

資料 Data

A Checklist of the Parasitic Copepods (Crustacea) of Fishes and Invertebrates of the Seto Inland Sea, Japan (1935–2011), with a New Locality Record for *Caligus macarovi* (Caligidae)

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Abstract: Information on the parasitic copepods of fishes and invertebrates from the Seto Inland Sea published between 1935 and 2011 is assembled as Parasite-Host and Host-Parasite lists. A total of 88 nominal species (78 from fishes and 10 from invertebrates) of the following families have been reported: Anthessiidae (2 species), Bomolochidae (7), Chondracanthidae (7), Ergasilidae (3), Lichomolgidae (2), Mantridae (1), Myicolidae (1), Mytilicolidae (2), Notodelphyidae (2), Taeniacanthidae (14), Umazuracolidae (1), Caligidae (15), Hatschekiidae (9), Kroyeriidae (1), Lernaeopodidae (9), Lernanthropidae (7), Pandaridae (1), Pennellidae (2), Pseudocycnidae (1), and Pseudohatschekiidae (1). Information on the parasitic copepods not identified to species level is also given, including the species of Philichthyidae, Taeniacanthidae, and Pennellidae.

Keywords: Checklist, Parasitic copepods, Seto Inland Sea

I. Introduction

The Seto Inland Sea (SIS) (Fig. 1) is located in western Japan and bounded by three large islands (Honshu, Shikoku, and Kyushu). The surface area of the sea is approximately $20 \times 10^3 \text{ km}^2$ (450 km long and 5–50 km wide) with 37 m in average depth. It is connected to the North Pacific Ocean through two channels, the Kii Channel (Fig. 1A) and the Bungo Channel (Fig. 1B), and to the Sea of Japan through the Kanmon Strait (Fig. 1C).

As of 2011, we have a 76-year history of research on the parasitic copepods of fishes and invertebrates in the Seto Inland Sea. In 1935, Takamochi Mori reported the mytilicolid copepod *Mytilicola orientalis* for the first time from this sea (Mori, 1935). Subsequently, based on the papers published from 1935 to 1983, Inaba (1988) listed 37 species of parasitic copepods (34 species from fishes and 4 species from invertebrates) in the monograph entitled “Fauna and Flora of the Seto Inland Sea,” but the list was incomplete due to an insufficient literature search. Moreover, since the 1980s many papers have been published on the parasitic copepods from the Seto Inland Sea. Therefore, the present checklist is compiled to supplement Inaba’s list, containing information on 88 nominal species of parasitic copepods (78 species from fishes and 10 species from invertebrates) recorded

between 1935 and 2011. These 88 species belong to 20 families: Anthessiidae (2 species), Bomolochidae (7), Chondracanthidae (7), Ergasilidae (3), Lichomolgidae (2), Mantridae (1), Myicolidae (1), Mytilicolidae (2), Notodelphyidae (2), Taeniacanthidae (14), Umazuracolidae (1), Caligidae (15), Hatschekiidae (9), Kroyeriidae (1), Lernaeopodidae (9), Lernanthropidae (7), Pandaridae (1), Pennellidae (2), Pseudocycnidae (1), and Pseudohatschekiidae (1). Information on the parasitic copepods not identified to species level is also given, including the species of Philichthyidae, Taeniacanthidae, and Pennellidae.

In this checklist, information on the parasitic copepods is assembled as Parasite-Host and Host-Parasite lists. In the Parasite-Host List, the classification of Copepoda proposed by Boxshall and Halsey (2004) is followed. For each species of parasitic copepod, the following information is provided: 1) the current *scientific name*, including the author(s) and date, followed by any recognized *synonym(s)* used in establishing the record(s) in the Seto Inland Sea. For the species listed by Inaba (1988), an asterisk (*) is added immediately after the date of the scientific name where applicable; 2) *Host(s)*, in which currently accepted scientific names are given: for fish hosts, the names recommended by Froese and

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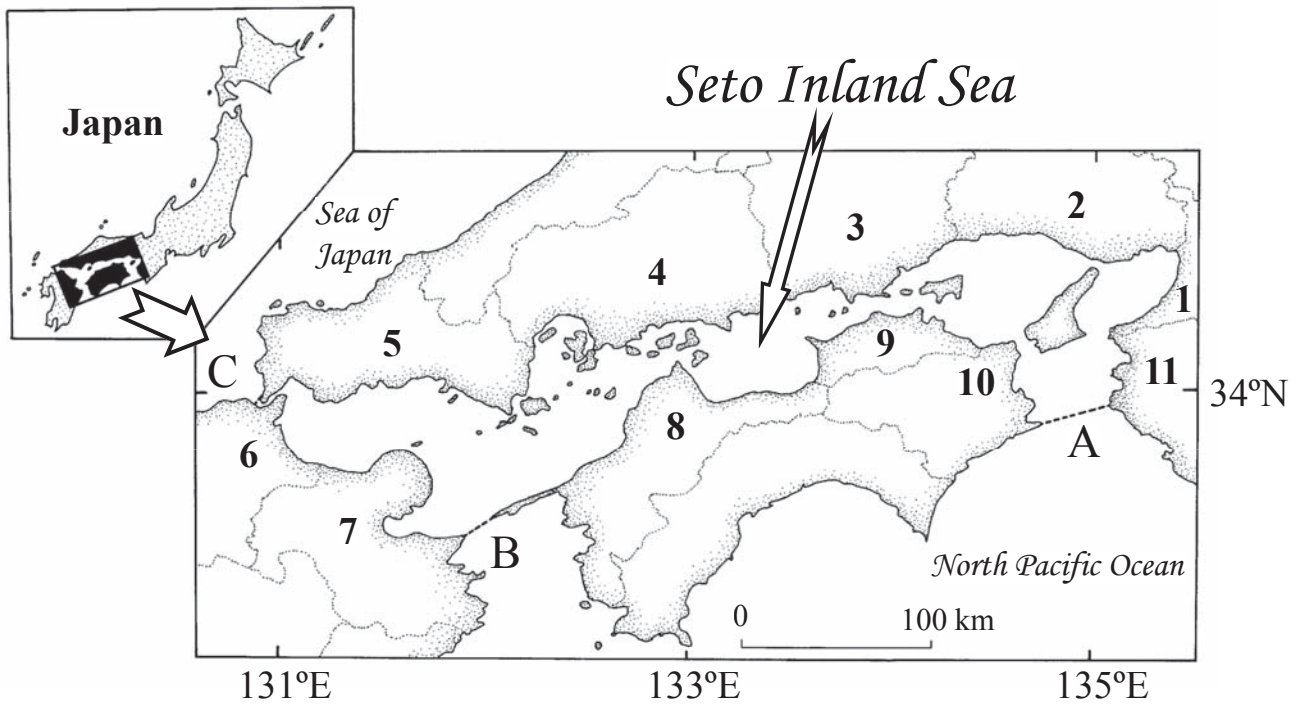


Fig. 1 A map of the Seto Inland Sea (SIS), western Japan. A, a boundary in the Kii Channel between SIS and the North Pacific Ocean (NPO); B, a boundary in the Bungo Channel between SIS and NPO; C, a boundary near the Kanmon Strait between SIS and the Sea of Japan. The Seto Inland Sea is surrounded by eleven prefectures (1, Osaka; 2, Hyogo; 3, Okayama; 4, Hiroshima; 5, Yamaguchi; 6, Fukuoka; 7, Oita; 8, Ehime; 9, Kagawa; 10, Tokushima; 11, Wakayama), and prefectural boundaries are shown by dotted lines.

