

**ON SOME NEW RECORDS OF PIGFACE BREAMS (FAMILY
LETHRINIDAE : PISCES) FROM THE ANDAMAN SEA***

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INTRODUCTION

IN the course of two tours to the Andaman-Nicobar Islands by members of this Institute during February-March 1960, and January-March 1961, some specimens of lethrinid fishes, popularly known as pigface breams were obtained, all taken on hook and line in the vicinity of Port Blair and Neil Island, Andamans. Day (1870) recorded two species, *Lethrinus xanthotaenia* Bleeker, and *L. harak* (Forsk.) from Andamans, while Herre (1941) listed *Lethrinus ornatus* Cuvier and Valenciennes, and *L. rhodopterus* Bleeker from the Andaman Sea. Of these, *L. xanthotaenia* is a synonym of *L. ornatus* (Weber and de Beaufort, 1936, p. 447) and we consider *L. rhodopterus* a synonym of *L. harak* (p. 4), thus leaving only two species *L. ornatus* and *L. harak* known from the Andaman waters up to now. Besides material of these two species, the present collection also includes three additional records of lethrinid fishes from the Andaman Sea, and of these, one is reported here for the first time from Indian waters.

The differentiation of the species in Lethrinidae is made difficult on account of the uniformity in meristic counts throughout the group. Primary importance is given to variations in body proportions and colouration, but the former is subject to considerable variations with age, while except for the basic colour, other colour patterns fade rapidly after death so much so formalin preserved specimens show more or less uniform colouration.

Besides Day's (1875) account of eight species of Lethrinidae from Indian Seas, the nomenclature and status of some of which require clarification, we find the regional works on this group carried out by Weber and de Beaufort (1936) for the Indo-Australian Archipelago, and Smith (1959) for the Western Indian Ocean as very useful aids to the study of these fishes from the Indian Seas. We are in agreement with Smith (1959) in his recognition of *Lethrinella* Fowler as a distinct genus to include certain species placed by earlier workers under *Lethrinus* Cuvier. The two genera are mainly separated on the nature of the dentition, the maxillary and mandibular teeth behind the canines being conical in both young and adults of *Lethrinella*, while the posterior maxillary and mandibular teeth are molariform in *Lethrinus*. In addition, species of *Lethrinella* have comparatively more elongate snout and less deeper body. As our material indicate, both these genera are represented in Andaman waters.

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Since there appears to be some differences in the methods used for taking morphometric measurements in lethrinids, for such of those characters which require clarification we give below the methods used in this study. The standard length is measured from the tip of the upper lip with the mouth closed, to the posterior margin of the last scale of the lateral line. The preorbital depth is the distance from the anterior end of the lower limb of the preoperculum to the profile of head above the posterior nostril. The length of the caudal peduncle is measured from the posterior end of base of anal to the margin of the last lateral line scale. The scales above the lateral line are counted in an oblique series below the sixth dorsal spine to lateral line excluding the latter. Generally the first scale is reduced. The scales below the lateral line are counted in the same oblique series backwards to the base of the anal. The methods used for the other characters are self explanatory. Brief diagnosis of each species is given below, and detailed data is tabulated at the end. A separate list of references is not given at the end, as those referred to are given under the species.

NOTES ON THE SPECIES

Genus *LETHRINELIA* Fowler

Lethrinella microdon (Valenciennes)

Lethrinus microdon Valenciennes, 1830. *Hist. Nat. Poiss.*, 6 : 295 (Type locality : Buru, East Indies) ; Weber and de Beaufort, 1936. *Fish. Indo-Austral. Archipel.*, 7 : 436-37, fig. 87.

Lethrinus rostratus Day, 1875. *Fish. India*, 134, pl. 33, fig. 1 (*nec* Valenciennes).

Lethrinella microdon Smith, 1959. *Ichth. Bull. No. 17, Dept. Ichth. Rhodes Univ. Grahamstown*, 293, pl. 25, fig. 9073.

1 specimen : 236 mm. Port Blair—March 1960.

3 specimens : 182, 207, and 227 mm. Port Blair—March 1961.

