RANGE EXTENSIONS AND ADDITIONS TO THE SOUTH AFRICAN MARINE ICHTHYOFAUNA, WITH THE DESCRIPTION OF A NEW SPECIES OF CONGROGADID FROM KWAZULU

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Accepted: June 1977

ABSTRACT

Range extensions for 17 species of marine fishes are recorded, and a new species of congrogadid is described. Of the new records, 12 are new to South Africa or are here reported to have a greater range within South Africa than previously recorded, and 4 have not been reported from the Indian Ocean before *(Plectroglyphidodon phoenixensis, Gymnothorax fuscomaculatus, Samariscus triocellatus* and *Synodus englemani). Halimuraena shakai* n. sp. is described on the basis of 23 specimens taken in 12 - 15 m of water from the reef off Sodwana Bay, Kwazulu. *Emmelanthias stigmapteron* is redescribed on the basis of 2 additional specimens (previously only known from the holotype), and 3 more specimens of *Batrichthys felinus* are reported (previously known from 4 specimens).

INTRODUCTION

During the past five years, the Smith Institute staff has been concentrating on building up comprehensive collections of the inter- and sub-tidal fish fauna from around the South African coastline. The use of the fish poison rotenone in conjunction with SCUBA gear allows the data obtained to form at least a preliminary basis for hypotheses of relative abundance and diversity of fish species. This in turn helps to build up concepts of geographical transitions and numerical dominances of the fish faunal elements. A corollary of this primary aim of the programme is the discovery of specimens which extend the reported geographic range for a species (Winterbottom 1976). Although many range extensions have come to light, the majority represent small increases in distance (20 - 200 km), and are not reported here. Greater range extensions are of more significance to the zoogeographer, especially where species are recorded from the Indian Ocean for the first time. In addition, I have mentioned further specimens of two rare species.

Counts and measurements are conventional (with a last dorsal or anal ray split through its base counted as one, dorsal transverse scales counted posteroventrally from the origin of the first element of the dorsal fin to the scale row immediately above the lateral line, and ventral transverse scales counted anterodorsally from the origin of the first anal fin element to the scale row immediately below the lateral line).

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FAMILY XENOCONGRIDAE

Kaupichthys hyoproroides (Strömmen, 1896)

Material: RUSI 76 - 12; 1; 178 mm SL; reef off Sodwana Bay, Kwazulu; 15 m (27°31'S/32°41'E). RUSI 1407; 1; 172 mm SL; Pinda, Moçambiqué.

Smith (1965*b*) has recorded a single specimen of this species from Pinda (as *K. diodontus*), and Böhlke & Smith (1968) showed that both *K. diodontus* and *K. atlanticus* are junior synonyms of *K. hyoproroides*, as well as reporting on an additional 44 specimens from the Amirante and Comores Islands.

The present record extends the range of the species about 1,500 km south, which is not surprising in view of the wide range of the species (western Atlantic, western Indian and Pacific Oceans:- Böhlke & Smith (1968)). I find 115 vertebrae (plus ural centrum) in both my specimens (vs. 114 for the Pinda specimen: Smith (1965*b*)).

FAMILY MURAENIDAE

Gymnothorax buroensis (Bleeker, 1857)

Material: RUSI 76 - 8; 1; reef off Sodwana Bay, Kwazulu; 14,6 m. RUSI 76 - 10; 3; as above; 12,8 m. RUSI 76 - 12; 1; as above; 15 m. RUSI 76 - 16; 5; inner reef 2,5 km S of Boteler Point, Kwazulu; 3 m (27°02'00"S/32°51'42"E). RUSI 76 - 19; 1; open gully at Hully Point, Kwazulu; 0,75 m (27°20'05"S/32°45'12"E).

G. buroensis is most easily recognized by its distinctive colour pattern (Smith 1962*a*: pl. 59 D). The eleven specimens obtained during the 1976 Kwazulu expedition extend the southward range of this species from Bazaruto Island to Sodwana Bay, a distance of some 660 km. Vertebral number for these specimens was 109 - 113 ($\bar{x} = 110{,}8$) plus ural centrum.

Gymnothorax eurostus (Abbott, 1861)

Material: RUSI 4255; 1; Mtentwana, Transkei. RUSI 4256; 1; Bazaruto Island, Moçambique. RUSI 4257; 1; Bazaruto Island, Moçambique. RUSI 4258; 1; Bizana coast, Transkei. RUSI 4259; 1; no data. RUSI 74-95; 2; Beauchamp, Mauritius. RUSI 74-354; 2; Sheffield Beach, Natal. RUSI 75-9; 1; between Goss Bay and Lupatana, Transkei (31°24'48"S/29°50'50"E).

Comparative material of *G. meleagris:* RUSI 4251; 1; Pinda, Moçambique. RUSI 4252; 1; Pinda, Moçambique. RUSI 4253; 1; no data. RUSI 4254; 1; Assumption Island, Seychelles.

This species was initially recorded by Smith (1962*a*:434) as *Lycodontis laysanus*, from a single specimen from Bazaruto. A second specimen was recorded by Winterbottom (1976) from Natal. Further collecting in the Transkei yielded what appeared to be a third specimen of this species. To clarify the identity of this specimen, the Smith Institute's 11 specimens of *"G. meleagris"* (which has a rather similar colour pattern) were examined. Four of these specimens are *G. meleagris*, the remaining seven specimens being *G. eurostus*. This greatly

extends the range of the latter species in the Indian Ocean (Lupatana to Bazaruto and Mauritius) while restricting that of the former (Pinda and Assumption Island).

