

Redescription of *Paraliparis tremebundus* (Liparididae)

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Paraliparis tremebundus (Gilbert et Burke) was originally described from Avatcha Bay, Kamchatka, as the type species of the genus *Elassodiscus*. Burke (1930) redescribed it based on the type specimens. Taranetz (1937) suggested its distribution in the Okhotsk Sea without collection data, and Schmidt (1950) redescribed it as a second record on the basis of a specimen from the Okhotsk Sea between Iona Island and Cape Elizaveta of Sakhalin. Lindberg and Krasnyukova (1987) mentioned specimens of *P. tremebundus* from the southern Okhotsk Sea off Abashiri, Hokkaido, but did not give collection data or a description. Subsequently Kido (1988) synonymised *Elassodiscus* with *Paraliparis* based on the osteological characters. This paper redescribes *P. tremebundus*, providing additional morphological information and distributional records.

Standard length (SL) and head length (HL) are used throughout. Counts, measurements and terminology follow Stein (1978) except that rays of the lower lobe of the pectoral fin are counted from the anteriormost ray to the longest ray. Institutional abbreviations follow Leviton et al. (1985).

Paraliparis tremebundus (Gilbert et Burke, 1912) (Japanese name: Furai-kusauo) (Figs. 1, 2)

Elassodiscus tremebundus Gilbert and Burke, 1912: 81, fig. 26 (original description; type locality: off Staritschkof Island, Avatcha Bay, Kamchatka, 52°37'30"N, 158°50'00"E, Albatross station 4797, in 1248 m); Burke, 1930: 154, figs. 80, 81; Jordan et al., 1930: 402; Soldatov and Lindberg, 1930: 382; Taranetz, 1937: 138; Schmidt, 1950: 217 (Okhotsk Sea); Matsubara, 1955: 1196; Quast and Hall, 1972: 29; Fedorov, 1973: 67.

Paraliparis tremebundus: Kido, 1988: 129 (new combination).

Material examined. Holotype: USNM 74388, ca. 200 mm SL, 52°37'30"N, 158°50'00"E, Avatcha Bay, Kamchatka, Albatross station 4797, depth 1248 m, 20 June 1906, radiograph only.

Other material: 27 specimens, 84–343 mm SL. HUMZ 16944, 316 mm SL, female, 50°10'N, 159°00'E, east of

Cape Lopatka, Kamchatka, depth 320–365 m, 19 May 1959; HUMZ 44875, 44876, 46229, 46231, 187–270 mm SL, 1 female and 3 males, 50°56'N, 158°15'E, east of Cape Lopatka, 620–700 m, 14 May 1975; HUMZ 55505, 262 mm SL, male, 55°02'N, 154°18'E, off western coast of Kamchatka, Okhotsk Sea, 445–465 m, 1 June 1976; HUMZ 60313, 60315, 293–299 mm SL, 1 female and 1 male, 49°27'N, 155°41'E, east of Onekotan I., Kuril Is., 203 m, 8 Oct. 1976; HUMZ 67619, 289 mm SL, male, 51°55'N, 176°45'E, west of Kiska I., Aleutian Is., 560–570 m, 6 June 1977; HUMZ 68501, 68502, 266–343 mm SL, 1 female and 1 specimen of unknown sex, 52°58'N, 171°00'E, west of Attu I., Aleutian Is., 560–580 m, 25 June 1977; HUMZ 77990, 194 mm SL, specimen of unknown sex, 50°15'N, 156°40'E, east of Paramushir I., Kuril Is., 205–235 m, 13 May 1975; HUMZ 81821, 174 mm SL, male, 54°20.5'N, 167°24.5'W, north of Unalaska I., Aleutian Is., 805 m, 14 June 1979; HUMZ 81840, 130 mm SL, female, 54°31.9'N, 167°38.6'W, north of Unalaska I., 800 m, 14 June 1979; HUMZ 81911, 81912, 81985, 193–236 mm SL, 3 females, 58°33.9'N, 175°04.9'W, Bering Sea, 895–910 m, 22 June 1979; HUMZ 82010, 82011, 216–230 mm SL, 2 females, 55°10.2'N, 167°59.2'W, Bering Sea, 830 m, 16 June 1979; HUMZ 82559, 84 mm SL, female, 59°19.6'N, 178°03.8'W, Bering Sea, 610 m, 28 June 1979; HUMZ 93366, 189 mm SL, male, 60°37.7'N, 179°29.2'W, Bering Sea, 810–915 m, 15 July 1981; HUMZ 93498, 225 mm SL, male, 60°37.6'N, 179°14.6'W, Bering Sea, 460–495 m, 15 July 1981; HUMZ 117424, 117425, 185–222 mm SL, 2 males, 42°55.3'N, 145°44.5'E, off Cape Ochiishi, Pacific coast of Hokkaido, 1040–1070 m, 24 July 1990; HUMZ 117426, 187 mm SL, male, 42°51.8'N, 145°26.9'E, off Cape Ochiishi, 1080–1120 m, 28 July 1990; HUMZ 117427, 117428, 177–186 mm SL, 2 males, 42°55.0'N, 145°43.3'E, off Cape Ochiishi, 1035–1075 m, 24 July 1990.

