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Additional description and geographic distribution of the splitfin ocean-bass *Synagrops atrumoris* from southwestern Taiwan

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Abstract

The splitfin ocean-bass *Synagrops atrumoris* belonging to the Family Synagropidae is newly recorded from Dong-gang Fishing Port, Pingtung County, southwestern Taiwan. In this study, we expand the geographical distribution and provide a series of detailed additional dental and osteological descriptions of this species. Fresh color photographs, radiographs, the description of the structure of the proximal-middle radial of the first anal-fin pterygiophore, dentition illustration of this specimen, and comparisons with the congener *S. japonicus* are also provided herein.

Key words: Synagropidae, Geographic distribution, Dentition, New record, Taiwan

Introduction

Synagrops was previously placed in the family Acropomatidae within the order Perciformes (Nelson *et al.* 2016; Shao 2025). However, based on molecular studies, Davis *et al.* (2016) grouped 18 families, including Acropomatidae, into the reinstated order Acropomatiformes. Subsequent phylogenetic analyses conducted by Ghedotti *et al.* (2018) placed the genera *Caraibops*, *Kaperangus*, *Parascombrops*, and *Synagrops* in Synagropidae. Currently, the order Acropomatiformes includes 20 families and over 300 species (Smith *et al.* 2022). Recently, Ng *et al.* (2023) described the new species, *Malakichthys formosus*, from Taiwan also adopted the classification system of the order Acropomatiformes.

The genus *Synagrops* can be distinguished from its congeners by having two separated dorsal fins, with 9 spines on the first dorsal fin (D1) and I + 9 on the second dorsal fin (D2); a smooth pelvic-fin spine; anal fin II + 7; predorsal formula 0/0/0+2, no vacant interneural gap below D1 and all fin spine smooth (Schwarzhans & Prokofiev 2017). The genus *Synagrops* currently includes two valid species: *S. japonicus* Döderlein and *S. atrumoris* Mediodia & Lin 2024 (Mediodia *et al.* 2024; Fricke *et al.* 2025).

In this study, we expand the geographical distribution of *Synagrops atrumoris* based on a specimen collected off Dong-gang Fishing Port, Pingtung County, southwestern Taiwan, and provide additional descriptions. This species was described as a new species in Mediodia *et al.* (2024), but without detailed descriptions of the dentition and the structure of the first anal-fin pterygiophore. Fresh color photographs, radiographs, the description of the structure of the proximal-middle radial of the first anal-fin pterygiophore, dentition illustration of this specimen, and comparisons with the other congeneric species are provided herein.

Materials and methods

Methods for measurements, counts and terminology follow Hubbs and Lagler (1958), Mediodia *et al.* (2024) and Schwarzhans & Prokofiev (2017). All measurements and counts were taken from the left side of the body, using digital calipers and recorded to the nearest 0.1 mm. Otoliths were extracted from the right side of the body. Standard

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length is expressed as SL. Fresh specimens were fixed in 10% formalin and subsequently transferred to 75% ethanol solution. The examined specimens were deposited in the Laboratory of Aquatic Ecology, National Taiwan Ocean University (TOU-AE).

Results

Order Acropomatiformes

Family Synagropidae

Genus *Synagrops*

Synagrops atrumoris Mediodia & Lin 2024

Common name: Balckmouth splitfin
(黑口尖牙鱸)
(Figs. 1A, 2A, 3 A, C, 4A, 5A; Table 1)

Synagrops atrumoris Mediodia & Lin in Mediodia *et al.* 2024:4, Figs. 2–3A–D, 4, 5A–B, 6A, 7A–B, E–F, I–J, 8A–E (Type locality: Dongsha Island, Taiwan, South China Sea, 18°56'N, 112°57'E; Holotype: ASIZP 0081729)

Material examined. TOU-AE10935, 1 specimen, 135.1 mm SL, collected off Dong-gang Fishing Port, Pingtung County, southwestern Taiwan, bottom trawl, 13 Jan 2025, collector Jian-Fu Huang.

