A new sandperch, *Parapercis maritzi* (Teleostei: Pinguipedidae), from South Africa

M.E. Anderson
J.L.B. Smith Institute of Ichthyology, Private Bag 1015, Grahamstown, 6140 Republic of South Africa

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A new species of sandperch, *Parapercis maritzi*, is described from 12 specimens from the outer shelf off Transkei and Natal. The species differs from all other sandperches in its colouration, particulars of its dentition, and meristics of its axial skeleton and squamation. It is one of the deep-water sandperches, and is found on open sandy-rubble bottoms of the outer shelf.

'n Nuwe spesie van die sandspiering, *Parapercis maritzi*, word van 12 eksemplare vanaf die buitenste plat aan die kus van Transkei en Natal beskryf. Die spesie verskil van al die ander sandspierings deur sy kleur, eienskappe van die tandformasie, en die meristieke van die aksiale geraamte en skubbe. Dit is een van die diepwater-sandspieringsen word gevind op die oop sanderige steenslagbodem van die buitenste plat.

The sandperches of the genus *Parapercis* are a speciose group of bottom fishes occupying sandy or sand-rubble areas in tropical and subtropical waters of the Indo-Pacific region. These habitats are usually near reefs, but also occur in bays and lagoons and offshore to depths not exceeding 400 m. Only one species, *Parapercis atlantica* (Vaillant 1887), is known from outside this area, and appears to be endemic to the Cape Verde Islands, North Atlantic (Arambourg 1943; Quero & Randall 1991). Randall (1984) recognized 40 valid species of *Parapercis*, but since then Manilo (1990) has described *P. ventromaculata*.

Five genera are currently recognized in the recently restructured family Pinguipedidae: *Pinguipes* Cuvier and Valenciennes, 1829, *Parapercis* Bleeker, 1863, *Prolatilus* Gill, 1865, *Cheimarrichthys* Haast, 1874, and *Kochichthys* Kamohara, 1961 (Randall 1984; Rosa & Rosa 1987). The family-group name most previously used for the sandperches, Mugiloididae, was found to be based on a mullet, family Mugilidae (Rosa & Rosa 1987). The common name sandperches has been used for these fishes in the English scientific literature except in South Africa. Here, the name sandsmelts, presumably based on the inappropriate Afrikaans 'sandspiering' was traced in our literature to Gilchrist & Thompson (1908).

During June 1990, Mr Willie Maritz, Curator of the East London Aquarium, was invited to participate in a hake reconnaissance cruise aboard a Spanish trawler off the Transkei coast. Mr Maritz took fishes for the aquarium and froze others for otolith extraction at the Port Elizabeth Museum. Specimens used for the latter were deposited at the J.L.B. Smith Institute of Ichthyology, where 10 examples of an unknown *Parapercis* were noticed. Another, completely faded, specimen of the same species has been known at the Smith Institute for several years and was tentatively identified as *Parapercis multifasciata* (Heemstra 1986). Still another specimen from a 1988 *Meiring Naudé* sample was found at the Smith Institute among unsorted collections. On further investigation, I found that these specimens could not be identified with any known *Parapercis*, and the species is described herein as new.

Methods

Specimens were radiographed for counts of vertebrae and fin rays. The last dorsal and anal rays, divided through their bases, were counted as one. Vertebral counts include the urostyle. Measurements were taken with dial calipers and recorded to the nearest 0,1 mm. Proportions of body dimensions were calculated as a percentage of standard length (SL) and/or head length (HL). Sex determinations were made with the aceto-carmine squash method (Guerrero & Shelton 1974). Most descriptive characters given here and their recording are after Cantwell (1964), generally followed by subsequent authors (e.g., Schultz 1968; McCosker 1971; Randall 1984). Figures, descriptions or specimens of all 41 currently recognized species were examined for this study.

Abbreviations for institutions housing specimens are:

AMS — Australian Museum, Sydney, Australia
BPBM — Bernice P. Bishop Museum, Honolulu, Hawaii, USA
MNHN — Museum National d'Histoire Naturelle, Paris, France
NSMT — National Science Museum, Tokyo, Japan
RUSI — J.L.B. Smith Institute of Ichthyology, Grahamstown
SAM — South African Museum, Cape Town

Comparative material

Parapercis alboguttata. RUSI 22454 (1; 97 mm SL), Vietnam, P. Fourmanoir, Jan. 1964.

