

THE OCCURRENCE OF *DECAPTERUS DAYI* WAKIYA, IN THE
ARABIAN SEA OFF BOMBAY, WITH A TAXONOMIC NOTE

By K. SRINIVASA RAO*

Central Marine Fisheries Research Institute, Mandapam Camp

The decapterids, popularly known as 'Mackerel scads,' appear sporadically in large numbers along the east and west coasts of India. The season for these fish in the Bombay waters appears to be from December to February. The Government of India trawler, M. F. V. Jheenga, obtained nearly 2 tons of these fish, in each of the two consecutive hauls on 12-12-1963, while fishing on the continental shelf at Lat. 19°05'N. and Long. 71°45'E., at a depth of 40-45 fathoms, where the bottom was muddy sand. Day (1878-88) reported the appearance of these fish in the Madras waters in the month of October; Misra (1962) also recorded their occurrence during the same month off Trivandrum on the west coast.

Day (1878-88) recognised *Caranx kurra* Cuv., the only decapterid described by him as a synonym of *C. russelli* Rüpp. According to Bleeker (1851) the above species comes under a now valid genus *Decapterus*. Also Weber and de Beaufort (1931) while describing *D. russelli*, considered *C. kurra* Cuv., as a synonym under the same species. They pointed out *C. kiliche* C.V. from Pondicherry as a doubtful synonym under *D. russelli* and *D. kurroides*. In a note written under the description of *D. kurroides*, a somewhat doubtful species, they added 'Day (Fish. India 4° 1878-1888, p. 214) united with a query—*D. kiliche* with what he called *D. russelli* Rüpp., but what in reality, as demonstrated by Wakiya (Ann. Carnegie Mus. XV, 1924, P. 158), is neither *D. russelli* Rüpp., nor *D. kurra* Blkr., but a different species, named *D. dayi* by Wakiya.—*D. kiliche* C.V. differs from *D. dayi* in the fin formula and in the number of scutes. In both it agrees fairly well with *D. kurroides* Blkr.; as also in its depth and in the length of the head.' They provisionally recognised *D. kurroides* as a proper species after Bleeker, but the material of which was not examined by them. Smith (1953) also recognised the synonymy of *D. russelli* with *D. kurra*. In a recent review on 'Fishes of the family Carangidae in British East African waters,' Williams (1958) mentioned that the genus *Decapterus* is represented in those waters by *D. dayi*, (as described by Wakiya, 1924) only, and that it is 'Identical with *C. kurra* of Day from India, 1865, 1873, and 1878-88, and *D. russelli* of Nicholls from East Indian material, 1942, and Blegvad from the Persian Gulf, 1944.' Misra (1962) has also described *D. russelli* as the species commonly available in the Indian waters.

A perusal of the literature dealing with *Decapterus* of the Indian waters has drawn attention to the necessity of making a taxonomic study of these fish in the Bombay waters, in view of the prevailing doubts regarding the validity of their nomenclatorial descriptions by earlier ichthyologists.

Thirty specimens ranging in size from 12.9 to 20.9 cm. (furcal length) were studied in detail. The morphometric measurements were made according to the 'Description of terms' given by Williams (1958, pp. 369, 370).

* Present address : Central Marine Fisheries Research Unit, Tuticorin.

Description :

D. I+VIII+I. 28-32+1 ; A. II+I. 24-27+1 ; Pectoral. I. 20-23. Scutes on lateral line straight 32-38, gill rakers on first gill arch 11-14+30-36=41-50; 4.61-5.23 (19.12-21.69%), head 3.23-3.82 (26.18-30.96%), lateral line straight. 3.09-3.33 (30.03-32.36%), all in furcal length. Eye 3.5-3.9, snout 2.9-3.3, inter-orbital 5.2-5.7, suborbital 10.4-13.6, post-orbital 2.2-2.5, maxillary 2.68-2.79, Pectoral fin 1.12-1.35, pelvic fin 2.08-2.48, 3rd dorsal spine 1.94-2.4, 1st dorsal ray 2.38-2.79, 1st anal ray 2.73-3.30, length of caudal peduncle 2.18-2.75, length of caudal lobes 1.58-1.69, all in length of head.

Vertebral counts of alizarine stained specimens were made and found to be 24-25, in which the atlas was included and urostyle was excluded.

Elongate, fusiform body, covered with small scales, enlarged in the lateral line straight into armed scutes. The lateral line is slightly arched descending down into the straight part of the lateral line below the 3rd to 5th dorsal rays and joining the straight part below the 11th to 13th dorsal rays. Jaws protrusible, lower jaw longer, maxilla reaching the front edge of eye, broadened posteriorly with a supplemental bone. Well developed, adipose eyelids. The teeth are in a single series in both the jaws with an arrow head patch on the vomer. Operculum entire. Cheeks, post-orbital area and most of the operculum scaled. The spinous dorsal with a procumbent subcutaneous spine. Third dorsal spine usually the longest. Behind the dorsal and the anal a single detached finlet stronger than the last dorsal ray. Pectorals shorter than head, subfalcate. Caudal deeply forked, lobes equal.