Pauly (2011) are used. The scientific names used in original reports are shown in parentheses. A Japanese common name is also given in Japanese in parentheses for each host species after its scientific name; 3) the *site(s)* of occurrence of the parasite on or in its host(s); 4) *Record(s)*, in which the authors responsible for the records are listed in chronological order. Each reference is followed by the locality or localities given in two parts, first the prefecture(s) (Fig. 1) and then the detailed collection locality or localities from which the parasite was reported; and 5) *Remarks*, where applicable explanatory comments are offered on nomenclature and notes such as questionable host identifications in the original reports. In the Host-Parasite List, the genera and species of hosts are listed in alphabetical order within each of the higher taxa of animals (Bivalvia, Gastropoda, Ascidiacea, Elasmobranchii, and Actinopterygii). After the name of each host species, parasitic copepod(s) is (are) listed in systematic order shown in the Parasite-Host List. Information on the site(s) of occurrence and the prefecture(s) is also given for each copepod species.

II. Parasite-Host List

Subclass Copepoda Milne Edwards, 1830

Order Cyclopoida Burmeister, 1834

Family Anthessiidae Humes, 1986

Anthessius graciliunguis Do and Kajihara, 1984

Host and site: *Mytilus galloprovincialis* (as *M. edulis galloprovincialis*, ムラサキイガイ), mantle cavity

Records: Do and Kajihara 1984 (Hyogo: Himeji Harbor); Do and Kajihara 1986 (Hyogo: Himeji Harbor)

Panaietes yamagutii Izawa, 1976

Syn.: *Panaietes incamerata* Stebbing, 1900

Host and sites: *Turbo* (*Bacillus*) *cornutus* (サザエ), mouth cavity, esophagus

Records: Anonymous 1967 (unspecified locality); Nagasawa 2007 (unspecified locality)

Family Bomolochidae Sumpf, 1871

Bomolochus bellones Burmeister, 1835*

Syn.: *Bomolochus hyporhamphi* Yamaguti and Yamasu, 1959

- Host and site: *Hyporhamphus sajori* (as *H. sayori*, サヨリ), gills
Records: Yamaguti and Yamasu 1959 (Okayama: Tamano); Ho et al. 1983 (Okayama: Kojima Bay)
- Naricolax atypicus* Ho, Do and Kasahara, 1983*
Host and site: *Hexagrammos otakii* (アイナメ), nasal cavity
Record: Ho et al. 1983 (Okayama: Kojima Bay)
- Nothobomolochus lateolabracis* (Yamaguti and Yamasu, 1959)*
Syn.: *Artacolax lateolabracis* Yamaguti and Yamasu, 1959
Host and site: *Lateolabrax japonicus* (スズキ), gills
Records: Yamaguti and Yamasu 1959 (Okayama: Tamano); Ho et al. 1983 (Okayama: Kojima Bay)
- Nothobomolochus tricerus* (Basset-Smith, 1898)*
Host and site: *Pampus argenteus* (マナガツオ), branchial cavity
Record: Ho et al. 1983 (Okayama: Kojima Bay)
- Nothobomolochus thambus* Ho, Do and Kasahara, 1983*
Host and site: *Konosirus punctatus* (コノシロ), gills
Record: Ho et al. 1983 (Okayama: Kojima Bay)
- Orbitacolax hapalogenyos* (Yamaguti and Yamasu, 1959)*
Syn.: *Taeniacanthus hapalogenyos* Yamaguti and Yamasu, 1959
Host and sites: *Hapalogenys mucronatus* (セトダイ), gills, mouth cavity, branchial cavity
Records: Yamaguti and Yamasu 1959 (Okayama: Tamano); Ho et al. 1983 (Okayama: Kojima Bay)
- Pumiliopes squamosus* Cressey and Boyle, 1973*
Host and site: *Sardinella zunasi* (as *Harengula zunasi*, サッパ), eye
Record: Ho et al. 1983 (Okayama: Kojima Bay)
- Family Chondracanthidae Milne Edwards, 1840
- Acanthochondria inimici* Yamaguti, 1939
Host and site: *Inimicus japonicus* (オニオコゼ), mouth cavity
Record: Yamaguti 1939c (Hyogo: Tarumi)
Remarks: This species was redescribed using material from the Sea of Japan (Dojiri and Ho, 1988).
- Acanthochondria shawi* Yü, 1935
Host and site: *Sillago sihama* (モトギス), gills
Record: Yamaguti 1939c (Hyogo: Tarumi)
Remarks: The identification of *S. sihama* by Yamaguti (1939c) needs verification because the species is a subtropical fish and not distributed in the Seto Inland Sea.
- Acanthochondria sixteni* (Wilson, 1922)
Host and site: *Paralichthys olivaceus* (ヒラメ), gills
Record: Yamaguti 1939c (unspecified locality)
Remarks: This species was redescribed using material from the Sea of Japan (Dojiri and Ho, 1988; Ho and Kim, 1995b).
- Bactrochondria longitruncus* (Yamaguti, 1939)
Syn.: *Pseudochondracanthus longitruncus* Yamaguti, 1939
Host and site: *Rhinoplagusia japonica* (クロウシノシタ), gills
Record: Yamaguti 1939c (Hyogo: Tarumi)
- Brachiochondria higanfugu* Yamaguti and Yamasu, 1959*
Host and site: *Takifugu pardalis* (as *Spheroides pardalis*, ヒガンフグ), mouth cavity
Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)
- Prochondracanthopsis quadricomutus* Shiino, 1960
Syn.: *Humphyreysia hoi* Do and Kasahara, 1982
Host and site: *Parapercis sexfasciata* (クラカケトラギス), gills
Record: Do and Kasahara 1982 (Okayama: Kojima Bay)
Remarks: *Humphyreysia hoi* was relegated to a junior synonym of *P. quadricomutus* by Ho et al. (2011)
- Pseudacanthocanthopsis secunda* (Yamaguti and Yamasu, 1960)
Syn.: *Pseudacanthopsis secunda* Yamaguti and Yamasu, 1960*
Host and site: *Apogon lineatus* (テンジクダイ), gills

Record: Yamaguti and Yamasu 1960a (Okayama: Tamano)

Remarks: The taxonomic status of this species was discussed by Ho and Kim (1995a).