Parapercis atlantica. MNHN 1887–225 (holotype of *Neopercis atlanticus* Vaillant; 122 mm SL), Cape Verde Isl., *Talisman*, 1883.

Parapercis binivirgata. AMS IB. 3756 (1; 130 mm SL), Australia, New South Wales, 34°04'S/151°09'E, P.R. Smythe-Kirk, 28 Apr. 1957. AMS I.31441003 (2; 123–128 mm SL), New South Wales, FRV *Kapala*, 1990. AMS I.15508001 (1; 123 mm SL), New South Wales, Sydney fish market, Aug. 1969.

Parapercis flavescens. MNHN 1978–476 (paratype; 78 mm SL), New Caledonia, P. Fourmanoir, 1976–1978.

Parapercis kamoharai. RUSI 34050 (5; 155–164 mm SL), Taiwan, off Houpihu, 22°06'N/120°45'E, P.C. Heemstra, 20 Jan. 1988.

Parapercis multifasciata. NSMT P-34601 (3; 70–102 mm SL), Japan, Tosa Bay, O. Okamura, 8 Aug. 1988.

Parapercis pulchella. RUSI 35623 (1; 128 mm SL), Taiwan, Penghu Isl., P.C. Heemstra, Jan. 1988.

Parapercis punctulata. RUSI 11953 (1; 113 mm SL; cleared

and stained), South Africa, Ledsman Shoal, Natal, P.C. Heemstra, 27 Apr. 1980.

Parapercis roseoviridis. RUSI 37196 (5; 120–134 mm SL), Hawaiian Islands, Pailolo Channel, 21°00'N/156°45'W, 218–225 m. National Marine Fisheries Service, 14 Nov. 1967.

Parapercis snyderi. RUSI 35068 (1; 57 mm SL), Taiwan, 23°31.9'N/119832.4'E, P.C. Heemstra, 13 Jan. 1988.

Parapercis somaliensis. RUSI 35049 (4; 114–138 mm SL), Taiwan, 22°06'N/120°45'E, P.C. Heemstra, 20 Jan. 1988.

***Parapercis maritzi*, sp. n.** (Figures 1–4)

Parapercis multifasciata (non Döderlein, 1884): Heemstra 1986: 740.

Holotype: RUSI 35610, 159 mm SL (185 mm TL), adult male, Transkei coast, commercial bottom trawl in 80–150 m, Mr Willie Maritz aboard *Playa de Galicia, 14–20 June 1990.*

Paratypes: RUSI 37319, (5; 131–167 mm SL), SAM 32442, (2; 128–134 mm SL), BPBM 34911, (2; 130 & 158 mm SL), all collected with holotype. RUSI 37043, 81 mm SL, juvenile, Natal, off Cape Vidal, 28°08.3'S/32°36.9'E, dredge in 200 m, Dr Richard Kilburn aboard *Meiring Naudé*, sta. ZM9, 11 June 1988.

Other (nontype) material: RUSI 10966, 185 mm SL, adult male, Natal coast, bottom trawl in 146 m, collector unknown, 11 June 1973.

Diagnosis

A *Parapercis* with D V,23; A I,19; P 20–21; six canine teeth in outer row of lower jaw; palatine teeth in a single series; dorsal spines gradually longer posteriad; membrane between fifth spine and first soft ray little incised, attaching to first ray opposite tip of fifth spine; snout steep, blunt; background colour light yellowish-brown with 8–9 ill-defined, dark brown, saddle-like blotches dorsolaterally extending to midbody and becoming indistinct in caudal region, with thin brown streak on caudal fin; oblique (longitudinal) scale rows 61–63; scale rows above lateral line to middle of spinous dorsal fin five; zigzag row of caudal peduncle scales 24–26; scales from lateral line to anus 14–15.

Description

Counts and morphometrics are given in Table 1 for all specimens, the holotype and small juvenile shown separately.