Redescription

Dorsal fin IX, I, 9; anal fin II, 7; pectoral-fin ray 16; pelvic fin I, 5; principal caudal-fin ray 9+8; gill rakers on the first gill arch 3+10; vertebral formula 10+15. Other morphometric and meristic are presented in Table 1.

Body slightly elongated, its depth 25.5% in SL. Head large and naked, length 34.2% in SL. Eyes large and round, 29.8% in HL. Snout short and blunt, length 23.4% in HL. The nostrils are situated anterior to each eye. Preopercle with double edge; inner edge smooth; hind margin serrated; posteroventral margin of interopercle serrated; anteroventral margin of subopercle serrated; opercle with two weak spines. Mouth large, gape oblique; posterior edge of maxillary slightly extends beyond the vertical through the center of the eye; low jaw slightly projecting when mouth closed.

Two separate dorsal fins. First dorsal spine on the first dorsal fin (D1) shortest, its length not reaching half of the second dorsal spine on D1, third and fourth dorsal spines on D1 longest. The origin of first dorsal fin slightly posterior to vertical through pectoral-fin base. Pectoral fin not reaching anus. Anal fin situated posteriorly, its origin at vertical through 4th dorsal-fin soft ray on D2. Anus situated close to anal-fin insertion. Caudal fin forked.

Proximal-middle radial of the first anal-fin pterygiophore (FAP) long and bent towards the first haemal spine. Base of the proximal-middle radial of FAP is broad, tapering to a slender distal end (Fig. 2A, arrow).

Dentition. Premaxilla with a pair of large canines near symphysis, followed posteriorly by a wide band of short and blunt minute conical teeth. Dentary with 4 large canines near symphysis, followed by a band of short and blunt minute conical teeth, and a row of 3–4 large canines on each inner sides, a row of minute conical teeth on each outside, followed posteriorly by 2–3 rows of minute conical teeth. Vomer with a triangular patch of minute conical teeth and a row of longer and pointed teeth at rear margin. Palatines with 4–6 rows of short and blunt minute conical teeth, a row of longer and pointed conical teeth in anterior half inner side. Ectopterygoids wide, with 10–11 rows of short and blunt blunt minute conical teeth. Tongue without teeth (Fig. 3A, C, 4A).

Otolith, right sagitta. The sagitta is triangular, compressed and thin. Dorsal and ventral rims are nearly parallel, both slanting anteriorly. The dorsal rim with irregular undulations, while the ventral rim is relatively flat. The postero-dosal and postero-ventral angles are nearly perpendicular to the posterior rim. The postero- ventral angle is more rounded than the postero-dorsal angle. Below the horizontal midline of ostium with a large elliptical ostial colliculum and it oblique to the left anterior dorsal side. The cauda is elongated, slightly deep and markedly flexed ventrally at tip, narrowing toward the ventral area; caudal colliculum is absent. Crista superior and crista inferior well-developed. Notch broad. Excisura narrow (Fig. 5A).