Bluish green dorsally and silvery on the sides and ventrally. Dorsal, anal and caudal, pale yellow. Distinct black opercular spot above the origin of pectoral.

Distribution : Coast of British East Africa, Persian Gulf, west coast of India, East Indies and Japan.

The close similarity of the morphometric and meristic characters between *D. dayi* Wakiya, described by Williams (1958) as given in the table below and the specimens obtained at Bombay, particularly in the range of scutes count, gill raker count and the finray count, besides the many other minor characters, shows that the *Decapterus* sp. available at Bombay is *D. dayi*, which is identical with *C. kurra* described by Day (1878-88), as shown by Wakiya (1924) and Williams (1958), but not with *D. russelli* (Rüpp.). However, certain differences between the East African specimens and Bombay specimens are found in respect of the range of the number of dorsal rays, pectoral rays, lateral line scutes, and the range of proportion of eye, inter-orbital, and 3rd dorsal spine, in head, in which the Bombay specimens slightly exceeded the maximum of the East African specimens, which may be attributed to geographical variation. In this connection it may be mentioned that the *Decapterus* sp. available at Bombay approached nearest to *D. kurroides* Blkr., among the decapterids described by Weber and de Beaufort (1931) in the number of scutes, number of gill rakers and the arrowhead nature of distribution of the vomerine teeth, which was considered as an important diagnostic character by the authors, who prepared a key for the genus on that basis. But, it differs widely in the morphometric characters (vide table), particularly in the pectoral being equal to or longer than the head, from *D. kiliche*, whose synonymy with *D. kurroides* was suggested by the authors.

Table showing the characters of *Caranx kurra*, *Decapterus russelli*, *D. kurroides* and *D. dayi*

	<i>C. kurra</i> (Day) genotype	<i>D. russelli</i> (Weber & de Beaufort) after Bleeker	<i>D. kurroides</i> (Weber & de Beaufort) after Bleeker	<i>D. dayi</i> type (Williams)	<i>D. russelli</i> (Misra)	<i>D. dayi</i> type (Bombay)*
Armed scutes	33	40	30	30-37	40	32-36-38
Gill rakers on the lower half of first gill arch	..	28-32	28-32	29-36	30	30-36
Dorsal rays	29-30+1	30-32+1	29+1	27-31+1	..	28-30-32+1
Anal rays	25-27+1	24-27+1	23+1	23-27+1	..	24-25.5-27+1
Pectoral rays	22	21-23	..	20-22	..	20-21-23
Pectoral in head	5	Shorter than head	Slightly longer than head	1.08-1.53	..	1.12-1.35
Eye in head	3.75-4.0	4.0	3.5	3.2-3.7	4.0	3.50-3.90
Height	5.0-5.5	4.5-5.5	5 $\frac{1}{2}$	4.2-4.7	5.0-5.5	4.61-5.23
Head	3.75-4.0	3.4-3.5	4 $\frac{1}{2}$	3.3-3.53	3.7-4.0	3.23-3.82
Snout in head	..	..	..	2.87-3.63	..	2.90-3.30
Inter-orbital	..	..	..	3.57-4.60	..	5.20-5.70
Suborbital	..	..	..	10.55-14.66	..	10.40-13.60
Post-orbital	..	..	..	2.42-2.8	..	2.20-2.50
Maxillaries	..	..	..	2.55-2.87	..	2.68-2.79
Pelvic fin in head	..	..	..	2.0-2.55	..	2.08-2.48
3rd dorsal spine	..	..	..	1.85-2.19	..	1.94-2.40
1st dorsal ray	..	..	..	2.09-3.06	..	2.38-2.79
1st anal ray	..	..	..	2.66-3.22	..	2.73-3.30
Eye in snout	..	..	..	1.00-1.33	..	..

* The figures in bold type indicate the modal values.

Williams (1958) has also examined the material assigned to *D. russelli* and *D. kurra*, in the European museums and arrived at the conclusion that *D. dayi* Wakiya, is identical with *C. kurra* Day. The latter was considered by Wakiya (1924) to be different from *C. kurra* Cuvier. Williams (1958) further stated that '*D. russelli* (Rüpp.) with 45-47 scutes, has been reported by other workers, Wakiya (1924) in Japan, Barnard (1925-27) and Smith (1953) in S. Africa, and Munro (1955) in Ceylon.' From the above account, it appears that *D. russelli* (Rüpp.) enjoys a very wide distribution—from Natal to Japan. It is only fair to suppose that *D. russelli* (Rüpp.) ought to be available in the Indian waters also, being situated well within the range of its distribution. The fact that Day (1878-88) reported the occurrence of *C. kurra* Day (nec Cuvier), only, from the Indian waters, whose synonymy with *D. dayi* Wakiya, is well established now that the specimens obtained from Bombay waters are also found to be identical with *D. dayi*, certain doubts arise regarding the authenticity of some of the earlier records of *D. russelli* in the Indian waters. However, a revision of the systematics of the decapterids of the Indian waters may be warranted when more material from different parts of the Indian coast is examined.

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* Not referred to in the original.