

情 報

**The Finding of *Pennella* sp. (Copepoda: Pennellidae) on the Saury, *Cololabis saira*, in the Western and Central North Pacific Ocean and the Okhotsk Sea<sup>\*1,2</sup>**

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The parasitic copepod, *Pennella* sp., was found on the saury, *Cololabis saira* (BREVOORT), from the western and central North Pacific Ocean and the Okhotsk Sea in 1981 and 1982. It is supposed that the parasite population in the western Pacific area has recently increased.

In September 1981, a black large copepod was found on a saury, *Cololabis saira* (BREVOORT), caught off southeast Hokkaido, Japan, and was identified as *Pennella* sp. Since the *Pennella* infection of the saury had been reported only along the Pacific coast of North America (EBERHARDT, 1954; SOKOLOVSKII, 1969; BAEVA, 1970; HUGHES, 1973), this finding promoted me to elucidate the distribution of the parasite in the North Pacific Ocean and adjacent seas.

A total of 4588 sauries were examined for the presence of *Pennella* sp. The fish were collected by research vessels and commercial fishing boats from 58 localities in the North Pacific Ocean west of 173°E and the Okhotsk Sea during the two periods September to October 1981 and July to November 1982. As a result, infected sauries were found to be widely distributed in the western and central North Pacific Ocean and along the Hokkaido coast in the Okhotsk Sea (Fig. 1). The anterior part of the parasite was embedded

in the musculature of the host and the trunk with a pair of long egg sacs protruded externally from the host (Fig. 2). In the western Pacific area, the rate of infection was very low (0.7%) in 1981, but increased to 8.1% in 1982. In the central Pacific and Okhotsk areas, the prevalence of infection was 5.7% and 4.5% in 1982, respectively. The mean intensity of infection ranged from 1.00 to 1.32 throughout the periods (Table 1). The maximum number of parasite per fish was six.

These results are different from those of SOKOLOVSKII (1969) and BAEVA (1970). They examined the parasites of sauries from Asian and American localities, and reported that *Pennella* sp. was found only on the American sauries. Since *Pennella* sp. is a black large parasite, it could have been easily found if it had occurred. Therefore, the lack of infection on their Asian sauries was probably due to the low levels of infection. The following facts would indicate the past low levels of infection: (1) Japanese saury fishermen who had worked for over 20 years were not aware of the *Pennella* infection until recently although they know the infection of another parasitic copepod, *Caligus macarovi*, on the skin of the fish, and (2) there have been no problems on *Pennella* sp. of the saury in Japan. As the

\*1 Parasites of the saury, *Cololabis saira* (BREVOORT)—I.

\*2 A part of this paper was presented at the annual meeting of Hokkaido Branch of the Japanese Society of Scientific Fisheries, Kushiro, Hokkaido, November 9, 1982.

