellow, extending along dorsal-fin base and upper edge of caudal peduncle to caudal-fin base; middle stripe yellow, extending from upper end of operculum along upper flanks, then curving on to mid-lateral end of caudal peduncle; lowermost stripe reddish orange, located above pectoral fin, on abdomen, slanting downward and terminating at vertical

through anal-fin origin; diffuse reddish pink blotches present on upper body; spinous dorsal fin creamy pink, becoming yellow distally, with a dusky yellow stripe through middle; base of soft dorsal fin pale yellow, becoming pale pink distally; caudal fin yellow, posterior edge of fin black; anal fin pale pink or faint yellow; pelvic fins white with anterior rays yellow; pectoral fins translucent.

**Colouration in preservation (Fig. 3).** Body generally creamy white, dorsal region dusky; faint dusky line below spinous dorsal-fin; two faint horizontal stripes on trunk, their position equivalent to yellow stripes when fresh; yellow pigments persist beneath stripes after eight months of formalin fixation and preservation; inner surface of operculum shiny

Table 2. Summary of selected meristic counts of *Sayonara flavolineata*, new species, *S. japonica*, and *S. robertsi*. Where possible, bilateral characters were taken from the holotype of *S. flavolineata* sp. nov. LL = lateral line.

	<i>Sayonara flavolineata</i> , new species		<i>S. japonica</i>	<i>S. robertsi</i>
	Holotype	Paratypes (n=6)	Non-types (n=14)	Types and non-types (n=11)
Dorsal-fin rays	X, 15	X, 15	X, 15	X, 15
Anal-fin rays	III, 7	III, 7	III, 7	III, 7
Pectoral-fin rays	15/15	15–16	15–16	15–16
Lateral-line scales	31/31	31–35	31–35	30–35
Scales above LL to dorsal-fin origin	2/2	2	2–3	3–4
Scales below LL to anal-fin origin	10/10	10–11	10–12	10–12
Cheek scales	7/6	6–8	6–8	7–8
Circumpeduncular scales	12	12	14–15	15–16
Upper gill rakers	4/5	4–7	4–7	5–8
Lower gill rakers	12/13	11–14	11–15	13–16

white (visible from outer surface); dusky horizontal stripe in middle of spinous dorsal fin persist; edge of soft dorsal and caudal fins dusky.

**Habitat and distribution.** All specimens were obtained from Lương Sơn fishing port, from catches taken by bottom trawling off the southeast coast of Vietnam at depths of approximately 120–180 m (Fig. 1). Its habitat is presumed to be muddy or sandy seafloor on continental shelf.

**Etymology.** The specific epithet is derived from the Latin ‘flavo’ (yellow) and ‘lineata’ (line), in reference to the diagnostic yellow stripes on the body when fresh.

**Remarks.** *Sayonara flavolineata*, new species, is classified into the recently resurrected genus *Sayonara* based on a combination of morphological features listed by Tang & Chen (2025), particularly ctenoid scales with basal cteni, 15 (8+7) branched caudal-fin rays, some pectoral-fin rays branched, two supraneurals, trisegmental pterygiophores associated with soft dorsal and anal fins, and absence of antrorse spines on ventral preopercle margin and anteriorly projecting canines near symphysis on dentary. Among congeners, *S. flavolineata* is most similar to the widespread *S. japonica* (Steindachner, 1883) (Fig. 5) from the eastern Indian Ocean (North West Shelf and Arafura Sea) and Northwest and the tropical West Pacific (Japan, Taiwan, Philippines, Papua New Guinea, Vietnam [new range]), and *S. robertsi* (Randall & Hoese, 1995) (Gill et al., 2021: fig. 42) from eastern Australia (off Queensland). These species share common characters including dorsal-fin rays X, 15, a finely serrated preopercle margin, 31–35 lateral-line scales, scaled maxilla and infraorbital series, and predorsal scales extending at least to level of posterior nostril (Table 2). *Sayonara flavolineata* can be readily distinguished from *S. robertsi* in having a scaled dentary (vs. dentary unscaled in *P. robertsi*), fewer circumpeduncular scales (12 vs. 15–16),

fewer gill rakers on lower limb (11–14 vs. 13–16, Table 3), a shorter second anal-fin spine (11.2–14.8% SL vs. 15.5–18.4% SL), a shorter pelvic fin (28.6–34.6% vs. 29.9–58.3% SL), and no filamentous rays on the dorsal or pelvic fins (vs. anterior soft dorsal- and pelvic- fin rays usually filamentous). In addition, the two species are readily separable by body colouration. *Sayonara flavolineata* is unique in having yellow and reddish orange stripes on its body when fresh, while *S. robertsi* has a scattering of orange or reddish spots on the body, and a dusky spot on the anterior few lateral-line scales, which are not observed in *S. flavolineata*.

