

**Cymothoid Isopods (Crustacea: Isopoda) collected by Dr. Y. Kano in
Toyama Bay of the Sea of Japan***

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加野泰男博士採集の富山湾産ウオノエ科魚類寄生虫 (甲殻綱：等脚目)

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加野泰男博士が1974-2000年に富山湾で採集したウオノエ科魚類寄生虫標本45個体を調査した結果, 以下の5属4種3未同定種を確認した: ウオノコバン属 (新称) の未同定種 *Nerocila* sp. (宿主: マハゼ *Acanthogobius flavimanus*), ウオノギンカ属 (新称) の未同定種 *Anilocra* sp. (宿主: コノシロ *Konosirus punctatus*), ソコウオノエ *Ceratothoa oxyrrhynchaena* (宿主: アカムツ *Doederleinia berycoides*), タイノエ *Ceratothoa verrucosa* (宿主: マダイ *Pagrus major*), *Mothocya parvostis* (宿主: サヨリ *Hyporhamphus sajori*), エラヌシ属の未同定種 *Mothocya* sp. (宿主: メジナ *Girella punctata*, チャガラ *Pterogobius zonoleucus*), *Elthusa raynaudii*. タイノエの学名は新結合である。ソコウオノエは水深30-300mで採集された。本種は全長12-26cmのアカムツから採集され, アカムツに普通にみられる寄生虫であると考えられた。ウオノギンカ属の種と *Elthusa raynaudii* は日本海で初めて記録された。コノシロ (ニシン科) はウオノギンカ属の, そしてチャガラ (ハゼ科) はエラヌシ属の新宿主記録となる。

キーワード: ウオノエ科, 魚類寄生虫, 新結合, 新分布記録, 新宿主記録, 垂直分布
Key words: Cymothoidae, fish parasite, new combination, new distributional record, new host record, vertical distribution

Cymothoid isopods are ectoparasites of marine, fresh, and brackish water fishes. In Japan, about 45 species of cymothoid isopods are known (Saito et al., 2000), but the study on cymothoid isopods in the Sea of Japan is much ignored and only a few study have been carried out (e.g. Nunomura, 1981, 1985). This paper deals with a collection of cymothoid isopods collected by Dr. Y. Kano in Toyama Bay of the Sea of Japan, between the years 1974 and 2000.

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Materials and Methods

Samples were preserved in 70% ethanol or 10% neutralized Formalin/sea water solution. The common and scientific names of fishes follow those recommended by Froese and Pauly (2009). The material examined in this study is deposited in the Toyama Science Museum, Toyama (TOYA).

Results and Discussion

The collection includes a total of 45 specimens representing four species and three unidentified species stated below.

Family Cymothoidae

Nerocila sp.

(Fig. 1)

Material examined. 1 male still attached to the host (7.0 mm), Uozu South Port, Uozu, 8 Oct. 1995, on pectoral fin of *Acanthogobius flavimanus* (Temminck and Schlegel, 1845), TOYA-Cr 20372; 1 male (8.5 mm), Uozu South Port, Uozu, 31 Oct. 2000, on the body surface of *A. flavimanus*, TOYA-Cr 20373.

Anilocra sp.

(Fig. 2)

Material examined. 1 male (14.0 mm), Uozu Port, Uozu, 26 Jan. 1992, ex *Konosirus punctatus* (Temminck and Schlegel, 1846) (11 cm TL), TOYA-Cr 20371.

Remarks. The present specimen represents the first record for the genus *Anilocra* from the Sea of Japan. In the present study, the Konoshiro gizzard shad *Konosirus punctatus* (Clupeidae) is newly recorded as a host of *Anilocra* species.

Ceratothoa oxyrrhynchaena Koelbel, 1878

(Figs. 3-6)