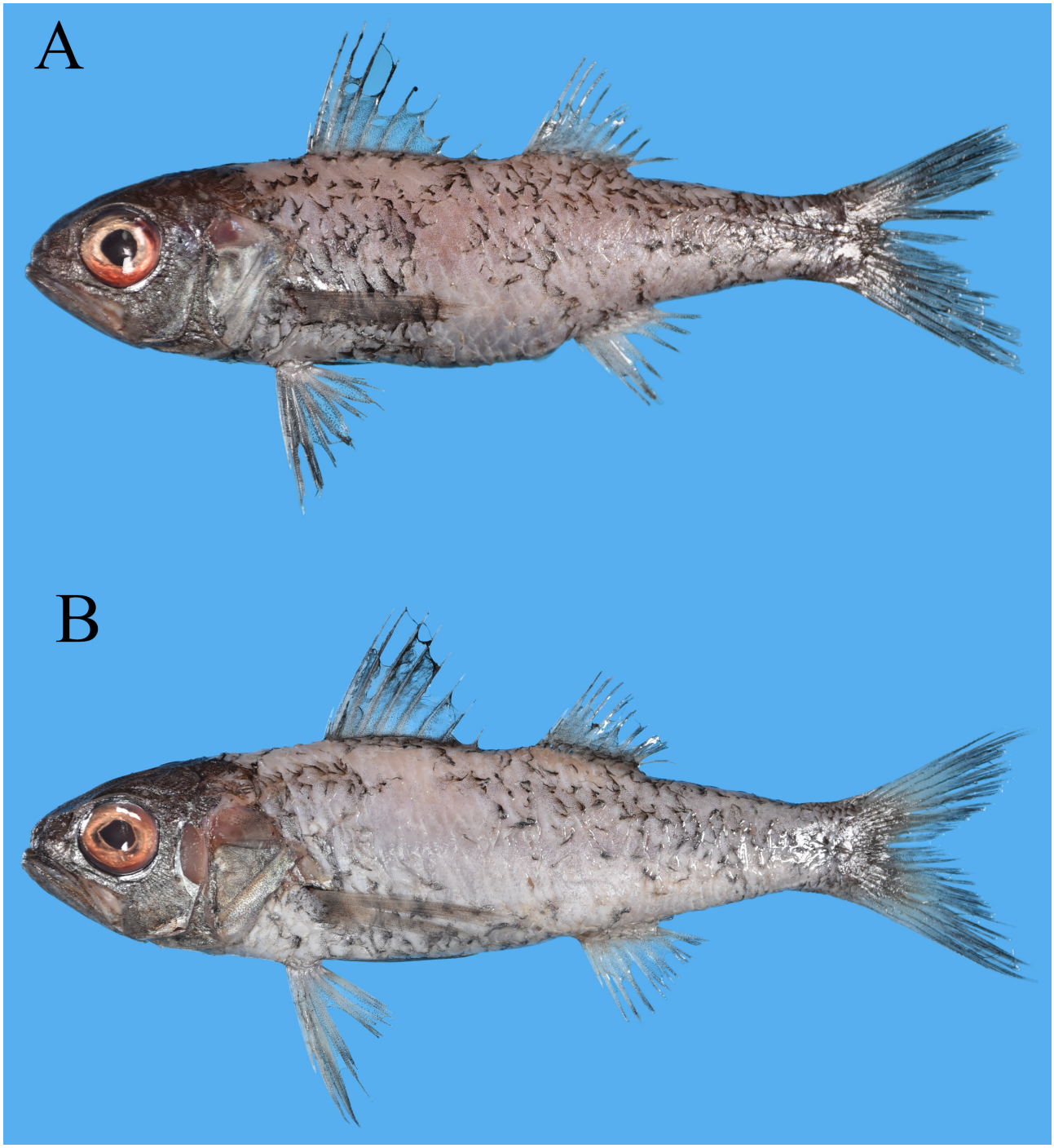

FIGURE 1. Fresh specimen of (A) *Synagrops atrumoris* Mediodia & Lin, TOU-AE10935, 135.1 mm SL., off Dong-gang Fishing Port, Pingtung, southwestern Taiwan, 13 Jan 2025; (B) *S. japonicus* Döderlein, TOU-AE11166, 130.8 mm SL., off Dong-gang Fishing Port, Pingtung, southwestern Taiwan, 30 May 2025.

Coloration. When fresh, body and head are black. The membrane of spinous portion of dorsal fin with black margin; soft portions of dorsal, pectoral, pelvic and anal fins bear minute melanophores; caudal fin rays are black. The oral cavity and the lower portion of the tongue are black (Fig. 1A, 3A).

When preserved, the overall coloration is similar to that of the fresh. The head is black to dark brown. The oral cavity and the lower portion of the tongue are black to gray.