*Sayonara flavolineata* differs from *S. japonica* in having a longer last dorsal-fin spine (4.3–5.4% SL vs. 2.4–3.8% SL), and fewer circumpeduncular scales (12 vs. 14–15). Although the two species have overlapping meristic and morphometric values (Tables 1–3), they can be differentiated from each other by their body shape and colouration. *Sayonara flavolineata* has the dorsal profile of its head slightly concave, while this region is flat or slightly rounded in *S. japonica*. In terms of colouration, while *S. flavolineata* has a dusky yellowish stripe along dorsal fin base and yellow and reddish orange stripes on its body when fresh, *S. japonica* possesses a series of dusky spots along the nape and dorsal-fin base, and some irregular bars and blotches on body when fresh or alive (Fig. 5). Furthermore, the middle of the fin membranes between the dorsal-fin spines of *S. flavolineata* are dusky, forming a stripe either in fresh or preserved conditions (Figs. 2, 3), which is absent in *S. japonica*.

## DISCUSSION

The genus *Plectranthias* was previously recognised as polyphyletic, encompassing a group of superficially similar benthic species within the family Anthiadidae. In the revision conducted by Tang & Chen (2025), they re-circumscribed



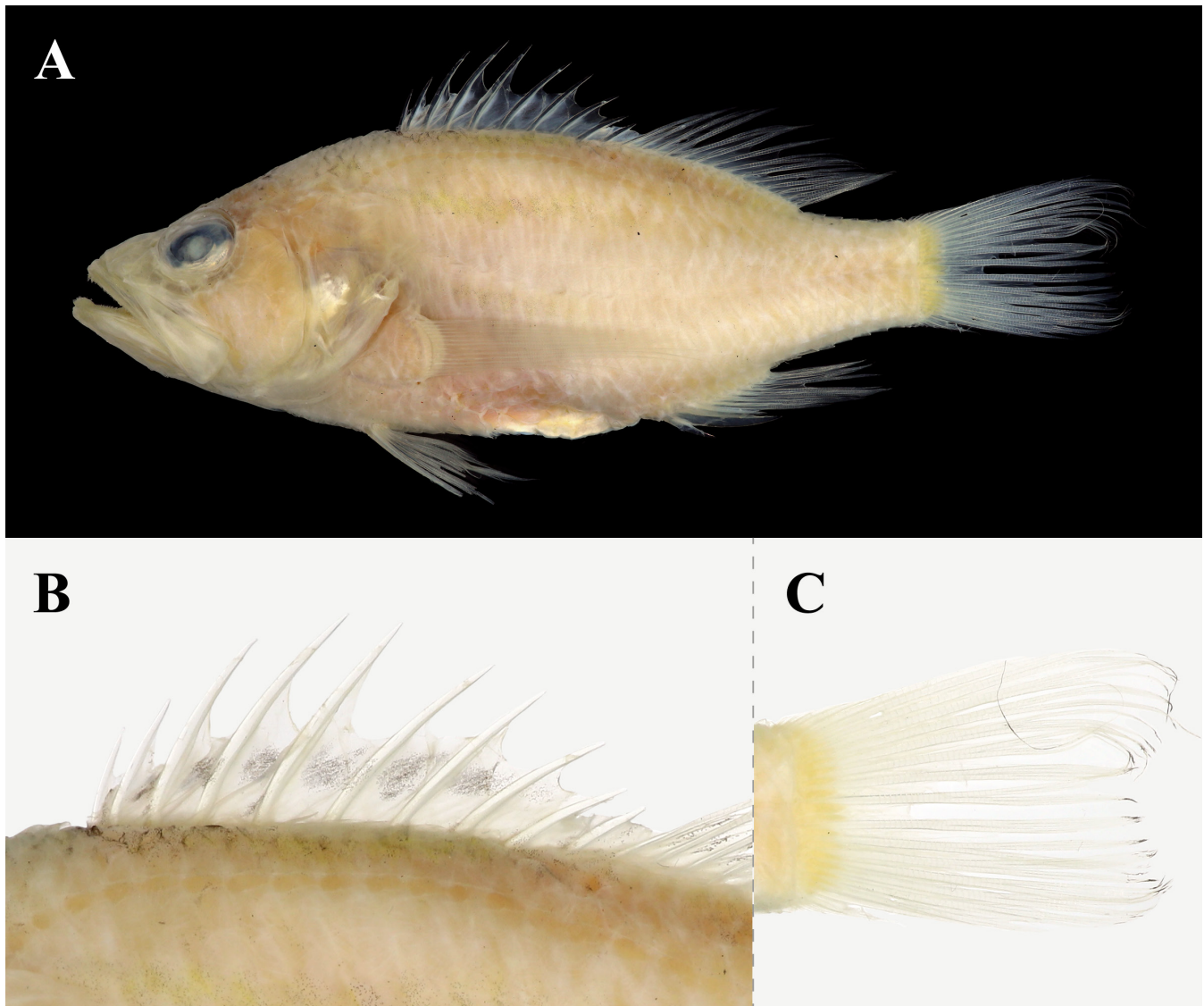


Fig. 3. Preserved colouration of *Sayonara flavolineata*, new species, holotype, OIM-E.55852, 101.1 mm SL. A, whole fish on a black background; B, spinous dorsal-fin and the dorsum, on a bright background; C, caudal fin on a bright background. Photos by C.-N. Tang.

*Plectranthias* and reallocated species into newly described or resurrected genera, which resolves a part of the problematic genus-level taxonomy of the Anthiadidae. Given this change in taxonomy of anthiadids, species databases, as well as regional ichthyofaunal records are recommended to update accordingly. This study, as a part of the progressive work of the exploration of fish diversity of Vietnam, attempts to review and revise previous record of *Plectranthias* species in Vietnam. ‘*Plectranthias*’ *longimanus* and ‘*P.