Family Ergasilidae von Nordmann, 1832

Inaba (1988: 158) included *Ergasilus orientalis* Yamaguti in his monograph of the fauna and flora of the Seto Inland Sea, but the species is not included herein because it has so far never been recorded from the sea.

Demoergasilus amplexans (Dogiel and Akhmerov, 1952)

Host and site: *Mugil cephalus* (ボラ), gills

Record: Ho and Do 1982 (Okayama: Kojima Bay)

Nipergasilus bora (Yamaguti, 1939)

Host and site: *Mugil cephalus* (ボラ), gills

Record: Ho and Do 1982 (Okayama: Kojima Bay)

Thersitina kasaharai (Do, 1981)

Syn.: *Diergasilus kasaharai* Do, 1981

Host and sites: *Mugil cephalus* (ボラ), branchial cavity, gills

Records: Do 1981 (Okayama: Kojima Bay); Ho and Do 1982 (Okayama: Kojima Bay)

Remarks: Ohtsuka et al. (2004) transferred this species from *Diergasilus* to *Thersitina*.

Family Lichomolgidae Kossmann, 1877

Modilicola bifidus Tanaka, 1961

Host and site: *Mytilus galloprovincialis* (as *M. edulis galloprovincialis*, ムラサキイガイ), not recorded

Records: Do and Kajihara 1984 (Ehime: unspecified locality; Hyogo: Himeji); Do and Kajihara 1986 (Ehime: Toyo; Hyogo: Himeji)

Philoconcha paphiae Yamaguti, 1936*

Host and site: *Paphia euglypta* (スダレガイ), pericardium

Record: Yamaguti 1936c (unspecified locality)

Family Mantridae Leigh-Sharpe, 1934

Chamicola nagasawai Ohtsuka, Boxshall and Torigoe,

2000

Host and site: *Pseudochama retroversa* (サルノカシラ), mantle cavity

Record: Ohtsuka et al. 2000 (Hiroshima: Yasuura, Sijyu Island, Kokuno Island)

Family Mycolidae Yamaguti, 1936

Pseudomyicola spinosus (Raffaele and Monticelli, 1885)*

Syn.: *Pseudomyicola ostreae* Yamaguti, 1936

Hosts and sites: *Ostrea denselamellosa* (as *O. (O.) denselamellosa*, イタボガキ), *Mytilus galloprovincialis* (as *M. edulis galloprovincialis*, ムラサキイガイ), branchial cavity, mantle cavity, stomach

Records: Yamaguti 1936c (Hyogo: Hutami); Do and Kajihara 1986 (Ehime: Toyo; Yamaguchi [as Yamaguti], Aio; Hiroshima: Fukuyama; Hyogo: Himeji; Osaka: Sennan)

Remarks: *Pseudomyicola ostreae* was relegated to a junior synonym of *P. spinosus* by Ho (1980).

Family Mytilicolidae Bocquet and Stock, 1957

Mytilicola orientalis Mori, 1935*

Hosts and site: *Crassostrea gigas* (as *Ostrea gigas*, マガキ), *Mytilus coruscus* (as *M. crassitesta*, イガイ), intestine

Records: Mori 1935 (Hiroshima: Hiroshima Bay); Yamazaki 1950 (Hiroshima: Hiroshima Bay)

Trochicola japonicus Shimura and Kuwabara, 1984

Host and site: *Ruditapes philippinarum* (アサリ), intestine

Record: Momoyama and Taga 2005 (Yamaguchi: Iwakuni)

Family Notodelphyidae Dana, 1853

Pachypygus curvatus Ooishi, 1961*

Host and site: *Pyura michaelsoni* (ミハエルボヤ), pharyngeal cavity

Record: Ooishi 1961b (Ehime: Omishima [as Oomishima])

Pachypygus gibber (Thorell, 1859)*

Host and site: *Styela plicata* (シロボヤ), pharyngeal

cavity

Record: Ooishi 1961a (Ehime: Omishima [as Oomishima])

Family Philichthyidae Vogt, 1877

Sarcotaces sp.

Host and site: *Saurida elongata* (トカゲエソ), encysted in musculature

Record: Momoyama and Tensha 2006 (Yamaguchi: Suo-Nada)

Family Taeniacanthidae C. B. Wilson, 1911

Anchistrotos kojimensis Do and Ho, 1983

Host and site: *Acanthogobius flavimanus* (マハゼ), branchial cavity

Record: Do and Ho 1983a (Okayama: Kojima Bay)

Biacanthus pleuronichthydis (Yamaguti, 1939)

Syn.: *Anchistrotos pleuronichthydis* Yamaguti, 1939

Hosts and site: *Pleuronichthys cornutus* (メイタガレイ), *Verasper variegatus* (ホシガレイ), *Paralichthys olivaceus* (ヒラメ), body surface

Records: Yamaguti 1939a (Hyogo: Tarumi); Nagasawa et al. 2011b (Hyogo: off Awaji-shima Island)

Remarks: The redescription of *B. pleuronichthydis* was made by Tang and Izawa (2005).

Cirracanthus monacanthi (Yamaguti, 1939)

Syn.: *Taeniacanthus monacanthi* Yamaguti, 1939

Hosts and site: *Stephanolepis cirrhifer* (as *Monacanthus cirrifer*, カワハギ), *Monacanthus chinensis* (モロコシハギ), gills

Records: Yamaguti 1939a (Hyogo: Tarumi); Tang et al. 2011 (Ehime: Imabari; Hiroshima: Itsukaichi)

Remarks: *Taeniacanthus monacanthi* was transferred to *Cirracanthus* by Dojiri and Cressey (1987).

Taeniacanthus balistae (Claus, 1864)

Syn.: *Taeniacanthus longichela* Yamaguti and Yamasu, 1959*

Hosts and site: *Thamnaconus modestus* (as *Cantherines modestus*, ウマヅラハギ), *Aluterus monoceros* (ウスバハギ), mouth cavity

Record: Yamaguti and Yamasu 1959 (Okayama:

Tamano)

Remarks: *Taeniacanthus longichela* was synonymized with *T. balistae* by Dojiri and Cressey (1987).

