

A Sea Chub, *Kyphosus bigibbus*, Found in the Southern Waters of Japan

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Two species of the sea chubs, *Kyphosus cinerascens* (Forsskål) and *K. lembus* (Cuvier), have hitherto been known from the Japanese waters. Many specimens of the third species

of *Kyphosus*, which is very common in the shore of the Ogasawara Islands (Bonin Islands), were collected from the islands and Minami-tori-shima (Marcus Island) by the training vessels, Seiyo-maru and Shinyo-maru, of the Tokyo University of Fisheries from 1968 to 1973. Other two specimens were obtained from the Izu and Ryukyu Islands. The author tentatively identified the present sea chub as *K. bigibbus* Lacepède on the basis of the following combination of characters:

Table 1. Collecting data of specimens of *Kyphosus bigibbus*, along with those of *K. cinerascens* and *K. lembus*. All the specimens except two (MTUF 21730-1) by gill net were collected by hook and line. *K. bigibbus* (TUFO 618) is xanthochroous.

Catalogue number	Standard length (mm)	Date	Locality (Latitude and Longitude)
<i>K. bigibbus</i> :			
TUFO 476	266.0	July-Nov., 1968	Ogasawara Is. (26~28°N, 141~143°E)
TUFO 608	208.2	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 610	186.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 618	362.0	July, 1968	Ogasawara Is. (26~28°, 141~142°)
TUFO 631	98.0	July-Nov., 1968	Ogasawara Is. (26~28°, 141~143°)
TUFO 639	223.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 707	290.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 778	310.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 779	295.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 781	240.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 782	243.0	Feb.-May, 1971	Ogasawara Is. (26~28°, 141~143°)
TUFO 791	324.0	Jan., 1973	Ogasawara Is. (26~28°, 141~143°)
TUFO 921	252.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 922	201.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 924	253.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 927	220.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 928	220.5	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 932	211.5	Sept. 2, 1973	Hira-shima, Ogasawara Is. (26°35', 142°09')
TUFO 933	222.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 991	228.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 993	214.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
TUFO 1117	264.0	Sept. 2, 1973	Haha-jima, Ogasawara Is. (26°36.2', 142°10.1')
TUFO 1120	207.0	Sept. 2, 1973	Haha-jima, Ogasawara Is. (26°36.2', 142°10.1')
TUFO 1149	252.0	Sept. 6, 1973	Nishi-jima, Ogasawara Is. (27°06.9', 142°09.8')
TUFO 1274	280.0	Aug. 28, 1973	Minami-tori-shima (24°17.0', 153°58.5')
MTUF 20791	244.0	March 11, 1972	Kuchinoerabu-jima, Ryukyu Is. (ca. 30°24', ca. 130°16')
MTUF 21729	230.0	Jan.-March, 1973	Hachijo-jima, Izu Is. (33°06', 139°45')
<i>K. cinerascens</i> :			
MTUF 20788	248.0	March 11, 1972	Kuchinoerabu-jima, Ryukyu Is. (ca. 30°24', ca. 130°16')
MTUF 21730	251.0	May 17, 1975	Hachijo-jima, Izu Is. (33°09.5', 139°45.0')
<i>K. lembus</i> :			
TUFO 1153	207.0	Sept. 9, 1973	Chichi-jima, Ogasawara Is. (27°05.5', 142°11.7')
MTUF 21731	322.0	May 17, 1975	Hachijo-jima, Izu Is. (33°09.5', 139°45.0')

Dorsal fin having 11 spines and 12 soft rays in most specimens and the soft portion of the fin measuring lower than the spinous portion.

The author re-examined the specimen identified as *K. elegans* (Peters) from Minami-tori-shima by Bryan and Herre (1903), and could find no difference between it and the present material. He also regards the species reported under the name of *K. cinerascens* from the Ogasawara Islands by Tsutsumi and Kurata (1971) to be conspecific with the present species. A new Japanese name, "Minami-isuzumi", is proposed for the species.

Kyphosus biggibus Lacepède

Minami-isuzumi (new Japanese name)

?*Kyphosus biggibus* Lacepède, 1802: 115, pl. 8, fig. 1 (original description; type locality not given).

