Redescription of the Clupeid Fishes, *Ilisha megaloptera* and *I. melastoma*

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Confusion surrounds the identification of certain Indo-Pacific clupeid fishes belonging to the genus *Ilisha*. Two species, first described by Russell as 'Jangarloo' and 'Ditchoee', are here identified on the basis of specimens from the type locality, Visakhapatnam, India and are redescribed.

IN spite of several recent studies, uncertainty still surrounds the identification of many Indo-Pacific clupeid fishes. One source of difficulty is the pioneer work of Russell (1803), who described 200 Indian fishes from Visakhapatnam on the coast of Coromandel. Later workers based a number of species on Russell's stylised figures and poor descrip-

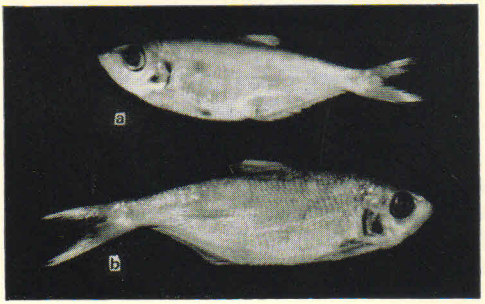

Fig. 1. a. *Ilisha megaloptera* Swainson, 1838, 152 mm S L, Visakhapatnam 14/6/67 BMNH. 1972.5.12.25. b. *Ilisha melastoma* Schneider, 1801, 175 mm S L, Visakhapatnam 14/6/67.

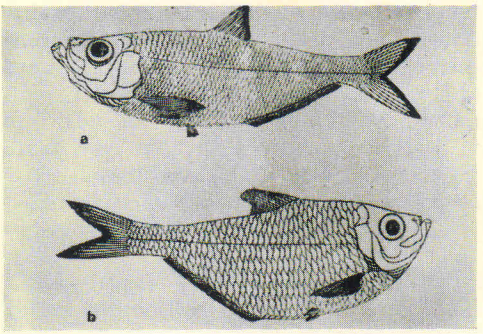

Fig. 2. a. 'Jangarloo' of Russell (1803, Pl. 191). b. 'Ditchoee' of Russell (1803, Pl. 192).

tions, often resulting in confusion. Whitehead (1966, 1967, 1969, 1970) clarified the identification of a number of species but pointed out the need for revision of many genera. The present contribution deals with the identification of the clupeid species *Ilisha megaloptera* (Swainson, 1838) and *Ilisha melastoma* (Schneider, 1801) (= *indica* of authors), based on a study of specimens from the type locality, Visakhapatnam. Both species i.e., *indica* and *megaloptera* were originally based on Russell's descriptions and not on specimens.

Jangarloo

Russell (1803:73–74, Fig. 191) described a fish from Visakhapatnam, known by the natives as Jangarloo. *Platygaster macrophthalma* Swainson, 1838 (name only) and *P. megalopterus* Swainson, 1839 were based on Russell's figure of Jangarloo. Günther (1868) doubtfully identified Russell's Jangarloo as *Pellona motius* (Hamilton-Buchanan) but Norman (1923) separated *I. motius* from *I. megaloptera*. *Clupanodon motius* is here considered most likely a synonym of *I. melastoma*. Fowler (1941) wrongly added *Clupea melastoma* Cuvier, 1829 (supposedly based on Jangarloo) to the synonymy of this species, but Cuvier's name was based on *Clupea melastoma* Schneider, 1801. Fowler (1941) also wrongly identified *Clupea melastoma* Schneider, 1801 as *Pellona ditchela* Valenciennes, 1847 (see below under *Ilisha melastoma*). *Pellona melastoma* Valenciennes, 1847 has also been identified as *I. megaloptera* (Whitehead, 1967). Whitehead et al. (1966) and Whitehead (1967) have shown that *Pellona russelli* Bleeker, 1852 and *Pellona dussumieri* Valenciennes, 1847 should also be refered to *I. megaloptera*. The earliest name available for this species is *macrophthalma*. But under Article 79(b)(iii) of the International Code for Zoological Nomenclature the name *macrophthalma* must be rejected since it was previously rejected as a senior synonym during the period when Article 23(b), the Statute of Limitation, was in force (Whitehead, 1967). So the correct name that should be used for Jangarloo is *Ilisha megaloptera*.

Ilisha megaloptera (Swainson, 1839)
Figs. 1 and 2

Material Examined.—a) 10 fishes, 127–165 mm S L, Visakhapatnam (14/6/67) b) 4 fishes, 130–164 mm S L, Visakhapatnam (16/6/67). c) 42 fishes, 120–160 mm S L, Visakhapatnam (25/10/70).

