

# Redescription of the Congrid Eel, *Rhechias retrotincta* (Jordan and Snyder), from Japan

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According to Smith (1989), the congrid eel genus *Rhechias* is represented by ten nominal species, four of which are known from the Pacific and Indian Oceans: *R. guttulata* (Günther, 1887) (Indo-West Pacific), *R. aequorea* (Gilbert and Cramer, 1897) (Hawaii), *R. retrotincta* (Jordan and Snyder, 1901) (Japan), and *R. wallacei* (Castle, 1968) (Indian Ocean). *Rhechias retrotincta* was originally described as *Leptocephalus retrotinctus* based on two specimens found in the market at Tokyo (Jordan and Snyder, 1901: 853, fig. 6). Jordan and Hubbs (1925) established a new genus *Congrina* (type species—*Congermuraena aequorea*), and included *L. retrotinctus* in this genus. However, *Congrina* is a junior synonym of *Rhechias* Jordan, 1921 (Smith and Kanazawa, 1977), and the scientific name, *Rhechias retrotincta*, is presently used (Karrer, 1982; Asano, 1984; Smith, 1989; Hatooka, 1993).

Smith (1989) believed that the only useful characters in the genus *Rhechias* are the numbers of vertebrae and sensory pores. Although Jordan and Snyder (1901) counted about 30 lateral line pores (LLp) before the vent in the type specimens of *L. retrotinctus*, Jordan and Hubbs (1925) identified a single specimen of *Congrina* possessing 39 LLp before the vent as *C. retrotincta*, which was caught in the Pacific Ocean off Misaki, Kanagawa Prefecture, central Japan. Asano (1962) reviewed Japanese congrid eels, and gave a detailed description of *C. retrotincta*. The specimens examined by Asano (1962) had 40–43 LLp before the vent, and 173–181 total vertebrae. Castle (1968), Asano (1984), and Hatooka (1993) followed Asano (1962) in these counts for *R. retrotincta*.

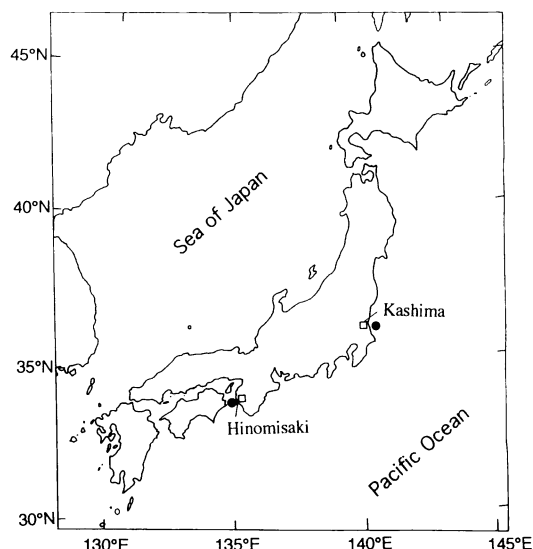


Fig. 1. Map showing localities of *Rhechias retrotincta* specimens examined.

While examining fish collections in the Ocean Research Institute, University of Tokyo (ORIUT), one of us (YM) found a single specimen of *Rhechias* trawled by the R/V *Tansei-Maru* from the Pacific Ocean off Kashima, Ibaraki Prefecture, central Japan, at 118–119 m depth in 1979 (Fig. 1). It possessed 34 LLp before the vent, and 146 vertebrae. Asano (unpubl.) collected seven *Rhechias* specimens trawled by fishing boats from the Pacific Ocean off Hinomisaki, Wakayama Prefecture, western Japan (Fig. 1). These specimens had 33–34 LLp before the vent and 143 vertebrae. We identified the eight specimens from both Wakayama and Ibaraki Prefectures as *R. retrotincta*, because the counts of LLp before the vent and total vertebrae were comparable to those of the type specimens of *L. retrotinctus*. Castle and Smith think that the species described by Asano (1962) may be the same as *R. aequorea* (D. G. Smith, 17 July 1993: pers. comm. to YM). Castle proposed to synonymize *R. retrotincta* with *R. nasicus* Alcock, 1893 (P. H. J. Castle, 29 July 1987: pers. comm. to HA), but he is currently working on Indo-Pacific *Rhechias* (or *Bathycongrus*) (D. G. Smith, 17 July 1993: pers. comm. to YM). Therefore, we report characteristics of *R. retrotincta* based on our specimens. The species described by Jordan and Hubbs (1925), and by Asano (1962) is treated as *R. sp.* in this paper.