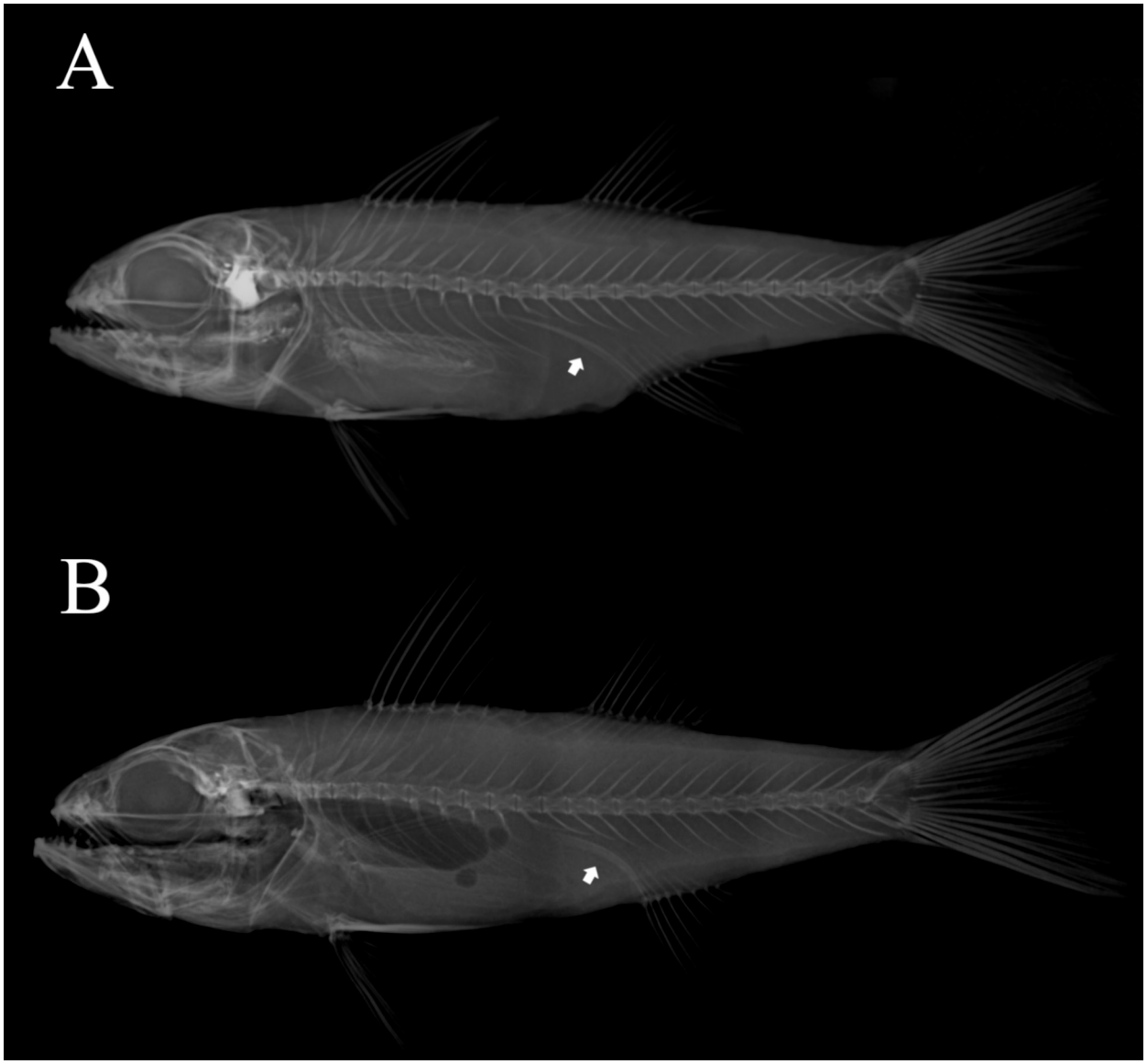

FIGURE 2. Radiographs showing morphological comparison of proximal-middle radial of the first anal-fin pterygiophore (arrows) in (A) *Synagrops atrumoris* Mediodia & Lin, TOU-AE10935, 135.1 mm SL., slender; (B) *S. japonicus* Döderlein, TOU-AE11166, 130.8 mm SL., wide.

Distribution. Previously known from the Dongsha Islands, Taiwan, and the South China Sea and possibly from the south of Scott Reefs, Western Australia (Mediodia *et al.* 2024). Our specimen represent the occurrence of this species from Dong-gang Fishing Port, Pingtung, southwestern Taiwan, extending its known distribution.