The two species may be distinguished as follows:

Opercular opening distinctly black, yellow spots remain about the same diameter along body, and do not coalesce on throat, no dark spots on anterior of body, vertebrae 127 - 131 ($\bar{x} = 128$; $n = 4$). . . . . *Gymnothorax meleagris.*

Opercular opening not distinctly black, yellow spots on tail obviously larger than those on head, spots on head usually coalescing to form a reticulated pattern on throat, dark spots usually present on anterior part of body, varying from the size of the yellow spots in that region to spots equal to the eye diameter in different individuals, vertebrae 120 - 123 ($\bar{x} = 121{,}7$; $n = 10$) . . . . . *Gymnothorax eurostus.*

The vertebral counts of *G. eurostus* are slightly higher than those for Hawaiian specimens (115 - 121; $\bar{x} = 118{,}5$) and slightly lower than those of Easter Island examples (124 - 128; $\bar{x} = 125{,}8$) (data from Randall & McCosker 1975). The present distribution findings tend to support Randall & McCosker's hypothesis of a peripheral Indo-Pacific distribution for this species.

Gymnothorax fuscomaculatus (Schultz, 1953)

Material: RUSI 76-8; 3; 142,0 - 170,0 mm SL; reef off Sodwana Bay, Kwazulu; 14,6 m. Id. J E McCosker.

Dr J E McCosker kindly identified the above specimens. These eels are characterized by the posterior origin of the dorsal fin (a little in front of the anus and above vertebrae 37 - 40). This character led Jordan & Davis (1891) to erect a new subgenus for such eels, *Rabula* (see McCosker & Rosenblatt (1975) for discussion - these authors do not consider *Rabula* distinct from *Gymnothorax).* McCosker (in litt.) has stated that he can find no differences between the present specimens and Schultz's description (1953*a*) of *"Rabula" fuscomaculata* from the Marshall and Marianas Islands and Hawaii. Vertebral number is 110 - 118, plus ural centrum ($\bar{x} = 115{,}3$). This is the first record of this species from the Indian Ocean.

Gymnothorax ruppelli (McClellan, 1845)

Material: RUSI 2500; 1; Arno Atoll, Pacific Ocean; lagoon reef. RUSI 4931; 1; south Mahé, Seychelles. RUSI 76-17; 1; 59,0 mm SL; inner reef at Six Mile Reef, Kwazulu; 3 m (27°37′30″S / 32°39′24″E). RUSI 76-28; 1; 61,0 mm SL; as above.

Smith (1962*a*) distinguished *G. ruppelli* (of which he obtained a specimen at Mahé and another at Aldabra) from *G. petelli* in that the black bar through the eye in the former continues ventrally around the chin, and that the dark bars on the body in the former are the same size, or narrower, than the light interspaces. He was not, however, convinced of the distinction. The two juveniles taken in Kwazulu clearly fit the description of *G. ruppelli,* and are provisionally identified as that species. Vertebral counts for these specimens are 130-131 (plus ural centrum) as opposed to 128 for the Pacific and 129 for the Mahé specimens. Range extension is about 1 960 km south. Should *G. rupelli* prove to be a junior synonym of *G. petelli,* range extension would be from Bazaruto Island to Sodwana, or about 660 km south.

FAMILY OPHICHTHIDAE

Myrichthys maculosus (Cuvier, 1817)

Material: RUSI 75-5; 1; 140 mm SL; between Goss Bay and Goss Point, Transkei (31°24'04"S/29°51'15"E). RUSI 75-9; 1; 132 mm SL; between Goss Bay and Lupatana, Transkei. RUSI 75-16; 1; 282 mm SL; between Goss Bay and Goss Point, Transkei.

This Indo-Pacific species has not been previously recorded south of 15°S in the Indian Ocean. The present specimens represent a considerable range extension (1 830 km south and 1 200 km west). They are typical members of the species (Smith 1962*b*), with the dorsal fin originating on the nape just behind the skull, and with small pectoral fins. Coloration is as in Smith (1962*b*). Proportional measurements are as given by Smith, or very close (e.g. snout to dorsal fin origin 1,8 as opposed to 2,0).

FAMILY SYNODONTIDAE

Synodus englemani Schultz, 1953

Material: RUSI 76-11; 1; 149,3 mm SL; reef off Sodwana Bay, Kwazulu; 13,7 m. RUSI 76-13; 1; 89,6 mm SL; as above; 15 m.

The species was based on specimens from the Marshall and Marianas Islands, and has not, as far as I am aware, been reported since that time. A review of the genus is necessary, but for the moment I consider *S. englemani* distinct from the widespread *S. variegatus*. The lack of dark spots on the snout, and various morphometric and meristic characters appear to distinguish these two species. Data are presented in the same format as used by Schultz (1953*b*) to facilitate comparison with other species in his paper, and Schultz's values are given in parentheses where different.

D ii 11; A vii - viii 1; P ii 11; V i 7. Lateral line 61 - 65; 5,5 dorsal transverse and 11 ventral transverse scales; median predorsal 19. In standard length: greatest body depth 6,4 (5,5 - 6,4); head length 3,5 - 3,6 (3,3 - 3,4); dorsal origin 2,5 - 2,6 (2,3 - 2,4); pelvic origin 2,8 - 3,0; dorsal origin to adipose origin 2,4 - 2,5 (2,6 - 2,7); peduncle length 5,9 - 6,7 (7,0 - 7,5). In head length: snout length 4,1 - 4,2 (4,2 - 4,3); eye diameter 5,4 - 7,0 (5,0 - 5,1); pelvic ray 1,3 - 1,4; longest pectoral ray 2,5 - 3,0 (2,8 - 2,9); upper jaw length 1,6; bony interorbital 7,5 - 8,2 (8,1 - 8,4).

