

Argyrosomus beccus, a New Sciaenid from South Africa

Kunio Sasaki

Department of Biology, Faculty of Science, Kochi University,
2–5–1 Akebono-cho, Kochi 780, Japan

(Received October 16, 1993; in revised form March 16, 1994; accepted March 18, 1994)

Abstract A new sciaenid, *Argyrosomus beccus*, is described from three specimens collected in Durban Harbor, South Africa. It differs from all other congeners in having a short, beak-like snout (19.9–20.8% HL), large eyes (23.8–26.9% HL), a narrow interorbital width (15.2–15.6% HL), and long pectoral (23.2–23.8% SL) and pelvic (22.4–23.3% SL) fins.

Argyrosomus Pylaie, included in the sciaenid subfamily Otolithinae (sensu Trewavas, 1977; Sasaki, 1989), is widely distributed in Old World temperate to tropical coastal waters. Although Trewavas (1977) recognized five species of *Argyrosomus*, the subsequent addition of *A. heinii* (Steindachner) by Mohan (1983), synonymy of the monotypic *Afroscion* Trewavas with *Argyrosomus* by Heemstra (1986) and Sasaki and Kailola (1988) and reassignment of *A. miiuy* (Basilewsky) to *Miichthys* Lin by Sasaki (1989), has resulted in the genus currently including six species.

During a sojourn at the National Museum of Natural History, Smithsonian Institution (USNM), I found an undescribed sciaenid species from Durban, South Africa, with a short, beak-like snout, a feature hitherto unknown in the Sciaenidae. It became apparent, however, that in other diagnostic features the species conformed to *Argyrosomus*. Although the unique condition of the snout supports possible ranking at generic level, because of the lack of detailed information on osteology and myology, owing to the limited number of specimens, retention of the new species within *Argyrosomus* is prudent at this stage.

Counts and measurements follow Sasaki and Kailola (1988). Osteological descriptions are based on radiographs. Standard length and head length are expressed throughout as SL and HL, respectively. Data for the holotype are presented first, followed by ranges for paratypes in parentheses where they differ from that of the holotype. In some cases damage to one of the paratypes prevented measurements to be taken.

Argyrosomus beccus sp. nov.

(Figs. 1, 2)

Holotype. USNM 325504, 175.4 mm SL, Harbor Channel Islands (=exposed sand bars off the Channel inside of Durban Harbor; now disappeared), 1.6 km (1 mile) W. of Harbor Inlet, Durban, South Africa, 3 Feb. 1969, Indian haul seine, F. J. Schwartz et al.

Paratypes. USNM 325505, 2 specimens, 191.0–229.5 mm SL, collected with the holotype.

Diagnosis. A species of *Argyrosomus* with the following combination of characters: dorsal fin soft rays 27–28; snout length 6.1–6.3% SL (19.9–20.8% HL); eye diameter 7.3–8.3% SL (23.8–26.9% HL); interorbital width 4.7% SL (15.2–15.6% HL); pectoral fin length 23.2–23.8% SL; pelvic fin length 22.4–23.3% SL; snout short, beak-like.

Description. Dorsal fin rays X + I, 28 (X + I, 27); anal fin rays II, 7; pectoral fin rays 17 (16); lateral line scales 52 (51); scales above lateral line 14 (13), below lateral line 19 (17); gill rakers 5 + 1 + 7 (3–4 + 1 + 8); vertebrae 11 + 14, last well-developed pleural rib on 11th vertebra, first anal proximal radial between 11th and 12th vertebrae; swimbladder appendages not counted in holotype (23 in one paratype). Proportions as % SL: head length 30.7 (29.9–30.6); body depth 28.7 (25.8–27.9); body width 13.2 (12.4–13.7); caudal peduncle length 25.9 (25.2–27.6); caudal peduncle depth 9.5 (8.8–9.2); snout length 6.1 (6.2–6.3); eye diameter 8.3 (7.3–7.4); interorbital width 4.7; upper jaw length 12.5 (12.1–12.2); lower jaw length 14.3 (14.2–15.0); pectoral fin length 23.8 (23.2 in one); pelvic fin length 23.3