Remarks

The presently reported specimen is identified as *Synagrops atrumoris* based on the following characteristics: the oral cavity and the lower portion of the tongue are black; a triangular-shaped sagitta otolith.

In addition to the differences in otolith shape and oral cavity coloration, there are other distinguishing characteristics between *Synagrops atrumoris* and *S. japonicus*. *S. atrumoris* exhibits fewer gill rakers 3+10 (vs. 3+12–13 in *S. japonicus*; Table 1). Furthermore, the tip of the proximal-middle radial of FAP is slender and without hollow in *S. atrumoris*, but *S. japonicas* with wide and hollow tip (Fig. 2A–B, arrows). Moreover, the number of denticle rows on the palatine and ectopterygoid: 4–6 rows of small conical on palatine in *S. atrumoris*, 3–4 rows in *S. japonicus*; 10–11 rows of small conical on ectopterygoid in *S. atrumoris*, 7–8 rows in *S. japonicas* (Fig. 4A–B).

The specimen was collected off Dong-gang Fishing Port, Pingtung, southwestern Taiwan, extending its known distribution.

Comparative material. *Synagrops japonicus*, TOU-AE11164-11166, 3 specimens, off Dong-gang Fishing Port, Pingtung, southwestern Taiwan, 30 May 2025, collector Jian-Fu Huang**.**