Body evenly tapering, more slender and cylindrical in juveniles than adults. Head ovoid, deeper in adults than juveniles; lateral profile of head more acute in juveniles. Snout short and steeply sloping. Two pairs of nostrils laterally on snout, anteriormost with short fleshy tube and short dorsoposterior flap. Eye large, more ovoid in juveniles. Jaws subequal, maxilla extending posteriorly to vertical through anterior quarter of eye in adults, to just beyond anterior margin of eye in juvenile. Lips well developed, upper free of snout, lower attached to chin anteriorly; inner surface of lips with low, furcated papillae, most of which interdigitate with outer row of teeth. Teeth simple, larger

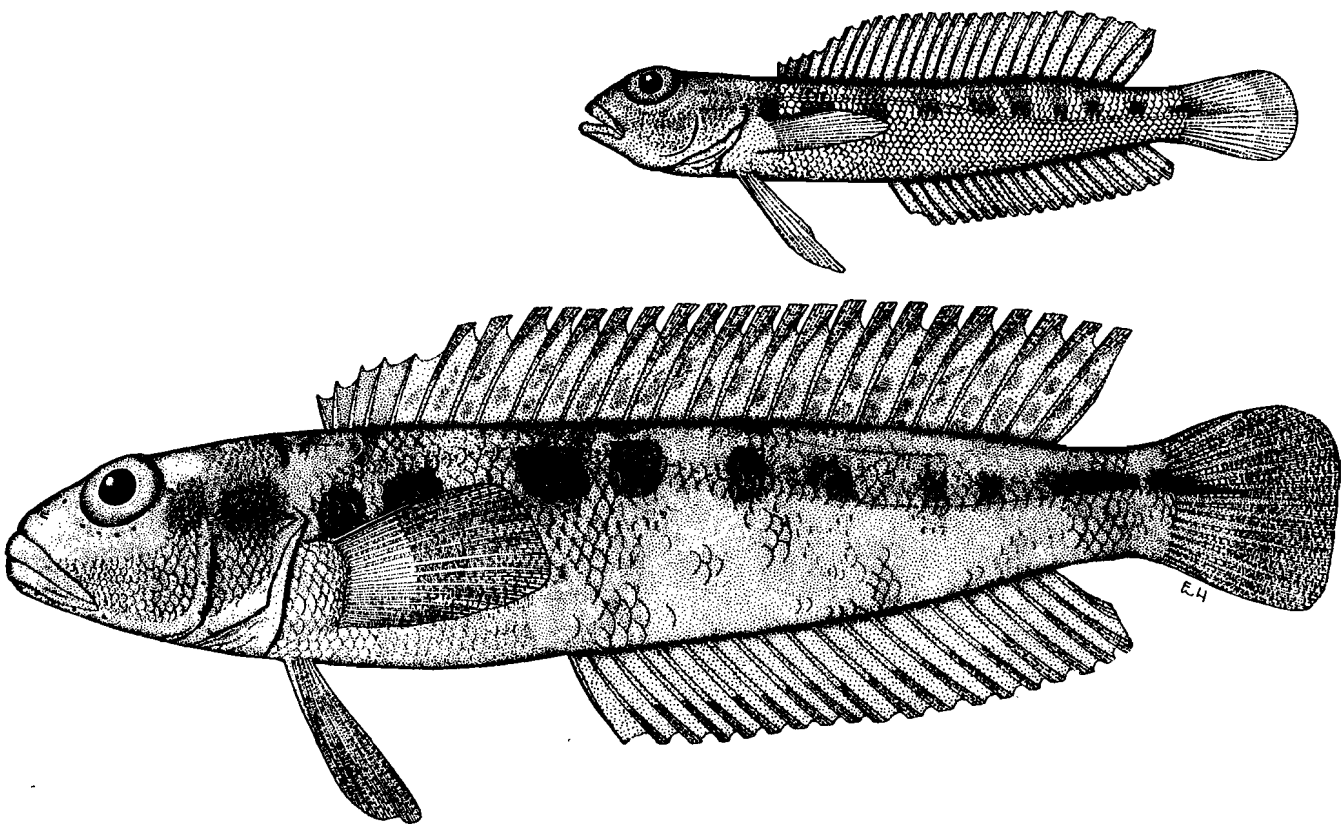

Figure 1 *Parapercis maritzi*, n. sp. Left lateral view of juvenile paratype, RUSI 37043, 81 mm SL (above) and holotype, RUSI 35610, 159 mm SL (below).

