

## First Central Pacific Plate and Hawaiian Record of the Deep-sea Tripod Fish *Bathypterois grallator* (Pisces: Chlorophthalmidae)<sup>1</sup>

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**ABSTRACT:** Two species of tripod fish, *Bathypterois grallator* and *B. cf. atricolor*, were observed in the Hawaiian Islands at depths of >1000 m during submersible dives in May and July 1986. This is the first record of *B. grallator* in the central Pacific Ocean.

SEVEN SPECIMENS OF THE deep-sea tripod fish *Bathypterois grallator* (Goode & Bean, 1886) were observed and photographed during three dives of the submersible *Pisces V* off the island of Maui, Hawaiian Islands, in 1988. The fish were photographed on fine rippled sediment at depths between 1140 and 1320 m on the southern slope of Maui (dives P5-62 and P5-63, Table 1). The specimens were identified by the features that characterize the species: very long, produced pelvic and caudal fin rays (exceeding body length); a uniformly dark body; an unpigmented dorsal fin; an undivided pectoral fin (held upright with the rays extended straight); and lower caudal fin base canted anteriorly (Figure 1, top).

The *Pisces V* video record of the fish showed that it remained motionless with pectoral fins extended and held upright and with the dorsal and caudal fin rays extended, as described by Sulak (1977a). The distal tips of the pelvic fins and modified caudal rays are equipped with cutaneous pads (Sulak 1977b) that rest on the sediment. When perturbed by the manipulator arm of the submersible, the fish swam off, dangling the long pelvic fins. Edgerton's (1955) observation of *Bathypterois* (as *Benthosaurus*) using "its extremities as a kind of landing gear, springing across the bottom like a cricket" was not confirmed by our observations.

*Bathypterois grallator* is a sedentary species and not noticeably disturbed by the submersible. We were, therefore, able to use counts of the specimens along measured transects to estimate abundance. The seven individuals we counted over transects of 1450 m on the Maui slope and 6000 m in the Alenuihaha Channel, assuming an average width of view of 10 m, represent an estimated population density of ca. 0.1 fish per 1000 m<sup>2</sup>.

This is the first record of *B. grallator* in the central Pacific Ocean. This species is otherwise a wide-ranging eurybathic (878–4720 m) and eurythermal (2.7–13.5°C) inhabitant of the deep sea floor (Figure 2) in the Atlantic and Indian oceans (Sulak 1977b). Previous Pacific records are based on a trawl specimen from the Melanesian Basin in the southwestern Pacific, east of the Solomon Islands (Sulak 1977b), and Okiyama's (1986) report of *B. grallator* from "north of 20° N and west of 180° E." Precise locality data from M. Okiyama (pers. comm. 1989) place the capture locality south of Tosa Bay, Japan at depths of 2300–2400 m (Figure 2). The Hawaiian records were from relatively shallow depths

TABLE 1

LOCALITY DATA FOR TRIPOD FISH OBSERVATIONS  
DURING *Pisces V* DIVES OFF HAWAII IN 1988

DIVE NO.	DATE	LOCATION		DEPTH (m)
		N	W	
P5-62	20 May	20°34'	156°5'	1,140–1,290
P5-63	22 May	20°35'	156°5'	1,230–1,320
P5-80	13 July	19°38'	156°4'	1,800