D. X, 9 ; P₁. ii, 11 ; P₂. I, 5 ; A. III, 8 ; C. i, 15, i ; L. I. 47-48 ; L. tr. 5/1/14-15. Scales round caudal peduncle 23-24. Gill rakers 4-5+5-6.

Height of body 3.1-3.3 and head 2.6-3.0 in standard length. Eye 3.9-4.51 in head, 1.9-2.2 in snout, 1.8-2.0 in preorbital depth, and 0.9-1.16 in interorbital distance. Pectoral 1.34-1.45, pelvic 1.53-1.64, base of soft anal 2.4-2.8, and longest anal ray 3.0-3.46 in head length.

Two or three radiating stripes from front of eye to snout are very characteristic of this species.

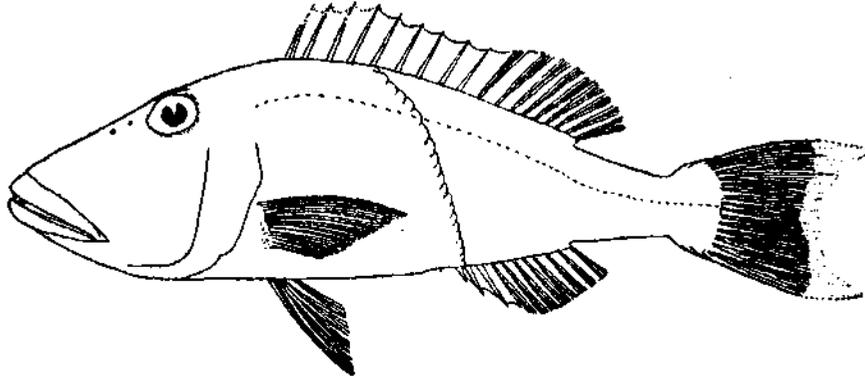
New distributional record for the Andaman Sea.

GENERAL DISTRIBUTION: Red Sea, Zanzibar; Coast of India and Ceylon; Andaman Sea ; and Indonesia to Philippines.

Lethrinella xanchocheilus (Klunzinger)

(Text-fig. 1 and Plate I, Fig. 1)

Lethrinus xanchochilus Klunzinger, 1870. *Synopsis Fische Rothen Meeres*. 753; 1884. *Fische Rothen Meeres*. 39, pl. 6, fig. 3, (Type locality: Red Sea).



TEXT-FIG. 1. *Lethrinella xanchocheilus* (Klunzinger) 593 mm. in standard length. (A row of transverse scales on the body is also shown).

Lethrinella xanchocheilus Smith, 1959. *Ichth. Bull. No. 17, Rhodes Univ. Grahamstown*, 292, pl. 22, Fig. B.

1 specimen: 593 mm. Port Blair—March 1961.

D. X, 9; P₁, ii, 11; P₂, I, 5; A. III, 8; C. i, 15, i; L. 1.50; L. tr. 5/1/15. Scales round caudal peduncle 24. Gill rakers 5+5.

Height of body 4.03 and head 3.38 in standard length. Eye 4.93 in head, 2.93 in snout, 2.93 in preorbital depth, and 1.21 in interorbital distance. Pectoral 1.63, pelvic 1.92, soft anal base 2.91, and longest anal ray 3.62 in head length.

This species is characterised by the interorbital space being very flat, the supra-orbital margin being in line with the dorsal profile of the head, and the posterior nostril being almost midway between the tip of the snout and the hind end of the head in the adult. In life, a conspicuous red spot is present on the upper side of the base of the pectoral fin.

L. xanchocheilus has hitherto been reported only from the Red Sea, and the South African coast and adjacent islands of the Western Indian Ocean and as such this constitutes a new faunal record for the Eastern Indian Ocean as well as Indian Seas.

Lethrinella prox. xanchocheilus (Klunzinger)

(Plate I, Figs. 2 and 3)

1 specimen: 224 mm. Neil Island—March 1960.

1 specimen: 160 mm. Port Blair—March 1961.