Diagnosis. A *Paraliparis* with rudimentary disk located in a pit, its diameter 1.1–4.1% of HL, pelvic spine and rays rudimentary or absent; inner teeth trilobed; length of lower lobe of pectoral fin 23.1–81.3% of HL; stomach black.

Description. Counts: Dorsal fin rays 59–69, anal fin rays 52–63, pectoral fin rays 29–36, caudal fin rays 8–9, vertebrae 9–11 + 54–64 = 65–74, pyloric caeca 12–20, cephalic pores 2–6–7–1.

Morphometry: HL 16.3–23.1% SL, body depth 18.8–28.2, head width 9.8–16.4; snout length 26.9–33.1% HL, eye diameter 15.1–20.7, interorbital width 43.6–64.9, upper jaw length 34.0–45.3, lower jaw length 31.2–41.1, length of upper lobe of pectoral fin 60.6–87.8, length of lower lobe of pectoral fin 23.1–81.3, gill opening length 18.2–34.6, snout to disk length 48.7–69.6, snout to anus length 64.5–92.2, mandible to disk length 40.7–57.0, mandible to anus length 55.5–83.6, disk to anus length 11.9–20.5, disk

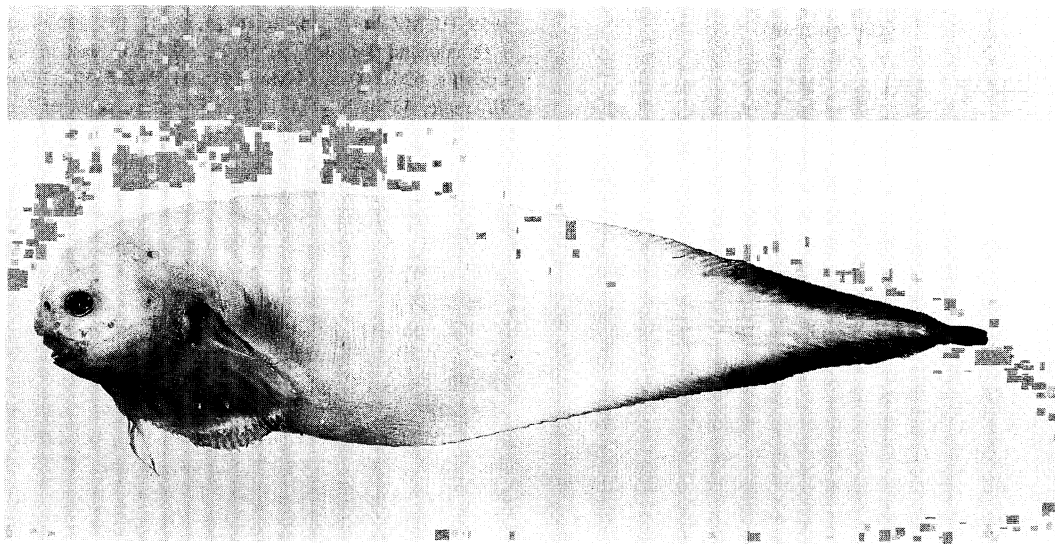


Fig. 1. *Paraliparis tremebundus*, HUMZ 117424, male, 222 mm SL, from off Cape Ochiichi, Pacific coast of Hokkaido.

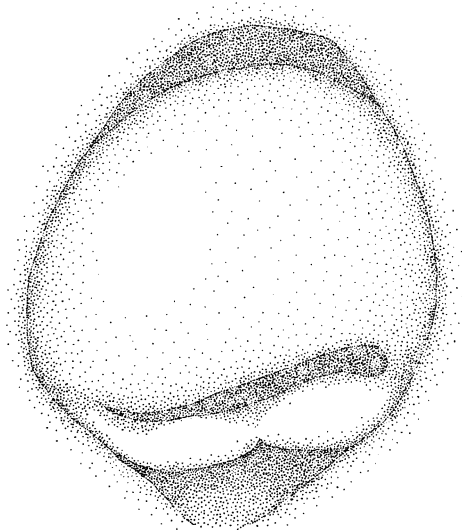


Fig. 2. Ventral view of disk in *Paraliparis tremebundus*, HUMZ 117428, male, 186 mm SL. Scale indicates 0.5 mm.

length 1.1–4.1.