Table 1 Counts and measurements of *Parapercis maritzi* specimens. SL = standard length; HL = head length

Character	Holotype RUSI 35610	Paratype, juvenile, RUSI 37043	Other paratypes
In per cent SL			
Total length	116,4	118,5	114,6–118,8
Head length	27,7	26,5	26,3–28,1
Head width	20,7	19,6	19,3–20,9
Head depth	18,0	15,8	16,5–19,1
Postorbital head length	12,7	10,3	10,7–12,8
Pectoral base height	7,6	5,9	7,1–7,7
Pectoral-fin length	18,1	21,5	17,7–20,8
Pelvic-fin length	18,3	23,1	17,4–21,4
Spinous dorsal height	7,4	3,3	6,3–7,3
Spinous dorsal base	6,2	5,3	5,5–6,5
Predorsal length	28,9	31,0	27,2–30,7
Preanal length	48,9	52,0	45,5–50,9
Body depth, anal origin	20,1	16,8	18,6–21,4
Body depth, greatest	21,5	17,3	20,0–23,8
Gill slit length	16,9	15,4	15,3–19,3
Caudal peduncle depth	9,3	8,0	9,0–10,1
In per cent HL			
Head width	74,6	74,0	69,5–77,8
Head depth	64,9	59,3	60,6–71,4
Postorbital head length	45,8	38,6	38,5–47,9
Upper jaw length	47,6	39,5	42,1–48,9
Snout length	24,3	18,6	22,3–27,6
Eye diameter	32,2	42,8	31,9–36,4
Interorbital width	16,6	10,7	11,9–17,1
Counts			
Vertebrae	10 + 22	10 + 22	10 + 22
Dorsal-fin rays	V, 23	V, 23	V, 23
Anal-fin rays	I, 19	I, 19	I, 19
Principal caudal rays	9 + 7	9 + 7	9 + 7
Pectoral-fin rays	20	21	21
Pelvic-fin rays	I, 5	I, 5	I, 5
Gill rakers	6 + 10	6 + 10	4–6 + 9–10
Branchiostegal rays	6	6	6
Pseudobranch filaments	–	17	15–17
Vomerine teeth	22	8	5–15
Palatine teeth	7/7	5/8	4–8/4–8
Oblique scale rows	61	63	61–63
Scale rows above lateral line	5	5	5
Lateral line scales	62	61	59–63
Zigzag caudal peduncle scales	25	25	24–25
Scales lateral line to anus	15	–*	14–15

* Squamation on abdomen incomplete.

ones slightly recurved; six canines in outer row of lower jaws, with anterior patch of small, setiform teeth in 6–9 irregular rows; upper jaw with anterior patch of smaller teeth in 5–9 irregular rows (Figure 2); vomerine and palatine teeth present, latter in single series.

Otolith (sagitta) with dorsally elevated sulcus; central collum developing in larger specimens (Figure 3). Margin of rostrum compressed; elongating with increasing size; antirostrum well developed. Dorsal area and ventral groove well developed in all sizes for which specimens available; dorsal area concavity ventrally bound by crista superior becoming raised away from main body of sagitta with increasing size. Excisura ostii becoming less pronounced with increasing size.

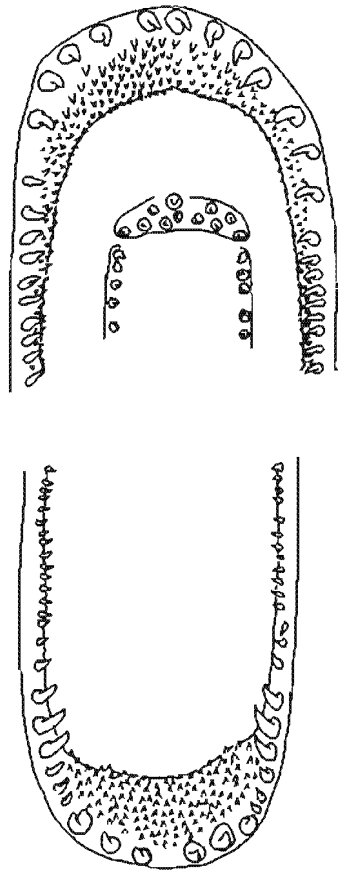

Figure 2 *Parapercis maritzi*, n. sp. Dentition pattern of paratype, RUSI 37319, 133 mm SL.

