

New Records of Hawaiian Fish-Associated Isopods and a List of Known Species

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Collections of isopods associated with fishes that we made in 1986, and others sent to us since that time, from Hawaii, contain a new species, a new record for the northern Pacific, new state and islands records, and new host records. We would be pleased to identify additional fish-associated isopods, with the understanding that all material will be deposited in the Bishop Museum and/or the U.S. National Museum. Personal communications noted below were originally recorded in 1986 and were reconfirmed in October 1995.

Abbreviations: ADP = Aquaculture Development Program, State of Hawaii; BPBM = Bishop Museum; LACM = Los Angeles County Museum, California; USNM = United States National Museum, Crustacea Collection.

Isopoda: Aegidae

Aega deshaysiana (H. Milne Edwards)

New island and host records

Richardson (1906) reported a specimen of this species from the Pailolo Channel between Molokai and Maui Islands and Northeast Approach 254–308 m, USNM 28974. Our records are new island records, but this isopod probably occurs around every island in the Hawaiian chain. Brusca (1983) reported *A. deshaysiana* as a single, circumtropical/subtropical species, but more recent investigations suggest it represents a multiple species complex, with the Hawaiian form probably representing a new species (N. Bruce, pers. comm.).

Material examined. MOLOKAI: 1 specimen on dorsal body of pink snapper *Pristipomoides sieboldii* (Bleeker) (Lutjanidae) in deep water, summer 1987, Collector: Joanne Ho, ADP Case No. 87-140, BPBM. NORTHWESTERN HAWAIIAN ISLANDS: 1 specimen on pelvic fin of a 22-26 kg Seale's grouper *Epinephalus quernus* Seale from deep water, 21.xi.1986, Collector: Joanne Ho, ADP Case No. 86-264, BPBM.

Aega sp.

Two specimens of this isopod were observed on dogfish, but only 1 was collected. The collected specimen had blood in its gut and appeared to be feeding on the dogfish. Several hundred dogfish were captured and examined, thus less than 1% were infected. No copepods or other obvious, external parasites were seen. The one specimen conforms to the genus *Aega* but is quite distinct from any described species. We would be pleased to describe this new species, if we receive additional examples. If specimens are available, we can send them to be used in a revision of the genus (Bruce pers. comm.).

Material examined. SOUTHEAST HANCOCK SEAMOUNT: (northwest of Midway Islands) 29°47'24"N, 179°03'36"E, 1 ♂ on left side of body just below and forward of the dorsal fin of 72.7 cm TL shortspine spurdog *Squalus mitsukurii* Jordan & Fowler (Squalidae) in 300 m depth, 16.iv.1987, Collector: Frank A. Parrish, BPBM.

Isopoda: Cymothoidae***Anilocra gigantea* (Herklots)****New state record**

This parasite has been reported from deepwater on red snapper *Etelis carbunculus* Cuvier (Lutjanidae) in New Caledonia (Trilles 1972) and *Pristipomoides flavipinnis* Shinohara (Lutjanidae) and *Epinephalus* sp. (Serranidae) in Fiji (Bruce & Harrison-Nelson 1988). Our record is the first from the northern Pacific and a range extension of approximately 5000 km. Bruce and Harrison-Nelson (1988) note that this is the only species in the genus that occurs in the gill chambers of its host. The present specimens were attached consistently to the body of the host just dorsal and posterior of the gill opening. This position would seem to be more in agreement with the external attachment of all the other members of the genus; however, we have no way of evaluating the previous reports of location on the hosts. Previous records of attachment position on these deepwater, offshore commercially important fishes were third-person from fishermen and may have been due to post mortem movements. The present observations were made directly by a biologist (J. Ho pers. comm.). The question of attachment positions will require the study of more specimens in the field.

Material examined. OAHU: 1 ♀ on body just above and posterior to gill opening of *Etelis carbunculus*, 20.iv.1986, Collector: Joanne Ho, ADP Case No. 86-85, USNM; 4 ♀ on body just above and posterior to gill opening of 4 *Etelis carbunculus* 37.5–42.0 m depth, 28.xii.1986, Collector: Joanne Ho, ADP Case No. 86-291, BPBM; 5 ♀ on body just above and posterior to gill opening of 5 *Etelis carbunculus*, Collector: Joanne Ho, BPBM.

Creniola breviceps* (Schiodte & Meinert)*New island and host records**

Edmondson (1946) reported *Nerocila* sp. from either giant trevally *Caranx ignobilis* (Forsskål) or bigeye trevally *Caranx sexfasciatus* Quoy & Gaimard (Carangidae), and Johnson (1982) reported an isopod from glasseye *Heteropriacanthus cruentatus* (Lacepede) (Priacanthidae), which were probably this species of isopod. Bruce & Harrison-Nelson (1988) suggested that this species was probably endemic to the Hawaiian Islands and had only been found in Oahu. The report below from the island of Hawaii is a **new island record**. Similar isopods have been observed on coral reef fishes along the Northwestern Hawaiian Island chain north of the main Hawaiian Islands (J.D. Parrish pers. comm.). We have not had the opportunity to collect these examples, but they may represent this species and suggest a wider range for this parasite.

