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Epinephelus truncatus Katayama, a Junior Synonym of the Indo-Pacific Serranid Fish *Epinephelus retouti* Bleeker

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Bleeker (1868) described *Epinephelus retouti* as a new serranid fish from a single specimen taken at the island of Réunion. He illustrated the species in color in his paper on the fishes of Madagascar and Réunion collected by Pollen and van Dam (Bleeker *in* Bleeker and Pollen, 1874: pl. 12, fig. 1). Boulenger (1895: 239), Fowler and Bean (1930: 265), Weber and de Beaufort (1931: 58) and Katayama (1960: 79) listed *E. retouti* in the synonymy of *E. fasciatus* (Forsskål, 1775). Postel *et al.* (1963) recognized *E. retouti* as a valid species and differentiated it from *E. fasciatus*.

Masuda (1942) recorded *Epinephelus fasciatus albopunctulatus* Boulenger, 1895 from the Ogasawara (Bonin) Islands. Matsubara (1955) altered this record to *E. albopunctulatus* in his key to Epinephelinae. Katayama (1957) described *Epinephelus truncatus* as a new species from the Izu Islands and Ogasawara Islands. He showed that *E. fasciatus albopunctulatus* of Masuda (1942) is the same species, and he pointed out the differences between *E. truncatus* and *E. albopunctulatus* Boulenger.

Baissac (1962) described *Epinephelus mauritianus* from Mauritius. In a checklist of the fishes of Mauritius, Baissac (1976) listed his *mauritianus* as a subspecies of *E. retouti* Bleeker.

Gushiken (1972) recorded *E. albopunctulatus* from the Ryukyu Islands. He was followed by Masuda *et al.* (1975) and Yoshino *et al.* (1975). Zama (1978), however, has shown that *E. albopunctulatus* Boulenger is a junior synonym of *E. spiniger* (Günther, 1859). Randall and Wheeler (MS) have determined that *E. spiniger*, in turn, is a junior synonym of *E. irroratus* (Schneider *in* Bloch and Schneider, 1801), a species restricted to the Marquesas Islands and Minami-tori-shima (Marcus Island). Following Katayama (1957), Zama referred the *albopunctulatus* of Masuda (1942), Masuda *et al.* (1975), and Yoshino *et al.* (1975) to *E. truncatus*. Included in Zama's synonymy of *E. truncatus* is a fish which Bagnis *et al.* (1974: 95, lower fig.) identified by this name. However, it is *Saloptia powelli* Smith, not *E. truncatus*. Zama also placed the grouper which Shirai (1983: 102, upper fig.) named *E. albopunctulatus* Boulenger in the synonymy of *E. truncatus*. This figure is *E. rivulatus* (Valenciennes), usually identified as *E. rhyncholepis* (Bleeker) or *E. grammatophorus* Boulenger, both junior synonyms of *rivulatus*.

We have ascertained that *E. retouti* Bleeker is the valid name for this species, and we refer *E. truncatus* to synonymy. We present below the full synonymy for *retouti*, its description, illustrations of the adult and juvenile (Figs. 1, 2), distribution map (Fig. 3), general remarks, and a list of the specimens we have examined.

We have seen material at the Bernice Pauahi Bishop Museum, Honolulu (BPBM); Museum National d'Histoire Naturelle, Paris (MNHN); National Science Museum, Tokyo (NSMT-P); Rijksmuseum van Natuurlijke Historie, Leiden (RMNH); J.L.B. Smith Institute of Ichthyology, Grahamstown (RUSI); U.S. National Museum of Natural History, Washington, D.C. (USNM); and the University Museum of the University of Tokyo (ZUMT). Lengths are standard length (SL).

Epinephelus retouti Bleeker

(Japanese name: Akahata-modoki;
English name: Red-tipped grouper)
(Figs. 1–3)

Epinephelus Retouti Bleeker, 1868: 339 (type locality, Réunion); Bleeker *in* Bleeker and Pollen, 1874: 21, pl. 12, fig. 1: Sauvage, 1891: 69, pl. 8, fig. 2 (Madagascar).

Serranus diacanthus (*non* Valenciennes) Fowler, 1927: 13 (Jarvis Island).