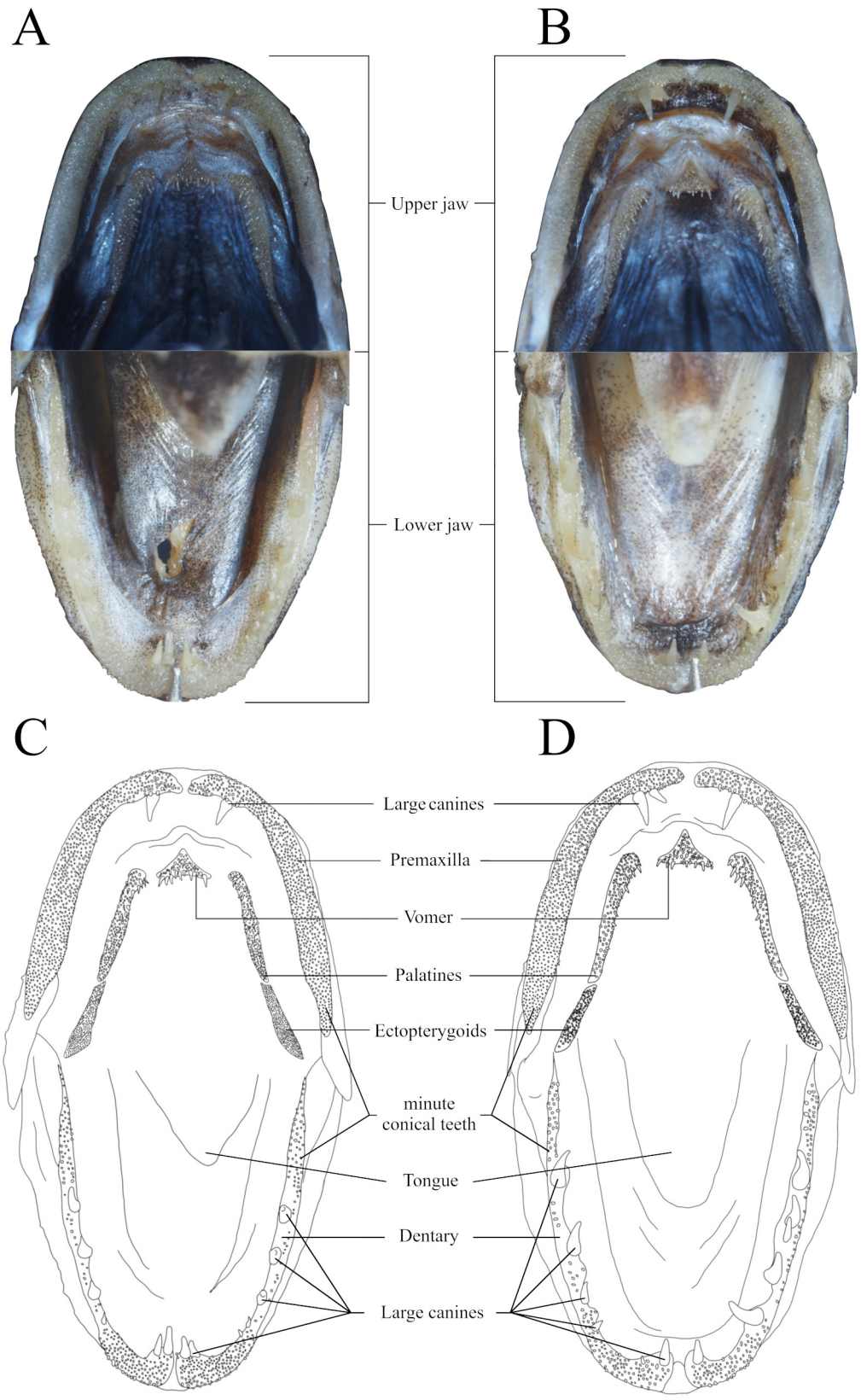

FIGURE 3. Color photographs and diagrams of the bones, teeth, tongue and skin inside the mouth of (A, C) *Synagrops atrumoris*, TOU-AE10935, 135.1 mm SL.; (B, D) *S. japonicus*, TOU-AE11165, 142.1 mm SL.

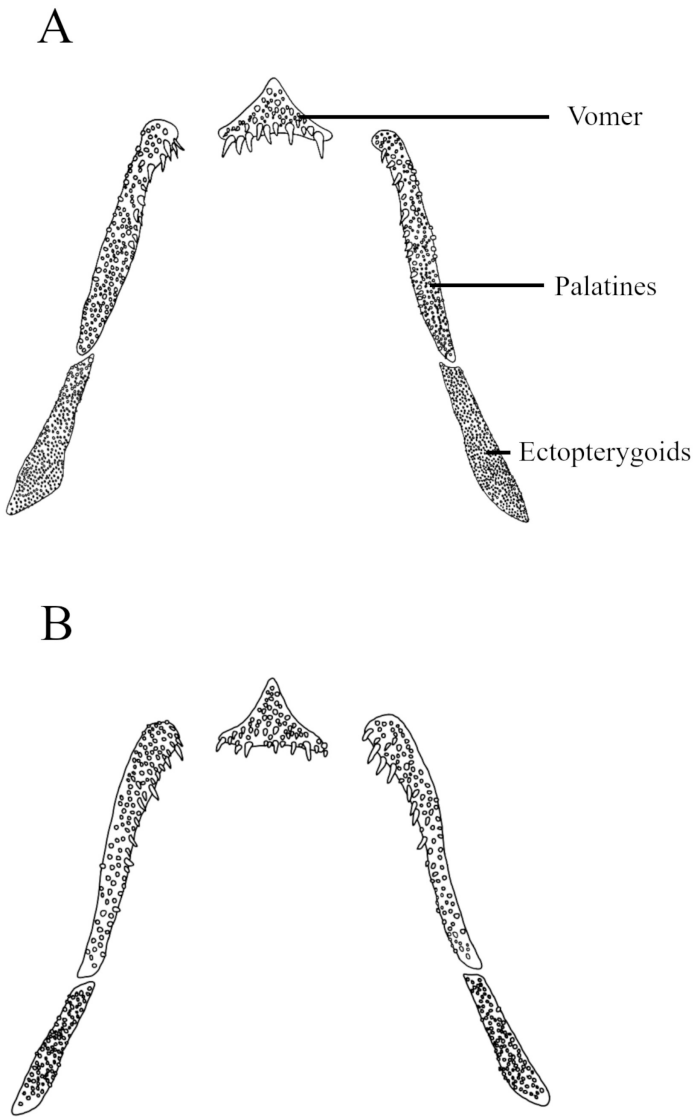

FIGURE 4. Dentition diagram of vomer, palatines and ectopterygoids of (A) *Synagrops atrumoris*, TOU-AE10935, 135.1 mm SL.; (B) *S. japonicus*, TOU-AE11165, 142.1 mm SL., showing the difference in the number of denticle rows on the palatines and ectopterygoids.