D. X, 9; P₁, ii, 11; P_g, I, 5; A. III, 8; C. i, 15, i; L. 1. 48-49; L. tr. 5/1/14-15. Scales round caudal peduncle 23-24. Gill rakers 4+5.

Height of body 3.11-3.26, and head 2.6-2.8 in standard length. Eye 3.5-3.61 in head, 1.58-1.83 in snout, 1.79-1.94 in preorbital depth, and 0.94-1.12 in interorbital distance. Pectoral 1.32-1.54, pelvic 1.54-1.8, base of anal 2.71-2.74, and longest anal ray 3.4-3.87 in head length.

The body proportions given above as well as those given in the table at the end indicate notable differences between these two specimens and the specimen of *L. xanthocheilus*. However, the flattened interorbital space and the supraorbital margin being in line with the dorsal profile indicate strong affinities of the two specimens to *L. xanthocheilus*, although in one notable feature of colouration, namely in the position of the reddish axillary spot in life at the pectoral base there is difference. As already mentioned, in *L. xanthocheilus* this spot is a very conspicuous feature at the upper half of the outer side of the base of the pectoral fin, while in these two specimens they occupy a position (as indicated by the yellowish spot, originally reddish above the pectoral base covering a few scales, showing no trace of such colour on the base of the pectoral. It is not possible at present to say whether this condition is characteristic of juveniles of *L. xanthocheilus*. Again, as in an allied species, *Lethrinella variegatus* (Valenciennes) the hind nostril in these specimens is distinctly nearer the tip of the snout than to the hind end of the head, but from Smith's Key to the Western Indian Ocean species of *Lethrinella* it would appear that juveniles of *L. xanthocheilus* also show a condition where the posterior nostril is slightly nearer the tip of the snout. The superior position of the eye, the flattened interorbital space and the absence of any radiating stripes in front of the eye on the snout distinguish these specimens from *L. microdon*. Besides, when compared with specimens of *L. microdon* of similar size, these specimens show more strongly developed canines. From *Lethrinella miniatus* (Forster-Schneider), another widely distributed species, these differ in having only 5 instead of 6 scales above the lateral line, the absence of radiating streaks in front of the eye and the relatively shorter snout. The distinctly convex interorbital and the eye being slightly below the dorsal profile distinguishes *Lethrinella conchyliatus* Smith, a species described recently from North Mozambique and Kenya from these two specimens. The balance of probability is that these may be juveniles of *L. xanthocheilus*, but in view of our inadequate knowledge about the range of differences to be expected in juveniles and adults of this species, we consider it desirable to treat these as *Lethrinella* prox. *xanthocheilus* until a good series of specimens is available for more detailed comparison.

Genus LETHRINUS Cuvier

Lethrinus harak (Forsk.)

Sciaena harak Forskal, 1775. *Descrip. Animalium*, 52 (Type locality : Red Sea).

Lethrinus harak Bleeker, 1850. *Verh. Bat. Gen.*, 23 : 15 (1849); Day, 1870. *Proc. Zool. Soc. London*, 684 (Andamans) : 1875. *Fish. India*, 137, pl. 33, fig. 3, Fourmanoir; 1957. *Mem. Inst. Sci. Madagascar*, 1 (ser. F.) : 126.

Lethrinus rhodopterus Bleeker, 1852. *Nat. Tijdschr. Ned. India*, 3 : 651, (1851); Weber and de Beaufort, 1936. *Fish. Indo-Austral. Archipel.*, 7 : 450-451; Herre, 1941. *Mem. Indian Mus.*, 13 : 365 (Andamans).

1 specimen : 257 mm. Port Blair—March 1961.

D. X, 9 ; P₁. ii, 11 ; P₂. I, 5 ; A. III, 8 ; C. i, 15, i ; L. 1.47 ; L. tr. 6/1/14½. Scales round caudal peduncle 25. Gill rakers 5+5.

Height of body 2.82, and head 3.29 in standard length. Eye 3.7 in head, 1.85 in snout, 2.23 in preorbital depth, and 1.09 in interorbital distance. Pectoral 0.97, pelvic 1.21, base of soft anal 2.22, and longest anal ray 2.88 in head length.