There is thus fairly considerable variation - Schultz's (1953*b*) data are based on three of his eight type specimens. Morphometrics that separate this species from *S. variegatus* (with values for the latter species in parentheses) are: snout length (4,5 - 4,7); upper jaw length (1,7) and bony interorbital (10 - 11).

Colour when freshly dead: a vivid red stripe along the scale row below the lateral line with red mottlings above and below this and on cheek. About 16 yellowish blotches below the red stripe, separated by red interspaces. Red spots on the fin rays of the dorsal and pelvic fins; anal clear; caudal vaguely barred with red and white; adipose brown with a white bar through the middle; iris red.

FAMILY BATRACHOIDIDAE

Batrichthys felinus Smith, 1952

Material: RUSI 97; 1 (holotype); 148,0 mm SL; Port Alfred, Cape. RUSI 4341; 1; 140,0 mm SL; Plettenberg Bay, Cape (poor condition). RUSI 75-23; 1; 131,2 mm SL; Buffels Bay, Cape Point; 3 m. RUSI 75-25; 1; 71,0 mm SL; off Venus' Pool, Cape Point; 13 m.

This species was described by Smith (1952*b*) from two specimens (Port Alfred and False Bay), and redescribed by Penrith & Penrith (1971) on the basis of two False Bay specimens in the South African Museum. The Plettenberg Bay specimen is in bad condition, but the two new False Bay examples conform to the descriptions cited above. The collection of these specimens by means of rotenone and SCUBA may indicate that *B. felinus* is not as rare as previously supposed. A total of three subtidal stations was made in False Bay, *B. felinus* appearing in two of them.

FAMILY SERRANIDAE

Emmelanthias stigmapteron Smith, 1955

Material: RUSI 141; 1 (holotype); 29,9 mm SL; Pekweni, near East London. RUSI 75-7; 1; 23,3 mm SL; Grosvenor Point, Transkei (31°22′30″S/29°54′30″E). RUSI 5547; 1; 21,6 mm SL; Coffee Bay, Transkei (damaged).

Smith (1955:342) based his new genus and species on a single juvenile. My specimens agree with the holotype in almost all respects. The Coffee Bay specimen was captured alive and maintained in an aquarium for a week before succumbing to the attack of a 40 mm *Diplodus cervinus* (A R de Villiers pers. comm.), which so damaged the specimen that morphometric measurements are not possible and meristics are doubtful. A description of the Grosvenor Point specimen is given below, with Smith's data from the holotype following in parentheses where different. D XII 17 (XII 16); A III 7; lateral line 53(51); transverse scales 6/21 (5-6/21); 6 rows of scales on cheek; 3 on maxilla. As percent standard length: total length 129 (125); depth 30 (34); head 32 (34); eye diameter 9,4 (9); bony interorbital 9 (7); snout length 8,2 (7,5); postorbital 14,2 (17); base of spiny dorsal 32,6 (32); base of soft dorsal 34,8 (32); base of whole dorsal 67,4 (66); length of second dorsal spine 5,2 (4); third 9,0 (8); fourth 11,6 (11); first dorsal ray length 11,2 (12); twelfth 15,0 (13); first anal spine length 5,2 (4); second 11,6 (11); third 8,6 (11); first anal ray length 12,4 (15); pectoral length 25,8 (28); pelvic length 23,2 (22); least depth of caudal peduncle 12,4 (12).

The more posterior teeth in the maxilla are antrorse, the canines of the lower jaw flare out laterally. The dorsal surface of the head is covered with small cutaneous villi, which appear to arise from the posterior margins of the scales. Anterior rays of the dorsal fin unbranched. Scales small, ctenoid (except those of the belly and thorax, which are cycloid). There is a black spot on the dorsal fin between spines 9 - 12, and a scattering of pigment cells on the occipital region of the head (not mentioned by Smith (1955), but discernible in his Figure 2).

The Grosvenor Point specimen has only a few spots of pigment on the membrane between the first nine dorsal spines. Colour when alive: a uniform orange-pink, with the pigment of the dorsal fin as described above. There is no vermillion stripe passing posteroventrally from the eye as in *Anthias squamipinnis*.

This genus and species seem well defined by a number of characters. All three specimens have 12 dorsal spines, and, although the first of these is small, I do not think that it would become obsolete with age, as suggested by Smith (1961*a*). The cutaneous villi on the head have not been reported elsewhere among anthiines, but it is not known whether these villi persist in the as yet uncollected adults.

FAMILY PSEUDOGRAMMIDAE

Aporops allfreei Smith, 1953

Material: RUSI 76-10; 1; 23,2 mm SL; reef off Sodwana Bay, Kwazulu; 12,8 m.

Smith (1953) described this species from two specimens, one from Kisiti Island (4°43′S/39°23′E) and the other from Pemba. A subsequent expedition obtained a further eight specimens from Assumption and Aldabra Islands, and Talbot (1965) recorded it from Mafia Island (about 8°S). These specimens add some variation to the original description: D VII 23 - 25 ($\bar{x} = 24{,}1$); A III 20 - 21 ($\bar{x} = 20{,}2$); vertebrae 9+ 18 = 27 plus ural centrum. (The holotype has D VII 25; A III 20 and not D VII 24; A III 21 as reported in the original description). Range extension represented by the Kwazulu specimen is about 2 000 km to the south.

FAMILY POMACENTRIDAE

Plectroglyphidodon phoenixensis (Schultz, 1943)

Material: RUSI 1455; 2; 23,0 - 24,2 mm SL; Durban. RUSI 75-7; 1; 39,9 mm SL; Grosvenor Point, Transkei. RUSI 76-16; 2; 48,3 - 56,8 mm SL; inner reef 2,5 km S of Boteler Point, Kwazulu. RUSI 76-28; 1; 29,8 mm SL; inner reef at Six Mile Reef, Kwazulu.

