

by Richard N. Uchida

Valid name	<i>Pseudopentaceros wheeleri</i> Hardy 1983 (Fig. 68)
Synonymy	<i>Pseudopentaceros richardsoni</i> Abe 1957 <i>Pentaceros richardsoni</i> Follett and Dempster 1963 <i>Pseudopentaceros wheeleri</i> Hardy 1983 (?) <i>Pseudopentaceros pectoralis</i> Hardy 1983 (from Hardy 1983)
Common and vernacular names	Pelagic armorhead; armorhead; boarfish; kusakari tsubodai

Distribution

Occurs primarily at Hancock Seamounts in the NWHI at depths of 256-366 m; also at Kure Atoll and Ladd Seamount (its presence at these latter two locations representing a range extension).¹⁹

Distinguishing characteristics

D. XIII-XIV, 8-9; A. IV, 7-8; P1. 17-18; Gr. 7-8+16-18. Body ovate and compressed; dorsal and anal fin profiles evenly curved; head pointed, encased in exposed striated bones, some of which are rugulose or finely wrinkled. Dorsal spines strong, heterocanth, longitudinally ridged. Generally odd-numbered spines inclined to the left, even-numbered ones to the right. However, this character is not consistent (Abe 1957).

Mouth moderate with cleft slightly oblique; lower jaw projecting forward of upper, with maxilla terminating at anterior edge of a wide irregular area of cheek which is covered with small scutellate scales. Nostrils close together and located slightly closer to the orbital margin than to tip of snout. Lateral line prominent, arching from its origin near the top of the opercle to the base of the fourth and fifth dorsal spines, then running almost parallel to the dorsal outline caudal peduncle and backwards to base of caudal.

Polymorphic; varies from "fat" pelagic type to "lean" seamount type. Morphometric measurements of this species may not be reliable characteristics because of extensive morphological variations, possibly related to spawning (Takahashi and Sasaki 1977; Humphreys et al. 1984; Uchida and Tagami 1984b).

In fresh specimens, upper half of body bluish-gray and paler below. Snout, interorbital, and occipital regions of the head tinged with brown.

Life history

In the central North Pacific, spawning of pelagic armorhead begins from about November-December, peaks in January-February, and declines in March (Takahashi and Sasaki 1977). The free-floating eggs and larvae are dispersed by the North Equatorial Current (Chikuni 1971). By March-April, large numbers of young pelagic armorhead are seen atop the seamounts (Sakiura 1972). The pelagic stage lasts until the juvenile attains 25-30 cm FL and descends to the seamount summits to begin a demersal existence.

The pelagic armorhead, unlike many mesopelagic seamount species, does not confine itself exclusively to the demersal environment throughout its lifetime but also migrates into the epipelagic regime. Catches by Japanese trawlers indicate the fish at depths between 300 and 600 m over the central North Pacific seamounts. Other reports indicate that pelagic armorhead is caught in salmon gill nets or with handline near the surface. The species has also been found in stomachs of surface feeding sei whales. This points to the possibility of extensive vertical migration by the species.

Investigators disagree on time of vertical movement. Some report that pelagic armorhead rises to the surface at night, feeding on organisms such as euphausiids, mysids, copepods, salps, shrimps, and myctophids which are usually associated with the deep-scattering layer that ascends toward the surface at night (Hart 1973; Sasaki 1973). Others report that armorhead rises to the surface during the day and descends to the summits at night (Sakiura 1972; Kuroiwa 1973). The NMFS bottom trawl catches were better at night than day indicating that the species was associated with the seamount summit at night.

The fork lengths of unsexed armorhead taken by trawling on NMFS cruises show strong unimodal distributions. At NW Hancock fish ranges between 233 and 398 mm FL and averages 297 mm; 67% of the fish falls between 290 and 310 mm. At SE Hancock, the fish does not appear to differ in size from those at NW Hancock. It ranges from 233 to 359 mm and averages 299 mm, and about 62% of the fish falls within 290 and 310 mm. Females are significantly larger than males (Humphreys et al. 1984). Japanese data indicate that the size of armorhead taken from all the central North Pacific seamounts tended to decrease from 1969 to 1972, then to increase from 1973 to 1976. In all years studied, the size range was narrow. Other studies confirm that no significant differences in fish size occur among the seamounts (Sakiura 1972; Iguchi 1973; Sasaki 1974; Aomori Prefectural Fisheries Experimental Station 1976).

