

**The Bathypelagic Gonostomatid
Fish *Cyclothone obscura*
from Sagami Bay,
Central Japan**

Masaki Miya and Takahisa Nemoto
(Received May 30, 1986)

A single subadult specimen of *Cyclothone obscura* Brauer, 1902 (Fig. 1) was found among over 19,000 *Cyclothone* collected at a station near the center of Sagami Bay during a series of 20 cruises by the R. V. *Tansei Maru* of the Ocean Research Institute, University of Tokyo, from December 1982 to November 1985. The species exhibits circum-equatorial distribution mainly between the 10° latitudes and it is known to be the deepest-dweller among *Cyclothone*, occurring principally in the bathypelagic zone below 1000 m (Mukhacheva, 1964, 1974; Kobayashi, 1973). The northernmost occurrence hitherto recorded is represented by a single specimen from Hawaiian waters in the eastern North Pacific (23°N, Maynard, 1982) and 11°N in the western North Pacific (Parin *et al.*, 1977). Our unpublished records indicate that it also occurs north to 18°N in the South China Sea.

The specimen was collected on 7 June 1985 in Sagami Bay (35°58.4'N, 139°17.3'E, ca. 1500 m depth) during the KT-85-8 cruise of the R. V. *Tansei Maru*. *Cyclothone obscura* was obtained

using an Isaacs-Kidd plankton trawl (Loeb, 1979) towed obliquely from the surface to a depth of 1150 m (towing time, 09: 17–11: 26).

Gonads of the specimen were so small that we were unable to determine its sex. There was no content in either its stomach or intestine. The specimen is deposited at the Plankton Division of the Ocean Research Institute, University of Tokyo.

Since detailed descriptions of the species were given by Mukhacheva (1964) and Kobayashi (1973), some selected counts and measurements that follow Kobayashi (1973) are herein presented. Numbers in parentheses are those reported by Kobayashi (1973) of the Pacific specimens.

D 13(13–15); A 18(17–19); P₁ 9(9–10); P₂ 6(6); gill rakers on the first arch 9+2+16=27 [(8–11)+2+(14–18)=25–30]; branchiostegal rays 13(13–16); vertebrae 14+17=31 [(12–14)+(18–20)=31–33]; pyloric caeca 2(2–3).

Measurements are expressed in percentages of standard length (33.7 mm). Head length 26.4 (average 24, range 20–32); predorsal length 53.4 (54, 51–59); preanal length 54.3(54, 49–60); length of dorsal fin base 22.8(22, 20–23); length of anal fin base 30.5(29, 27–31); body depth 14.5(13, 10–15); least depth of caudal peduncle 6.8(6, 5–7); length of caudal peduncle 12.8(13, 10–15). The following measurements are expressed in percentages of head length (8.9 mm). Snout length 14.7(18, 13–23); orbit diameter 4.8(4, 3–5); interorbital width 16.0(13, 9–22); premaxillary length 14.6(14, 11–18), maxillary length 76.4(77, 71–83).

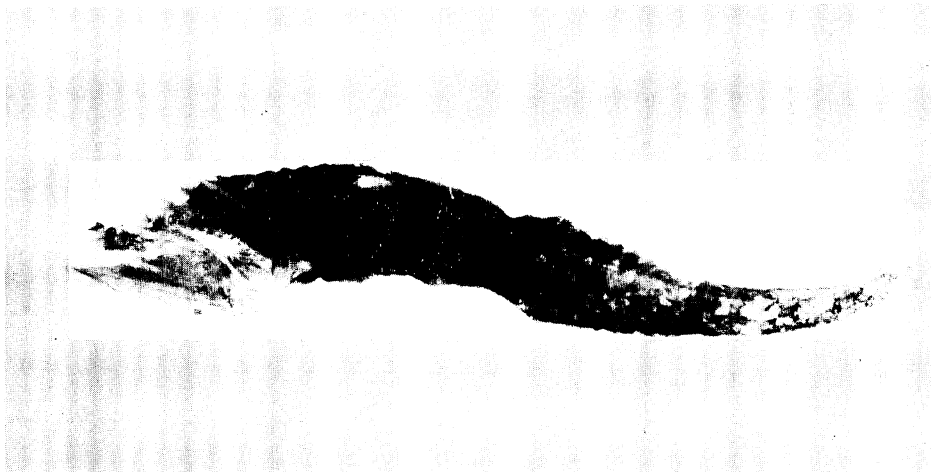


Fig. 1. *Cyclothone obscura* from Sagami Bay, Central Japan, 33.7 mm SL.