This Pacific species has not definitely been recorded from the Indian Ocean before, although Allen (1975:198) mentions that Randall collected and photographed a specimen in Mauritius ". . . . which is very similar and may in fact represent a color variant" of *P. phoenixensis*. The two smallest specimens were collected at Durban by Dr Wright during 1967-68. They are emaciated, having the appearance of deceased aquarium specimens. The colour pattern and meristics are as given by Woods & Schultz (1960), but there are certain differences in proportions. These are largely covered by the range of variation given in the original description (Schultz 1943: 190 - 192). Meristic and morphometric values for the present specimens are followed by the corresponding values (where different) from Woods & Schultz (1960) for the Marshall and Mairanas specimens.

D XII 16 - 17; A II 14 (AII 13 - 14); P ii 16 ii; scale rows 28 - 29 (27 - 29); dorsal transverse

rows 3; ventral transverse rows 9 (10); upper lateral line 21 - 22; gill rakers 2 - 3 + 1 + 8 - 10 (3 specimens).

In standard length: body depth 2,0 - 2,1 (1,9 - 2,1); head length 2,8 - 3,4 (2,8 - 3,0). In head length: snout 3,2 - 4,1 (3,4 - 4,1); eye diameter 2,9 - 3,5; upper jaw length 3,7 - 4,1 (3,6 - 3,9); postorbital 2,2 - 2,6 (2,7 - 2,8); interorbital width 2,7 - 3,4 (3,2 - 3,7); peduncle depth 1,9 - 2,3 (2,1 - 2,6); pectoral length 1,1 - 1,3 (1,0 - 1,1); pelvic length 1,0 - 1,1; length of twelfth dorsal spine 2,4 - 3,6 (2,2); upper caudal ray length 0,9 - 1,1 (0,9 - 1,0); lower caudal ray length 1,1 - 1,2 (1,0 - 1,1). Peduncle depth into peduncle length 1,0 - 1,2 (1,3 - 2,0).

Colour pattern as described (Schultz 1943), all my specimens exhibiting the juvenile phase (black ocellus at base of soft dorsal fin on rays 1 - 7).

FAMILY CIRRHITIDAE

Cyprinocirrhites polyactis (Bleeker, 1874)

Material: RUSI 4249; 1; 35,2 mm SL; Seaview (near Port Elizabeth); in tidepool after storm; coll. Miss L Beckley. RUSI 4532; 1; 64,2 mm SL; Durban; coll. A Wright. RUSI 4533; 1; 51,4 mm SL; off Kenya; coll. J E Croil-Morgans. RUSI 4534; 2; 31,7 - 33,5 mm SL; Nangata, Moçambique.

This species was originally reported from the Indian Ocean on the basis of a single specimen (Smith 1951), and subsequently from additional specimens from Durban northwards (Smith 1965*a*). The Seaview specimen extends the reported range of the species about 450 km south and 650 km west. It differs from Randall's (1963) description in the apparent lack of palatine teeth and in its more slender body (3,6 in SL vs. 2,7 - 2,8 as given by Randall). Both appear to be juvenile characters - two other small specimens from Nangata do not have discernible palatine teeth and have a body depth of 3,4 - 3,5; and a 51,4 mm specimen from Kenya has palatine teeth and a depth of 2,6. This confirms Smith's (1965*a*) report that the juveniles have a more elongate body and appear to lack palatine teeth. The Seaview specimen has the following characters: D X 17; A III 6; pectoral 14; lateral line 48/50; dorsal transverse 3; ventral transverse about 9; gill rakers 3 + 1 + 11; posterior (but not ventral) margin of preopercle serrate; interorbital (and possibly nasal) scales present; 4 scale rows on cheek. Colour when alive a uniform orange-red, with a black blotch between dorsal spines 2 - 4.

Paracirrhites arcatus (Cuvier, 1829)

Material: RUSI 75-5; 1; 25,3 mm SL; between Goss Bay and Goss Point, Transkei.

The species has previously been recorded as far south as Baixo Pinda (14° 12′ S) by Smith (1951), under the name *Gymnocirrhites arcatus*. The present specimen agrees with Randall's (1963) diagnosis in all respects, except that the upper margin of the preopercle is distinctly serrated. Judging from other material of this species in the Smith Institute, this is a juvenile characteristic which disappears with age. This is contrary to the usual situation in cirrhitids, where the number of preopercle serrations increases with age (Randall 1963 : 392). Range extension is 1 900 km to the south.

FAMILY LABRIDAE*

Coris angulata (Lacépède, 1802).

Material: RUSI 75-5; 1; 200 mm SL; between Goss Bay and Goss Point, Transkei.

This unmistakable species has previously been recorded in juvenile stadia from Kosi Bay, Kwazulu (27°S) by Smith (1961*b*). The collection of so large an individual in the Transkei is noteworthy, and represents a range extension of about 500 km to the south.

FAMILY LIMNICHTHYIDAE

Chalixodytes chameleontoculis Smith, 1956.

Material: RUSI 172; 1 (holotype); 36,9 mm SL; Denis Is., Seychelles. RUSI 74-95; 12; 23,7 - 40,8 mm SL; near Jacotet Bay, Mauritius; 1 m; coll. T H Fraser. RUSI 76-21; 1; 45,5 mm SL; inner reef 6,5 km north of Island Rock, Kwazulu; 2 m (27°13′21″S/32°47′48″E).

Described on the basis of a single specimen from Denis Island; Smith (1956) also reported the capture of an additional specimen from Aldabra (subsequently lost). Smith (1956) was somewhat doubtful whether his specimen was, in fact, distinct from *C. tauensis* Schultz. The following values are given first for the Mauritius/Kwazulu specimens, then for the holotype of *C. chameleontoculis* and finally for *C. tauensis* (the latter two from Smith (1956)).