*’ *megalophthalmus* as documented by Nguyen & Nguyen (2006), should be revised as *Xenanthias longimanus* (Weber, 1913) and *Sayonara megalophthalma* (Fourmanoir & Randall, 1979), respectively. While no new specimens of *X. longimanus* were obtained in this study, it is a widely distributed reef-associated species in the Indo-West Pacific, thus we agree with its occurrence in Vietnam. We are doubtful of the identification of *S. megalophthalma*, a rare species that has only been collected in the southwest Pacific (eastern Australia and New Caledonia) (Gill et al., 2021). We suspect that the Vietnamese *S. megalophthalma* could represent a misidentification of a similar species, such as *S.*

*elongata*, or *S. xanthomaculata*, both of which occur in the northern South China Sea (Wu et al., 2011).

In addition, *P. azumanus* (Jordan & Richardson, 1910) and *P. japonicus*, which are revised as *Zalanthias azumanus* and *S. japonica*, respectively, are added to the ichthyofauna of Vietnamese waters based on museum collections and newly collected specimens in this study (Table 4). *Z. azumanus* is a species previously known from southern Japan, Taiwan, and western Australia (Gill et al., 2021), and was obtained from a fishing port in Vietnam (voucher specimen: OIM-E.55853). *S. japonica* is often found in bycatches of bottom-trawling fishing ships. We further confirmed its distribution in Vietnam based on voucher specimens (e.g., USNM 471177, OIM-E.55863). After revision, five species of benthic anthiadids are recorded in Vietnam and none of them belongs to the true *Plectranthias* (Table 4).

Based on our available collected data, *S. flavolineata* and *S. japonica* are at least sympatric in the waters off Vietnam in the South China Sea. Both species are frequently captured

Table 3. Frequency distributions of selected meristic counts recorded from specimens of *Sayonara flavolineata*, new species (n=7), *S. japonica* (n=14), and *S. robertsi* (n=11). Counts were recorded bilaterally where possible. Values obtained from the holotype are denoted by an asterisk (\*).

