Japanese Journal of Ichthyology
Vol. 25, No. 4 1979

魚類学雑誌
25巻4号 1979年

# Agonid Fishes, *Anoplagonus occidentalis* and *Bothragonus occidentalis*, from Japanese Waters

Tsutomu Kanayama and Shuka Maruyama

(Received July 18, 1978)

*Anoplagonus occidentalis*, which was reported from the Sea of Japan, has been confused with *A. inermis* because of the brief original description made by Lindberg (1950) and scanty morphological information. Therefore, a full description with new diagnostic characters is given in this paper based on specimens from off Ômu, the Okhotsk coast of Hokkaido, and off the southeastern coast of Kunashiri Island, and a comparison of these two species is made.

Except for the original description of *Bothragonus occidentalis* by Lindberg (1935) based on two specimens from the Peter the Great Bay, the Sea of Japan, the only record of this species is from off Habomai Islands (Lindberg, 1959). The present specimens from off Ômu, the Okhotsk coast of Hokkaido, and off Konbumori, the Pacific coast of Hokkaido represent the first record from Japan. Additional morphological information is provided based on the new materials, and this species is compared with the closely related species, *B. swani*.

## Abbreviations and methods

Abbreviations used in the material list are: HUMZ, Laboratory of Marine Zoology, Hokkaido University; UBC, the University of British Columbia; ZUMT, Department of Zoology, the University Museum, University of Tokyo.

Counts and proportional measurements were made in accordance with those of Hubbs and Lagler (1958). The terminology of the bony plates mostly follows that of Gruchy (1969), but the dorsal row and ventral row are shown as total counts of bony plates.

*Anoplagonus occidentalis* Lindberg, 1950
(Japanese name: Nisenametokubire)
(Fig. 1)

**Material examined.** HUMZ 72240 (1, 63.5 mm in SL), 44°47′N, 143°00′E, depth 85 m, off Ômu, Hokkaido, Japan, by a small beam trawl, 25 August 1977; HUMZ 74845 (1, 75.5 mm in SL), 44°47′N, 142°59.5E, depth 85 m, off Ômu, Hokkaido, Japan, by a small beam trawl, 25 August 1977; HUMZ 74846 (1, 52.3 mm in SL), 44°48′N, 143°01′E, depth 95 m, by a small beam trawl, 25 August 1977; ZUMT 45634 (8, 45.0～95.2 mm in SL), off south-eastern coast of Kunashiri I., Kuril Is., August 1927.

Comparative materials: *Anoplagonus inermis* (Günther), UBC 53-141 (4, 81.0～91.8 mm in SL), 49°17′N, 123°10′W, from English Bay, Vancouver, British Columbia, Canada, October 1941; UBC 60-202 (1, 74.6 mm in SL), 48°38′N, 123°17′W, off Mandarte I., near Victoria, British Columbia, Canada, 23 April 1959.

**Description.** Counts and proportional measurements are shown in Table 1.

Body covered with bony plates without spines. Body slender, depressed to front of dorsal fin and compressed at caudal region. First dorsal fin absent. Head depressed and smooth. No pit at nape. Snout blunt and longer than eye diameter. An unarmed terminal rostral plate at anterior end of nasal bones. Nasal bones never attached to each other. Nasal spine absent. Mouth terminal. Maxillary not reaching anterior margin of eye. Some small bony plates present below infraorbital bones. Two or three pairs of bony plates on ventral surface immediately

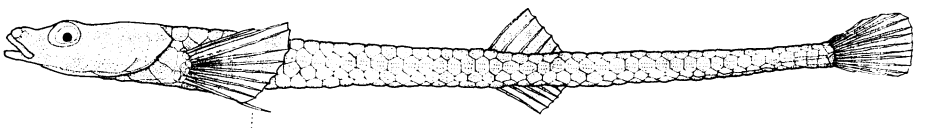

Fig. 1. *Anoplagonus occidentalis* Lindberg, HUMZ 72240, 63.5 mm in SL, from off Ômu, the Okhotsk coast of Hokkaido.