Material examined. 4 males (10.5, 10.5, 10.0, 6.0 mm), 4 ovig. females (32.0, 31.0, 28.0, 24.0 mm), off the mouth of Hayatsuki River, Uozu-Namerikawa, stationary net, 25 May 1974, in mouth of *Doederleinia berycoides* (Hilgendorf, 1879), TOYA-Cr 20338~20345; 2 males (19.0, 18.0 mm), 1 ovig. female (48.0 mm), off Tomari, Asahi, tangle net, 22 Apr. 1976, in mouth of *D. berycoides*, TOYA-Cr 20346~20348 1 male (14.5 mm), 1 ovig. female (37.0 mm), off Tomari, Asahi, 300 m depth, 7 Nov. 1977, in mouth of *D. berycoides*, TOYA-Cr 20349; 1 male (12.5 mm), 1 ovig. female still attached to the host, off Iwase, Toyama, trawl net, 200 m depth, 13 Feb. 1997, in mouth of *D. berycoides*, TOYA-Cr 20350; 1 male (14.0 mm), 2 ovig. females (32.0, 32.0 mm), off Sanga, Uozu, 30 Sep. 1997, in mouths of *D. berycoides*, (3 exs., 16-20 cm TL), TOYA-Cr 20351~20353; 1 male (12.0 mm), 1 non-ovig. female (22.0 mm), off Aojima, Uozu, tangle net, 110 m depth, 20 Oct. 1997, in mouth of *D. berycoides* (16.5 cm TL), TOYA-Cr 20354~20355; 1 female still attached to the host, off Aojima, Uozu, tangle net, 60 m depth, 1 Jun. 1998, in mouth of *D. berycoides* (12 cm TL), TOYA-Cr 20356; 1 female still attached to the host, off Aojima, Uozu, tangle net, 30-40 m depth, 24 Jun. 1998, in mouth of *D. berycoides* (14.5 cm TL), TOYA-Cr 20357, 1 non-ovig. female (30.0 mm), off Aojima, Uozu, tangle net, 2 Jul. 1998, in mouth of *D. berycoides* (25 cm TL), TOYA-Cr 20358; 1 male (13.0 mm), 1 ovig. female (34.0 mm), off Uozu Port, Uozu, tangle net, 180 m depth, 1 Aug. 1998, in mouth of *D. berycoides* (26 cm TL), TOYA-Cr 20359~20360; 1 male (9.0 mm), 1 female still attached to the host, off Aojima, Uozu, tangle net, 60-70 m depth, 26 May 2000, in mouth of *D. berycoides* (14.2 cm TL), TOYA-Cr 20361~20362; 1 male (17.0 mm), 1 ovig. female (37.0 mm), off Aojima, Uozu, tangle net, 50-60 m depth, 26 Oct. 2000, in mouth of *D. berycoides* (22 cm TL), TOYA-Cr 20363~20364.

Remarks. In the Sea of Japan, *C. oxyrrhynchaena* was recorded only off Uchiura, Ishikawa Prefecture (Tatsu, 2002). Hence, the present study is the second and easternmost records of the species from the Sea of Japan. *Ceratothoa*

oxyrrhynchaena has been recorded from 110-151 m depth in the Pacific coast of Honshu, Japan (Thielemann, 1910; Yamauchi, 2009). In the present study, this species was recorded from 30-300 m depth in Toyama Bay of the Sea of Japan.

The present study revealed that *C. oxyrrhynchaena* infected in *D. berycoides* of 12-26 cm TL. Judging from the materials examined, *C. oxyrrhynchaena* is probably a common parasite of the Rosy seabass *D. berycoides*, expensive edible fish in Japan. As stated by Yamauchi (2009), further study on the cymothoid infection of *D. berycoides* should be made in Japan.

***Ceratothoa verrucosa* (Schioedte and Meinert, 1883) new combination**

(Figs. 7-8)

Material examined. 1 male (14.0 mm), 1 ovig. female (23.0 mm), off Sanga, Uozu, stationary net, 23 Oct. 1992, ex *Pagrus major* (Temminck and Schlegel, 1843) (19 cm TL), TOYA-Cr 20365~20366.

Remarks. Bruce and Bowman (1989) treated *Rhexanella* Stebbing, 1911 as a junior synonym of *Ceratothoa* Dana, 1852 based on the diagnosis described by Schioedte and Meinert (1883). Therefore, we move *Rhexanella verrucosa* (Schioedte and Meinert, 1883) to *Ceratothoa*.

***Mothocya parvostis* Bruce, 1986**

(Figs. 9-11)

Material examined. 2 females still attached to the hosts, off the mouth of Hayatsuki River, Uozu-Namerikawa, stationary net, 21 Apr. 1976, in gill chamber of *Hyporhamphus sajori* (Temminck and Schlegel, 1846), TOYA-Cr 20367~20368; 1 male (8.0 mm), 1 non-ovig. female (13.0 mm), fish market of Uozu Port, Uozu, 22 Apr. 1976, in gill chamber of *H. sajori*, TOYA-Cr 20369~20370; 1 male still attached to the hosts, the mouth of Kado River, Uozu, 4 Aug. 1996, in gill chamber of *H. sajori* (7.9 cm TL), TOYA-Cr 20573.