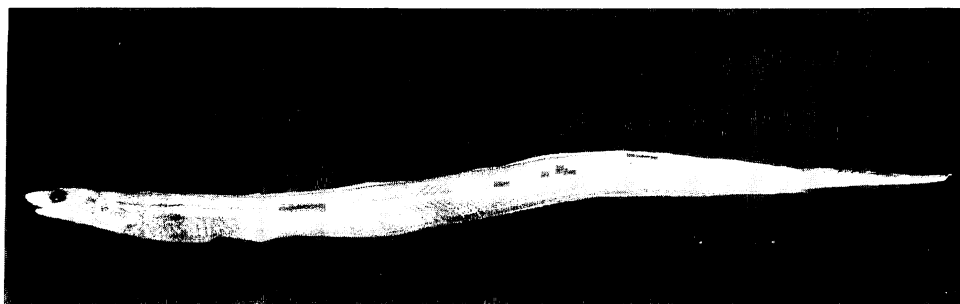


Fig. 2. *Rhechias retrotincta*, FAK 19267, 248 mm total length, from off Hinomisaki, Wakayama Prefecture.

Methods of counts and measurements follow Smith and Kanazawa (1977). Counts of vertebrae were taken from radiographs.

The present specimens are deposited in ORIUT and in the Faculty of Agriculture, Kinki University (FAK).

*Rhechias retrotincta* (Jordan and Snyder, 1901)  
(Japanese name: Tsumaguro-anago)  
(Figs. 2, 3)

**Materials.** Eight *Rhechias retrotincta* specimens. ORIUT·KT·79·13·0001, 132 mm total length, sex unknown, 36°07.5'N, 140°51.1'E–36°08.3'N, 140°50.9'E, Pacific off Kashima, Ibaraki Pref., central Japan, depths 118–119 m, collected by R/V *Tansei-Maru* of ORIUT, 2 m-span beam trawl, 7 Aug. 1979. Seven FAK specimens from Kii-Suido Channel off Hinomisaki, Wakayama Pref., western Japan, depth about 60–70 m, fished by otter trawl, coll. by Asano: 19265–19267, 248–264 mm total length, sex unknown, 2 Sept. 1983; 19564, 224 mm total length, sex unknown, 26 Sept. 1985; 19615, 19624, 19625, 196–285 mm total length, sex unknown, 6 Aug. 1986.

**Description.** Proportional measurements and meristics are given in Table 1.

Body moderately elongate (Fig. 2). Tail slender, attenuate at tip, compressed posteriorly. Head plus trunk length much shorter than 1/2 total length. Head length 12–14% of total length. Preorbital bone with 2 or 3 projections from lower edge. Snout bluntly pointed, protruding beyond tip of lower jaw. Upper lip without labial flange. Lower jaw included in upper jaw. Mouth large, scarcely reaching two thirds of eye diameter. Eye rather large, elliptical. Anterior nostril tubular, near tip of snout. Posterior nostril ovate, close to eye, slightly above mid-eye level. Third supraorbital pore conspicuous (Fig. 3). First 3 infraorbital pores large, slit-like. Third preoperculo-mentibular pore enlarged.

