

## A Pugheaded Specimen Found among a School of Bluefin Tuna, *Thunnus thynnus*

Izumi Nakamura

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On February 5, 1974, a school of bluefin tuna *Thunnus thynnus* (Linnaeus) consisting of 68 individuals (about 63~75 cm in fork length), were trapped in a yellowtail (*Seriola* spp.) set-net at Ine, Wakasa Bay of the Japan Sea. They were landed at Nishimaizuru Fish Market for the auction. While examining the landed fishes at the Fish Market, an abnormal specimen measuring 63.4 cm in fork length was found among a school of the bluefin tuna (Fig. 1). It is impossible to know that this school was whole one school or a part of bigger school. This abnormal specimen showed a curious feature referred as pugheadedness, a deformity often found in fishes. When the mouth is closed, the normally developed lower jaw is projected about 3 cm in front of the tip of the reduced snout. Except the snout region whole body seems to be normal.

Leggett (1969) stated that genetic factors and germinal defects augmented by endocrine disturbances might be responsible for pugheadedness in the case of landlocked Atlantic salmon (*Salmo salar*). Mansueti (1960) commented that pugheadedness in striped bass (*Morone saxatilis*) is not an unusual deformity, although published references are relatively few. It could also be probable that in some earlier growth stage the fish might have been

affected by external damage.

Morphological aspects of the pugheadedness of fish have been reported by some authors (Dawson, 1964, 1966, 1971; Okiyama, 1965; Honma and Ikeda, 1971). The morphological detail of the pugheadedness of this bluefin tuna could not be discussed because I was unable to go into anatomical examination of the specimen.

It is of interest, however, to speculate some aspects of the ecological position in feeding activity of the pugheaded individual mixed among the school of normal bluefin tuna. Length frequency (Fig. 2) of the fish was obtained on the basis of measurements taken at the market. Measurement was made following Marr and Schaefer (1949), whose fork length is referred to total length of general use. The pugheaded specimen is the shortest among the school of bluefin tuna (Fig. 2). Due to the pugheadedness, the fish was believed to be placed in disadvantageous position in its feeding activities as an individual among the school, and the disadvantage has possibly prevented the specimen from normal growth.

It is obvious that a school of bluefin tuna of this size has its own cruising speed during the migratory moving. The pugheaded specimen might be able to follow strenuously the cruising speed, otherwise it would fall off from the school.

There has been recorded some occurrences of billfishes lacking its spear (Gudger, 1940; Moore, 1950; Morrow, 1951), but this is not



Fig. 1. A pugheaded specimen (above) in a school of the bluefin tuna.

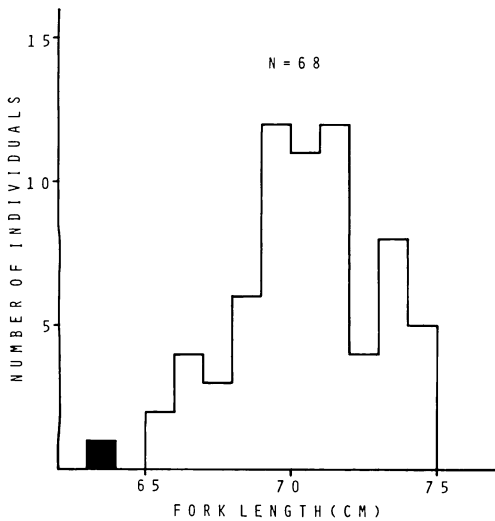


Fig. 2. Length frequency of a school of the bluefin tuna trapped in a yellowtail set-net at Ine. Shaded column shows the pugheaded specimen.

the case as pugheadedness of the tuna presented here.

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(Fisheries Research Station, Kyoto University, Maizuru, Kyoto 625, Japan)

#### 一群のクロマグロ中の狛頭個体

中村 泉

1974年2月5日、京都府伊根町のブリ定置網に一群のクロマグロ若魚(68尾、尾叉長63~75cm)が入網し、京都府漁連の西舞鶴魚市場に水揚げされた。この一群のクロマグロの中にもゆる狛頭と呼ばれる頭部に顕著な畸形のみられる1個体を発見した。クロマグロの狛頭はこれまでに報告例がないと思われるので、簡単に報告し、群内で最も体長の短かい個体であることを指摘した。

(625 京都府舞鶴市長浜 京都大学農学部附属水産実験所)