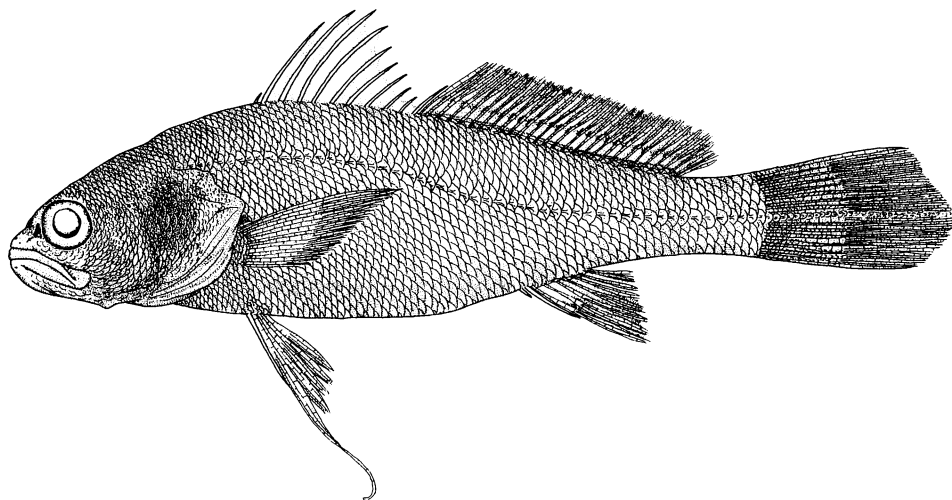


Fig. 1. *Argyrosomus beccus* sp. nov., holotype, USNM 325504, 175.4 mm SL.

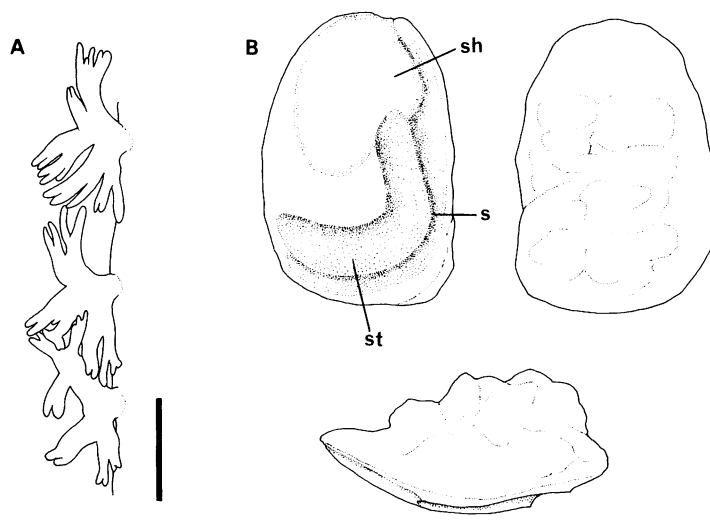


Fig. 2. Swimbladder appendages (A) and sagitta (B) of *Argyrosomus beccus*, paratype, USNM 325505, 191.0 mm SL. A) Dorsal view of left swimbladder appendages (3rd to 5th); B) sagitta (left, inner surface; right, outer surface; bottom, lateral surface). *s*—sulcus; *sh*—sulcus head; *st*—sulcus tail. Bar = 5 mm.

(22.4–23.2); second dorsal fin spine length 13.1 (10.8–11.7); third dorsal fin spine length 15.8 (13.2–14.2); fourth dorsal fin spine length 16.7 (14.8 in one); fifth dorsal fin spine length 14.3 (12.3–12.7); second anal fin spine length 9.1 (7.8–9.7); gill raker length 3.1 (3.1–3.5); gill filament length 4.7 (3.9–4.0). Proportions as % HL: snout length 19.9 (20.5–20.8); eye diameter 26.9 (23.8–24.8); interorbital width 15.4 (15.2–15.6); upper jaw length 40.6 (40.0–40.5); lower jaw length 46.6 (46.3–50.1); second anal

fin spine length 29.5 (26.1–31.8); gill raker length 10.2 (10.2–11.5); gill filament length 15.4 (12.8–13.3). Proportions as % eye diameter: gill raker length 37.9 (41.2–48.2); gill filament length 57.2 (53.5–54.0).

Snout short, length less than eye diameter; dorsal profile medially concave, giving snout a “beak-like” appearance. Snout pores five upper and five marginal; the outer pair of latter in a slight notch. Mental pores three pairs, anterior pair at front of chin

separated by symphysis.

Mouth large, terminal, cleft angle when closed 30° ; upper jaw slightly projecting beyond lower jaw; maxillary reaching vertical at posterior margin of eye. Lower jaw heavy; mental process prominent. Lips thick.

Upper jaw with an outer row of enlarged teeth and an inner band of small, conical teeth, comprising 2 or 3 anterior rows, 3 or 4 posterior rows. Lower jaw with an outer row of small, conical teeth and an inner row of enlarged teeth. No teeth exposed beyond rims of thick lips when mouth opened.

Eye large, diameter greater than interorbital width. Anterior and posterior nostrils confluent, forming a single, vertically elongate pore (narrowly separated in one paratype; anterior nostril semicircular, posterior nostril vertically slit-like) immediately before eye. Gill rakers moderately long, slender; gill filaments 1.1–1.5 times as long as gill rakers adjacent to angle of gill arch.

Scales cycloid on snout, anterior half of cheek, and anterior 1/5 of throat; finely ctenoid elsewhere. Scales absent on dorsal and anal fins except for basal 2 or 3 rows.

Pectoral fins as long as pelvic fins; first soft ray of latter with long filament (lost or absent in paratypes). Second anal fin spine slender, its length about half of first anal fin soft ray. Caudal fin bluntly rhomboid; upper, posterior margin shallowly concave.