Kyphosus biggibus; Fowler, 1931: 248 (brief desc.; Red Sea); Fowler, 1933: 205 (key and desc.; Philippines); Gosline, 1955: 451 (listed; Johnston Isl.); Munro, 1955: 167, pl. 32, fig. 495 (key and desc.; Ceylon); Smith, 1961: 247, pl. 34, fig. 639 (key and desc.; South

Africa); Smith and Smith, 1963: 27, pl. 22, F (listed; Seychelles).

?*Xyster fuscus* Lacepède, 1803: 485 (brief desc.; locality not given).

Pimelepterus cinerascens (not Forsskål); Day, 1878~1888: 143, pl. 35, fig. 3 (key and desc.; India); Day, 1889: 48, fig. 18 (key and desc.; India); Tsutsumi and Kurata, 1971: 15, figs. 1~2 (desc. of color variations; Ogasawara Is.).

Kyphosus elegans (not Peters); Bryan and Herre, 1903: 131 (listed; Minami-tori-shima).

Kyphosus fuscus; Fowler, 1925: 26 (listed; Hawaii); Fowler and Ball, 1925: 15 (brief note; Hawaii and Johnston Isl.); Barnard, 1927: 645 (part), pl. 27, fig. 2 (desc.; South Africa); Fowler, 1928: 222, pl. 17, C (desc., Minami-tori-shima, Hawaii and Johnston Isl.); Randall, 1973: 188 (listed; Society Is.).

Materials examined: Besides the specimens of *K. biggibus*, those of *K. cinerascens* and *K. lembus* were examined for comparison. The collecting data of these specimens are shown in Table 1, and all the materials used in this study are deposited in the Museum of Tokyo Univer-

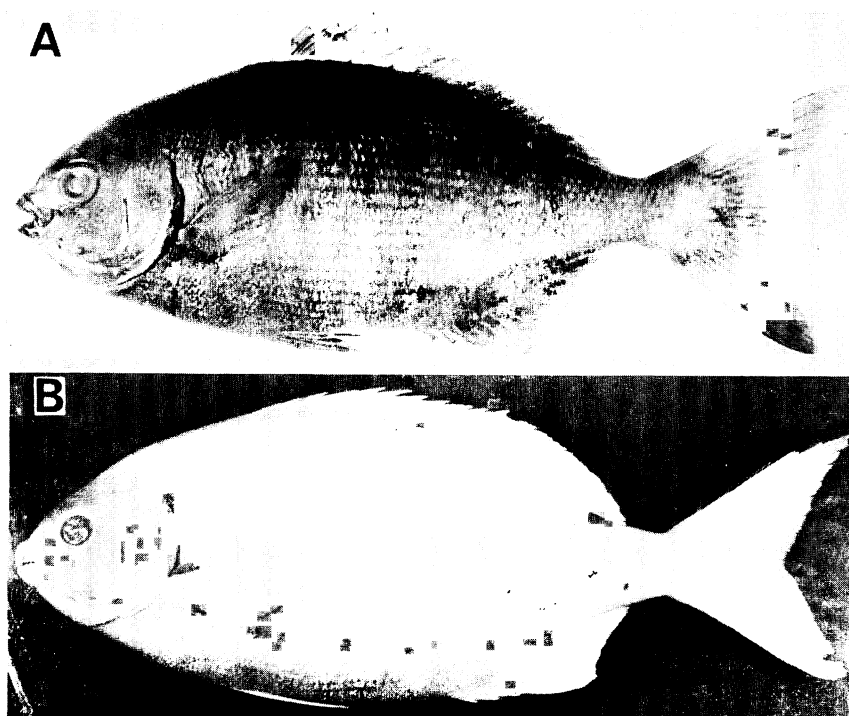


Fig. 1. *Kyphosus biggibus*. A, normal dark gray specimen (TUFO 932, 211 mm SL) from Minami-tori-shima; B, xanthochrous fish (TUFO 618, 362 mm SL) from Ogasawara Islands.

sity of Fisheries (Catalogue numbers MTUF and TUFO). Measurement and counts followed Matsubara (1955: 60~69).