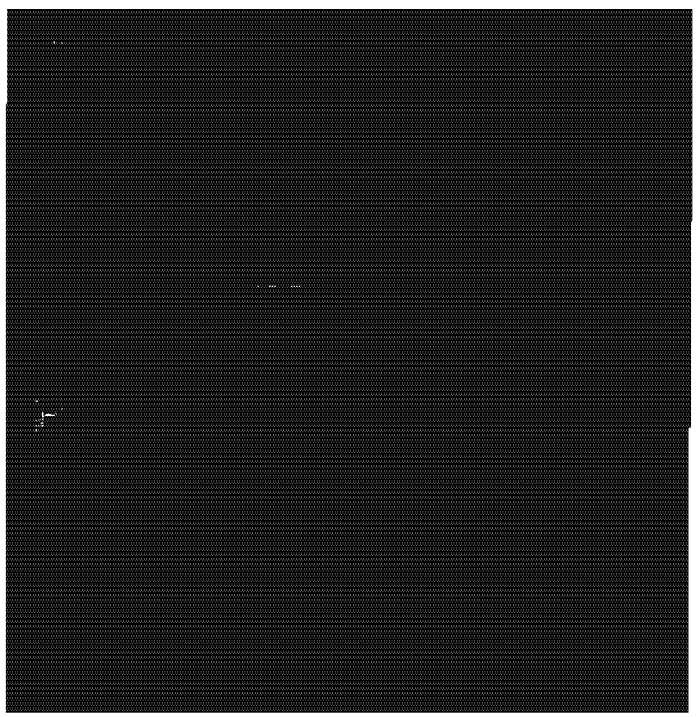

Figure 3 *Parapercis maritzi*, n. sp. (A) medial side of left sagitta of BPBM 34911, 130 mm SL; (B) medial side of right sagitta of RUSI 37319, 142 mm SL.

Branchiostegal membranes united; free across isthmus posteriorly. Gill rakers short and slender, ventralmost on lower limb nubbins. Branchiostegal rays six, with four articulating with ceratohyal, two with epihyal. Opercle with short, flat spine on level just above ventral margin of eye. Margins of subopercle, interopercle and preopercle smooth externally, but with minute serrae covered by skin. Pyloric caeca 2–3 elongate diverticulae on left side of stomach fundus and one on right. Pseudobranch filaments well developed, middle (longest) ones about half an eye diameter. No epidermal papillae on head or body. Vertebrae 10 + 22.

Scales ctenoid, those of nape cycloid; scales covering cheeks to front of eye, nape, pectoral base and fin to one-third its length, abdomen to isthmus (except in small juvenile), body and caudal fin to its posterior third. Scales absent on underside of head and unpaired fins. Anterior lateral-line scales dorsoventrally elongated, becoming regular above middle of appressed pectoral fin; lateral-line scales with single, small posterior pore arising from shallow, median groove.

Posterior margin of pectoral fin wedge-shaped, with twelfth ray longest; all rays segmented except dorsalmost, none exserted; pectoral fin extending posteriorly to vertical through first or second anal-fin ray. Pelvic fins elongate, immaculate, with imbedded spine and five branched rays; proximalmost ray longest, extending posteriorly to second anal-fin ray in smallest juvenile, or to just before anus in largest adult. Dorsal fins continuous, spines increasing in length posteriorly; membrane between fifth spine and first soft ray slightly concave, attaching to first ray opposite tip of fifth spine (Figure 4). Dorsal-fin origin above third or fourth lateral line scale. Anal fin with one moderately long spine; posteriormost rays longest. Anal-fin origin under sixth dorsal soft-ray. Caudal fin truncate, with nine upper and seven lower principal rays, 7–10 upper and 8–9 lower procurrent rays.

Colour pattern rather plain, with 8–9 brown blotches dorsolaterally (better defined in small juvenile) on yellowish-brown background. Background colour in preservative of small juvenile orange, possibly reddish in life. Posterior blotch on caudal peduncle continues as thin stripe on caudal fin. Spinous dorsal-fin membrane dusky, soft dorsal-fin membrane with small blotches, their colour in life unknown. Anal, pectoral and pelvic fins unpigmented. Lining of orobranchial cavity dusky.

Etymology

Named in honour of Mr Willie Maritz of the East London Aquarium in recognition of his keen eye for unusual fishes that resulted in the capture of the 10 most recent specimens.