D 39; 40; 34 - 37; A 38; 40; 35 - 38; pectoral fin rays 11 - 13; 11 - 12; 10; lateral line scales 58 - 59; 59; 54 - 57; predorsal scales 7 - 11; 10; 14. As percent standard length; dorsal origin 38,0 - 40,7; 40,5; 42 - 45; upper jaw length 8,2 - 8,8; 9; 7,5.

The above data indicate that while the two species are close, there are differences in dorsal fin count, lateral line, predorsal scales, and with a dorsal fin origin closer to the snout and a longer upper jaw in *C. chameleontoculis*. Assuming the lost Aldabra specimen to have belonged to this species, range extension is about 2 000 km to the south.

FAMILY BLENNIIDAE

Ecsenius nalolo Smith, 1959

Material: RUSI 76-8; 2; 39,2 - 41,5 mm SL. RUSI 76-9; 3; 32,6 - 34,6 mm SL. RUSI 76-10; 2; 29,2 - 31,2 mm SL. RUSI 76-11; 2; 30,7 - 44,3 mm SL. RUSI 76-13; 3; 28,9 - 53,4 mm SL. All specimens from the reef off Sodwana Bay, Kwazulu, 12 - 15 m.

The specimens agree well with Smith's (1959) description, and those of Springer (1971, 1972). The species has been reported from the Red Sea, Pinda (the type locality), and the Maldive, Chagos, Seychelles and Comores Islands (Springer 1971); and Springer (pers. comm.) informs me that he collected hundreds of specimens at St Brandons Shoals (16°10′ - 16°55′S). The Kwazulu specimens thus represent a considerable range extension.

*The labrids from the Kwazulu Expedition will be reported on by Mrs M M Smith.

FAMILY CONGROGADIDAE

Halimuraena shakai n. sp. (Figures 1 and 2).

Material: RUSI 904; holotype; 48,3 mm SL; reef off Sodwana Bay, Kwazulu; 12,8 m; rotenone (27°31'S/32°41'E); coll. R Winterbottom and party; 24 July 1976 (ex RUSI 76-10). RUSI 905; 6; 42,2 - 47,5 mm SL; collected with the holotype. RUSI 906; 5; 35,4 - 45,1 mm SL; reef off Sodwana Bay, Kwazulu; 15,3 m; rotenone; coll. R Winterbottom and party; 25 July 1976 (ex RUSI 76-9). RUSI 907; 2; 52,8 - 53,1 mm SL (cleared and stained); collected with RUSI 906. BM(NH) 1977.1.10:1; 1; 43,3 mm SL; collected with RUSI 906. USNM 216604; 1; 37,2 mm SL; collected with RUSI 906. RUSI 908; 3; 42,5 - 45,7 mm SL; reef off Sodwana Bay, Kwazulu; 14,6 m; rotenone; coll. R Winterbottom and party; 1 August 1976 (ex RUSI 76-8). RUSI 909; 3; 41,3 - 49,6 mm SL; reef off Sodwana Bay, Kwazulu; 15 m; rotenone; coll. R Winterbottom and party; 27 July 1976 (ex RUSI 76-12). RUSI 910; 1; 54,9 mm SL; reef off Sodwana Bay, Kwazulu; 13,7 m; rotenone; coll. R Winterbottom and party; 23 July 1976 (ex RUSI 76-11).

*Diagnosis**

The genus *Halimuraena* differs from all other congrogadids in completely lacking scales on the cheeks. *H. shakai* may be distinguished from all other congrogadids (except *H. hexagonata, Haliophis guttatus* and some specimens of *Blennodesmus scapularis)* in having fewer than 50 dorsal and 40 anal fin rays. It can be separated from all congrogadids (except some individuals of *Congrogadus subducens)* by the lack of a large ocellated spot, either on the shoulder above the opercle or on the opercle itself; from the species of *Haliophis* and *Congrogadoides spinifer* by the gill membranes not being united to the isthmus; from *Congrogadus* in the possession of a dorsal spine; and from *Blennodesmus* and *Halidesmus* by the lack of pelvic fins. It shares with *Congrogadus, Congrogadoides, Blennodesmus* and *Haliophis malayanus* a short, single, incomplete lateral line ending below the anterior part of the dorsal fin whereas *Halidesmus* and *Pholioides* have three, and *Halimuraena hexagonata* two, lateral lines. It differs from at least *H. hexagonata, Haliophis guttatus* and *Halidesmus* in the absence of a pair of anterior interorbital sensory canal openings (Figure 2 A, B); from the former two species in having one less (6) sensory openings for the preopercular sensory canal; and from the latter two species in having 12 (two unbranched) caudal fin rays. It has a higher average dorsal fin ray count than *H. hexagonata* ($\bar{x} = 48,1$; range 47 - 49; vs. $\bar{x} = 45,7$; range 45 - 47); a more slender body (body depth at anal origin 51,6 (47-55)% HL vs. 58,1 (55-59) %); a slightly larger eye (20,7 (19-23) % head length vs. 18,9 (18-20) %); more teeth on the third pharyngobranchial toothplate (25 vs. 14); and more vertebrae ($\bar{x} = 54,6$; range 54 - 56 vs. $\bar{x} = 50,5$; range 50 - 52) with 15 - 16 precaudal (vs. 14).

*The generic allocations used here are traditional, and a number of changes are envisaged on completion of a review of the family currently being undertaken.