Epinephelus fasciatus albopunctulatus (*non* Boulenger) Masuda, 1942: 113, pl. 5, lower fig. (Ogasawara Islands).

Epinephelus albopunctulatus (*non* Boulenger): Matsubara, 1955: 630; Gushiken, 1972: 30, fig. 138 (Ryukyu Islands); Yoshino *et al.*, 1975: 80; Masuda *et al.*, 1975: 216, pl. 48 H.

Epinephelus truncatus Katayama, 1957: 158, fig. 4 (type locality, Torishima, Izu Islands); Katayama, 1960: 77, pl. 47; Randall, 1964: 283, fig. 3 (Tahiti); Katayama, 1975: 162; Kyushin *et al.*, 1977: 220, fig. 102 (Chagos Archipelago); Zama, 1978: 220; Kyushin *et al.*, 1982: 181, fig. 160 (South China Sea); Katayama *in* Masuda *et al.*, 1984: 129, pl. 115 C.

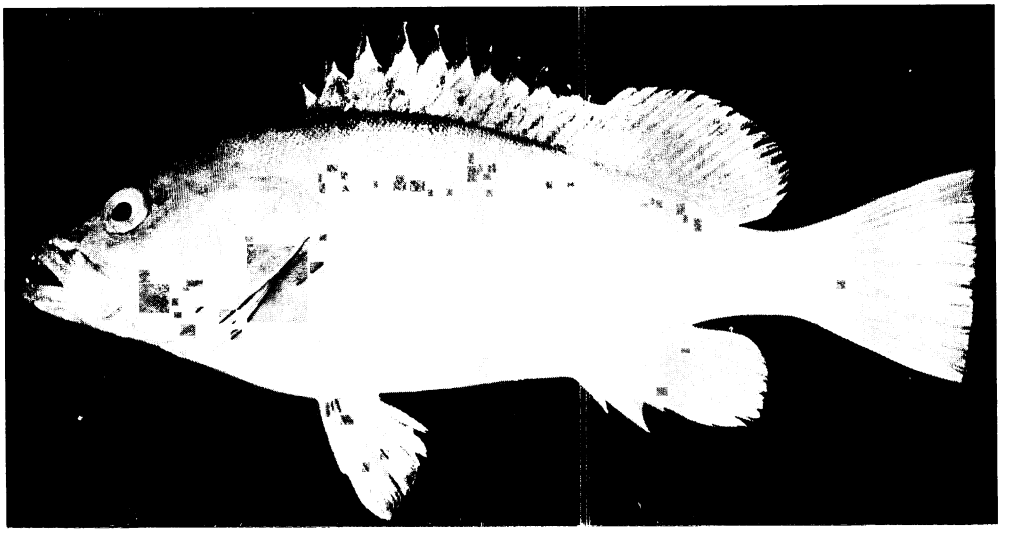

Fig. 1. Adult of *Epinephelus retouti*, BPBM 8998, 297 mm SL, Tahiti.

Epinephelus rubra (*non* Bloch) Baissac, 1962: 162 (*nomen nudum*, equated with *E. mauritianus* on p. 188).

Epinephelus mauritianus Baissac, 1962: 188 (type locality, Mauritius).

Epinephelus retouti: Postel *et al.*, 1963: 358, 360, fig. 6 (Réunion); Fourmanoir and Laboute, 1976: 62, right-hand fig. (New Caledonia); Heemstra and Randall *in* Fischer and Bianchi, 1984: Serran Epin 51; Gloerfelt-Tarp and Kailola, 1984: 135, 325, fifth fig. on p. 134 (Lombok, Indonesia); Randall *in* Richard, 1985: 470.

Epinephelus retouti mauritianus: Baissac, 1976: 203.

Description. Dorsal rays XI,16–17 (usually 16); anal rays III, 8; pectoral rays 19–20 (rarely 20); lateral-line scales 64–72; diagonal rows of scales from upper end of gill opening to caudal fin base 121–141; gill rakers 6–8+15–16.