Description

Proportional lengths in hundredths of standard length and counts are shown in Table 2 in comparison with *K. cinerascens* and *K. lembus*.

Spinous portion of dorsal fin higher than the soft portion, basis of the two measuring nearly equal; dorsal spines depressible in scaly sheath; pectoral fin about as long as pelvic fin, which is inserted below middle of the pectoral; anterior anal rays elevated, nearly twice as high as third anal spine.

Single row of lanceolate incisors on both jaws, exposed beyond lips anteriorly; teeth on vomer, palatine and tongue, the vomerine teeth forming

an elliptical band.

Scales rather small, ctenoid; body, head (except preorbital region) and maxillary covered with scales; scaly portion of interorbital space extending to above anterior nostril; soft portions of dorsal and anal fins densely scaled. Lateral line forming a low arch; pored lateral line scales irregularly lined anteriorly at intervals of 2 to 3 scales.

Color in life gray to dark above, silvery gray below; body with brown streaks along scale rows; often, gray dapples on body seen underwater or soon after taken out of the water. A brown band between eyes, another band running from corner of mouth to angle of preopercle; opercular membrane dark. Fins gray to dark; pelvic fin darkish distally; caudal fin edged with dark. A yellow specimen was found in the

Table 2. Comparison of proportional lengths in hundredths of standard length and between *Kyphosus bigibbus*, *K. cinerascens* and *K. lembus*. For *K. lembus* longest dorsal spine measured only in TUFO 1153; in 6 *K. bigibbus* dorsal and anal fin rays counted D. X, 12, X, 13, XI, 11; A. III, 11 (3) and D. XI, 12 (3); A. III, 12 (2), IV, 10.

Species	<i>K. bigibbus</i>		<i>K. cinerascens</i>	<i>K. lembus</i>
	Gray to dark in color	Xanthochrous		
Number of specimens	26	1	2	2
Standard length (mm)	98.0~324.0	362.0	248.0~251.0	207.0~322.0
Greatest body depth	38.6~45.7	43.5	45.0~47.7	41.0~44.3
Head length	26.6~30.4	27.1	28.0~28.2	25.5~27.1
Snout length	9.0~10.7	9.6	10.4 (2)	8.6~8.8
Upper jaw length	8.3~9.8	9.2	9.1~9.2	8.3~8.7
Eye diameter	5.7~7.8	5.5	6.5 (2)	5.3~6.5
Interorbital width	9.8~12.6	11.0	10.4~11.5	9.8~10.4
Caudal peduncle depth	9.9~12.8	9.3	12.5~13.7	10.3~10.8
3rd dorsal spine length	7.1~10.2	8.4	6.8~8.4	7.1~7.2
Longest (6th) dorsal spine length	11.1~14.2	12.2	11.4~11.8	12.7
Longest (4th) dorsal ray length	8.0~13.1	9.6	16.1~16.7	9.3~10.1
Pectoral fin length	16.4~22.1	20.9	19.9~21.0	16.9~18.4
Pelvic fin length	16.1~20.7	17.2	18.0~20.4	15.2~17.6
3rd anal spine length	6.2~9.0	6.9	7.3~8.0	5.0~6.5
2nd anal ray length	11.0~15.3	13.3	19.9 (2)	10.6~12.6
Dorsal fin rays	X~XI, 11~13	XI, 12	XI, 12	XI, 14
Anal fin rays	III~IV, 10~12	III, 11	III, 11	III, 13
Pectoral fin rays	19~20	19	18	19~20
Pored scales in lateral line	51~54	52	49~50	51
Scales in lateral series	67~74	68	59~60	62~64
Scales above lateral line	11~14	12	10~11	11~12
Scales below lateral line	20~24	22	18~19	18
Gill rakers	7~9+18~20 =26~29	8+19 =27	8~9+20 =28~29	9+23 =32

Ogasawara collection: Body, head and fins entirely bright yellow; a brown band running from corner of mouth to angle of preopercle; caudal fin edged with dark (described from the color photograph).