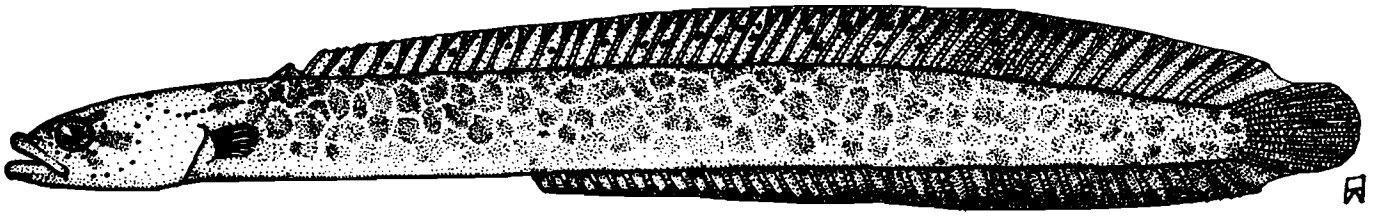

FIGURE 1
Halimuraena shakai (holotype); 48,3 mm SL; RUSI 904. Left lateral view.

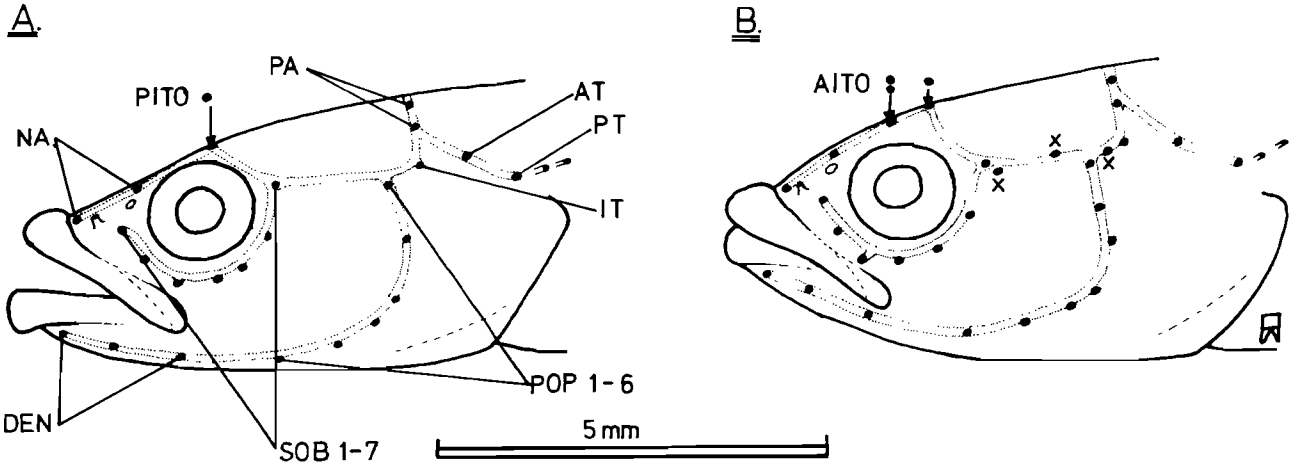

FIGURE 2
Left lateral view of head to show sensory canal pores. A. *Halimuraena shakai* (holotype); 48,3 mm SL; RUSI 904.
B. *Halimuraena hexagonata* (paratype); 45,7 mm SL; RUSI 863.
Pores marked with an "X" may be present or absent.
AITO, anterior interorbital; AT, anterior temporal; DEN, dentary; IT, intertemporal; NA, nasal; PA, parietal; PITO, posterior interorbital; POP, preopercular; PT, posterior temporal; SOB, suborbital;

Description.

An elongate congrogadid reaching a maximum recorded size of 54,9 mm SL, so far found only in 12 - 15 m of water on the coral/limestone reef off Sodwana Bay, Kwazulu. The following counts and measurements are expressed as a mean, followed by the range in parentheses. As percent standard length: head length 16,2 (15 - 18); anal fin origin 42,3 (41 - 44); posterior tip of depressed dorsal spine from tip of lower jaw 25,0 (23 - 27). As percent head length: body depth at anal fin origin 51,6 (47 - 55); horizontal eye diameter 20,7 (19 - 23); snout length 21,7 (20 - 23); bony interorbital 7,7 (6 - 9); pectoral fin length 35,2 (29 - 40); length of upper jaw 32,4 (30 - 36).

Dorsal fin I 47 - 49 ($\bar{x} = 48,1$); anal fin 36 - 38 ($\bar{x} = 37,1$); pectoral fin 9; caudal fin 12; with two outer unbranched rays. Vertebrae 54 - 56 ($\bar{x} = 54,6$); with 15 - 16 precaudal. Lateral line with 7 - 22 ($\bar{x} = 13,7$) pores, ending below the interspace between the dorsal spine and the first dorsal fin ray. It rises gently from the shoulder girdle, and usually dips more sharply towards the mid-lateral septum for the last 2 - 4 pores. Sensory canal openings (Figure 2A): nasal double, one just behind the upper lip and the other just behind the posterior nostril; no anterior interorbital pores; a single median posterior interorbital pore. Seven suborbital pores around the orbit; six in the preopercular canal; three in the dentary. One intertemporal; an anterior and posterior posttemporal; and two parietal pores.

Gill membranes fused in the ventral midline, but free from isthmus; six branchiostegal rays. Gill rakers 2 - 3 + 1 + 6 - 8 (last 2 - 4 rakers may be very small). Olfactory capsule with two nostrils, the anterior a short tube, the posterior pore-like. A few scattered scales above a line between the posttemporal and the fourth dorsal fin ray, none anywhere on head. The rest of the body covered with small, elliptical, cycloid scales. Stomach contents (from the two cleared and stained specimens) almost entirely small amphipods.