***Mothocya* sp.**

(Fig. 12)

Material examined. 4 males (7.5, 6.5, 6.0, 5.0 mm), Sanga, Uozu, 12 Jul. 1979, on the body surface of *Girella punctata* Gray, 1835 (2 exs., 3.6, 3.1 cm TL), TOYA-Cr 20574~20577; 1 male (7.0 mm), Uozu South Port, Uozu, 27 Aug. 1992, ex head of *Pterogobius zonoleucus* Jordan and Snyder, 1901 (34 mm TL), TOYA-Cr 20378.

Remarks. In the present study, *Pterogobius zonoleucus* (Gobiidae) is newly recorded as a host of *Mothocya* species.

***Elthusa raynaudii* (Milne-Edwards, 1840)**

(Fig. 13)

Material examined. 1 non-ovig. female (23.0 mm), off Hayatsuki River, Uozu, 100 m depth, 12 Jun. 1974, host unknown, tangle net, TOYA-Cr 19970.

Remarks. The present specimen represents the second record for the species from Japan following two specimens recorded as *Livoneca epimerias* Richardson, 1909 collected from Hakodate, Hokkaido (Richardson, 1909). The present specimen is the first record of *E. raynaudii* from the Sea of Japan.

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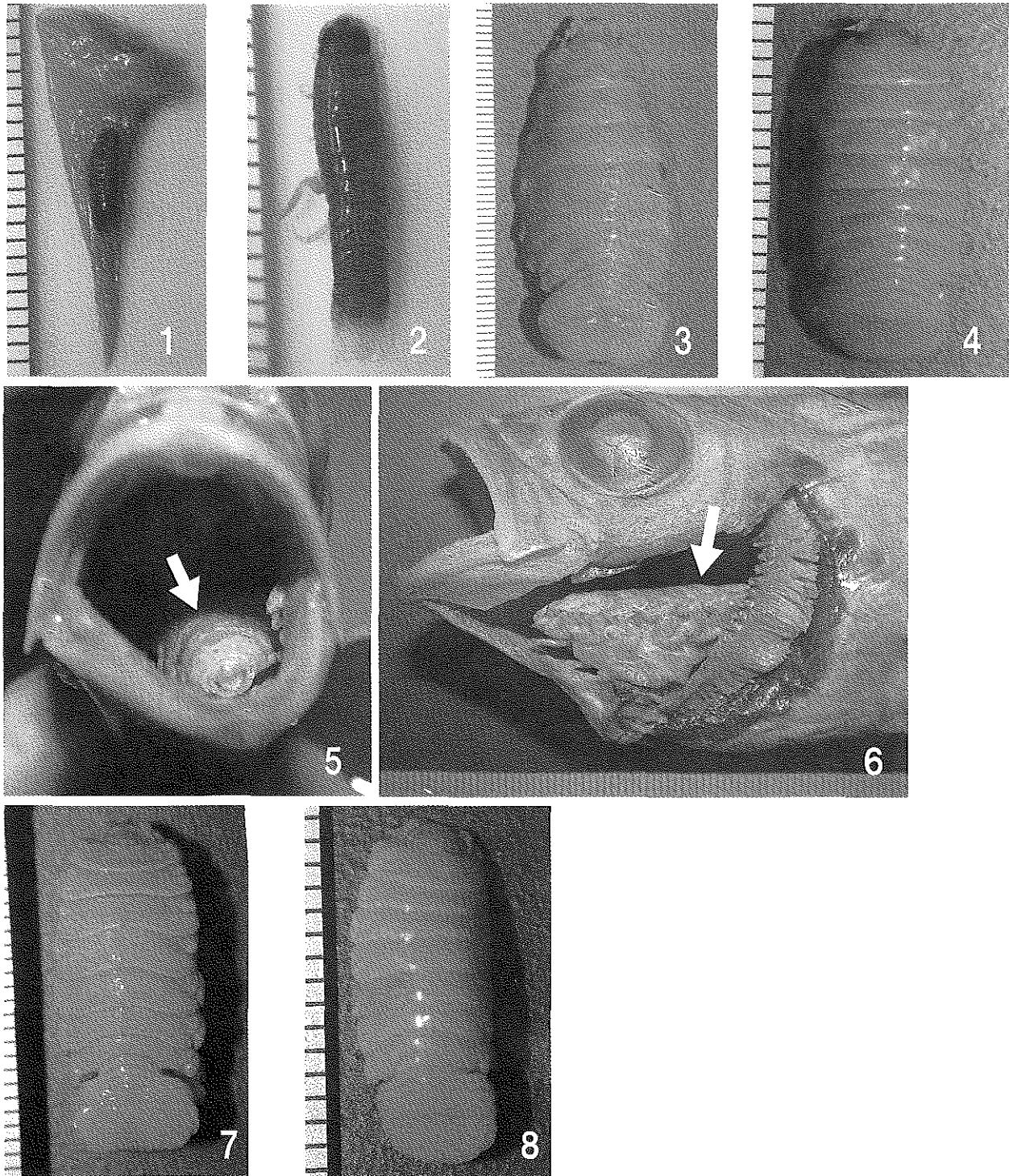