Taeniacanthus fugu Yamaguti and Yamasu, 1959*

Host and site: Unidentified tetraodontid (as *Spheroides* sp., フグ科魚類の1種), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Taeniacanthus lagocephali Pearse, 1952

Syn.: *Taeniacanthus sabafugu* Yamaguti and Yamasu, 1959*

Host and site: *Lagocephalus spadiceus* (as *Spheroides spadiceus*, サバフグ属の1種), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Remarks: *Taeniacanthus sabafugu* was relegated to a junior synonym of *T. lagocephali* by Ho (1969), which has been supported by Dojiri and Cressey (1987).

Taeniacanthus inimici (Yamaguti and Yamasu, 1959)

Syn.: *Parataeniacanthus inimici* Yamaguti and Yamasu, 1959*

Host and site: *Inimicus japonicus* (オニオコゼ), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Remarks: *Parataeniacanthus inimici* was transferred to *Taeniacanthus* by Dojiri and Cressey (1987). Subsequently, the species was redescribed as *Cirracanthus inimici* by Dojiri and Ho (1987). Currently, however, Tang et al. (2011) transferred it back to *Taeniacanthus*.

Taeniacanthus neoperis Yamaguti, 1939

Host and site: *Paraperis sexafasciata* (クラカケトラギス), gills

Records: Do and Kasahara 1982 (Okayama: Kojima Bay); Dojiri and Cressey 1987 (Hyogo: Kobe Market)

Taeniacanthus pectinatus Yamaguti and Yamasu, 1959*

Host and site: Unidentified tetraodontid (as *Spheroides* sp., フグ科魚類の1種), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Taeniacanthus platycephali (Yamaguti, 1939)

Host and site: *Platycephalus indicus* (コチ属の1種), not recorded

Record: Dojiri and Cressey 1987 (Okayama: Kojima Bay)

Remarks: This species was originally described as *Parataeniacanthus platycephali* from the inner surface of the operculum of *P. indicus* from an unknown locality of Japan by Yamaguti (1939a) but transferred to *Taeniacanthus* by Dojiri and Cressey (1987). Since the fish previously reported as *P. indicus* in Japan is recently regarded as *Platycephalus* sp., the identification of *P. indicus* needs verification.

Taeniacanthus sauridae Yamaguti and Yamasu, 1959*

Host and site: *Saurida tumbil* (as *Saurida argyrophanes*, マエソ属の1種), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Remarks: The identification of *S. argyrophanes* recorded by Yamaguti and Yamasu (1959) needs verification.

Taeniacanthus Sebastichthydis Yamaguti, 1939

Host and site: *Sebastes inermis* (アカメバル), not recorded

Record: Dojiri and Cressey 1987 (Okayama: Kojima Bay)

Taeniacanthus yamagutii (Shiino, 1957)*

Hosts and site: *Takifugu pardalis* (as *Spheroides pardalis*, ヒガンフグ), *T. xanthopterus* (as *S. xanthopterus*, シマフグ), *T. rubripes* (トラフグ), mouth cavity

Records: Yamaguti and Yamasu 1959 (Okayama: Tamano); Dojiri and Cressey 1987 (Okayama: Kojima Bay)

Taeniacanthus sp.

Host and site: *Takifugu niphobles* (クサフグ), gills

Record: Ito et al. 2006 (Hiroshima: off the Takehara Marine Science Station)

Pseudotaeniacanthus congeri Yamaguti and Yamasu, 1959*

Host and site: *Conger myriaster* (as *Astroconger myriaster*, マアナゴ), gills

Records: Yamaguti and Yamasu 1959 (Okayama:

Tamano); Dojiri and Cressey 1987 (Okayama: Kojima Bay)

Family Umazuracolidae Ho, Ohtsuka and Nakadachi, 2006

Umazuracola elongatus Ho, Ohtsuka and Nakadachi, 2006

Host and site: *Thamnaconus modestus* (ウマヅラハギ), body surface

Record: Ho et al. 2006 (Ehime: fish market in Imabari)

Order Siphonostomatoidea Burmeister, 1835

Family Caligidae Burmeister, 1835

According to Nagasawa et al. (2010: 116, table 1), 17 species of *Caligus* were reported from the Seto Island Sea from 1927-2010, but only nine of them are listed herein because *C. undulatus* Shen and Li was collected only in plankton and the seven remaining species (*C. brevis* Shiino, *C. calotomi* Shiino, *C. cordiventris* Shiino, *C. lalandei* Barnard, *C. longipedis* Basset-Smith, *C. oviceps* Shiino, and *C. sclerotinosus* Roubal, Aritage and Rohde) were reported from Shirahama (or Seto) on the Pacific coast of Wakayama Prefecture and the Bungo Channel. Recently, two species (*C. latigentitalis* Shiino and *C. macarovi* Gusev) were found in the sea, thus a total of 11 species of *Caligus* are listed in this checklist.

Caligus epinepheli Yamaguti, 1936

Host and site: *Epinephelus akaara* (キジハタ), gills

Record: Yamaguti 1936a (Hyogo: Tarumi)

Caligus fugu Yamaguti and Yamasu, 1959*

Hosts and sites: *Takifugu rubripes* (as *Spheroides rubripes*, トラフグ), *T. alboplumbeus* (as *S. alboplumbeus*, コモンダマシ), *T. niphobles* (as *S. niphobles*, クサフグ), *T. pardalis* (as *S. pardalis*, ヒガンフグ), *Lagocephalus wheeleri* (シロサバフグ), mouth cavity (palate), gills, branchial cavity

Records: Yamaguti and Yamasu 1959 (Okayama: Tamano); Nagasawa et al. 2010 (Hiroshima: off Itsukaichi and Takehara)

Caligus hoplognathi Yamaguti and Yamasu, 1959*

Host and site: *Oplegnathus fasciatus* (as *Hoplognathus*

fasciata, イシダイ), mouth cavity

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Caligus latigenitalis Shiino, 1956

Host and site: *Acanthopagrus schlegelii schlegelii* (クロダイ), body surface

Record: Madinabeitia and Nagasawa 2011 (Hiroshima: Hiroshima Bay)

Caligus macarovi Gusev, 1951

Host and site: *Cololabis saira* (サンマ), body surface

Record: This paper (Hiroshima: Hiroshima Bay)

Remarks: This species is new to the Seto Inland Sea. *Cololabis saira* is a rare migrant to the sea and the fish infected with *C. macarovi* were collected on June 23, 2007 in Hiroshima Bay off the coast of Ten-nou in Kure. Voucher specimens are deposited in the Crustacea collection at the National Museum of Nature and Science, Tokyo (NSMT-Cr 21869). Information on the literature of *C. macarovi* is available from Nagasawa (2011).