Very characteristic of this species is the black lateral blotch between 15th and 22nd scales of lateral line and from the lateral line row extending downwards for two or three scale rows.

Forskål (1775) described *Sciaena harak* (= *Lethrinus harak*) from the Red Sea, and Klunzinger (1884) reported it as having 4½ scales above the lateral line. Bleeker (1850) recorded *L. harak* from Java Seas, but later (1852) redesignated this as a new species—*L. rhodopterus* since the specimens showed six rows of scales above the lateral line instead of 4½. Unaware of this, Klunzinger (1884) named Bleeker's *L. harak* (nec Forskål) from Java Seas as *Lethrinus bleekeri*, but as pointed out by Weber and de Beaufort (1936) *L. bleekeri* Klunzinger becomes a synonym of *L. rhodopterus*. Several authors have followed Weber and de Beaufort (op. cit.) in recognising *L. harak* (Forskål) as distinct from *L. rhodopterus* Bleeker. Our specimen shows 6 scales above the lateral line (half scale at the base of the sixth dorsal spine counted as one) in which it agrees with descriptions of specimens from Indonesian waters (*L. rhodopterus* Bleeker : Weber and de Beaufort, 1936) ; from Madagascar (*L. harak* (Forskål) : Fourmanoir, 1957) ; and from Western Indian Ocean (*L. harak* (Forskål) : Smith 1959). Further, Smith (1959) has shown that Ruppell's figure of *L. harak* (Forskål) has six scales above the lateral line and not 4½ as mentioned by Klunzinger (op. cit.). Besides, the dark lateral blotch below the lateral line, so characteristic of this species, occurs also in *L. rhodopterus* Bleeker and the body proportions and the general colouration of the two are also in agreement. Hence it is likely that only one species—*L. harak* Forskål is distributed from Red Sea eastwards to the Philippines, Queensland, Samoa, and Tonga. For other synonyms of *L. harak*, reference may be made to Weber and de Beaufort (1936) under *L. rhodopterus*.

GENERAL DISTRIBUTION: From Red Sea along East African Coast to Natal and to Riu-Kiu Islands in North Pacific and Samoa and Tonga Islands in the South Pacific.

Lethrinus ornatus Valenciennes

Lethrinus ornatus Valenciennes, 1830. *Hist. Nat. Poiss.*, 6 : 310 (Type locality : Java). Herre, 1941. *Mem. Indian Mus.*, 13 : 365 (Andamans).

1 specimen : 187 mm. Port Blair—February 1960.

1 specimen : 192 mm. Port Blair—March 1961.

D. X, 9-10 ; P₁. ii, 11 ; P₂. I, 5 ; A. III, 8 ; C. i, 15, i ; L. 1. 47-48 ; L. tr. 5/1/13-15. Scales round caudal peduncle 22-24. Gill rakers 5-6+5.

Height of body 2.98-3.14, and head 3.01-3.04 in standard length. Eye 3.0-3.75 in head, 1.54-1.59 in snout, 1.85-1.89 in preorbital depth, and 0.94-0.95 in inter-

orbital distance. Pectoral 0.97-1.08, pelvic 1.21-1.32, base of soft anal 2.25-2.7, and longest anal ray 2.43-2.57 in head length.

Four light yellowish (light reddish in life) longitudinal bands from hind end of head to caudal peduncle are present, of which the second from the top situated just below the lateral line is the most conspicuous. The interspaces between the bands are light dusky, and the head is mostly dusky except a few lighter patches. A few dark spots are present on the sheath of scales at the base of the soft dorsal. The opercular edge is tinged yellow (orange coloured in life).

GENERAL DISTRIBUTION: Ceylon, Gulf of Mannar; Andaman Sea; Indonesia to Philippines and Formosa in the north, Queensland and Tonga in the south.

Lethrinus nebulosus (Forsk.)

Sciaena nebulosus Forskal, 1775. *Descrip. Animalium*, 52 (Type locality: Red Sea).

Lethrinus karwa Day, 1875. *Fish. India*, 134, pl. 33, Fig. 2.