Table 1. Counts and proportional measurements of the genus *Anoplagonus*.

| | *A. occidentalis* | | | | | *A. inermis* | |
|---|---|---|---|---|---|---|---|
| | HUMZ 72240 | HUMZ 74845 | HUMZ 74846 | ZUMT 45634 | Lindberg (1950) original description | UBC 53-141 | UBC 60-202 |
| Number of specimens | 1 | 1 | 1 | 8 | 3 | 4 | 1 |
| Standard length (mm) | 63.5 | 75.5 | 52.3 | 45.0~95.2 | – | 81.0~91.8 | 74.6 |
| Head length (mm) | 12.8 | 15.0 | 11.2 | 10.2~19.0 | – | 15.2~17.7 | 15.1 |
| Proportion in head length (%) | | | | | | | |
| Snout length | 28.1 | 28.0 | 26.8 | 26.3~29.4 | 30.4~31.2 | 23.2~25.6 | 26.5 |
| Eye diameter | 17.2 | 16.0 | 16.1 | 15.7~20.5 | 17.1~18.1 | 19.1~22.0 | 17.9 |
| Body depth | 32.8 | 33.3 | 30.4 | 30.0~36.4 | 27.5~38.5 | 42.9~47.0 | 41.1 |
| Body width | 50.8 | 50.7 | 49.1 | 50.0~55.1 | 48.5~60.4 | 65.9~69.6 | 64.9 |
| Pelvic fin length | 34.4 | 28.0 | 33.9 | 30.6~40.9 | 26.4~29.6 | 32.9~41.7 | 33.1 |
| Depth of caudal peduncle | 11.7 | 10.7 | 10.7 | 10.5~12.2 | 11.0~11.8 | 14.1~16.1 | 13.3 |
| Counts | | | | | | | |
| Dorsal fin rays | 5 | 5 | 5 | 4~6 | 5 | 6 | 6 |
| Pectoral fin rays | 10 | 10 | 10 | 10 | 12 | 10~11 | 11 |
| Pelvic fin rays | 1,2 | 1,2 | 1,2 | 1,2 | 1,2 | 1,2 | 1,2 |
| Anal fin rays | 5 | 4 | 5 | 4~5 | 5 | 5 | 5 |
| Caudal fin rays | 14 | 14 | 13 | 14 | – | 13~14 | – |
| Vertebrae | 11+34 | 11+34 | 10+34 | 10~11+32~35 | – | 10~11+31 | 11+31 |
| Lateral line scales | 43 | 44 | 44 | 42~44 | 44~46 | 41~42 | 42 |
| Bony plates | | | | | | | |
| Mid-dorsal ridge | 14 | 18 | 15 | 14~17 | – | 13 | 13 |
| Mid-ventral ridge | 16 | 16 | 17 | 16~18 | – | 14~15 | 15 |
| Dorsal row | 44 | 45 | 44 | 42~44 | 43~44 | 39~40 | 40 |
| Ventral row | 41 | 41 | 41 | 40~41 | 41~42 | 38~89 | 38 |
| Infralateral ridge | 42 | 43 | 43 | 39~43 | – | 38~39 | 39 |

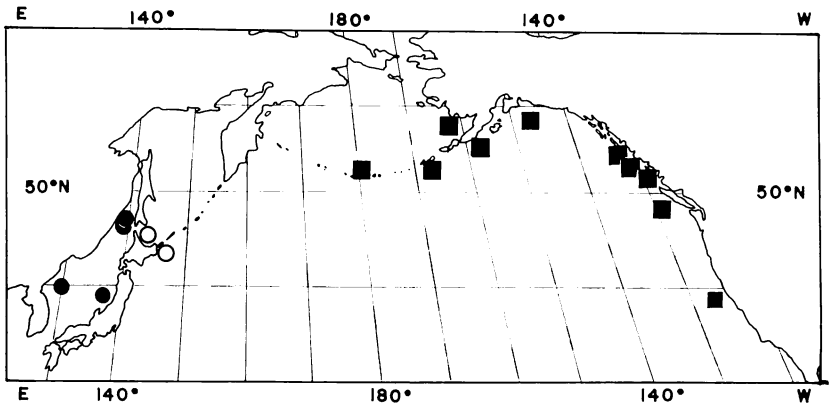


Fig. 2. Distribution of the genus *Anoplagonus*. *Anoplagonus occidentalis*, open circles (present specimens) and solid circles (Lindberg, 1950, and Honma, 1959); *A. inermis*, solid squares (Günther, 1860; Gilbert, 1895; Wilimovsky, 1964; Quast and Hall, 1972; Lea, 1973; Peden and Wilson, 1976).

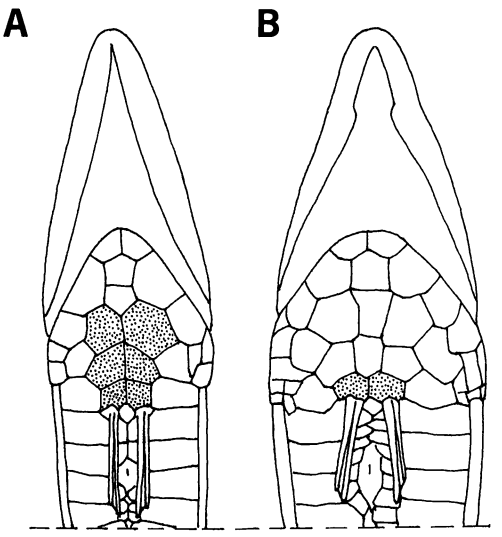


Fig. 3. Pairs of bony plates on ventral surface immediately in front of pelvic fins of (A) *Anoplagonus occidentalis* and (B) *A. inermis*.

in front of pelvic fins. Teeth on vomer, palatines, and jaws. No supralateral ridge.