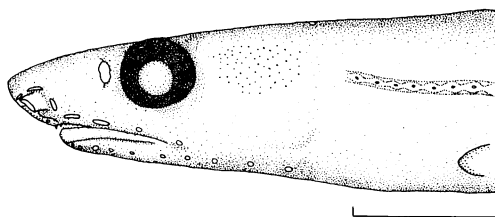


Fig. 3. Lateral view of head of *Rhechias retrotincta*, FAK 19267. Scale indicates 1 cm.

All teeth conical, slender, sharp-pointed, upper jaw teeth somewhat larger than lower jaw teeth. Intermaxillary teeth in 2–3 transverse rows, separated from maxillary and prevomerine teeth; teeth in posterior rows enlarged, visible when mouth is closed. Prevomerine teeth in a small round patch, with 1 enlarged tooth medially. Teeth on maxillary arranged in 2 rows posteriorly, about 3–4 rows anteriorly; outermost teeth enlarged, becoming longer anteriorly. Dentary teeth in 2–3 rows posteriorly, several rows anteriorly; outermost teeth enlarged.

Lateral line conspicuous, forming a well defined continuous band.

Dorsal fin origin slightly behind pectoral fin base. Pectoral fin moderately developed. Caudal fin shorter than pectoral fin.

**Color in preservative.**—Head and body pale brown dorsally, much paler on belly. Distal parts of dorsal and anal fins black in length nearly equal to head length, others pale. Caudal fin black. Pectoral fin pale.

**Distribution.** Known from the Pacific coasts of central to western Japan: Ibaraki, Tokyo (?), and Wakayama.

**Remarks.** The present material was identified as

**Table 1.** Proportional measurements and meristic counts of two *Rhechias* species from Japan

Species	<i>Rhechias retrotincta</i>			<i>Rhechias</i> sp.	
Source	Jordan and Snyder (1901)	Present study		Jordan and Hubbs (1925)	Asano (1962)
Locality	Fish market at Tokyo	Ibaraki	Wakayama	Kanagawa	Aichi to Kochi
Number of specimens	1	1	7	1	9
Total length (mm)	275–300	132	196–285	461	283–534
Total length/Head length		7.33	7.18–8.21	7.75	7.16–7.88
Trunk length/Head length	1.75	1.50	1.54–1.97	1.70	1.49–1.76
Tail length/Head + trunk length	1.80	1.94	1.71–1.88	1.85	1.74–1.99
Head length/Snout to richtus	2.67	2.65	2.53–2.78	3.20	
Head length/Interorbital		7.83	5.58–6.60	6.15	5.65–7.30
Head length/Interbranchial		4.62	3.79–5.15		
Head length/Snout length	4.00	4.00	3.88–4.40	3.55	3.30–4.02
Head length/Eye diameter		6.00	5.46–6.09	6.65	5.62–7.19
Head length/Pectoral fin length	3.20	3.91	2.55–4.58 (6*)	3.65	3.36–4.39
Snout length/Eye diameter	1.50	1.50	1.34–1.51	1.87	1.65–2.18
Pectoral fin rays		14	13–14 (5*)		14–15
Vertebrae (precaudal + caudal)	44 + 99 = 144**	46 + 100 = 146	45 + 98 = 143 (1*)		55–56 + 119–125 = 173–181
Lateral line pores before vent	33**	34	33–34	39	40–43
Supraorbital pores		1 + 2	1 + 2 (3*)		3
Infraorbital pores		4 + 1(0) + 0	4 + 1 + 0 (3*)		5
Preoperculomandibular pores		10	10 (3*)		10
Supraorbital commissure pore		1	1 (3*)		1

\* Number of specimens examined; \*\* P. H. J. Castle (pres. comm.).

