

**First Record of *Isocyamus kogiae* Sedlak-Weinstein, 1992
(Crustacea, Amphipoda, Cyamidae) from the Eastern Pacific, with
Comments on Morphological Characters, a Key to the Genera of
the Cyamidae, and a Checklist of Cyamids and their Hosts**

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Abstract.—The cyamid amphipod species *Isocyamus kogiae* Sedlak-Weinstein, 1992, is reported for the first time from southern California, extending the known range of the species from Moreton Island, Queensland, Australia, to the north-eastern Pacific. Additional descriptive notes are provided based on a single adult male taken from a pygmy sperm whale, *Kogia breviceps* (de Blainville, 1838), stranded near San Diego, California. Morphological differences between this specimen and the description of the type series are discussed. A revised key to the six currently recognized genera of the family Cyamidae is provided, as well as a checklist of all described species of the family, their cetacean hosts, and the ranges of those hosts.

The amphipod crustacean family Cyamidae Rafinesque, 1815, is a relatively species-poor taxon, all members of which are ectoparasites on cetaceans (Laubitz 1982). Subsequent to Leung's (1967) review, where only 16 species in 5 genera were treated, there have been only one new genus (*Scutocyamus* Lincoln and Hurley, 1974) and relatively few other species described (e.g. Leung 1970b, Lincoln and Hurley 1974, 1980, 1981, Berzin and Vlasova 1982, Waller 1989, Sedlak-Weinstein 1992a, b). Currently, the family contains six genera and approximately 27 species (see Table 1).

Prior to 1992, there were no descriptions of cyamids associated with pygmy sperm whales, *Kogia breviceps* (de Blainville, 1838). Although Caldwell et al. (1971) reported a cyamid attached to one of seven pygmy sperm whales from the western Atlantic examined by them, they did not describe the cyamid, referring to it only as "Cyamidae, form D, genus and species undetermined" (Caldwell et al. 1971: 4). All specimens of cetacean parasites mentioned in that paper as being in the personal collection of Stephen Zam were subsequently lost in an office move (personal communication, Stephen Zam, 29 June 1993).

In 1992, a new species of cyamid was described by Sedlak-Weinstein (1992a) from a pygmy sperm whale that stranded on Moreton Island, Queensland, Australia, marking the first record of cyamids taken from the genus *Kogia* (with the exception of the western Atlantic record above). Sedlak-Weinstein's species proved to belong to the genus *Isocyamus*, but differed sufficiently from *I. delphinii*, the sole previous member of the genus, to necessitate the erection of a second species of the genus, *Isocyamus kogiae*. A third species of *Isocyamus*, *I.*

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Table 1. Known cyamid amphipods of the world and their cetacean hosts and distributions, compiled mostly from Leung (1965, 1967), Gruner (1975), Berzin and Vlasova (1982), and Sedlak-Weinstein (1991, 1992a, b). Additional earlier specific names now considered junior synonyms are listed in Gruner (1975). Selected host references are not meant to be exhaustive; numerous additional accounts exist in the cetacean and crustacean literature. Taxonomy of the host species has been updated based on Mead and Brownell (1993).

Family Cyamidae Rafinesque, 1815	Selected Host References
Genus <i>Cyamus</i> Latreille, 1796	
<i>Cyamus antarcticensis</i> Vlasova, 1982, in Berzin and Vlasova	
<i>Orcinus orca</i> (Linnaeus, 1758) (killer whale; worldwide)	Berzin and Vlasova, 1982
<i>Cyamus bahamondei</i> Buzeta, 1963	
<i>Physeter catodon</i> Linnaeus, 1758 (sperm whale; non-polar worldwide)	Leung, 1965; Gruner, 1975 Berzin & Vlasova, 1982
<i>Cyamus balaenopterae</i> Barnard, 1931	
<i>Balaenoptera musculus</i> (Linnaeus, 1758) (blue whale; worldwide)	Gruner, 1975
<i>Balaenoptera physalus</i> (Linnaeus, 1758) (fin whale; worldwide)	Leung, 1965; Gruner, 1975
<i>Balaenoptera acutorostrata</i> Lacépède, 1804 (minke whale; worldwide)	Gruner, 1975
<i>Cyamus boopis</i> Lutken, 1870	
<i>Megaptera novaeangliae</i> (Borowski, 1781) (humpback whale; worldwide)	Leung, 1965; Gruner, 1975
<i>Physeter catodon</i> Linnaeus, 1758 (sperm whale; non-polar worldwide)	Gruner, 1975 Berzin & Vlasova, 1982
unidentified New Zealand whale	Sedlak-Weinstein, 1991
unidentified south Australian whale	Sedlak-Weinstein, 1991
<i>Cyamus catodontis</i> Margolis, 1954	
<i>Physeter catodon</i> Linnaeus, 1758 (sperm whale; non-polar worldwide)	Leung, 1965; Gruner, 1975 Berzin & Vlasova, 1982; Fransen and Smeenk, 1991
<i>Cyamus ceti</i> (Linnaeus, 1758)	
<i>Balaena mysticetus</i> Linnaeus, 1758 (bowhead whale; Arctic)	Gruner, 1975 Leung, 1965, 1976
<i>Eschrichtius robustus</i> Lilljeborg, 1861 (gray whale; North Pacific; also North Atlantic in historic times)	Lueng, 1965 Gruner, 1975
<i>Cyamus erraticus</i> Roussel de Vauzeme, 1834	
<i>Eubalaena australis</i> (Desmoulins, 1822) (southern right whale; southern hemisphere)	Leung, 1965; Gruner, 1975
<i>Eubalaena glacialis</i> (Muller, 1776) (northern right whale; northern hemisphere)	Leung, 1965; Gruner, 1975
<i>Megaptera novaeangliae</i> (Borowski, 1781) (humpback whale; worldwide)	Gruner, 1975
<i>Cyamus gracilis</i> Roussel de Vauzeme, 1834	
<i>Eubalaena australis</i> (Desmoulins, 1822) (southern right whale; southern hemisphere)	Leung, 1965; Gruner, 1975
<i>Eubalaena glacialis</i> (Muller, 1776) (northern right whale; northern hemisphere)	Leung, 1965; Gruner, 1975