Caligus orientalis Gusev, 1951

Host and site: *Liza macrolepis* (コボラ, as *Liza akame*, アカメ), body surface

Records: Urawa et al. 1979 (Hiroshima: mouth of the Ashida River); Muroga 1979 (Hiroshima: estuary of the Ashida River)

Remarks: There is a taxonomic confusion in the mugilids from Japan, thus the identification of *Liza akame* reported by Urawa et al. (1979) and Muroga (1979) needs verification. Nagasawa et al. (2010) used *Moolgarda perusii* (ナンヨウボラ) as its scientific name.

Caligus pagrosomi Yamaguti, 1939

Host and site: *Pagrus major* (as *Pagrosomus unicolor*, マダイ), gills

Record: Yamaguti 1939b (Hyogo: Tarumi)

Remarks: Two papers (Ho and Lin, 2003; Boxshall and El-Rashidy, 2009) are useful in identification of this species.

Caligus polycanthi Gnanamuthu, 1950

Syn.: *Caligus canthidermis* Yamaguti and Yamasu, 1959*

Host and site: *Canthidermis maculata* (as *Canthidermis maculatus*, アミモンガラ), mouth cavity

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Caligus seriolae Yamaguti, 1936

Host and site: *Seriola quinqueradiata* (ブリ), gills

Record: Yamaguti 1936a (unspecified locality)

Caligus spinosus Yamaguti, 1939*

Host and site: *Seriola quinqueradiata* (as *S. quinquefasciatus*, ブリ), gills

Records: Yamaguti 1939b (Hyogo: Tarumi); Yamaguti and Yamasu 1960b (Hyogo: Tarumi)

Caligus tanago Yamaguti, 1939

Hosts and sites: *Ditrema temmincki temmincki* (as *Ditrema temmincki*, ウミタナゴ), *Lateolabrax japonicus* (スズキ), gills, body surface

Record: Yamaguti 1939b (Hyogo: Tarumi)

Lepeophtheirus paralichthydis Yamaguti and Yamasu, 1960*

Host and site: *Paralichthys olivaceus* (ヒラメ), body surface

Record: Yamaguti and Yamasu 1960b (Hyogo: Tarumi)

Lepeophtheirus sekii Yamaguti, 1936

Host and site: Not recorded

Record: Yamaguti 1936a (Hiroshima: Ohcho [as Ôtyo])

Lepeophtheirus semicossyphi Yamaguti, 1939

Host and site: *Semicossyphus reticulatus* (コブダイ), gills

Record: Yamaguti 1939b (Hyogo: Tarumi)

Pseudocaligus fugu Yamaguti, 1936*

Hosts and site: *Takifugu niphobles* (as *S. niphobles*, クサフグ), *T. pardalis* (ヒガンフグ), *T. rubripes* (トラフグ), Unidentified tetraodontid (as *Spheroides* sp., フグ科魚類の1種), body surface

Records: Yamaguti 1936b (Hyogo: Tarumi); Shiino 1963 (Hiroshima: aquarium of the Inland Fisheries Research Institute); Ikeda et al. 2006 (Hiroshima: off the Takehara Marine Science Station); Ito et al. 2006 (Hiroshima: off the Takehara Marine Science Station);

Tensha and Momoyama 2006 (Yamaguchi: unspecified locality); Venmathi Maran et al. 2007 (Hiroshima: off the Takehara Marine Science Station); Venmathi Maran et al. 2011 (Hiroshima: off Takehara)

Family Hatschekiidae Kabata, 1979

Hatschekia bifurcata Yamaguti and Yamasu, 1959

Host and site: *Diploprion bifasciatum* (as *Diploprion bifasciatus*, キハツサク), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Hatschekia japonica Jones, 1985

Syn.: *Hatschekia labracis* (van Beneden, 1870)

Host and site: *Choerodon azurio* (イラ), gills

Record: Yamaguti 1939b (Hyogo: Tarumi)

Remarks: *Hatschekia labracis* reported by Yamaguti (1939b) was renamed as *H. japonica* by Jones (1985).

Hatschekia leptoscaris Yamaguti, 1939

Host and site: *Calotomus japonicus* (as *Leptoscarus japonicus*, ブダイ), gills

Record: Yamaguti 1939b (Hyogo: Tarumi)

Hatschekia monacanthi Yamaguti, 1939

Host and site: *Thamnaconus modestus* (ウマヅラハギ), gills

Record: Uyeno and Nagasawa 2009 (Hiroshima: Osakikamishima)

Hatschekia ostracii Yamaguti, 1953

Host and site: *Ostracion cubicus* (as *Ostracion tuberculatum*, ミナミハコフグ), gills

Record: Yamaguti 1953 (Tokushima: Komatsushima [as Komatusima])

Remarks: This species was redescribed using material from the Seto Island Sea and the Sea of Japan by Uyeno and Nagasawa (2009).

Hatschekia pagrosomi Yamaguti, 1939

Syn.: *Hatschekia trachuri* Yamaguti and Yamasu, 1960*

Hosts and site: *Pagrus major* (as *Pagrosomus unicolor*, マダイ), *Lethrinus haematopterus* (フエフキダイ), *Trachurus japonicus* (as *Trachurus trachuri*, マア

ジ), gills

Records: Yamaguti 1939b (unspecified locality); Yamaguti and Yamasu 1960b (Hyogo: Tarumi)

Remarks: *Hatschekia trachuri* was relegated to a junior synonym of *H. pagrosomi* by Jones (1985). The fish reported as *Trachurus trachuri* (correctly *T. trachurus*) is considered to be *T. japonicus* because the former species occurs in the Atlantic Ocean.

Hatschekia pseudolabris Yamaguti, 1953

Hosts and site: *Pseudolabrus japonicus* (ササノハベラ), *Bodianus oxycephalus* (as *Verreo oxycephalus*, キツネダイ), gills

Record: Yamaguti 1953 (Tokushima: Komatsushima [as Komatusima])

Hatschekia tenuis (Heller, 1865)

Syn.: *Hatschekia monocentris* Yamaguti and Yamasu, 1959*

Host and site: *Monocentris japonica* (マツカサウオ), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Remarks: *Hatschekia monocentris* was synonymized with this species by Jones (1985).

Pseudocongericola chefooensis Yü, 1933

Host and site: *Muraenesox cinereus* (ハモ), gills

Record: Yamaguti 1939b (unspecified locality)

Family Kroyeriidae Kabata, 1979

Kroyeria sublineata Yamaguti and Yamasu, 1959*

Host and site: *Mustelus manazo* (ホシザメ), gills

Record: Yamaguti and Yamasu 1959 (Okayama: Tamano)

Remarks: This species was redescribed by Izawa (2008).