A single horseshoe-shaped row of six conical teeth on the vomer. Lower jaw teeth conical, slightly recurved anteriorly, subequal in size but gradually becoming smaller posteriorly. There are 17 - 20 teeth in the outer row, with four small teeth in an inner row anteriorly. The premaxilla has an outer row of 14 - 17 similar-looking teeth, with an irregular inner row of 7 - 9 teeth. Ceratobranchial 5 elongate, with an irregular row of about 10 teeth along each margin, and 3 - 4 teeth between them. The toothplate of pharyngobranchial 2 has 3 - 4 teeth, that of pharyngobranchial 3 has about 25, and that of pharyngobranchial 4 has 4 - 6. Four suborbital bones, the first (anteriormost) largest, with two pores in the sensory canal in additional to the terminal openings, and a medial suborbital shelf on the third suborbital. Caudal skeleton with an autogenous parhypural; hypurals 1 and 2 fused together but separate from the ural centrum; hypurals 3 - 6 fused to each other and the urostyle; one epural. Unbranched rays on the leading edges of the caudal fin subequal in size to the adjacent first branched rays. Neural spine of second preural centrum (penultimate centrum) single, bi- or tri-fid, the most posterior division longest, almost reaching as far dorsally as does the epural. Although the caudal skeleton of *H. shakai* is relatively constant amongst the specimens to hand, this has not been the case for the other congrogadids examined, where considerable individual variation is apparent. In two of the three cleared and stained specimens of *H. hexagonata,* and in 6 of the 10 X-rayed specimens, the parhypural is absent

or possibly unossified. A full report on the osteology will be given in a revision of the family (in prep.).

Colour pattern (freshly dead): ranging from uniform light-brown through specimens with the posterior part of the body covered with dark, unevenly rounded blotches about the size of the eye, to other specimens with the whole body (except the head) covered with such blotches. The light areas between the blotches have the appearance of reticulations. In specimens with the blotches, there are irregular small dark spots in the membrane between the fin rays of the dorsal and anal fins, one or two dark spots on the bases of the pectoral fin rays, and two or three short dark lines radiating from the posteroventral region of the eye. Posterior region of the dorsal and anal fins, and caudal fin darker, iris orange/yellow. Colour in n-propyl alcohol similar, but less intense.

Remarks

In placing the new species in the genus *Halimuraena,* a revised diagnosis of this genus will have to be given, since Smith (1952*a*) separated that genus from *Congrogadoides* and *Haliophis* on the basis of two lateral lines, and the gill membranes being united but free from the isthmus. *H. shakai* agrees in the latter character, but has a single short lateral line (a condition found in a number of other congrogadids). Omitting the lateral line as a character, the genus would thus only be defined by the gill membrane being free from the isthmus - a condition which is apparently met with in all congrodadid genera except *Haliophis* and *Blennodesmus* (also *Congrogadoides:* W Fink pers. comm.). However, the two species of *Halimuraena* share the following characters, which will serve to define the genus until a much needed revision of congrogadids can be completed: cheeks, opercle and nape naked; less than 50 dorsal and 40 anal rays; 9 pectoral fin rays; 12 (including two unbranched) caudal rays. *H. shakai* is most easily separated from *H. hexagonata* by the lack of an ocellated spot on the shoulder and by its single short lateral line.

Etymology.

Named for the Zulu king, Shaka, who raised his people from a small tribe to a powerful nation. The hastate body of the new species is a perhaps fanciful reminder of the short stabbing spear or "iKlwa" which Shaka developed and used with such devastating effect.

FAMILY GOBIIDAE

Barbuligobius boehlkei Lachner & McKinney, 1974

Material: RUSI 76-8; 3; 22,5 - 25,8 mm SL; reef off Sodwana Bay, Kwazulu; 14,6 m. RUSI 76-9; 2; 21,8 - 21,9 mm SL; as above; 15,3 m. RUSI 76-10; 1; 20,2 mm SL; as above; 12,8 m. RUSI 76-16; 40; 13,4 - 26,0 mm SL; inner reef 2,5 km S of Boteler Point, Kwazulu; 3 m. RUSI 76 - 20; 1; 24,6 mm SL; inner reef at Six Mile Reef, Kwazulu; 2 m. RUSI 76-22; 1; 24,5 mm SL; inner reef at Jesser Point, Kwazulu; 3 m (27°32'22"S/32°40'50"E). RUSI 76-23; 2; 23,6 - 24,9 mm SL; inner reef at

Hully Point, Kwazulu; 2,5 m (27°20'05"S/32°45'12"E). RUSI 76-28; 4; 24,0 - 26,3 mm SL; inner reef at Six Mile Reef, Kwazulu; 2 m. RUSI 76-32; 2; 23,3 - 23,5 mm SL; tidal pool at Jesser Point, Kwazulu; 0,8 m.

This species was described on the basis of 16 specimens (11,3 - 23,8 mm SL) from Taiwan, Ceylon, the Seychelles and St Brandon's Shoals (400 km NNE of Mauritius). The collection of an additional 56 specimens is noteworthy, and increases the maximum recorded size to 26,3 mm SL. Extensive collections by J L B and M M Smith and, more recently, by T H Fraser from Inhaca northwards, and by R Winterbottom and R E Stobbs from Chaka's Rock (about 29°40'S) south has failed to yield any specimens of this species. Its southern limit would thus appear to be confined to a very narrow stretch of the South African coast. No differences between the present specimens and the type description could be found. Colour pattern just after collection is essentially the same as that when preserved (see Lachner & McKinney 1974 for description). The species was most frequently collected in the sheltered, marginally subtidal areas, usually over sand on the inner faces of rocky reefs. Range extension from St Brandon's Shoals is 1 265 km south and about 2 700 km west.