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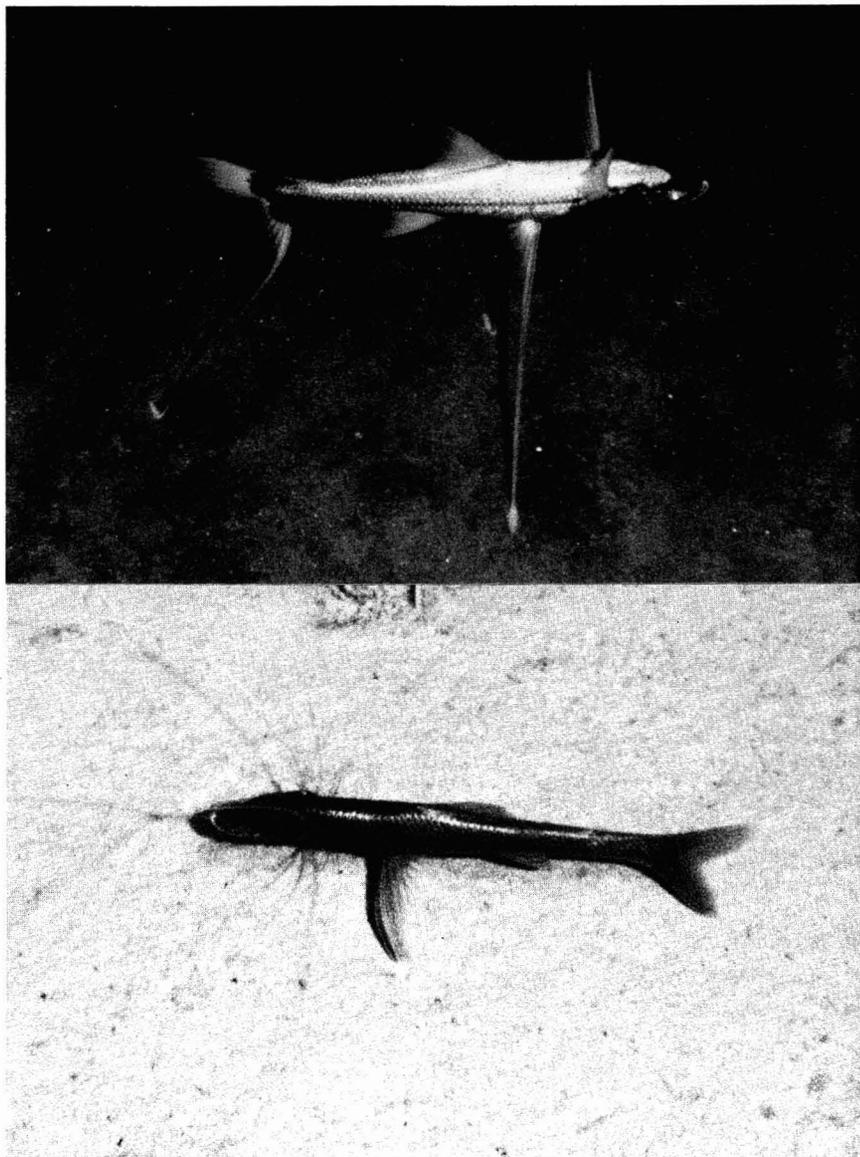


FIGURE 1. Photographs of tripod fish: *Top*, *Bathypterois grallator* on the southern slope of Maui at 1175 m taken during a dive of the submersible *Pisces V* (Hawaii Undersea Research Laboratory photo 62-58 courtesy of A. Malahoff). *Bottom*, *Bathypterois* cf. *atricolor* off Kailua-Kona, Hawaii at 1800 m taken during a dive of the submersible *Pisces V* (Hawaii Undersea Research Laboratory photo 80-03 courtesy of C. Young).

(1175–1290 m), but the 4°C temperature (based on a submersible-mounted CTD) is within the temperature range recorded (2.7–4.5°C) for the species, except for those in the Mediterranean, where higher temperature tolerance is recorded (Sulak 1977b).

The Hawaiian records extend the range of *B. grallator* considerably further eastward in the Pacific Basin. Lack of previous records off the Hawaiian Islands and elsewhere in the Pacific may reflect the paucity of trawl samples at bathyal depths.