Family Lernaepodidae Milne Edwards, 1840

Alella macrotrachelus (Brian, 1906)

Syn.: *Clavellodes macrotrachelus* (Brian, 1908)

Host and site: *Acanthopagrus schlegelii schlegelii* (as *Sparus longispinis*, *Acanthopagrus schlegeli*, クロダイ), gills

Records: Yamaguti 1939c (Hyogo: Tarumi); Ueki and

Sugiyama 1979 (Okayama: Tamano, Kuban, fisheries experimental station; Kagawa: Yashima Island); Kawatow et al. 1980 (Hiroshima: Tashima); Muroga et al. 1981 (Hiroshima: Tashima, Ondo, Mitaka; Okayama: Tamano, Kuban; Kagawa: Yashima)

Clavellodes ditrematis Yamaguti, 1939

Hosts and site: *Ditrema temmincki temmincki* (as *Ditrema temmincki*, ウミタナゴ), *Hexagrammos otakii* (アイナメ), gills

Record: Yamaguti 1939c (Hyogo: Tarumi)

Clavellisa dorosomatis Yamaguti, 1939

Host and site: *Konosirus punctatus* (as *K. (Clupanodon) punctatus*, コノシロ), gills

Record: Do and Ho 1983c (Okayama: Kojima Bay)

Clavellotis dilatata (Krøyer, 1863)

Syns.: *Clavellopsis sargi* (Kunz, 1877); *Clavellopsis nodula* Do and Ho, 1983

Hosts and sites: *Acanthopagrus schlegelii schlegelii* (as *Sparus longispinis*, *Mylio macrocephalus*, クロダイ), *Pagrus major* (as *Pagrosomus unicolor*, マダイ), gills, gill rakers

Records: Yamaguti 1939c (Hyogo: Tarumi); Do and Ho 1983b (Okayama: Kojima Bay)

Remarks: The copepod reported as *C. sargi* by Yamaguti (1939c) was described as *C. nodula* by Do and Ho (1983). Subsequently, however, the latter species was relegated to a junior synonym of *C. dilatata* by Castro and Baeza (1984).

Parabrachiella bera (Yamaguti, 1939)

Syn.: *Brachiella bera* Yamaguti, 1939

Host and site: *Parajulis poecilopterus* (as *Halichoeres poecilopterus*, キユウセン), gills

Record: Yamaguti 1939c (Hyogo: Tarumi)

Remarks: *Brachiella bera* was transferred to *Parabrachiella* by Piasecki et al. (2010).

Parabrachiella brevicapita (Ho and Do, 1984)

Syn.: *Neobrachiella brevicapita* Ho and Do, 1984

Host and site: *Nibea albiflora* (コイチ), gills

Record: Do and Ho 1984 (Okayama: Kojima Bay)

Remarks: *Neobrachiella brevicapita* was transferred to *Parabrachiella* by Piasecki et al. (2010).

Parabrachiella trichiuri (Yamaguti, 1939)

Syns.: *Clavellopsis trichiuri* Yamaguti, 1939; *Neobrachiella trichiuri* (Yamaguti, 1939)

Host and site: *Trichiurus lepturus* (as *T. lepturus*, タチウオ), mouth cavity (palate)

Records: Yamaguti 1939c (unspecified locality); Do and Ho 1984 (Okayama: Kojima Bay)

Parabrachiella seriolae (Yamaguti and Yamasu, 1960)

Syn.: *Eobrachiella elegans* f. *seriolae* (Yamaguti and Yamasu, 1960)

Host and site: *Seriola quinqueradiata* (ブリ), base of pectoral fins

Record: Do and Ho 1984 (Okayama: Kojima Bay)

Remarks: This species was originally described as *Brachiella seriolae* by Yamaguti and Yamasu (1960a) and later designated as *Eobrachiella elegans* f. *seriolae* by Do and Ho (1984). Currently, however, it was transferred to *Parabrachiella* by Piasecki et al. (2010).

Thysanote epinepheli Yamaguti, 1939

Host and site: *Epinephelus akaara* (キジハタ), mouth cavity

Record: Yamaguti 1939c (unspecified locality)

Family Lernanthropidae Kabata, 1979

Lernanthropinus sauridae Do, 1985

Host and site: *Saurida elongata* (トカゲエソ), gills

Record: Ho and Do 1985 (Okayama: Kojima Bay)

Lernanthropsis mugilii (Shishido, 1898)

Syn.: *Lernanthropus mugilis* Shishido, 1898*

Host and site: *Mugil cephalus* (ボラ), gills

Records: Yamaguti 1936b (unspecified locality); Ho and Do 1985 (Okayama: Kojima Bay)

Lernanthropus atrox Heller, 1865*

Host and site: *Pagrus major* (as *Pagrosomus unicolor*, マダイ), gills

Record: Yamaguti 1936b (unspecified locality)

Lernanthropus chrysophrys Shishido, 1898*

Host and site: *Acanthopagrus schlegelii schlegelii* (as *Sparus longispinis*, クロダイ), gills

Record: Yamaguti 1936b (unspecified locality)

Lernanthropus cornutus Kirtisinghe, 1937

Host and site: *Strongylura anastomella* (as *Ablennes anastomella*, ダツ), gills

Record: Ho and Do 1985 (Okayama: Kojima Bay)

Mitrapus hetropodus (Yü, 1933)

Host and site: *Konosirus punctatus* (as *Konosirus (Clupanodon) punctatus*, コノシロ), gills

Record: Ho and Do 1985 (Okayama: Kojima Bay)

Sagum epinepheli (Yamaguti and Yamasu, 1960)*

Syn.: *Pseudolernanthropus epinepheli* Yamaguti and Yamasu, 1960

Host and site: *Epinephelus akaara* (キジハタ), gills

Record: Yamaguti and Yamasu 1960b (Hyogo: Tarumi)

Remarks: *Pseudolernanthropus epinepheli* was transferred to *Sagum* by Pillai and Sebastian (1967).

Family Pandaridae Milne Edwards, 1840

Pseudopandarus gracilis Kirtisinghe, 1950

Syn.: *Pseudopandarus scyllii* Yamaguti and Yamasu, 1959*

Host and site: *Triakis scyllium* (ドチザメ), pectoral fins

Record: Yamaguti and Yamasu 1959 (Okayama: aquarium of the Tamano Oceanographical Museum)

Remarks: *Pseudopandarus scyllii* was regarded as a junior synonym of *P. gracilis* by Cressey (1967).

Family Pennellidae Burmeister, 1835

Lernaeenicus ramosus Kirtisinghe, 1956

Host and site: *Epinephelus akaara* (キジハタ), head embedded in musculature with body protruding externally

Records: Doi 2007 (Hyogo: Tarumi Fishing Port); Doi et al. 2008 (Hyogo: Tarumi Fishing Port)

Remarks: Nagasawa et al. (2011a) suggested that the population of *L. ramosus* increased in several waters around Japan in the 2000s.