Table 1. Continued.

Family Cyamidae Rafinesque, 1815	Selected Host References
<i>Cyamus kessleri</i> A. Brandt, 1873	
<i>Eschrichtius robustus</i> (Lilljeborg, 1861) (gray whale; North Pacific; also North Atlantic in historic times)	Hurley and Mohr, 1957 Leung, 1965; Gruner, 1975
<i>Cyamus monodontis</i> Lutken, 1870	
<i>Monodon monoceros</i> Linnaeus, 1758 (narwhal; Arctic)	Leung, 1965; Gruner, 1975
<i>Delphinapterus leucas</i> (Pallas, 1776) (beluga; Arctic)	Gruner, 1975
<i>Cyamus nodosus</i> Lutken, 1861	
<i>Monodon monoceros</i> Linnaeus, 1758 (narwhal; Arctic)	Leung, 1965; Gruner, 1975
<i>Delphinapterus leucas</i> (Pallas, 1776) (beluga; Arctic)	Gruner, 1975
<i>Cyamus orcini</i> Leung, 1970b	
<i>Orcinus orca</i> (Linnaeus, 1758) (killer whale; worldwide)	Leung, 1970b; Gruner, 1975
<i>Cyamus orubraedon</i> Waller, 1989	
<i>Berardius bairdii</i> Stejneger, 1883 (Baird's beaked whale; North Pacific)	Waller 1989 Gruner, 1975; Leung, 1965, 1970a, b
<i>Cyamus ovalis</i> Roussel de Vauzeme, 1834	
<i>Eubalaena australis</i> (Desmoulins, 1822) (southern right whale; southern hemisphere)	Leung, 1965; Gruner, 1975
<i>Eubalaena glacialis</i> (Muller, 1776) (northern right whale; northern hemisphere)	Leung, 1965; Gruner, 1975
<i>Physeter catodon</i> Linnaeus, 1758 (sperm whale; non-polar worldwide)	Leung, 1965; Gruner, 1975 Berzin & Vlasova, 1982
<i>Cyamus rhytinae</i> (J. F. Brandt, 1846) {dubious species, supposedly found on Steller's sea cow; See Gruner, 1975: 88}	
<i>Cyamus scammoni</i> Dall, 1872	
<i>Eschrichtius robustus</i> Lilljeborg, 1861 (gray whale, North Pacific; also North Atlantic in historic times)	Gruner, 1975 Leung, 1965, 1976
Genus <i>Isocyamus</i> Gervais & Van Beneden, 1859	
<i>Isocyamus delphinii</i> Guerin-Meneville, 1837	
<i>Globicephala melas</i> (Traill, 1809) (long-finned pilot whale; temperate waters)	Sedlak-Weinstein, 1991 Gruner, 1975 Berzin and Vlasova, 1982 Sedlak-Weinstein, 1992a Leung, 1965 Raga et al., 1983
<i>Globicephala macrorhynchus</i> Gray, 1846 (short-finned pilot whale; temperate and tropical, worldwide)	Hiro, 1938 Sedlak-Weinstein, 1992a
<i>Pseudorca crassidens</i> (Owen, 1846) (false killer whale; temperate and tropical, worldwide)	Sedlak-Weinstein, 1991 Gruner, 1975 Sedlak-Weinstein, 1992a Bowman, 1955

Table 1. Continued.