Color in alcohol: Body dark brown, but paler on anterior part of ventral surface. Head brown dorsally, paler ventrally. Snout and opercular region dark brown. Dorsal, anal and pectoral fins white with dark-brown patches. Pelvic fins pallid. Caudal fin dark brown with pale spots.

**Remarks.** In the genus *Anoplagonus*, two closely related species, *A. occidentalis* and *A. inermis*, are known. *A. occidentalis* differs from *A. inermis* in having two or three pairs of bony plates on the ventral surface immediately in front of the pelvic fins (one pair in the latter, Fig. 3), 43～46 vertebrae (41～42 in the latter), 42～45 bony plates in the dorsal row (39～40 in the latter) and 40～42 bony plates in the ventral row (38～39 in the latter). The present specimens were identified as *A. occidentalis* on the basis of these characters. The presence of two or three pairs of bony plates on the ventral surface immediately in front of the pelvic fins is added as a new diagnostic character of *A. occidentalis*.

The original description of *A. occidentalis* was based on specimens from off eastern North Korea, the Gulf of Tartary, and Moneron Island. Schmidt (1904) reported *A. inermis* from off eastern North Korea, which was synonymized by Lindberg (1950) with *A. occidentalis*. Although Lindberg's (1950) treatment was justifiable, some authors still include the Korean record of Schmidt (1904) in the distribution of *A. inermis* (Wilimovsky, 1954; Quast and Hall, 1972; Hart, 1973; Lea, 1973). As shown in Fig. 2, *A. occidentalis* is found in the Sea of Japan, Sea of Okhotsk, and off the Pacific coast of Hokkaido (Lindberg, 1950; Honma, 1959), whereas *A. inermis* lives in the eastern Bering Sea and the eastern North Pacific (Günther, 1860; Gilbert, 1895; Wilimovsky, 1964; Quast and Hall, 1972; Lea, 1973; Peden and Wilson, 1976).

In Japan, a species of the genus *Anoplagonus* was recorded for the first time by Honma (1959) and was identified as *A. inermis*. However, judging from his description and the distributional pattern of the two species of *Anoplagonus* (Fig. 2), Honma's (1959) *A. inermis* appears to be *A. occidentalis*, as Ueno (1967) pointed out. Therefore, the present specimens of *A. occidentalis* are the second record from Japan.

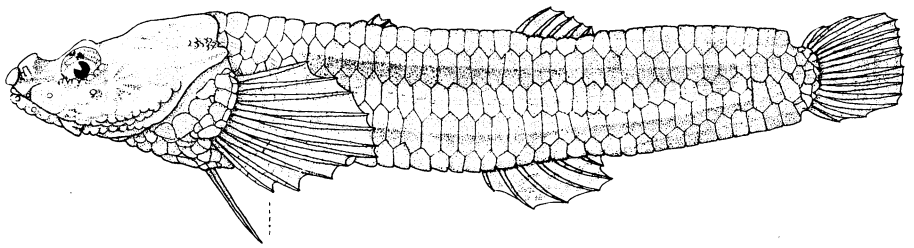

Fig. 4. *Bothragonus occidentalis* Lindberg, HUMZ 72239, 48.2 mm in standard length, from off Ômu, the Okhotsk coast of Hokkaido.

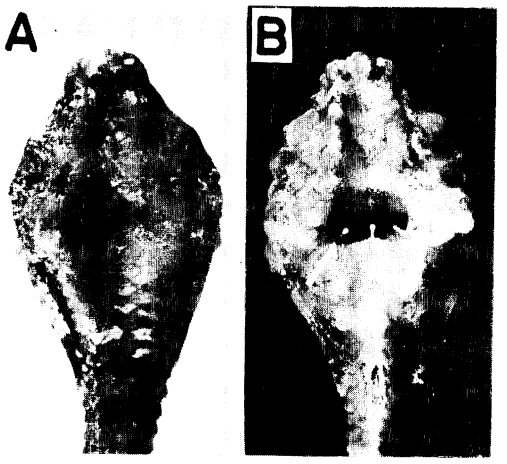


Fig. 5. Dorsal aspects of *Bothragonus occidentalis* (A) and *B. swani* (B). Arrow indicates the dermal processes extending into the large nuchal pit.