Lernaeenicus sayori Yamaguti, 1939

Host and site: *Hyporhamphus sajori* (as *Hemirhamphus sayori*, サヨリ), head embedded in musculature with body protruding externally (reported as “below the eye”)

Record: Yamaguti 1939b (Hyogo: Tarumi)

Pennella sp.

Host and site: *Parapercis sexfasciata* (クラカケトラギス), head embedded in musculature with body protruding externally

Record: Momoyama and Tensha 2006 (Yamaguchi: Iyo-Nada)

Pennella sp.

Host and site: *Takifugu rubripes* (トラフグ), head embedded in musculature with body protruding externally

Record: Momoyama and Tensha 2006 (Yamaguchi: Shimonoseki Fish Market)

Family Pseudocycnidae C. B. Wilson, 1922

Cybicola scomberomori (Yamaguti, 1939)

Syn.: *Pseudocycnus scomberomori* (Yamaguti, 1939)

Host and site: *Scomberomorus sinensis* (as *S. chinensis*, ウシサワラ), gills

Record: Yamaguti 1939b (unspecified locality)

Remarks: *Pseudocycnus scomberomori* was transferred to *Cybicola* by Boxshall and Halsey (2004: 813).

Family Pseudohatschekiidae Tang, Izawa, Uyeno and Nagasawa, 2010

Pseudohatschekia branchiostegi Yamaguti, 1939

Syn.: *Pseudohatschekia mebaru* Yamaguti, 1939

Host and site: *Sebastes inermis* (as *Sebastes inermis*, アカメバル), gills

Record: Yamaguti 1939b (Hyogo: Tarumi)

Remarks: *Pseudohatschekia mebaru* was relegated to a junior synonym of *P. branchiostegi* by Tang et al. (2010).

III. Host-Parasite List

Bivalvia

Crassostrea gigas (マガキ)

Mytilicola orientalis (intestine: Hiroshima)

Mytilus coruscus (イガイ)

Mytilicola orientalis (intestine: Hiroshima)

Mytilus galloprovincialis (ムラサキイガイ)

Anthessius graciliunguis (mantle cavity: Hyogo),

Modilicola bifidus (unknown: Ehime, Hyogo),

Pseudomyicola spinosus (mantle cavity, stomach:

Osaka, Hyogo, Hiroshima, Yamaguchi, Ehime)
Ostrea denselamellosa (イタボガキ)
Pseudomyicola spinosus (branchial cavity: Hyogo)
Paphia euglypta (スダレガイ)
Philoconcha paphiae (pericardium: unspecified
prefecture)
Pseudochama retroversa (サルノカシラ)
Chamicola nagasawai (mantle cavity: Hiroshima)
Ruditapes philippinarum (アサリ)
Trochicola japonicus (intestine: Yamaguchi)

Gastropoda

Turbo (Bacillus) cornutus (サザエ)
Panaietes yamagutii (mouth cavity, esophagus:
unspecified prefecture)

Asciadiacea

Pyura michaelsoni (ミハエルボヤ)
Pachypyrgus curvatus (pharyngeal cavity: Ehime)
Styela plicata (シロボヤ)
Pachypyrgus gibber (pharyngeal cavity: Ehime)

Elasmobranchii

Mustelus manazo (ホシザメ)
Kroeyria sublineata (gills: Okayama)
Triakis scyllium (ドチザメ)
Pseudopandarus gracilis (pectoral fins: Okayama)

Actinopterygii

Acanthogobius flavimanus (マハゼ)
Anchistrotos kojimensis (branchial cavity: Okayama)
Acanthopagrus schlegelii schlegelii (クロダイ)
Caligus latigenitalis (body surface: Hiroshima),
Alella macrotrachelus (gills: Hyogo, Okayama,
Hiroshima, Kagawa), *Clavellotis dilatata* (gills, gill
rakers: Hyogo, Okayama), *Lernanthropus chrysophrys*
(gills: unspecified prefecture)
Aluterus monoceros (ウスバハギ)
Taeniacanthus balistae (mouth cavity: Okayama)
Apogon lineatus (テンジクダイ)
Pseudacanthocanthopsis secunda (gills: Okayama)
Bodianus oxycephalus (キツネダイ)
Hatschekia pseudolabri (gills: Tokushima)
Calotomus japonicus (ブダイ)
Hatschekia leptoscari (gills: Hyogo)
Canthidermis maculata (アミモンガラ)

Caligus polycanths (mouth cavity: Okayama)
Choerodon azurio (イラ)
Hatschekia japonica (gills: Hyogo)
Cololabis saira (サンマ)
Caligus macarovi (body surface: Hiroshima)
Conger myriaster (マアナゴ)
Pseudotaeniacanthus congeri (gills: Okayama)
Diploprion bifasciatum (キハツサク)
Hatschekia bifurcata (gills: Okayama)
Ditrema temmincki temmincki (ウミタナゴ)
Caligus tanago (gills, body surface: Hyogo),
Clavellodes ditrematis (gills: Hyogo)
Epinephelus akaara (キジハタ)
Caligus epinepheli (gills: Hyogo), *Thysanote
epinepheli* (mouth cavity: unspecified prefecture),
Sagum epinepheli (gills: Hyogo), *Lernaenicus
ramosus* (head embedded in musculature with body
protruding externally: Hyogo)
Hapalogenys mucronatus (セトダイ)
Orbitacolax hapalogenyos (gills, mouth cavity,
branchial cavity: Okayama)
Hexagrammos otakii (アイナメ)
Naricolax atypicus (nasal cavity: Okayama),
Clavellodes ditrematis (gills: Hyogo)
Hyporhamphus sajori (サヨリ)
Bomolochus bellones (gills: Okayama), *Lernaenicus
sayori* (head embedded in musculature with body
protruding externally: Hyogo)
Inimicus japonicus (オニオコゼ)
Acanthochondria inimici (mouth cavity: Hyogo),
Taeniacanthus inimici (gills: Okayama)
Konosirus punctatus (コノシロ)
Nothobomolochus thambus (gills: Okayama),
Clavellisa dorosomatis (gills: Okayama),
Mitrapus hetropodus (gills: Okayama)
Lagocephalus spadiceus (サバフグ属の1種)
Taeniacanthus lagocephali (gills: Okayama)
Lagocephalus wheeleri (シロサバフグ)
Caligus fugu (gills, branchial cavity: Hiroshima)
Lateolabrax japonicus (スズキ)
Nothobomolochus lateolabracis (gills: Okayama),
Caligus tanago (gills, body surface: Hyogo)
Lethrinus haematopterus (フエフキダイ)
Hatschekia pagrosomi (gills: unspecified prefecture)
Liza macrolepis (コボラ)
Caligus orientalis (body surface: Hiroshima)