Dentition typical of the genus, the anterior canines moderately large; three rows of teeth on midside of dentary (two on small individuals, occasionally four on large adults). Nostrils subequal, the anterior with a pale fleshy rim which is elongate posteriorly. Preopercular margin broadly rounded, the serrae ventrally on posterior margin only slightly enlarged; serrae on posterior margin increasing in number with growth: 27 on 78-mm specimen, 38 on 148-mm specimen, and 54 on 322-mm specimen; margins of subopercle and interopercle smooth; middle opercular spine slightly nearer lower than upper spine. Scales of body ctenoid, except anterodorsally and on abdomen and thorax; numerous auxiliary scales present; no scales on maxilla.

Body depth 2.5–3.15 in SL; body width 1.8–2.3 in depth; head length 2.35–2.65 in SL; dorsal profile of head from front of snout to nape straight; snout 3.5–4.1 in head; orbit diameter 4.5–6.0 in head; interorbital space flat to slightly convex, the least fleshy width 5.5–6.9 in head; suborbital depth 9.4–12.0 in head; maxilla extending to between verticals from middle to rear of orbit, the upper jaw length 2.25–2.55 in head; least depth of caudal peduncle 3.1–3.85 in head; interspinous membranes of dorsal fin deeply incised; third to fifth dorsal spines longest, 2.4–3.1 in head; fourth to seventh dorsal soft rays longest, 2.3–2.85 in head; dorsal and anal fins rounded posteriorly, the longest dorsal rays not reaching a vertical at caudal-fin base; second and third anal spines subequal, the second 2.5–3.3 in head; second or third anal soft rays longest, 1.9–2.25 in head; base of dorsal and anal fins somewhat fleshy; caudal fin truncate to slightly rounded, 1.65–2.0 in head; pectoral fins 1.55–1.8 in head; pelvic fins not reaching or just reaching anus, their length 1.85–2.2 in head (these fins tend to become relatively shorter with growth).

Color in alcohol: light brown, the centers of scales darker than edges; five faint dark bars on body present or absent, the first on nape and

Fig. 2. Underwater photo of juvenile of *Epinephelus retouti*, estimated total length 130 mm, Mauritius, 30 m.

below origin of dorsal fin, the second below bases of dorsal spines III to VI, the last on caudal peduncle (bars distinctly broader than pale interspaces); dorsal fin usually dusky to blackish (darker than body) except triangular outer part of interspinous membranes which are usually paler (but may be darker) than rest of fin; upper part of caudal fin usually dusky or blackish.

Color of adults when fresh: dull yellowish orange to brownish red overall (scales red, the centers greenish gray), usually with dark bars, as described above, at least faintly evident; head mottled with light red and orangish brown; lips light red; orbit narrowly edged with deep red (pale in preservative), except anteriorly; a light blue line (dark in preservative) adjacent to red rim of orbit and completely surrounding eye; dorsal fin olivaceous to brown (the soft portion darker than spinous), the outer triangular part of each interspinous membrane deep red, set off from rest of fin by a yellowish band; a red line at base of dorsal fin, and some diagonal orange-red lines basally in fin; remaining fins light orange-red except about upper fifth of caudal fin which is olivaceous to brown like the dorsal.

Juveniles have the upper part of the first three dark bars black, the second and third extending into dorsal fin; head above level of lower part of orbit black, the dorsal part with four irregular, narrow, pale transverse bands (see Fig. 2).

Remarks. The proportional measurements given in the description above are based on 18 specimens, 121–346 mm SL.

The specimen labelled as the holotype of *Epinephelus retouti* (RMNH 5415, 121 mm SL) was examined at the Rijksmuseum van Natuurlijke Historie in Leiden. Bleeker (1868) gave the total length of this specimen as 159 mm. Bleeker *in* Bleeker and Pollen (1874) corrected the total length to 149 mm. Our total length measurement of the type is 148 mm.

Largest specimen reported, 388 mm SL, from the Chagos Archipelago (Kyushin *et al.*, 1977).