*Bothragonus occidentalis* Lindberg, 1935
(Japanese name: Saitokubire)
(Fig. 4)

**Material examined.** HUMZ 72239 (1, 48.2 mm in SL), 44°40′N, 142°57′E, depth 30 m, off Ômu, Hokkaido, Japan, by a small beam trawl, 7 September 1976; HUMZ 77436～77438 (3, 32.8～37.0 mm in SL), 42°56′N, 144°31′E, depth 35 m, off Konbumori, near Kushiro, Hokkaido, Japan, by a small beam trawl, 10 August 1978.

Comparative materials: *Bothragonus swani* (Steindachner), HUMZ 51922 (1, 49.4 mm in SL), 38°54′50″N, 123°43′05″W, depth 40～50 feet, off Arena Cove, Mendocino Co., California, U.S.A., 17 August 1972; UBC 53-263 (1, 47.5 mm in SL), 50°34′N, 126°58′W, off Alort Bay, Vancouver I., British Columbia, Canada, November 1950.

**Description.** Counts: First dorsal fin rays II～IV; second dorsal fin rays 4～5; pectoral fin rays 11; pelvic fin rays I, 2; anal fin rays 6; principal caudal fin rays 6+6; vertebrae 8～10+27～29; lateral line scales 33～36; bony plates of mid-dorsal ridge 12～13; bony plates of mid-ventral ridge 10～11; bony plates of supralateral ridge 32～34; bony plates of infralateral ridge 34～35; bony plates below infraorbital bones 5～6.

Proportional measurements in standard length (%): Head length 27.8～31.1; snout length 6.2～7.9; eye diameter 3.1～5.0; interorbital width 6.2～8.1; body depth 17.0～18.0; body width 23.9～26.5; length from tip of snout to origin of first dorsal fin 42.4～44.9; depth of caudal peduncle 7.9～14.1.

**Remarks.** In the genus *Bothragonus*, two species, *B. occidentalis* and *B. swani*, are known. The present specimens agree well with Lindberg's original description of *B. occidentalis*. It is clearly separable from the closely related *B. swani* by the absence of dermal processes extending into the large nuchal pit (Fig. 5), 37～38 vertebrae (32 in the latter), 12～13 bony plates in mid-dorsal ridge (5～6 in the latter), 10～11 bony plates in mid-ventral ridge (2～3 in the latter) and 5～6 bony plates below the infraorbital bones (2 in the latter).

## Acknowledgments

The authors sincerely express their gratitude to Prof. Takao Igarashi and Dr. Kunio Amaoka of the Laboratory of Marine Zoology, Hokkaido University, for their valuable advice and criticisms of the manuscript and Mrs. Lillian J. Dempster and Dr. William N. Eschmeyer, of the California Academy of Sciences, for their critical reading of the manuscript and for providing specimens. The authors are also very grateful to Mr. Shigeaki Furuyama and the crew of the Kihou Maru V, Dr. Yoshiaki Tominaga, University of Tokyo, Dr. Norman J. Wilimovsky, at the Institute of Animal Resource Ecology, the University of British Columbia, and Mr. Koji Abe of Hokkaido Marine Experimental Station at Kushiro, for supplying specimens.

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(TK: Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 041; SM: Hokkaido Fisheries Experimental Station, Abashiri, Hokkaido 099)

## 本邦から得られたトクビレ科の2希種，ニセナメトクビレとサイトクビレ

金山　勉・丸山秀佳

北海道のオホーツク沿岸から本邦では2番目の記録であるニセナメトクビレと本邦初記録のサイトクビレが得られた．これらの標本とブリティシュコロンビア大学および東京大学所蔵の標本とを合せて，比較研究を行った．

ニセナメトクビレとナメトクビレはしばしば混同されてきたが，前者は腹鰭直前に対をなした2～3対の骨板，43～46脊椎骨，42～44背側列骨板および40～42腹側列骨板をもつことにより後者から明瞭に区別される。これら2種の分布が重なることはなく，前者は日本海，オホーツク海および国後島の太平洋岸に，後者はベーリング海東部および北太平洋北東部に各々分布する．本邦では本間 (1959) が新潟沖からナメトクビレを報告しているが，彼の記載および前述2種の分布様式から判断し，ニセナメトクビレであると考えられる．

サイトクビレはデブサイトクビレに酷似するが，本種は頸部のへこみに皮骨性の突起を欠くことにより区別される．

(金山：041 函館市港町 3-1-1 北海道大学水産学部水産動物学講座；丸山：099-31 網走市字鱒浦 31 北海道立網走水産試験場)