- Monacanthus chinensis* (モロコシハギ)
Cirracanthus monacanthi (gills: Hiroshima, Ehime)
- Monocentris japonica* (マツカサウオ)
Hatschekia tenuis (gills: Okayama)
- Mugil cephalus* (ボラ)
Demoergasilus amplexans (gills: Okayama),
Nipergasilus bora (gills: Okayama), *Thersitina kasaharai* (branchial cavity, gills: Okayama),
Lernanthropsis mugilii (gills: Okayama)
- Muraenesox cinereus* (ハモ)
Pseudocongericola chefoonensis (gills: unspecified prefecture)
- Nibeia albiflora* (コイチ)
Parabrachiella brevicapita (gills: Okayama)
- Ostracion cubicus* (ミナミハコフグ)
Hatschekia ostracii (gills: Tokushima)
- Oplegnathus fasciatus* (イシダイ)
Caligus hoplognathi (mouth cavity: Okayama)
- Pagrus major* (マダイ)
Caligus pagrosomi (gills: Hyogo); *Hatschekia pagrosomi* (gills: unspecified prefecture), *Clavellotis dilatata* (gills: Hyogo), *Lernanthropus atrox* (gills: unspecified prefecture)
- Pampus argenteus* (マナガツオ)
Nothobomolochus tricerus (branchial cavity: Okayama)
- Parajulis poecilepterus* (キュウセン)
Parabrachiella bera (gills: Hyogo)
- Paralichthys olivaceus* (ヒラメ)
Acanthochondria sixteni (gills: unspecified prefecture),
Biacanthus pleuronichthydis (body surface: Hyogo),
Lepeophtheirus paralichthydis (body surface: Hyogo)
- Parapercis sexfasciata* (クラカケトラギス)
Prochondracanthopsis quadricomutus (gills: Okayama), *Taeniacanthus neopercis* (gills: Okayama, Hyogo), *Pennella* sp. (head embedded in musculature with body protruding externally: Yamaguchi)
- Platycephalus indicus* (コチ属の1種)
Taeniacanthus platycephali (unknown: Okayama)
- Pleuronichthys cornutus* (メイタガレイ)
Biacanthus pleuronichthydis (body surface: Hyogo)
- Pseudolabrus japonicus* (ササノハベラ)
Hatschekia pseudolabri (gills: Tokushima)
- Rhinoplagusia japonica* (クロウシノシタ)
Bactrochondria longitruncus (gills: Hyogo)
- Sardinella zunasi* (サッパ)
Pumiliopes squamosus (eye: Okayama)
- Saurida elongata* (トカゲエソ)
Sarcotaces sp. (encysted in musculature: Yamaguchi),
Lernanthropinus sauridae (gills: Okayama)
- Saurida tumbil* (マエソ属の1種)
Taeniacanthus sauridae (gills: Okayama)
- Scomberomorus sinensis* (ウシサワラ)
Cybicola scomberomori (gills: unspecified prefecture)
- Sebastes inermis* (アカメバル)
Taeniacanthus sebastichthydis (unknown: Okayama),
Pseudohatschekia branchiostegi (gills: Hyogo)
- Semicossyphus reticulatus* (コブダイ)
Lepeophtheirus semicossyphi (gills: Hyogo)
- Seriola quinqueradiata* (ブリ)
Caligus seriolae (gills: unspecified prefecture), *Caligus spinosus* (gills: Hyogo), *Parabrachiella seriolae* (base of pectoral fins: Okayama)
- Sillago sihama* (モトギス)
Acanthochondria shawi (gills: Hyogo)
- Stephanolepis cirrhifer* (カワハギ)
Cirracanthus monacanthi (gills: Hyogo)
- Strongylura anastomella* (ダツ)
Lernanthropus cornutus (gills: Okayama)
- Takifugu alboplumbeus* (コモンダマシ)
Caligus fugu (mouth cavity: Okayama)
- Takifugu niphobles* (クサフグ)
Taeniacanthus sp. (gills: Hiroshima), *Caligus fugu* (mouth cavity: Okayama), *Pseudocaligus fugu* (body surface: Hiroshima)
- Takifugu pardalis* (ヒガンフグ)
Brachiochondria higanfugu (mouth cavity: Okayama),
Taeniacanthus yamagutii (mouth cavity: Okayama),
Caligus fugu (mouth cavity: Okayama), *Pseudocaligus fugu* (body surface: Hiroshima)
- Takifugu rubripes* (トラフグ)
Taeniacanthus yamagutii (mouth cavity: Okayama),
Caligus fugu (mouth cavity: Okayama), *Pseudocaligus fugu* (body surface: Yamaguchi), *Pennella* sp. (head embedded in musculature with body protruding externally: Yamaguchi)
- Takifugu xanthopterus* (シマフグ)
Taeniacanthus yamagutii (mouth cavity: Okayama)
- Thamnaconus modestus* (ウマヅラハギ)
Taeniacanthus balistae (mouth cavity: Okayama),
Umazuracola elongatus (body surface: Ehime),

Hatschekia monacanthi (gills: Hiroshima)

Trachurus japonicus (マアジ)

Hatschekia pagrosomi (gills: Hyogo)

Trichiurus lepturus (タチウオ)

Parabrachiella trichiuri (mouth cavity: Okayama)

Verasper variegatus (ホシガレイ)

Biacanthus pleuronichthydis (body surface: Hyogo)

Unidentified tetraodontid (フグ科魚類の1種)

Taeniacanthus fugu (gills: Okayama), *Taeniacanthus pectinatus* (gills: Okayama), *Pseudocaligus fugu* (body surface: Hyogo)

Unknown host (不明魚種)

Lepeophtheirus sekii (unknown: Hiroshima)

IV. Conclusion and future work

In this checklist, information on the parasitic copepods recorded from the Seto Inland Sea is compiled. By excluding several records of the parasites not identified to species level, 78 and 10 nominal species have been reported to date from fishes (60 species in total: 2 species of Elasmobranchii and 58 species of Actinopterygii) and invertebrates (10 species in total: 7 species of Bivalvia, 1 species of Gastropoda, and 2 species of Ascidiacea), respectively. Based on this information, the Seto Inland Sea can be regarded as one of the most well studied areas of Japan for the fauna of parasitic copepods, but it is reasonable to think that the known species represent only a small fraction of the entire fauna of parasitic copepods of the Seto Inland Sea, because the fish and invertebrate faunas are very rich in this sea. For example, more than 400 and 1,000 species of actinopterygian fishes and molluscs, respectively, have been recorded from the sea (Inaba, 1988). Thus it is most likely that numerous species of parasitic copepods remain to be discovered from the various groups of aquatic animals, especially invertebrates, in the sea. More studies are needed to clarify the fauna of parasitic copepods of the Seto Inland Sea.

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