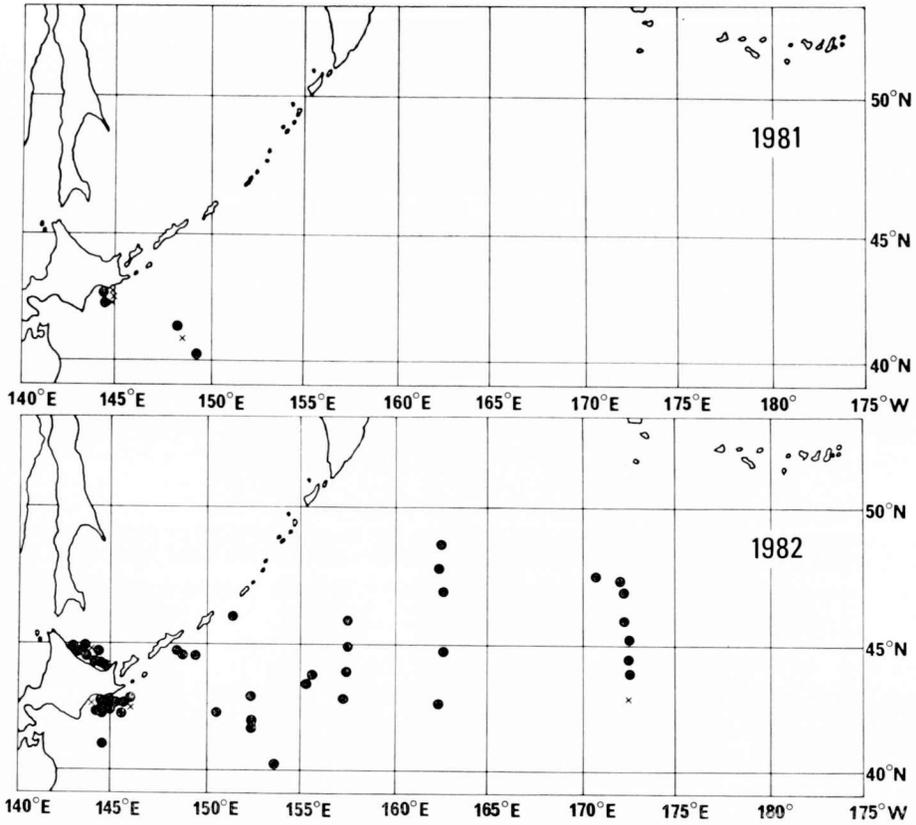


Fig. 1. Distribution of *Pennella*-infected sauries in the western and central North Pacific Ocean and the Okhotsk Sea in 1981 and 1982. Closed circles (●) represent the sampling locations of infected sauries, and crosses (×) show those at which no parasite was found.

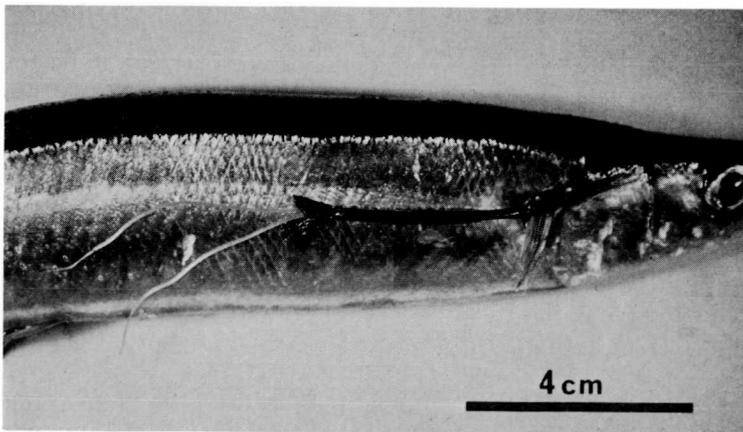


Fig. 2. *Cololabis saira* infected with *Pennella* sp.

saury is an important market fish, the parasite must have raised food hygienic problems as was the case with a saury acanthocephalan,

*Rhadinorhynchus selkirki* (KAGEI, 1976).

It is interesting to note that the prevalence of infection on the western and probably also

**Table 1.** Infection levels of *Pennella* sp. on the saury in the western and central North Pacific Ocean and the Okhotsk Sea

| Area                                  | Year | No. of fish |          | Prevalence* | No. of parasites found | Mean intensity** | Relative density*** |
|---------------------------------------|------|-------------|----------|-------------|------------------------|------------------|---------------------|
|                                       |      | examined    | infected |             |                        |                  |                     |
| Western North Pacific<br>(144°–160°E) | 1981 | 754         | 5        | 0.7         | 5                      | 1.00             | 0.01                |
|                                       | 1982 | 2231        | 181      | 8.1         | 239                    | 1.32             | 0.11                |
| Central North Pacific<br>(160°–173°E) | 1982 | 1068        | 61       | 5.7         | 79                     | 1.30             | 0.07                |
| Okhotsk Sea                           | 1982 | 535         | 24       | 4.5         | 31                     | 1.29             | 0.06                |
| Total                                 |      | 4588        | 271      | 5.9         | 354                    | 1.31             | 0.08                |

\* Percentage of fish infected.

\*\* Mean number of parasites per infected fish.

\*\*\* Mean number of parasites per fish examined.

central Pacific sauries increased. In 1983, its level increased furthermore especially in the western Pacific area (NAGASAWA, unpublished). Although long-term changes in the size of the *Pennella* sp. population has not been studied, it appears apparent that the population has recently increased. The data on the infection levels are now being analysed in details, and will be reported elsewhere.

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北西・中央太平洋およびオホーツク海のサンマに見出された  
寄生性橈脚類 *Pennella* sp. について

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1981年9月、北海道の南東沖合で漁獲されたサンマ *Cololabis saira* に橈脚類 *Pennella* sp. (サンマヒジキムシ, 新称) の寄生が確認された。従来, *Pennella* 属のサンマへの寄生は北米西岸沖合域のものに限られていたため, 1981年と翌1982年の両年にわたり, 北西・中央太平洋とオホーツク海の58点より4588尾のサンマを得て, その寄生状況を調べた。その結果, サンマヒジキムシの寄生を受けたサンマは, これらの海域に広く分布することが判明した。虫体は宿主の筋肉中に体前部を穿入させ, 一對の長い卵囊を付けた黒色の胴部を宿主の体外に露出させていた。北西太平洋における本種の寄生率は1981年には0.7%と低かったが, 1982年には8.1%と上昇し, 最近, 本種の個体群が増大していることが示唆された。また, 過去の調査でサンマに本種の寄生を認めなかったのは, 寄生率の低さに原因すると考えられた。被寄生魚一尾当りの寄生数は最高6虫体で, 平均1.00~1.32虫体であった。

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