*Rhechias retrotincta*, owing to close agreements in both proportional measurements and meristic counts with those of the type material of *Leptocephalus retrotinctus* (Table 1). It is difficult to distinguish the species described by Jordan and Hubbs (1925) from Asano's (1962) species, though the number of vertebrae of the former is unknown, and a slight difference can be seen in LLp counts before the vent. Apparently, proportional measurements of *R. retrotincta* generally agree with those of *R. sp.* The only difference in proportional measurements in both species is the length of snout in relation to eye diameter, indicating *R. retrotincta* has a shorter snout. According to Asano's description of *Congrina retrotincta* (Asano, 1962), there are no discrepancies between the present material and *R. sp.* in the dentition and the coloration of the head and body. Total length of the known specimens in both species slightly overlap each other, and *R. sp.* is generally larger than *R. retrotincta* (Table 1). However, the two species can be distinguishable by the counts of vertebrae and LLp before the vent (Table 1).

Franz (1910) recorded the occurrence of *Conger retrotinctus*. A short description of a single specimen of *Congrina retrotincta* from Kagoshima, southern Japan, was given by Schmidt (1931). In addition, many Japanese ichthyologists referred to this species as "Tsumaguro-anago" prior to Asano's study (e.g. Kamohara, 1938, 1950; Okada and Matsubara, 1938; Matsubara, 1955). However, it is not clear whether the species was *R. retrotincta* or *R. sp.*, because no important meristics of the species were given in the species accounts. The Japanese name, "Tsumaguro-anago," was first given for *L. retrotinctus* by Jordan, Tanaka and Snyder (1913), who cited the original figure of the species by Jordan and Snyder (1901). Apparently the Japanese name "Tsumaguro-anago" is appropriate for *R. retrotincta*, and we propose a new Japanese name, "Nise-tsumaguro-anago," for *R. sp.*

Although the holotype of *Congermuraena aequorea* from Hawaii has 177 vertebrae and 42 LLp before the vent (D. G. Smith, 17 July 1993: pers. comm. to YM), the taxonomic status of *R. sp.* is beyond the scope of this study.

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#### ツマグロアナゴ *Rhechias retrotincta* の再記載

町田吉彦・浅野博利・太田 秀

Jordan and Snyder (1901) が記載したアナゴ科の *Leptocephalus*

*retrotinctus* は、ツマグロアナゴ属のツマグロアナゴ *Rhechias retrotincta* とされている。原記載では、肛門前方の側線孔数は約 30 個であるが、P. H. J. Castle (私信) によれば、模式標本のそれは 33 個、脊椎骨数は 144 個である。その後、Jordan and Hubbs (1925) は神奈川県三崎で得られた肛門前方の側線孔数 39 個の 1 標本を本種と査定し、*Congrina* に含めた。しかし、*Congrina* は *Rhechias* のシノニムである (Smith and Kanazawa, 1977)。Asano (1962) は *C. retrotincta* をツマグロアナゴとし、肛門前方の側線孔数を 40-43 個、脊椎骨数を 173-181 個とした。この数値はこれまで広く引用されている。しかし、Jordan and Hubbs (1925) と Asano (1962) が *C. retrotincta* とした種は、側線孔数と計測形質からみて同一種と思われるが、明らかに *R. retrotincta* ではない。現在、P. H. J. Castle がインド-太平洋産の本属の再検討を行っているため、ここではこの種を *R. sp.* とした。本研究で、茨城県鹿島産の 1 個体と、和歌山県雑賀浦産の 7 個体の本属の標本を検討した。これらは肛門前方の側線孔数が 33-34 個、脊椎骨数が 143-146 個であることで真の *R. retrotincta* と査定された。Asano (1962) 以前にツマグロアナゴを扱った報告の多くでは側線孔数と脊椎骨数が不明であり、いずれの種か特定できない。そのため、本標本に基づき *R. retrotincta* の再記載を行った。本種と *R. sp.* は体節的形質の他に、眼径と吻長の比がわずかに異なり、また、本種は後者より小型種である可能性が高い。Jordan, Tanaka and Snyder (1913) は和名ツマグロアナゴを提唱したが、その際、彼らは原記載の図を引用している。したがって、ツマグロアナゴは *R. retrotincta* に適用されるべきであり、本報告で *R. sp.* に新和名ニセツマグロアナゴを提唱する。

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