Remarks

Parapercis maritzi differs from its apparent nearest relatives chiefly in its scale counts and colour pattern. Its presumed sister species, four other deep-water *Parapercis*, all share similar counts, dentition, and spinous dorsal fin characteristics, but differ in the following ways: *Parapercis multifasciata* from the western Pacific has 9–10 narrow bands which are brown dorsally, yellow ventrally, a black spot at the base of the caudal fin, a black streak across the innermost two pelvic rays and a characteristic oval, yellow shoulder patch and nape band, both ringed in dark brown. *Parapercis binivirgata* from Australia has a black-streaked pelvic fin like *P. multifasciata*, an unringed nape band, six scale rows above the lateral line, 29 scales in a zigzag row around the caudal peduncle, 66–69 lateral line scales, 68–70 oblique scale rows and 17 scales from the lateral line to the anus. *Parapercis roseoviridis* from the Hawaiian Islands has a mostly black spinous dorsal fin, alternating crimson and yellow bands on the dorsum, far more palatine teeth (mostly in a double row) at comparable sizes, 16–19 pseudobranch filaments and 55–58 lateral line scales. *Parapercis atlantica* from the Cape Verde Islands has nine broad, distinct bands on the body that are complete to the abdomen and extend onto the anal fin base, 15 pectoral-fin rays, 29 scales in a zigzag row around the caudal peduncle and 12 scales from the lateral line to the anus.

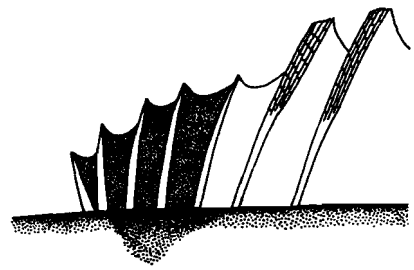

Figure 4 *Parapercis maritzi*, n. sp. Spinous dorsal fin and membranes (composite).

The specimen RUSI 10966 is not included in the type series as it is somewhat abberrant in its high caudal peduncle scale count (26 *vs.* 24–25 for all other specimens) and its four lower jaw canines (six in all others). The latter character is especially important in *Parapercis* systematics, but it was noted that one specimen (70 mm SL) of *P. multifasciata*, NSMT P-34601, has eight dentary canines, and six are given as diagnostic for that species (Cantwell 1964). In addition, the specimen is completely faded after 19 years in propyl alcohol and no trace of the lateral banding remains.

Acknowledgements

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References

ARAMBOURG, C. 1943. A propos d'un poisson 'nouveau' *Neopercis Le Danoisi* Cadenat, de la côte occidental d'Afrique. *Bull. Mus. Nat. Hist. Naturelle, Paris* 15: 170.

CANTWELL, G.E. 1964. A revision of the genus *Parapercis*, family Mugiloididae. *Pacific Sci.* 18(3): 239–280.

GILCHRIST, J.D.F. & THOMPSON, W.W. 1908. Descriptions of fishes from the coast of Natal. *Ann. S. Afr. Mus., Lond.* 6(2): 145–206.

GUERRERO, R.D. & SHELTON, W.L. 1974. An aceto-carmine squash method for sexing juvenile fishes. *Prog. Fish-Cult.* 36(1): 56.

HEEMSTRA, P.C. 1986. Family No. 234: Mugiloididae. In: Smith's Sea Fishes, (eds.) M. Smith & P.C. Heemstra, MacMillan South Africa (Pty) Ltd., Johannesburg.

MANILO, L.G. 1990. A new species of the genus *Parapercis* (Mugiloididae) from the region of the Maldive Islands. *Vopr. Ikhtiol.* 30(6): 1016–1019.

McCOSKER, J.E. 1971. A new species of *Parapercis* (Pisces: Mugiloididae) from the Juan Fernandez Islands. *Copeia* 1971(4): 682–686.

QUERO, J.-C. & RANDALL, J.E. 1991. Mugiloididae. In: Check-list of the fishes of the eastern tropical Atlantic, (eds.) J.-C. Quero, J.-C. Hureau, C. Karrer, A. Post & L. Saldanha, UNESCO, Paris.

RANDALL, J. E. 1984. Two new Indo-Pacific mugiloidid fishes of the genus *Parapercis*. *Freshwat. Mar. Aquar.* 7(12): 41–49.

ROSA, I.L. & ROSA, R.S. 1987. *Pinguipes* Cuvier and Valenciennes and Pinguipedidae Günther, the valid names for the fish taxa usually known as *Mugiloides* and Mugiloididae. *Copeia* 1987(4): 1048–1051.

SCHULTZ, L.P. 1968. Four new fishes of the genus *Parapercis* with notes on other species from the Indo-Pacific area (family Mugiloididae). *Proc. U.S. Natl Mus.* 124(3636): 1–16.

VAILLANT, L. 1887. Sur la prèsence d'un poisson appartenant au genre *Neopercis* dans l'Atlantique. *Compt. Rend. Acad. Sci., Paris* 105: 1032–1033.