Annual marks are found on the sagittae (otoliths), centrum of vertebrae, and spines of the dorsal, pelvic, and anal fins. Annuli counts are consistent among these hard parts. Preliminary length-age relationships of the pelagic armorhead caught at Hancock Seamounts are 28.8 cm for males and 30.4 cm for females at 2 years and 29.5 cm for males and 31.0 cm for females at 3 years. A few age determinations made by enumerating daily increments on the sagittae are in agreement with ages estimated by annuli.²⁰ However, both methods used to estimate age of the pelagic armorhead have

¹⁹Tagami, D. T., Research Assistant, Southwest Fish. Cent. Honolulu Lab., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396, pers. commun. August 1983.

²⁰Uchiyama, J. H., and J. D. Sampaga. Age and growth estimates of the pelagic armorhead, *Pentaceros richardsoni*. Southwest Fish. Cent. Honolulu Lab., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396 (manuscr. in prep.).

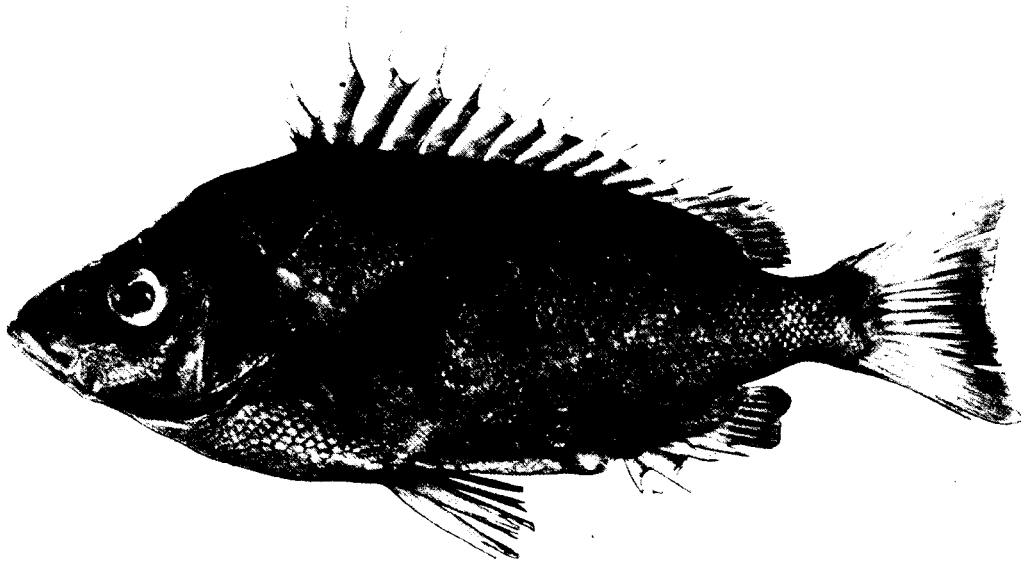


Figure 68.—*Pseudopentaceros wheeleri*.

not been validated. Another aging study using scales estimates that a 22-cm pelagic armorhead is 3 years old and a 32-cm fish is 6 years old (Chikuni 1970).

Gear and catch

Pelagic armorhead is taken mainly with bottom trawl, although small numbers are also taken by handline gear. Traps apparently are ineffective (Uchida and Tagami 1984b).

Catch data, available from the Japanese trawl fishery, showed that at Hancock Seamounts, the annual catch in 1969-81 varied between 67 and 8,518 MT and averaged 1,234 MT. Since 1977 when the MFCMA went into effect, however, annual catches have not exceeded 739 MT. Annual catches from the remaining seamounts in the central North Pacific varied from 433 to 32,794 MT and averaged 12,928 MT in 1969-81.