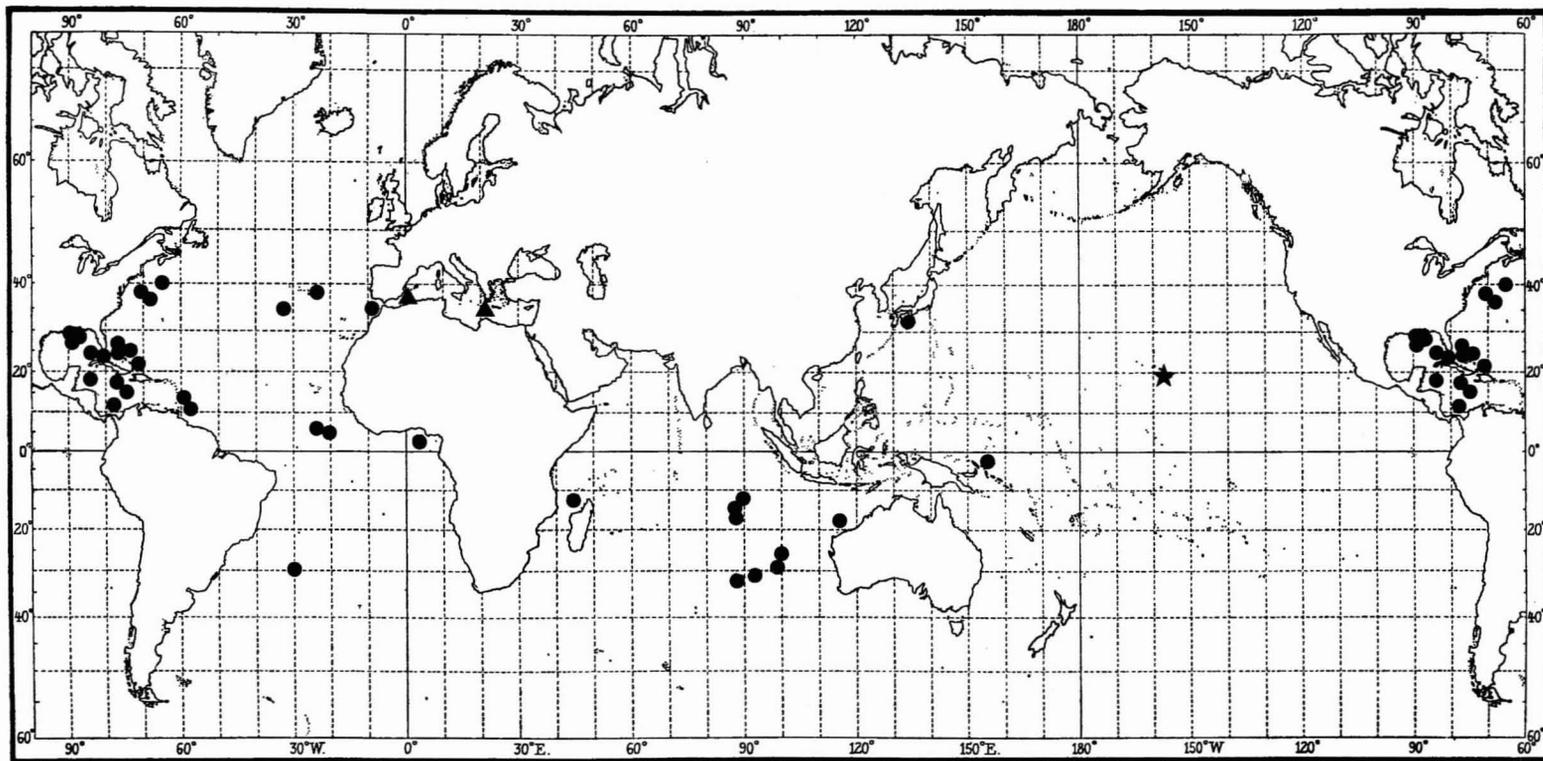


FIGURE 2. Distributional records of *Bathypterois grallator*. Circles represent previous records from bottom trawls (after Sulak 1977b, Shcherbachev 1981, and Okiyama 1986); triangles represent Mediterranean photographic records; the star represents the new Hawaiian photographic record.

A specimen of another species of *Bathypterois* was photographed at a depth of 1800 m off Kailua-Kona, island of Hawaii (dive P5-80, Table 1). This specimen differed from those of *B. grallator* in having short pelvic and caudal fin rays (relative to body length), a dark body and dark dorsal and anal fins, a divided pectoral fin with long upper rays projected anteriorly in a downward arch, and a caudal fin with equal upper and lower lobes (Figure 1, *bottom*). This specimen may represent a member of the *B. grallator* species complex (Shcherbachev 1981, Shcherbachev and Sulak 1988). Three specimens of *B. atricolor* were previously collected near the Hawaiian Islands at depths of 573–2403 m (Sulak 1977*b*). *Bathypterois atricolor* is recorded from widely scattered localities in the central Pacific at depths of 1610–5150 m (Sulak 1977*b*) and is circumglobal in distribution.

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