	Lateral-line scales					
	30	31	32	33	34	35
<i>Sayonara flavolineata</i> , new species		5*	2	3	3	1
<i>Sayonara japonica</i>		5	7	6		1
<i>Sayonara robertsi</i>	1	3*	5*	6	4	1

	Circumpeduncular scales					Scales above anal-fin origin to lateral line		
	12	13	14	15	16	10	11	12
<i>Sayonara flavolineata</i> , new species	7*					8*	5	
<i>Sayonara japonica</i>			11	3		2	10	3
<i>Sayonara robertsi</i>				5	5*	2	13*	6

	Total upper gill rakers					Total lower gill rakers					
	4	5	6	7	8	11	12	13	14	15	16
<i>Sayonara flavolineata</i> , new species	2*	9*	1	1		3	4*	4*	2		
<i>Sayonara japonica</i>	1	6	9	4		6	8	4	1	1	
<i>Sayonara robertsi</i>		1	4*	5	1			3	5*	1	2

Table 4. A revised list of species formerly identified as *Plectranthias* in Vietnam.

Original name	Revised name	Reference(s)	Remarks
<i>Plectranthias longimanus</i>	<i>Xenanthias longimanus</i>	Nguyen & Nguyen (2006); Nguyen & Mai (2020)	
<i>Plectranthias megalophthalmus</i>	<i>Sayonara megalophthalma</i>	Nguyen & Nguyen (2006)	Uncertain, see discussion
<i>Plectranthias azumanus</i>	<i>Zalanthias azumanus</i>	This study	
<i>Plectranthias</i> sp.	<i>Sayonara flavolineata</i> , new species	This study	New species described herein; was initially identified as a <i>Plectranthias</i>
<i>Plectranthias japonicus</i>	<i>Sayonara japonica</i>	This study	

on deep continental shelf in bottom trawls and occasionally taken together in the same catch haul, suggesting they may be syntopic and occupy similar habitats. However, because precise collection data are lacking, their bathymetric ranges, habitats, and prey preferences require further investigation. Including *S. elongata*, *S. japonica*, and *S. xanthomaculata*, *S. flavolineata* represents the fourth *Sayonara* species recorded from the South China Sea. Given the deep-dwelling nature of *Sayonara*, we speculate that additional undescribed species are likely to be discovered in the South China Sea, particularly in habitats on seamounts and other areas with limited fishery or scientific exploration.

## MATERIAL EXAMINED

***Zalanthias azumanus* (n=1):** OIM-E.55853, 112.7 mm SL, Lương Sơn fishing port, Nha Trang, Vietnam, coll. Q. V. Vo, 17 March 2024; ***Sayonara japonica* (n=18):** ASIZP 67897, 77.6 mm SL, stn. CP2662, off Baler Bay, Philippines, 15.82 °N, 121.75 °E, 253 m, coll. R/V *DA-BFAR*, AURORA 2007 Expedition, 21 May 2007; NTUM 14468, 2 specimens, 95.7–115.4 mm SL, Tosa Bay, Japan, coll. W.-J. Chen, 31 January 2018; NTUM 15590, 75.7 mm SL, Kaohsiung, Taiwan, coll. W.-J. Chen Lab, 6 May 2017; NTUM 17287, 66.7 mm SL, stn. CP4053, Papua New Guinea, 3.05 °S, 142.32 °E, 300–308 m, coll. R/V *Alis*, PAPUA NIUGINI Expedition, 20 December 2012; NTUM 17289, 87.7 mm