FAMILY PLEURONECTIDAE

Samariscus triocellatus Woods, 1966

Material: RUSI 2404; 1; 52,3 mm SL; off Waikiki, Oahu, Hawaii. RUSI 76-9; 2; 42,6 - 57,2 mm SL; reef off Sodwana Bay, Kwazulu; 15 m.

S. triocellatus was described on the basis of specimens from Bikini, Rongelap and Onotoa Atolls, and from Oahu (Woods 1966). The specimens from Kwazulu represent the first record of the genus in the south-western Indian Ocean (Ochiai & Amaoka 1962). The data for these specimens are presented first, followed by that for the Oahu specimen (RUSI 2404) in parentheses, and then the range given in the original description (where morphometrics are presented as percentages rather than as thousandths of the standard length). D 66 (68) 64 - 70; A 53 - 54 (55) 47 - 56; P 4 (4) 5 (it is not clear whether Wood's specimens had the first ray reduced to an almost undetectable nubbin of bone such as is present in my specimens, and which I have ignored in the count); pelvic 5 (5) 4 - 5; caudal rays ii6 + 6ii (ii6 + 6ii) 6 + 5 - 7; lateral line scales 82 - 87 (76) 71 - 75.

As percent standard length: body depth 40 - 42 (36) 32 - 40; head length 26 - 28 (25) 23 - 28; snout length 8 - 10 (8) 8; eye diameter 6 (5) 5 - 7; interorbital 2 (1) 1; postorbital 13 - 15 (13) 10 - 12; upper jaw length 9 - 11 (9) 9 - 12; caudal peduncle depth 13 - 14 (13) 13 - 15; longest dorsal ray 14 - 15 (18) 17 - 19; longest anal ray 15 - 16 (19) 18 - 19; length of middle caudal ray 25 (26) 26 - 28; length of pectoral ray 18 - 19 (20) 19 - 22. Vertebrae 38 (40) plus urostyle; it may be noted here that both the Kwazulu specimens have somewhat deformed vertebral columns posteriorly. In the larger specimen, the third preural (=pu) vertebra appears to have been formed by the fusion of two vertebrae, and has two neural spines. In the smaller specimen, the centrum of pu 2 is elongate, and has double neural and haemal spines.

The Kwazulu specimens show a number of differences from their Pacific counterparts -

they appear to have more lateral line scales, a wider interorbital and to have more elongate dorsal and anal fin rays. The three ocellated dark spots are present, lying mainly below the lateral line.

DISCUSSION

Seven of the eighteen new records were taken in the Transkei, and ten in Kwazulu, both areas currently being surveyed by the J L B Smith Institute of Ichthyology. The former area represents an intertidal faunal transition zone, as recognized by Stephenson (1939). It is readily apparent that intertidal tropical fishes in the Transkei descend with the warm Agulhas Current (15-27°C annual range near Port Elizabeth) as juveniles and seldom survive the winter. The present collections suggest that the current, with its cargo of juvenile fishes, touches the coast-line at intermittent intervals. Whether such areas are consistently in contact with the warm Agulhas water, or whether they vary from season to season (or year to year) with local hydrological conditions is unknown.* The discrepancy between one of these areas and an adjacent one, which I presume is not contacted by the warm current, can be striking. In a lower intertidal pool of approximately 40 m^3 of water (between Goss Bay and Goss Point) a total of 393 specimens of 50 species was obtained. In a similar pool of almost the same size and volume at Grosvenor Point, only 63 individuals of 21 species were collected (17 species in common). Grosvenor Point is 1'35" N and 1'50" E of the Goss Bay collection site - a distance of 4,3 air km. The possibility that these fluctuations may not be consistent receives support from observations at the Clayton's Rocks research area (about 33°30'S/27°00'E). During the summer of 1974 - 1975, a fairly large tropical element was present in the intertidal pools (e.g. *Chaetodon blackburnii, C. lunula, C. vagabundus, Pomacanthodes striatus, Thalassoma lunare,* etc.). In the summer of the following year (1975-76) there were very few tropicals (one *Anthias squamipinnis* seen in November). This would argue either wildly disparate recruitments, or against the continuous contact by part of the Agulhas current with a particular area of coast. The evidence is, however, weak at best.

Preliminary analysis of the material taken during the Kwazulu expedition (July - August 1976) indicates a diverse fauna with affinities to both that of the Moçambique Channel and to that of eastern Madagascar (Malagasy Republic)/ Mauritius. Currents from both areas have been shown to influence the fauna of the Kwazulu coast (Berry pers. comm.). Further trips to Kwazulu are planned before a full report is published.

ACKNOWLEDGEMENTS

I would like to thank Mrs M M Smith (Director, J L B Smith Institute of Ichthyology, Rhodes University - RUSI) for her enthusiastic encouragement of the intertidal/subtidal

*Analysis of the 10-day sea-surface temperature charts (S.A. Dept. of Transport, compiled by the Youngsfield Maritime Weather Office) may provide the answer, and is presently being undertaken.

sampling programme; Messrs R Cleary and G Wright (Cape Point Nature Reserve) and Miss A E Louw (South African Museum) for field assistance at Cape Point; Mr M S Christensen for assistance in the Transkei; and Miss Louw and Messrs G S Butler, M S Christensen, W Holleman and R E Stobbs (all of RUSI) for helping to make the Kwazulu expedition a success. Mr Stobbs also provided the photographs of the Kwazulu fishes, from which the colour notes were taken, and the X-rays. Dr W Fink (Museum of Comparative Zoology) kindly checked certain characters on the type of *Congrogadoides spinifer* for me. I thank Dr A R Emery (Royal Ontario Museum) and Dr V G Springer (US National Museum) for their comments on the manuscript.

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