Body long, compressed, tapering slowly to caudal fin. Skin thick, tough, lacking prickles. Gelatinous tissue thick beneath skin. Rudimentary pores forming three rows on each side of body: upper row extending from nape to anterior dorsal fin rays; middle row only above anterior curve of lateral line; lower row forming lateral line from behind supra-branchial pore to caudal fin.

Head compressed; its upper profile descending steeply to very short snout. Nostril single in a short tube on a horizontal through with mid-eye. Eye moderately large. Mouth horizontal; maxillary reaching below posterior margin of eye. Teeth short, stout, trilobed with well developed central lobe, forming wide bands arranged in 8–13 rows on upper jaw and 10–13 rows on lower jaw. Outer teeth simple or faintly trilobed, smaller than inner teeth. Caphalic pores small. Pores at mandibular symphysis widely separated from each other. Gill opening entirely above pectoral fin or rarely extending ventrally in front of 1–3 pectoral fin rays. Opercular flap round, supported by two spines extending horizontally; tip of upper spine nearly on a level with lower margin of orbit.

Notch of pectoral fin moderately deep. Uppermost pectoral fin ray on a horizontal between lower margin of orbit and posterior corner of maxillary. Upper lobe of pectoral fin reaching origin of anal fin.

Lower lobe of pectoral fin short, with 3–5 rays; the longest reaching nearly midway between anus and origin of anal fin when depressed. Pectoral symphysis located below posterior margin of orbit. Origin of dorsal fin above gill opening. Origin of anal fin below 5th–8th dorsal fin ray. Anterior rays of dorsal and anal fins buried in gelatinous tissue. Caudal fin truncate, continuous with dorsal fin for about one-third of its length. Ends of dorsal and anal fins not forming notches on caudal fin.

Disk rudimentary, imperfect, lacking normal spines and rays, in a pit hidden between both lower lobes of pectoral fin. Disk margin of three lobes; anterior lobe projecting like a papilla (Fig. 2). Anus located below interopercle; males with a small conical genital papilla.

Stomach and pyloric caeca located on left side of body cavity. Stomach small. Pyloric caeca short, pointed.

Body color when fresh pinkish; posterior dorsal and anal fins and caudal fin black. In alcohol pinkish color faded; eye black; oral and branchial cavities, peritoneum and stomach black; pyloric caeca pale.

Reaching 343 mm SL.

Distribution. Bering Sea, Okhotsk Sea, and Pacific Ocean off Aleutian Islands, eastern coast of Kamchatka, Kuril Islands, and Hokkaido, at depths of 203 to 1248 m.

Remarks. Gilbert and Burke (1912) and Burke (1930) did not report the meristic counts of the holotype. A radiograph of the holotype shows that it has 67 dorsal, 60 anal, 9 caudal fin rays and 72 (11 + 61) vertebrae. And the number of pectoral fin rays is 32 on the left side (Bill Hoffman, pers. comm.). These counts of the present specimens agree well with those of the holotype.

Data pointed by D. L. Stein cited by Matarese et al. (1989) indicates that *P. tremebundus* has 55–67 dorsal, 49–60 anal and 25–33 pectoral fin rays, and 62–74 vertebrae. The present study expands the ranges to 55–69 dorsal, 49–63 anal and 25–36 pectoral fin rays, and 62–74 vertebrae (9–12 precaudal vertebrae).

P. tremebundus is similar to *P. caudatus* (Gilbert) in having a rudimentary disk and trilobed teeth, but differs from *P. caudatus* in the short lower lobe of pectoral fin [82.4–148.0% of HL in *P. caudatus* (Stein, 1978)], three-lobed disk located in a pit [five-lobed disk not located in a pit (Stein, 1978)], stout teeth (slender teeth), and more dorsal and anal fin rays [49–55 dorsal and 45–50 anal fin rays (Stein,

1978)].

Specimens of *P. tremebundus* have been described from two locations, although its distribution was known to be wider (Tarantetz, 1937; Lindberg and Krashykova, 1987). Recent collections show that it is widely distributed in the Okhotsk and Bering seas and their adjacent waters. Five specimens (HUMZ 117424–117428) provide the first records from Japan and the southernmost records of the species.

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フウライクサウオの再記載

木戸 芳

フウライクサウオ, *P. tremebundus*, はこれまで事実上2採集地のみから記載されてきた。ベーリング海, オホーツク海及びその近接海域から得られた新標本に基づいて本種を詳細に記載した。その結果, 本種の背鰭条数は55-69, 臀鰭条数は49-63, 胸鰭条数は25-36, 脊椎骨数は62-74であることが明らかになった。本種は類似の *P. caudatus* と胸鰭下葉の長さ, 腹吸盤と歯の形態, 背鰭及び臀鰭条数により区別される。また, 北海道の落石沖の標本は本種の日本初記録であり, 最も南方からの記録である。

(039-46 青森県下北郡大間町大字大間字大間 104 大間町役場)