Color in formalin dark gray above, grayish below; body with pale streaks along scale rows; opercular membrane dark; fins dark gray; pelvic fin darkish distally; caudal fin edged with dark (Fig. 1,A). In the xanthochroous specimen, body, head and fins entirely pale brown; body with brown streaks along scale rows (Fig. 1,B).

Range: *K. bigibbus* has been known from the Indo-Pacific (South Africa, Red Sea to Philippines, Hawaii and Society Islands). The present report extends the range of the species northward to the Ryukyu and Izu Islands.

Discussion

The Present species is clearly distinguishable from *K. cinerascens* in having the soft portion of dorsal fin lower than the spinous portion and more scales in lateral series, and differs from *K. lembus* in having fewer dorsal and anal soft rays and gill rakers (Table 2). The present species agrees well with the descriptions given under the name of *K. bigibbus* or *K. fuscus* from various regions in the Indo-Pacific. According to the original description (Lacepede, 1802: 115, pl. 8, fig. 2), however, *K. bigibbus* has 13 dorsal spines, two swellings at the nape and interorbital space and the soft portions of dorsal and anal fins which are not scaled though such characters have not been generally known in the genus *Kyphosus* (Herre and Montalban, 1927: 435; Fowler, 1933: 204; Weber and Beaufort, 1936: 223). The brief original description of *K. fuscus* by Lacepede (1803: 485, as *Xyster fuscus*) gives no figure nor fin ray counts.

The present author follows here majority of current authors who recognized the present species as *K. bigibbus* and *K. fuscus* is a junior synonym of *K. bigibbus* (Fowler, 1933: 205; Schultz, 1953: 563; Munro, 1955: 167; Smith, 1961: 247).

Bryan and Herre (1903: 131) listed *K. elegans* (Peters) from Minami-tori-shima. Later, however, Fowler (1928: 222) reported the species as *K. fuscus*, re-examining their collection. The present author checked the specimen (BPBM

2426, 228.5 mm SL) at the Bernice P. Bishop Museum, and found no difference between it and the present specimens of *K. bigibbus*. The specimens identified as *K. cinerascens* from the Ogasawara Islands by Tsutsumi and Kurata (1971: 15~17, figs. 1~2) are regarded as *K. bigibbus* judging from the meristic characters and the figures which show the portion of dorsal fin not elevated.

It is well known that *K. bigibbus* is extremely variable in coloration, and the xanthochroism of the species have been reported by several authors (Fowler, 1925: 15; Fowler, 1928: 222; Fowler, 1933: 207~208; Munro, 1955: 167; Smith, 1961: 247; Tsutsumi and Kurata, 1971: 15~17). Among the fishes of normal gray to dark and that of yellow specimens presently examined, there is no difference found in proportional lengths and counts (Table 2). Fowler (1928) noted that all the large specimens are either partly or entirely brilliant yellow, while most small specimens are dusky. On the other hand, Tsutsumi and Kurata (1971) observed that the yellow fish changed to gray, in 10 days after they were kept, in the aquarium. Regardless of the various observations as such, it seems certain that the xanthochroism of *K. bigibbus* is considered merely a color variation.

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- (Ichthyological Laboratory, Tokyo University of Fisheries, 4-5-7 Konan, Minato-ku, Tokyo 108, Japan)
- 南日本の海域で採集されたミナミイサズミ (新称)
- 座間 彰
- 従来、日本沿岸からテンジクイサギとイサズミ (ゴクラクメジナ) のイサズミ科魚類 2種が知られていた。ミナミイサズミは南日本、特に小笠原諸島沿岸で極めて普通にみられ、背鱗は通常 11 棘 12 軟条で、その軟条部は棘条部より低いことにより、上記の 2種と区別される。本種は原記載に合致しない点があるが、インド・太平洋海域の各地から報告されている *Kyphosus bigibbus* の記載によく一致するので、暫定的に *K. bigibbus* Lacepède と査定した。
- (108 東京都港区港南 4-5-7 東京水産大学魚類学講座)