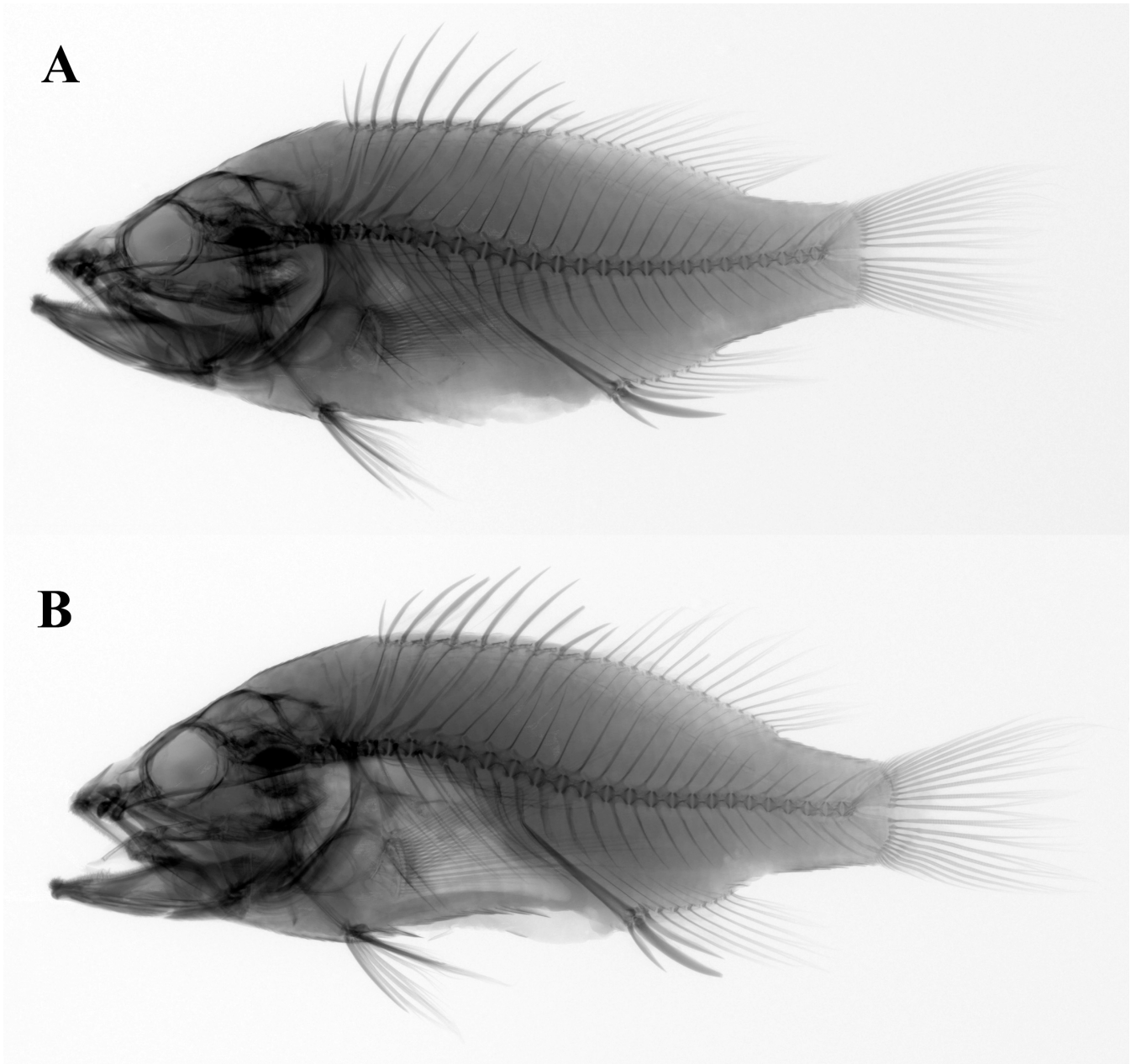


Fig. 4. X-radiographs of *Sayonara flavolineata*, new species. A, holotype, OIM-E.55852 (field code: Q.01204-2), 101.1 mm SL; B, paratype, NMMB-P 41621 (field code: Q.01204-1), 107.9 mm SL. Photos by Q. V. Vo.