Lethrinus nebulosus Day, 1875. *Ibid.*, pl. 33, Fig. 4.

Lethrinus nebulosus Weber and de Beaufort, 1936. *Fish. Indo-Austr. Archipel.* 7: 453-455, Fig. 84.

1 specimen: 350 mm. Neil Island—March 1960.

3 specimens: 147, 181, and 185 mm. Port Blair—March 1961.

D. X, 9; P₁. ii, 11; P₂. I, 5; A. III, 8; C. i, 15, i; L. 1.47-48; L. tr. 6/1/14-15. Scales round caudal peduncle 24-25. Gill rakers 4-5+5.

Height of body 2.57-2.78, and head 2.82-3.08 in standard length. Eye 3.70-4.14 in head, 1.70-2.42 in snout, 1.77-2.64 in preorbital depth, and 0.96-1.2 in interorbital distance. Pectoral 1.03-1.16, pelvic 1.33-1.61, base of soft anal 2.4-2.63, and longest anal ray 2.85-2.94 in head length.

New distributional record for Andaman waters.

GENERAL DISTRIBUTION: From Red Sea and East African Coast to the Chinese Coast as well as to Fiji Islands in the South Pacific.

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TABLE I
(Body proportions in thousandths of standard length)

Genus	<i>Lethrinella</i>			<i>Lethrinus</i>			
	<i>microdon</i>	<i>xanthocheilus</i>	<i>prox. xanthocheilus</i>	<i>ornatus</i>	<i>harak</i>	<i>nebulosus</i>	
Standard length (mm.)	236 227 207	182	224 160	192 187	257	350 185 181	147
Head length ..	335 341 372	346	379 356	328 332	304	331 324 354	340
Snout length ..	169 167 188	170	192 169	169 158	152	194 162 171	156
Eye diameter ..	74 77 89	88	105 106	109 99	82	80 86 88	92
Interorbital distance ..	87 79 104	80	118 100	104 94	89	97 84 86	85
Snout to Post-nostril ..	148 152 169	148	183 156	141 139	136	163 135 138	139
Post-nostril to hind margin of head ..	201 207 222	220	232 225	227 230	212	183 216 227	235
Preorbital depth ..	148 152 164	159	188 175	203 187	183	211 178 166	163
Depth at angle of pre-opercle through middle of eye ..	203 185 198	187	228 216	260 141	214	256 232 221	218
Length of maxilla ..	121 128 130	126	150 150	133 136	130	163 135 135	133
Snout to origin of D ..	390 383 415	407	429 413	427 412	397	440 405 409	415
Snout to P ₂ ..	377 388 420	387	429 406	375 385	370	409 389 420	415
Snout to A ..	640 630 671	621	670 650	625 658	650	669 649 669	660
P ₂ to anal origin ..	271 269 256	266	254 256	266 286	292	274 281 265	282
Longest dorsal spine ..	114 117 135	115	114 131	125 136	125	104 138 138	136
Longest dorsal ray ..	119 123 123	121	116 113	141 144	125	131 146 141	136
Length of P ₁ ..	233 251 256	258	246 269	339 305	311	311 314 309	293
Length of P ₂ ..	203 222 227	214	210 231	271 251	249	249 232 232	211
Soft anal base ..	136 139 135	121	138 131	141 123	136	126 135 141	129
Longest anal ray ..	95 101 111	115	98 103	128 136	105	111 114 124	116
Length of caudal peduncle ..	201 218 222	242	212 206	219 225	226	214 224 229	224
Least ht. C. peduncle ..	95 90 92	93	92 94	120 118	121	106 111 116	109
P ₁ insertion to origin of dorsal ..	220 198 198	209	219 200	255 254	243	271 254 260	245
Greatest depth of body ..	322 304 275	297	321 306	375 353	354	389 368 359	361
Height at anal origin ..	284 264 261	291	272 281	318 321	315	329 319 307	313