Remarks. Five species of *Cyclothone*, *C. alba*, *C. pseudopallida*, *C. atraria*, *C. pallida* and *C. acclinidens*, have been recorded in Japanese waters to date (Kawaguchi, 1971). These species are often damaged in the net during towing, which makes their identification difficult. However, since *Cyclothone obscura* is easily distinguishable from all other known species of *Cyclothone* by bearing no photophores on the body and having the largest number of gill raker counts within the genus, the occurrence causes no identification problem often associated with this genus.

All counts and measurements of the present specimen fall within the range of the Pacific specimens of *C. obscura* (Mukhacheva, 1964; Kobayashi, 1973) except for a caudal vertebral count: the present specimen has 17 vertebrae instead of 18–20. However, another specimen of this species from the South China Sea also has 17 caudal vertebrae (Miya, unpublished data), indicating that the difference is referable to intraspecific variation.

Despite Kawaguchi's (1967) and our great effort to collect midwater fishes in Sagami Bay, the occurrence has been represented only by a single specimen. The situation is the same for Hawaiian waters, where one *C. obscura* was found among about 40,000 *Cyclothone* specimens (Maynard, 1982). Maynard (1982) ascribed such rare occurrence to the small amount of sampling time spent at great depths (>1500 m) where *C. obscura* is usually found, and this may also be the case for Sagami Bay (Miya and Nemoto, 1986). Thus it remains unknown from the present record whether the species reproduces in Japanese waters or is merely expatriated from other waters.

Acknowledgments

We wish to thank the officers, crew members and scientists on the R. V. *Tansei Maru* cruises for their cooperation at sea.

Literature cited

Kawaguchi, K. 1969. Ecological studies on meso- and bathypelagic micronektonic fishes in the western North Pacific Ocean. Ph. D. Thesis, Univ. Tokyo, 221 pp. (In Japanese.)

- Kawaguchi, K. 1971. Gonostomatid fishes of the western North Pacific. Japan. J. Ichthyol., 18: 1–16.
- Kobayashi, B. N. 1973. Systematics, zoogeography, and aspects of the biology of the bathypelagic fish genus *Cyclothone* in the Pacific Ocean. Ph. D. Thesis, Univ. Calif., San Diego, 487 pp.
- Loeb, V. J. 1979. Larval fishes in the zooplankton community of the North Pacific central gyre. Mar. Biol., 53: 173–191.
- Maynard, S. D. 1982. Aspects of the biology of mesopelagic fishes of the genus *Cyclothone* (Pisces: Gonostomatidae) in Hawaiian waters. Ph. D. Thesis, Univ. Hawaii, 257 pp.
- Miya, M. and T. Nemoto. 1986. Life history and vertical distribution of the mesopelagic fish *Cyclothone alba* (family Gonostomatidae) in Sagami Bay, Central Japan. Deep-Sea Res., 33: 1053–1068.
- Mukhacheva, V. A. 1964. The composition of species of the genus *Cyclothone* (Pisces, Gonostomatidae) in the Pacific Ocean. Trudy Inst. Okeanol., 73: 93–138. (In Russian with English summary.)
- Mukhacheva, V. A. 1974. Cyclothones (gen. *Cyclothone*, fam. Gonostomatidae) of the world and their distributions. Trudy Inst. Okeanol., 96: 205–249. (In Russian with English summary.)
- Parin, N. V., V. E. Becker, O. D. Borodulina, E. S. Karmovskaya, B. I. Fedoryako, J. N. Shcherbachev, G. N. Pokhilskaya and V. M. Tchuvasov. 1977. Midwater fishes in the western Tropical Pacific Ocean of the Indo-Australian Archipelago. Trudy Inst. Okeanol., 107: 68–188. (In Russian with English summary.)

(Ocean Research Institute, University of Tokyo, 1–15–1, Minamidai, Nakano-ku, Tokyo 164, Japan)

相模湾から採集された日本初記録のオニハダカ属魚類ク
ロオニハダカ (新称)

宮 正樹・根本敬久

相模湾におけるオニハダカ属魚類の生活史を調査中、19,000 個体を越える本属魚類の標本中に 1 個体のクロオニハダカ *Cyclothone obscura* Brauer 1902 (体長 33.7 mm, 未成魚) が含まれていることが明らかになった。本種は典型的な周赤道分布を示す深層種として知られ、今回の記録は太平洋におけるこれまでの北限 (23°N, ハワイ沖) より緯度で 10 度以上上回る。過去に 1000 m 以深の採集が少ないため、今回の記録からは本種が日本周辺海域で繁殖しているか、あるいは他の海域から無効回遊してきたものかは不明である。本種は発光器をもたないことで他のオニハダカ属魚類と容易に識別できる。

(164 東京都中野区南台 1–15–1 東京大学海洋研究所)