Epinephelus retouti is wide-ranging in the Indo-Pacific region. We have examined specimens from the Mozambique Channel, Réunion, Mauritius, Indonesia, Taiwan, Belau (Palau Islands), Izu Islands, New Caledonia, Jarvis Island, Tahiti, and Rangiroa in the Tuamotu Archipelago. There are valid literature records for the Ogasawara

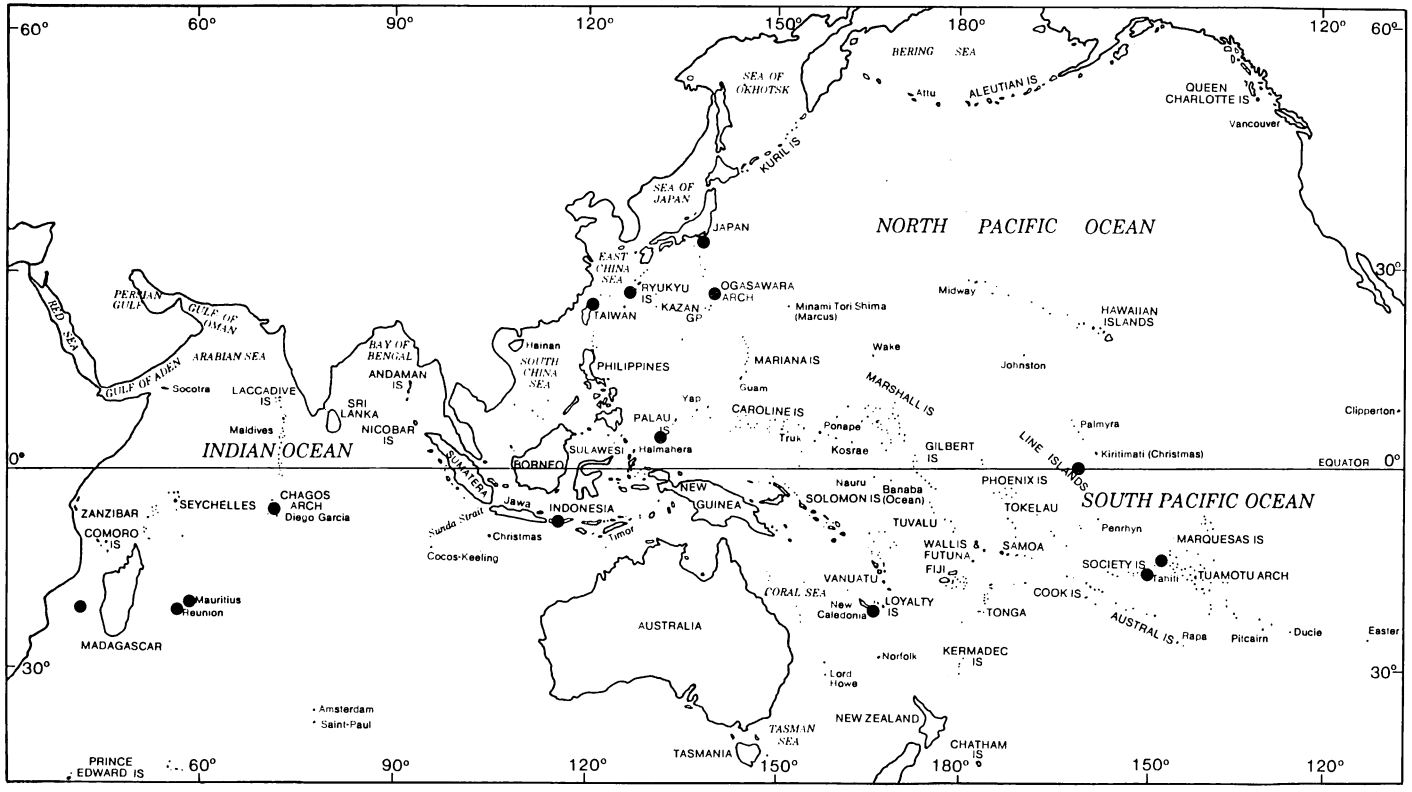

Fig. 3. Distribution of *Epinephelus retouti*. Not shown are one record from Madagascar and one from Indonesia for which the exact localities were not given.

Islands, Izu Islands, Ryukyu Islands, Chagos Archipelago, and Madagascar. It is of interest to note that all of these localities are insular.