SL, stn. CP4335, Papua New Guinea, 6.08 °S, 149.3 °E, 240–250 m, coll. R/V *Alis*, MADEEP Expedition, 7 May 2014; USNM 71256, 144.0 mm SL, Kagoshima, Japan, coll. R/V *Albatross*, 1906 (month and day unknown); USNM 117990, 2 specimens, 38.3–58.7 mm SL, Kagoshima, Japan, coll. R/V *Albatross*, 16 August 1906; USNM 437994, 118.7 mm SL, Panay Island, Philippines, coll. J.T. Williams et al., 23 July 2015; USNM 437795, 124.0 mm SL, Panay Island, Philippines, coll. J.T. Williams et al., 17 July 2015; USNM437797, 117.1 mm SL, Panay Island, Philippines, coll. J.T. Williams et al., 17 July 2015; USNM 443482, 91.0 mm SL, Luzon, La Union, Philippines, coll. J.T. Williams et al., 20 July 2016; USNM 471177, 86.4 mm SL, Nha Trang, Vietnam, coll. K.E. Bemis et al., 23 January 2023; OIM-E.55863, 4 specimens, 96.1–110.2 mm SL, Lương Sơn fishing port, Nha Trang, Vietnam, coll. Q. V. Vo, 9 July 2023; *Sayonara robertsi* (n=11): AMS I.20968-003, holotype, 87.1

mm SL, east of Hinchinbrook Island, 18.05 °S, 147.17 °E, 357 m, coll. Australian Museum and Australian Institute of Marine Science team, 27 February 1979; AMS I.37598-006, 73.3 mm SL, east of Swains Reef, 21.81 °S, 153.0 °E, 201 m, coll. J. Lowry & K. Dempsey, F/V *Capricorn I*, 14 September 1995; AMS I.38088-013, 62.7 mm SL, east of Swains Reef, 21.85 °S, 153.02 °E, 199 m, coll. J.K Lowry & K. Dempsey, F/V *Seadar Bay*, 11 September 1995; CSIRO H 682-1, paratype, 78.8 mm SL, stn. SO06-85/44, east of Dunk Island, 18.0 °S, 147.05 °E, 250–252 m, coll. R/V *Soela*, 29 November 1985; CSIRO H 691-1, paratype, 81.0 mm SL, stn. SO06-85/47, east of Dunk Island, 17.99 °S, 147.16 °E, 400–402 m, coll. R/V *Soela*, 29 November 1985; CSIRO H 3644-14, 112.6 mm SL, stn. SS0793/T3, 17.94 °S, 147.05 °E, 303–320 m, coll. F/V *Southern Surveyor*, 30 November 1993; CSIRO H 3645-13, 97.8 mm SL, CSIRO H 3645-14, 76.6 mm SL, CSIRO H 3645-15, 97.2 mm SL,



Fig. 5. *Sayonara japonica*, OIM-E.55863 (one of four specimens), 110.2 mm SL, Luong Son Fishing port, Nha Trang City. Specimen was not examined. Photo by Q. V. Vo.

stn. SS0793/T4, east of Rockingham Bay, 18.03 °S, 147.10 °E, 239–266 m, coll. F/V *Southern Surveyor*, 30 November 1993; NMV A 4504, 2 specimens, 73.3–89.7 mm SL, 95 km east of Dunk Island, 18.00 °S, 147.03 °E, 220 m, coll. R/V *Soela*, 8 January 1986.