Description.—Branchiostegals 6, D 17–19, P_1 15–18, P_2 6–7, A 47–50, gill rakers 9–11 + 19–21, scutes 19–22 + 9–11 (total 30–33), scales in median lateral series 50. In percentages of standard length: body depth 30.5–33.2, head length 25.0–29.9, snout length 6.6–7.7, eye diameter 8.2–10.1, length of upper jaw 13.5–14.4, length of lower jaw 12.8–13.8; pectoral fin length 18.9–21.2, pelvic fin length 5.7–8.2, length of anal fin base 32.2–39.3; pre-dorsal distance 50.7–53.3, pre-pectoral distance 23.7–27.2, pre-pelvic distance 38.9–44.3, pre-anal distance 57.3–61.3; pectoral-pelvic interspace 15.1–20.0, pelvic-anal interspace 13.9–17.7.

Body very much compressed, its width less than 3½ times in its depth, deepest under dorsal origin. Belly strongly keeled, scutes

Fig. 3. Head region showing differences in depth of lower jaw at its tip and ridge pattern on frontals in *Ilisha megaloptera* (left) and *I. melastoma* (right).

beginning at isthmus, the first 2 scutes being hidden from view by the branchiostegal membrane. Head length less than body depth. Snout smaller than eye. Lower jaw deeper at the tip (Fig. 3). Maxilla reaching to below middle of eye, lower edge with fine serrae. No hypomaxilla. Two supramaxillae, the first (anterior) slender, dorsal margin not in a straight line, the second expanded posteriorly and tapering to a slender shaft anteriorly. Teeth present as single series in both jaws, but median portion of upper jaw without teeth.

Frontals with two prominent ridges of *megaloptera* pattern, i.e., a pair of ridges arising on median line before anterior border of eye, passing posteriorly but gradually diverging from each other; another pair of ridges runs parallel to and in close association with the former, the two joining at the hind end of the skull (Seshagiri Rao, 1972).

Pseudobranch present, exposed, about ½ eye diameter with about 18–19 filaments. Gill rakers slender, as long as longest gill filaments, slightly less than eye diameter.

Dorsal origin equidistant between snout tip and caudal base, failing to reach pelvic tip by ½ eye diameter. Axillary scale present, less than ⅔ length of fin. Pelvic fins small, base nearer to anal origin than to pectoral base by ⅓–¼ eye diameter. No pelvic axillary scale. Distance between pelvic tip and anal origin slightly less than diameter of eye. Anal origin below 10–11th branched dorsal ray.

Scales with one unbroken horizontal striation on exposed portion; about four interrupted vertical striae on unexposed portion.

Color.—Dorsal profile dark grey, upper ¼ of flanks light brown, remainder of flanks silvery white. Upper ¼ of dorsal fin dark grey. Unbranched pectoral ray with minute dark spots, first nine rays darkly pigmented towards tips, remaining rays (lower portion of fin) hyaline. Margin of anal dark, caudal dusted with dark pigment.

Neotype.—Whitehead (1967) described a lectotype (Museum National d'Histoire Naturelle, Paris, No. 3708, *ex* Coromandel Coast, Coll. Dussumier, 1830) from the type material of Valenciennes's *Pellona dussumieri* and recommended it as a suitable neotype for Swainson's *Platygaster megalopterus* since the specimen chosen as lectotype came from the type locality of *Platygaster megalopterus* Swainson (i.e., Russell's Jangarloo).

Identification.—Russell's figure of 'Jangarloo' clearly shows long black-tipped pectorals and a much deeper tip to the lower jaw when compared with figures of other species. These two characters serve to identify Jangarloo as *I. megaloptera*. Among species of *Ilisha* occurring in the type locality the only species possessing distinctly black-tipped pectorals is *I. megaloptera*, but the pectorals are longer in that species.

The combination of a much compressed body, long black-tipped pectorals, and the numbers of gill rakers, anal rays and lateral line scales distinguish this species from others.

Ditchoee

Russell (1803:74, Fig. 192) described another fish from Visakhapatnam, locally known as Ditchoee. *Platygaster verticalis* Swainson, 1838, *P. indicus* Swainson, 1839 and *Pellona ditchoa* Valenciennes, 1847 were all based on Ditchoee. Norman (1923) and Fowler (1941) identified Russell's Ditchoee as *Ilisha indica*, with *Pellona ditchoa* a junior synonym. However, *Clupea melastoma* Schneider, 1801 also has been found to be the same species; the name *melastoma* is the earliest name available for this species (Type redescribed by Whitehead, 1969). The name *melastoma* formerly qualifying as a nomen oblitum under Article 23(b) is now used as it is not invalidated under the Article 79(b)(iii) since it was never formally rejected as a nomen oblitum during the period when Article 23(b) was in force.