The many localities for which there are no records of this species are undoubtedly due to its predilection for deeper water. Although *Epinephelus retouti* has been reported from as shallow as 25 m, the usual depth range is between 80 and 220 m, as indicated by Fourmanoir and Laboute (1976). The senior author has observed only juveniles in SCUBA-diving depths, and only at Mauritius.

Epinephelus retouti is most closely related to *E. fasciatus* (Forsskål). Kyushin *et al.* (1977) differentiated the two as follows: distal tip of opercle midway between lateral line and upper corner of pectoral base in *retouti*, but much nearer to lateral line in *fasciatus*; caudal fin of *retouti* truncate, compared to rounded for *fasciatus*; tips of spinous dorsal membranes red in *retouti* and "darkened" in *fasciatus*; interorbital space convex and greater than eye diameter in *retouti*, compared to flat and less than eye diameter in *fasciatus*. We cannot confirm all of these distinctions from our material. Although specimens of *E. fasciatus* from the western Pacific and Indian Ocean have more rounded caudal fins than *retouti*, some from islands of Oceania have nearly truncate caudal fins. *E. fasciatus* from deeper water may have red-tipped spinous dorsal membranes, and *E. retouti* from the shallows may have black-tipped membranes. The interorbital space difference seems to have been a result of comparing specimens of the two species of different size. It does not hold when comparisons are made of specimens of about equal size.

We can offer two additional characters to separate these groupers: dorsal head profile of *retouti* straight (convex in *fasciatus*); snout of *retouti* relatively long, 3.5–4.1 in head (4.3–5.1 in *fasciatus*). The number of lateral-line scales provides complete separation of *retouti* from western Pacific and Indian Ocean *fasciatus* (64–72 for *retouti*, 50–58 for *fasciatus*); however, at islands in Oceania (except Belau) the count of lateral-line scales of *fasciatus* is 60–75.

Material examined. MOZAMBIQUE CHANNEL: Bassas da India, RUSI 21168, 338 mm. RÉUNION: RMNH 5415, holotype of *E. retouti*, 121 mm; BPBM 20031, 322 mm; MNHN B.3040, 134 mm; MNHN 1963-35, 253 mm. MAURITIUS: BPBM 17348, 78 mm; MNHN, 1965-6, 170 mm. INDONESIA: USNM 197071, 246 mm. TAIWAN: BPBM 23205, 286 mm. JAPAN: Izu Islands, NSMT-P 18222, holotype of *E. truncatus*, 315 mm. BELAU (PALAU ISLANDS): Anguar, BPBM 10599, 270 mm. NEW CALEDONIA: BPBM 11409, 148 mm. JARVIS ISLAND: BPBM 3975, 254 mm. SOCIETY ISLANDS: Tahiti, BPBM 8998, 2: 297–346 mm; USNM 175400, 2: 222–238 mm. TUAMOTU ARCHIPELAGO: Rangiroa, MNHN 1980-39, 259 mm. LOCALITY UNKNOWN: ZUMT 54137, 235 mm.

We can confirm the following junior synonyms of *Epinephelus fasciatus* as listed by Katayama (1960): *Epinephelus marginalis* Bloch, *Holocentrus erythraeus* Bloch et Schneider, *H. forskael* Lacepède (misspelled *forskal* by Katayama), *H. rosmarus* Lacepède (misspelled as *rosemarus*), *H. oceanicus* Lacepède, *Serranus variolosus* Valenciennes, *S. tsirmenara* Temminck et Schlegel, *S. cruentus* De Vis (misspelled as *cruentatus*), and *Epinephelus emoryi* Schultz. To his list we can add *Serranus erythrurus* Valenciennes *in* Cuvier and Valenciennes, 1828 and *Epinephelus zapyrus* Seale, 1906.

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インド・太平洋産ハタ科魚類アカハタモドキについて

John E. Randall • Phillip C. Heemstra

インド・太平洋の広い地域から得られた 18 個体の標本（標準体長 78–346 mm; holotype を含む）に基づいて，アカハタモドキ *Epinephelus retouti* Bleeker を記載した．また，*E. truncatus* Katayama を初めとする本種のシノニムの一覧を作成した．