Swimbladder (Fig. 2 A) carrot-shaped, with a number of arborescent appendages along sides; anteriormost pair of appendages spreading behind septum transversum; each appendage slightly overlapping its posterior neighbour. Sagitta (Fig. 2B) thick, shield shaped; sulcus head shallow, pear-shaped; sulcus tail deep, J-shaped.

Colour in alcohol—Body brown, paler below. Mouth lining pale, except for brown-speckled, posterior palate. Operculum appears dark brown owing to dark brown lining of branchial cavity. Peritoneum pale; pectoral axil dusky. Spinous dorsal, margins of soft dorsal and caudal, and anterior half of anal fins dusky. Pectoral and pelvic fins pale.

Colour when fresh—Unknown.

Etymology. The specific name is derived from the Latin *beccus*, meaning beak or bill, in reference to the beak-like snout of the new species.

Distribution. Known only from the type locality.

This species is exceedingly rare. Despite frequent sampling of fishes in the Durban area and coast of Natal, no further specimens have been found since 1969 (P. Heemstra, pers. comm.).

Remarks. *Argyrosomus* is distinguished from other genera of the subfamily Otolithinae by the following combination of characters; the anterior pair of mental pores separated by the symphysis, absence of canine-like teeth, absence of scales on the dorsal fin, otolith with a J-shaped sulcus tail and swimbladder cephalic appendages absent. The new species is herein assigned to *Argyrosomus* as it shares the above characters. It strikingly contrasts however with its congeners in having a beak-like snout with a concave dorsal profile, rather than the usual rounded snout condition, with a straight or convex dorsal profile. This feature alone is sufficient for recognition as a new species.

The new species also differs from its congeners with the possible exception of *A. heinii* (see below) in five proportional measurements. Because allometric growth occurs in the Sciaenidae, proportions of the new species were compared with those of congeners of approximately equal size (142.6–255.9 mm SL), comprising a total of 50 specimens as follows: *A. regius* (26 specimens, 142.6–242.5 mm SL); *A. hololepidotus* (18, 143.4–234.6); *A. japonicus* (2, 158.8–161.7); *A. amoyensis* (2, 184.9–241.0) and *A. thorpei* (2, 251.3–255.9). *A. heinii* could not be included, because only one large specimen (352.9 mm SL) was available for study. The new species differs from the other five species in having a shorter snout (6.1–6.3% SL, 19.9–20.8% HL vs. 7.2–9.0, 22.8–28.4), larger eye (7.3–8.3, 23.8–26.9 vs. 4.8–6.9, 16.1–22.2), narrower interorbital space (4.7, 15.2–15.6 vs. 5.0–7.4, 16.9–24.0), and longer pectoral (23.2–23.8 SL vs. 17.0–22.2) and pelvic (22.4–23.3 vs. 15.5–20.4) fins. It is distinguished from *A. heinii*, by having fewer dorsal fin soft rays (27–28 vs. 32).

Acknowledgments

I wish to thank staff of the Fish Division, USNM, who made my stay at the Smithsonian Institution so enjoyable and fruitful. P. Heemstra and F. Schwartz provided information on the now disappeared "Harbor Channel Islands." G. Hardy read the manuscript and offered helpful comments.

Literature Cited

- Heemstra, P. C. 1986. Sciaenidae. Pages 616–619 in M. M. Smith and P. C. Heemstra, eds. *Smiths' sea fishes*. Springer-Verlag, New York.
- Mohan, R. S. L. 1983. Sciaenidae. 69 pp. in W. Fischer and G. Bianchi, eds. *FAO species identification sheets for fishery purposes, western Indian Ocean; fishing area 51*. Vol. 4. FAO, Rome.
- Sasaki, K. 1989. Phylogeny of the family Sciaenidae, with notes on its zoogeography (Teleostei, Perciformes). *Mem. Fac. Fish. Hokkaido Univ.*, 36: 1–137.
- Sasaki, K. and P. J. Kailola. 1988. Three new Indo-Australian species of the sciaenid genus *Atrobucca*, with a reevaluation of generic limit. *Japan. J. Ichthyol.*, 35: 261–277.
- Trewavas, E. 1977. The sciaenid fishes (croakers or drums) of the Indo-West-Pacific. *Trans. Zool. Soc. Lond.*, 33: 253–541, pls. 1–14.
- 南アフリカ共和国から得られたオオニベ属の1新種
佐々木邦夫
- 南アフリカ共和国のダーバンで採集された3標本に基づき、ニベ科オオニベ属1新種 *Argyrosomus beccus* を記載した。本種は短くて嘴状を呈する吻、大きな眼、狭い両眼間隔、さらに長い胸鰭と腹鰭を持つ点で同属の既知種と区別される。
- (〒780 高知市曙町 2-5-1 高知大学理学部生物学教室)