Ilisha melastoma (Schneider, 1801)
Figs. 1b, 2b

Type.—*Clupea melastoma* Schneider, 1801, Zoologisches Museum, Berlin, No. 3842, redescribed by Whitehead (1969).

Material Examined.—a) 16 fishes, 102–185 mm SL, Visakhapatnam (14/6/67), b) 25 fishes, 105–140 mm SL, Visakhapatnam (16/6/67), c) 9 fishes, 150–167 mm SL, Visakhapatnam (25/10/70).

Description.—Branchiostegals 6, D 17–21, P_1 14–17, P_2 6–8, A 39–43(45), gill rakers 12–13 + 23–27, scutes 18–20 + 7–9, scales in median lateral series 33–40. In percentages of standard length: body depth 32.0–35.1, head length 23.5–27.8, snout length 6.0–8.9, eye diameter 6.0–9.4, length of upper jaw 11.6–14.1, length of lower jaw 12.1–14.1; pectoral fin length 12.6–16.8, pelvic fin length 4.9–7.4, length of anal fin base 30.1–35.3; pre-dorsal distance 44.7–49.4, pre-pectoral distance 22.5–26.4, pre-pelvic distance 38.6–45.6, pre-anal distance 58.5–65.5; pectoral-pelvic interspace 14.2–22.4, pelvic-anal interspace 14.2–21.3.

Body compressed, its width less than 3¼ times in its depth. Belly keeled, scutes beginning at isthmus. Head length less than body depth. Snout equal to eye. Lower jaw not deeper at the tip (Fig. 3). Maxilla reaching just beyond anterior pupil border, lower edge with fine serrae. No hypomaxilla. Two supra-maxillae, the first (anterior) slender, the second (posterior) expanded posteriorly and tapering to a slender shaft anteriorly. Teeth present as single series in both jaws, median portion of upper jaw without teeth.

Frontals with two prominent ridges of *indica* pattern, i.e., a pair of ridges arising on median line before anterior border of eye, passing posteriorly, diverging at first but then running parallel to each other; another pair of ridges parallel to the latter, the two pairs not meeting at the hind end of the skull (Seshagiri Rao, 1972).

Pseudobranch present, exposed, greater than ½ eye diameter, with about 16–19 filaments. Gill rakers slender, shorter than longest gill filaments, less than ½ eye diameter.

Dorsal origin nearer to snout tip than to caudal base. Pectorals not reaching to pelvic base. Axillary scale present, about ¾ length of fin. Pelvic fins small, base about equidistant between anal origin and pectoral base. No pelvic axillary scale. Distance between pelvic tip and anal origin greater than eye diameter. Anal origin just behind last dorsal ray.

Scales with one horizontal striation on exposed portion; about 6–8 vertical striae on unexposed portion.

Color.—Upper ⅖ brownish, lower flanks silvery white. Dorsal dusted with dark pigment. Pectorals as well as anal hyaline; margin of caudal dark.

Identification.—Russell's figure of Ditchoee shows a strongly convex belly profile and the lower jaw is less deep at the tip than in Jangarloo. These two characters, coupled with the general shape of the body, and also the lack of black pectoral tips, strongly suggest that this species is the one described here. Russell (1803) in his description of Ditchoee states ". . . maxilla inferiore truncate; abdomine prominulo, carinato, . . .", which suggests the less deep lower jaw at its tip and the strongly convex belly characteristic of this species. The low scute count in the figure of Ditchoee 15 (? + 3 hidden by branchiostegal membrane) +9 and the low anal count of 37 (39–43 in present specimens, 47–52 in *filigera*) rule out identification with *I. filigera*. By contrast, these figures agree well with those of *melastoma* (see Whitehead, 1969). It is concluded that Ditchoee, *indica*, and *melastoma* are all the species described here (Fig. 1b).

Note.—In all, four species of *Ilisha* occur on the Coromandel coast. Of these the slender *I. elongata*, which is distinct, could not be collected from Visakhapatnam. It occurs further south at Kakinada. Thus, three species occur at Visakhapatnam, *I. megaloptera*, *I. melastoma* and *I. filigera*; the first two are abundant. Russell's Jangarloo is here identified as *I. megaloptera* and Ditchoee as *I. melastoma*. It is assumed that Russell did not encounter the other two species. Although *I. megaloptera* and *I. melastoma* closely resemble each other, they can be easily distinguished in the field. The ridge pattern is a useful character. In addition, Whitehead (*in litt.*) has found an important difference, viz., the presence of paired post-coelomic extensions of the swim

bladder in *melastoma* (in most Indo-Pacific species of *Ilisha* it is single and present on the right side of body).

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