Fig.1. *Nerocila* sp., male (TOYA-Cr 20372) on pectoral fin of *Acanthogobius flavimanus* (Temminck and Schlegel)

Fig.2. *Anilocra* sp., male (TOYA-Cr 20371)

Fig.3. *Ceratothoa oxyrrhynchaena* Koelbel, female (TOYA-Cr 20346)

Fig.4. *Ceratothoa oxyrrhynchaena* Koelbel, male (TOYA-Cr 20347)

Figs.5-6. *Ceratothoa oxyrrhynchaena* Koelbel, female (TOYA-Cr 20350) in mouth of *Doederleinia berycoides* (Hilgendorf)

Fig.7. *Ceratothoa verrucosa* (Schioedte and Meinert), female (TOYA-Cr 20365)

Fig.8. *Ceratothoa verrucosa* (Schioedte and Meinert), male (TOYA-Cr 20366)

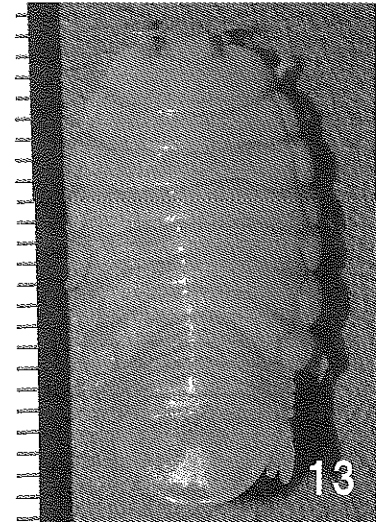
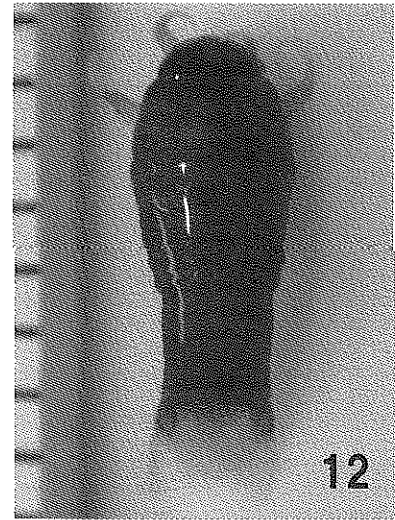
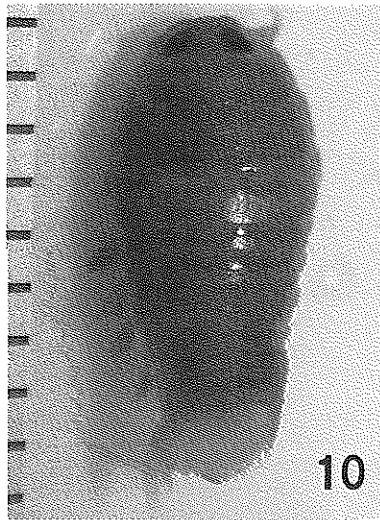


Fig.9. *Mothocya parvostis* Bruce, female (TOYA-Cr 20369)

Fig.10. *Mothocya parvostis* Bruce, male (TOYA-Cr 20370)

Fig.11. *Mothocya parvostis* Bruce, female (TOYA-Cr 20367) in gill chamber of *Hyporhamphus sajori* (Temminck and Schlegel)

Fig.12. *Mothocya* sp., male (TOYA-Cr 20378)

Fig.13. *Elthusa raynaudii* (Milne-Edwards), female (TOYA-Cr 19970)