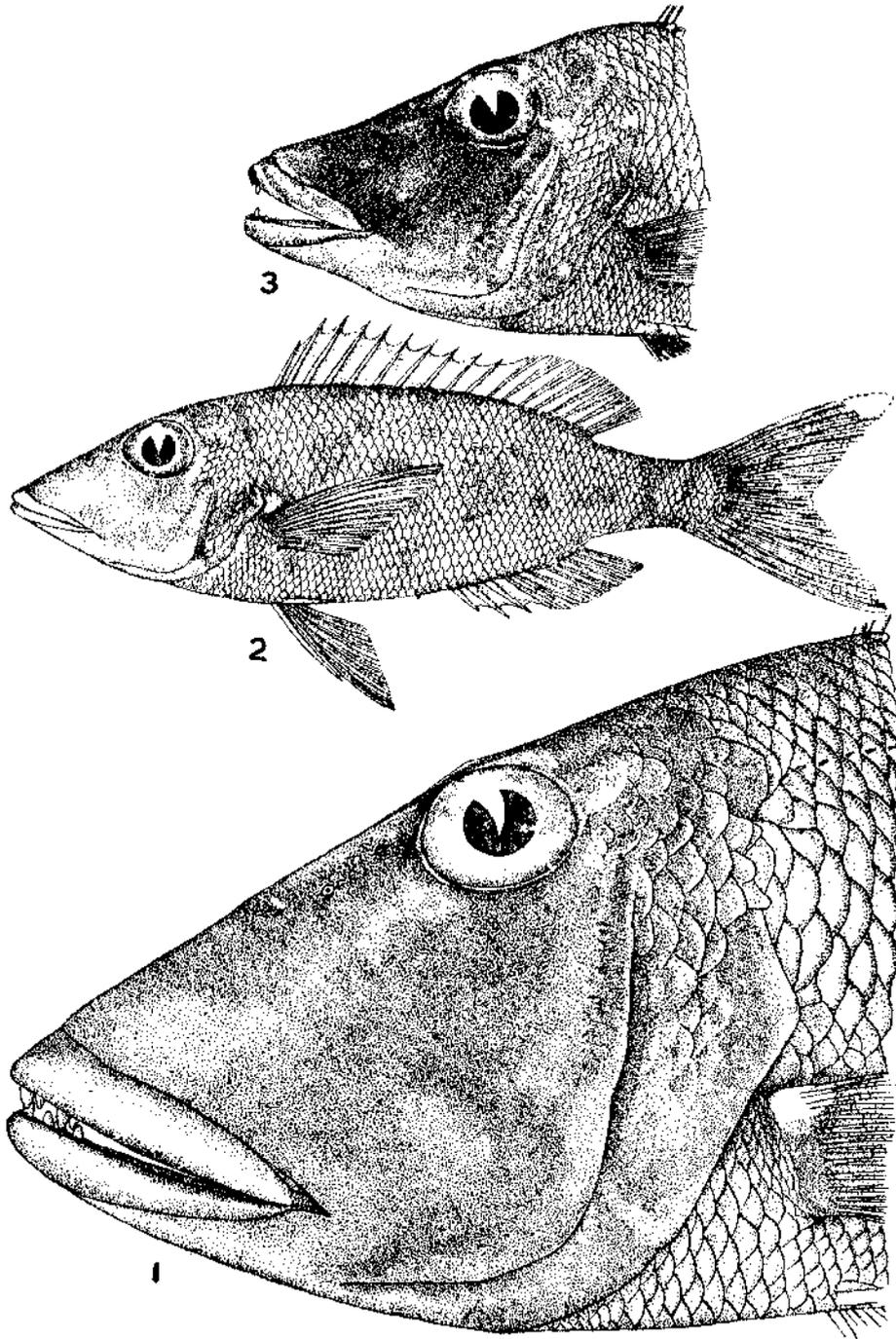


FIG. 1. *Lethrinella xanthocheilus* (Klunzinger). Head of 593 mm. specimen. Note position of eye and lighter spot at base of pectoral.

FIGS. 2 and 3. *Lethrinella* prox. *xanthocheilus* (Klunzinger). (2) Lateral view of 160 mm. specimen ; (3) Head of 224 mm. specimen.