Material examined. HAWAII: 1 ♀ on pectoral fin of *Heteropriacanthus cruentatus* in shallow water, 11.v.1987, Collector: Joanne Ho, ADP Case No. 87-114, BPBM; 1 ♀ on milletseed butterflyfish *Chaetodon miliaris* Quoy & Gaimard (Chaetodontidae), Kawaihae, south of Puako, Kona Coast, 1985, Observer: Thomas Hourigan. OAHU: 1 ♀ on *Carangoides equula* (Schlegel) (Carangidae), Fish Collection, Edmondson Hall, University of Hawaii; 1 ♀, 2♂ on 46 cm *Caranx ignobilis* from Coconut Island, 31.iii.1986, Collectors: LBW and EHW, BPBM. MIDWAY ISLAND: 1 ♀ on side of caudal peduncle of yellow eyed or goldring surgeonfish *Ctenochaetus strigosus* (Bennett) (Acanthuridae) observed in Midway Lagoon for a period of one year (1983–1984), 6 m depth, Observer: Robert Schroeder.

***Ichthyoxenus puhi* (Bowman)**

The *Cymothoa* sp. frequently taken from Oahu from the branchial chamber of eels (Edmondson 1946) was probably *I. puhi*. Bowman (1960) noted "Dr. Gosline has occasionally found very similar if not identical isopods in the gill cavities of other Hawaiian species of *Gymnothorax*...". We corresponded with the late Drs. Bowman and Gosline, but

Table 1. Fish-Associated Isopods from Hawaii

| Species | Host | Location | Locality | Museum Numbers ¹ | Source |
|----------------------------------|---------------------------------|--------------|-------------------|-----------------------------|-----------------|
| Aegidae | | | | | |
| <i>Aega deshaystiana</i> | <i>Epinephelus quernus</i> | pelvic fin | Leeward Islands | USNM | This paper |
| " | <i>Pristipomoides sieboldii</i> | body | Molokai | USNM | This paper |
| <i>Aega</i> sp. | <i>Squalus mitsukurii</i> | body | Hancock Seamount | BPBM | This paper |
| Cymothoidae | | | | | |
| <i>Anilocra giganteus</i> | <i>Etelis carbunculus</i> | body | Oahu | USNM, BPBM | This paper |
| <i>Cymothyoa recta</i> | " | " | Puako Bay, Hawaii | USNM 28977-83 | Richardson 1906 |
| " | " | " | Hilo, Hawaii | " | Edmondson 1946 |
| <i>Cymothoa</i> sp. | <i>Polydactylus sexfilis</i> | tongue | " | " | Edmondson 1946 |
| <i>Cymothoa</i> sp. ² | "eels" | gill chamber | Oahu | " | Edmondson 1946 |
| <i>Creniola breviceps</i> | <i>Priacanthus cruentatus</i> | pectoral fin | Hawaii | BPBM | This paper |
| <i>Ichthyoxenus puhi</i> | <i>Gymnothorax eurostus</i> | gill chamber | Oahu | USNM 103123-4 | Bowman 1960 |
| " | <i>Gymnothorax</i> spp. | gill chamber | Oahu | " | Bowman 1960 |
| "isopod" | <i>Priacanthus cruentatus</i> | " | Hawaii | " | Johnson 1982 |
| <i>Nerocila</i> sp. ³ | <i>Caranx</i> sp. | " | Hilo, Hawaii | " | Edmondson 1946 |

¹ some museum numbers not yet available

² probably *Ichthyoxenus puhi*

³ probably *Creniola breviceps*

neither could find in their notes or remember which other species of hosts were infected. It would be of interest to determine which other species of moray eels are infected and whether or not this isopod occurs on other islands besides Oahu.

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Summary

A new species of *Aega* sp. was associated with *Squalus mitsukurii*. *Aega deshaysiana* (Milne Edwards) from *Epinephalus quernus* and *Pristipomoides sieboldii* are new island and host records. *Anilocra gigantea* (Herklots) from *Etelis carbunculus* is a new northern Pacific record. *Creniola breviceps* (Schiodte and Meinert) from *Heteropriacanthus cruentatus*, *Chaetodon miliaris*, *Carangoides equula*, *Caranx ignobilis*, *Ctenochaetus strigosus* are all new host records for this isopod, and Hawaii and the Northwestern Hawaiian Islands are new island records. *Cymothoa* sp. of Edmondson, 1946 = *Ichthyoxenus puhi* (Bowman, 1960). *Nerocila* sp. of Edmondson, 1946 = *Creniola breviceps*.

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