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#### LITERATURE CITED

- Anderson WD Jr & Heemstra PC (2012) Review of Atlantic and eastern Pacific anthiine fishes (Teleostei: Perciformes: Serranidae), with descriptions of two new genera. *Transactions of the American Philosophical Society*, 102: i–xviii + 1–173.
- Baldwin CC (1990) Morphology of the larvae of American Anthiinae (Teleostei: Serranidae), with comments on relationships within the subfamily. *Copeia*, 1990: 913–955.
- Bleeker P (1873) Sur les especès indo-archipélagiques d’*Odontanthias* et de *Pseudopriacanthus*. *Nederlandsch Tijdschrift voor de Dierkunde*, 4: 235–240.
- Chevey P (1932) Poissons des campagnes du “de Lanessan” (1925–1929). *Mémoire No. 4, Ire Partie*. L’Institut Océanographique, Saigon, 1–155 pp., pls. 1–50.
- Fourmanoir P & Do TNN (1965) Liste complémentaire des poissons marins de Nha Trang: CAHIERS O.R.S.T.O.M. Océanographie, Numéro spécial. Office de la recherche scientifique et technique outre-mer, Paris, 114 pp.
- Fourmanoir P & Randall JE (1979) Three new species of serranid fishes of the genus *Plectranthias* from New Caledonia. *Micronesica*, 15: 314–324.
- Gill AC (2022) Revised definitions of the anthiadine fish genera *Mirolabrichthys* Herre and *Nemanthias* Smith, with description of a new genus (Teleostei: Serranidae). *Zootaxa*, 5092(1): 41–66.
- Gill AC, Pogonoski JJ, Moore GI, & Johnson JW (2021) Review of Australian species of *Plectranthias* Bleeker and *Selenanthias* Tanaka (Teleostei: Serranidae: Anthiinae), with descriptions of four new species. *Zootaxa*, 4918(1): 1–116.
- Jordan DS & Richardson RE (1910) A review of the Serranidae or sea bass of Japan. *Proceedings of the United States National Museum*, 37(1714): 421–474.
- Jordan DS & Seale A (1906) Descriptions of six new species of fishes from Japan. *Proceedings of the United States National Museum*, 30(1445): 143–148.
- Nguyen HP, Le TP, Nguyen NT, Nguyen PD, Do TNN & Nguyen VL (1995) Checklist of marine fishes in Vietnam. Vol. III. Order Perciformes, Suborder Percoidei and Suborder Echeenoidei. Science and Technology Publishing House, Hanoi, 606 pp. [in Vietnamese and English]
- Nguyen LV & Mai DX (2020) Reef fish fauna in the coastal waters of Vietnam. *Marine Biodiversity*, 50(6): 100.
- Nguyen NT (2008) The marine fish of Vietnam (Perciformes: Serranidae, Theraponidae, Priacanthidae, Haemulidae). Science and Technology Publishing House, Hanoi, 244 pp. [in Vietnamese]

- Nguyen NT & Nguyen VQ (2006) Biodiversity and living resources of the coral reef fishes in Vietnam marine waters. Science and Technology Publishing House, Hanoi, 119 pp. [in Vietnamese]
- Orsi JJ (1974) A check list of the marine and freshwater fishes of Vietnam. Publications of the Seto Marine Biological Laboratory, 21: 153–177.
- Pellegrin LDJ (1905) Mission Permanente Française en Indo-Chine Poissons de la Baie D’along (Tonkin). Bulletin de la Société zoologique de France, 30: 82–88.
- Poey F (1861) L. Conspectus piscium Cubensium. Memorias sobre la historia natural de la Isla de Cuba, acompañadas de sumarios Latinos y extractos en Frances, 2: 357–404.
- Raj U & Seeto J (1983) A new species of the anthiine fish genus *Plectranthias* (Serranidae) from the Fiji Islands. Japanese Journal of Ichthyology, 30(1): 15–17.
- Randall JE (1980) Revision of the fish genus *Plectranthias* (Serranidae: Anthiinae) with description of 13 new species. Micronesica, 16: 101–187.
- Randall JE & Hoesel DF (1995) Three new species of Australian fishes of the genus *Plectranthias* (Perciformes: Serranidae: Anthiinae). Records of the Australian Museum, 47: 327–335.
- Regan CT (1908) Report on the marine fishes collected by Mr. J. Stanley Gardiner in the Indian Ocean. The Transactions of the Linnean Society of London. Second Series. Zoology, 12(3): 217–255.
- Smith JLB (1961) Fishes of the family Anthiidae from the western Indian Ocean and the Red Sea. Ichthyological Bulletin, Department of Ichthyology, Rhodes University, 21: 359–369.
- Steindachner F & Döderlein L (1883) Beiträge zur Kenntniss der Fische Japan’s. (II.). Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Classe, 48(1): 1–40.
- Tang CN & Chen WJ (2025) A 40-year taxonomic enigma: multigene phylogeny resolves the polyphyly of *Plectranthias* (Perciformes: Anthiadidae) and supports a revised taxonomy. Zoological Journal of the Linnean Society. 205(3): zlaf148.
- Weber M (1913) Die Fische der Siboga-Expedition. E.J. Brill, Leiden, i–xii + 1–710 pp., pls. 1–12.
- Wu KY, Randall JE & Chen JP (2011) Two new species of anthiine fishes of the genus *Plectranthias* (Perciformes: Serranidae) from Taiwan. Zoological Studies, 50(2): 247–253.