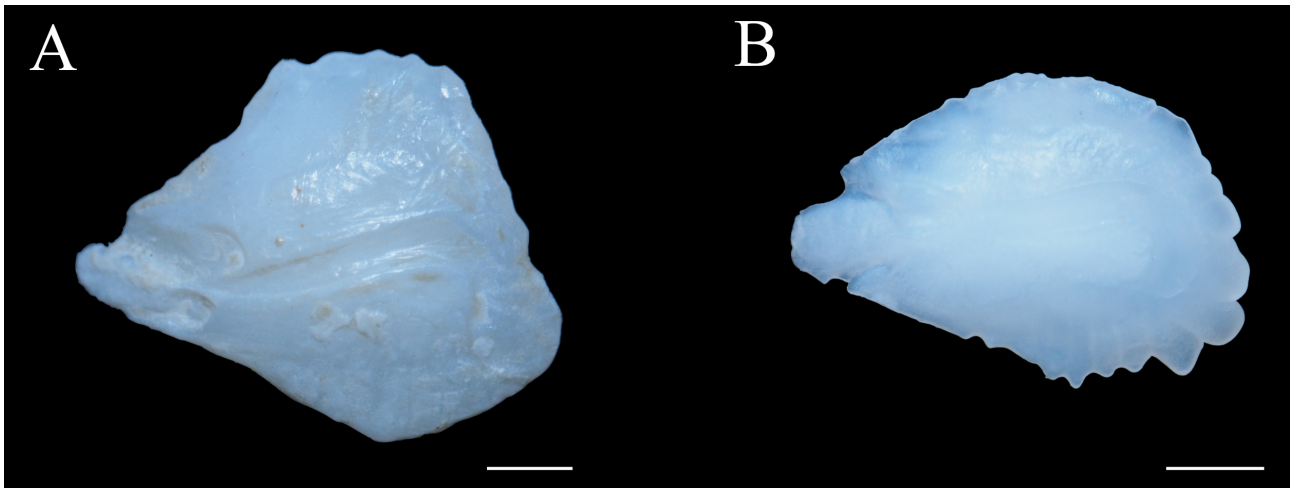

FIGURE 5. Sagitta otolith of (A) *Synagrops atrumoris*, TOU-AE10935, 135.1 mm SL.; (B) *S. japonicus*, TOU-AE11166, 139.8 mm SL. Scale bar = 1mm.

TABLE 1. Meristic and morphometric data of the examined specimens of *Synagrops atrumoris* and *S. japonicus*. Data from the other specimens were adopted from Mediodia *et al.* (2024).

	Synagrops atrumoris		*Synagrops japonicus*
	This study TOU-AE10935	Mediodia *et al.* (2024)	This study TOU-AE11164-11166
	n=1	n=30	n=3
Standard length (mm)	131.0	64.3–202.5	139.8–142.1
Meristics			
Dorsal-fin rays	IX, I, 9	IX, I, 9	IX, I, 9
Anal-fin rays	II, 7	II, 7	II, 7
Pectoral-fin rays	16	15–16	16
Pelvic-fin rays	I, 5	I, 5	I, 5
Grill rakers	3+10	2–3+9–10	3+12–13
Lateral-line scale	-	29–33	-
Vertebral formula	10+15	10+15	10+15
Morphometrics			
%SL			
Body depth	25.5	22.5–28.3	24.9–26.4
Head length	34.2	33.4–39.4	33.8–35.3
Snout length	8.0	7.7–11.5	7.9–8.4
Orbit diameter	10.2	9.1–12.0	9.6–10.1
Postorbital length	16.8	9.8–19.6	17.2–17.7
Interorbital width	9.0	4.1–10.5	9.1–9.7
Upper-jaw length	14.6	12.6–15.7	14.3–15.1
Lower-jaw length	15.0	14.0–16.9	15.1–15.9
Predorsal length	36.5	34.3–42.6	36.7–37.5
Prepectoral length	33.2	29.4–38.6	33.3–34.7
Pre-ventral fin length	33.4	31.9–43.0	33.3–34.6
Preanal length	67.6	65.6–79.2	67.9–68.1
1st dorsal fin height	16.9	16.6–23.7	15.3–18.0
Pectoral fin length	24.2	18.0–26.9	22.9–25.0
Pelvic spine length	13.0	10.9–15.7	12.5–14.2
2nd anal spine length	6.8	5.5–7.9	6.2–6.7
Caudal peduncle length	25.2	22.4–29.5	24.2–25.2
Caudal peduncle depth	10.8	9.7–11.9	10.7–11.0
% HL			
Snout length	23.4	–	23.0–23.9
Orbital diameter	29.8	–	28.2–29.3

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References

Davis, M.P., Sparks, J.S. & Smith, W.L. (2016) Repeated and widespread evolution of bioluminescence in marine fishes. *PLoS One*, 11, e0155154.
https://doi.org/10.1371/journal.pone.0155154

Fricke, R., Eschmeyer, W.N. & Fong, J.D. (2025) Eschmeyer's catalog of fishes: Genera/Species by family/subfamily. Available from: http://researcharchive.calacademy.org/research/ichthyology/catalog/SpeciesByFamily.asp (accessed 13 January 2025)

Ghedotti, M.J., Gruber, J.N., Barton, R.W., Davis, M.P. & Smith, W.L. (2018) Morphology and evolution of bioluminescent organs in the glowbellies (Percomorpha: Acropomatidae) with comments on the taxonomy and phylogeny of Acropomatiformes. *Journal of Morphology*, 279, 1640–1653.
https://doi.org/10.1002/jmor.20894

Hubbs, C.L. & Lagler, K.F. (1958) Fishes of the Great Lakes region. 2nd Edition. *Cranbrook Institute of Science Bulletins*, 26, 1–213, 44 pls.
https://doi.org/10.3998/mpub.12946839

Mediodia, D.P., Chang, C.H., Ho, H.C., Přikryl, T. & Lin, C.H. (2024) A new cryptic species of splitfin fish from Taiwan with revision of the genus *Synagrops* (Acropomatiformes: Synagropidae). *Zoological Studies*, 63, 1–16.
https://doi.org/10.6620/ZS.2024.63-20

Nelson, J.S., Grande, T.C. & Wilson, M.V.H. (2016) *Fishes of the world. 5th Edition*. John Wiley & Sons, Inc., Hoboken, New Jersey, 707 pp.

Ng, S.L., Liu, K.M. & Joung, S.J. (2023) *Malakichthys formosus*, a new species of small seabass (Acropomatiformes: Malakichthyidae) from southwestern Taiwan. *Zootaxa*, 5380 (4), 380–386.
https://doi.org/10.11646/zootaxa.5380.4.5

Schwarzhans, W.W. & Prokofiev, A.M. (2017) Reappraisal of *Synagrops* Günther, 1887 with rehabilitation and revision of *Parascombrops* Alcock, 1889 including description of seven new species and two new genera (Perciformes: Acropomatidae). *Zootaxa*, 4260 (1), 1–74.
https://doi.org/10.11646/zootaxa.4260.1.1

Smith, W.L., Ghedotti, M.J., Domínguez-Domínguez, O., McMahan, C.D., Espinoza, E., Martin, R.P., Girard, M.G. & Davis, M.P. (2022) Investigations into the ancestry of the Grape-eye Seabass (*Hemilutjanus macrophthalmos*) reveal novel limits and relationships for the Acropomatiformes (Teleostei: Percomorpha). *Neotropical Ichthyology*, 20, e210160.
https://doi.org/10.1590/1982-0224-2021-0160

Shao, K.T. (2025) Taiwan Fish Database. WWW Web Electronic Publication. Available from: http://fishdb.sinica.edu.tw (accessed 13 January 2025)