Family Cyamidae Rafinesque, 1815	Selected Host References
<i>Steno bredanensis</i> (Lesson, 1828) (rough toothed dolphin; temperate and tropical worldwide)	Gruner, 1975 Lincoln and Hurley, 1974 Sedlak-Weinstein, 1992b
<i>Delphinus delphis</i> ^a Linnaeus, 1758 (common dolphin; temperate and tropical, worldwide)	Gruner, 1975 Berzin and Vlasova, 1982 Sedlak-Weinstein, 1992a
<i>Grampus griseus</i> (G. Cuvier, 1812) (Risso's dolphin; temperate and tropical, worldwide)	Gruner, 1975 Berzin and Vlasova, 1982 Sedlak-Weinstein, 1992a
<i>Phocoena phocoena</i> (Linnaeus, 1758) (harbor porpoise; northern hemisphere, temperate)	Gruner, 1975 Stock, 1977 Berzin and Vlasova, 1982
<i>Tursiops truncatus</i> (Montagu, 1821) (bottlenose dolphin; tropical and temperate)	Sedlak-Weinstein, 1992a Fransen and Smeenk, 1991 Balbuena and Raga, 1991
<i>Lagenorhynchus albirostris</i> Gray, 1846 (white-beaked dolphin; temperate North Atlantic)	Stock, 1977 Sedlak-Weinstein, 1992a
<i>Mesoplodon europeus</i> (Antillean beaked whale; North Atlantic)	Fransen and Smeenk, 1991 Balbuena and Raga, 1991
<i>Orcinus orca</i> (killer whale; worldwide)	Sedlak-Weinstein, 1992a Best, 1969
<i>Isocyamus deltobranchium</i> Sedlak-Weinstein, 1992b	
<i>Globicephala macrorhynchus</i> Gray, 1946 (short-finned pilot whale; temperate and tropical waters)	Sedlak-Weinstein, 1992b
<i>Globicephala melas</i> (Triall, 1809) (long-finned pilot whale; temperate)	Sedlak-Weinstein, 1992b
<i>Isocyamus kogiae</i> Sedlak-Weinstein, 1992a	
<i>Kogia breviceps</i> (de Blainville, 1838) (pygmy sperm whale; tropical to warm temperate)	Sedlak-Weinstein, 1992a; This study
Genus <i>Neocyamus</i> Margolis, 1955	
<i>Neocyamis physeteris</i> (Pouchet, 1888)	
<i>Physeter catodon</i> Linnaeus, 1758 (sperm whale; non-polar worldwide)	Leung, 1965; Gruner, 1975 Berzin and Vlasova, 1982
<i>Phocoenoides dalli</i> (True, 1885) (Dall's porpoise; North Pacific, temperate)	Gruner, 1975 Berzin and Vlasova, 1982
Genus <i>Platycyamus</i> Lutken, 1870	
<i>Platycyamus thompsoni</i> (Gosse, 1855)	
<i>Mesoplodon grayi</i> Von Harst, 1876 (Gray's beaked whale; southern hemisphere)	Sedlak-Weinstein, 1991
<i>Hyperoodon planifrons</i> Flower, 1882 (southern bottlenose whale; southern hemisphere)	Berzin and Vlasova, 1982
<i>Hyperoodon ampullatus</i> (Forster, 1770) (northern bottlenose whale; northern hemisphere)	Gruner, 1975 Berzin and Vlasova, 1982 Fransen and Smeenk, 1991

Table 1. Continued.

Family Cyamidae Rafinesque, 1815	Selected Host References
<i>Platycyamus flaviscutatus</i> Waller, 1989	
<i>Berardius bairdii</i> Stejneger, 1883 (Baird's beaked whale; North Pacific)	Waller, 1989 Leung, 1967, 1970a; Berzin and Vlasova, 1982
Genus <i>Scutocyamus</i> Lincoln and Hurley, 1974	
<i>Scutocyamus parvus</i> Lincoln and Hurley, 1974	
<i>Lagenorhynchus albirostris</i> (Gray, 1846) (white-beaked dolphin; temperate North Atlantic)	Lincoln & Hurley, 1974 Gruner, 1975 Fransen and Smeenk, 1991
<i>Scutocyamus antipodensis</i> Lincoln and Hurley, 1980	
<i>Cephalorhynchus hectori</i> (Van Beneden, 1881) (Hector's dolphin; New Zealand)	Lincoln & Hurley, 1980; Sedlak-Weinstein, 1991
Genus <i>Syncyamus</i> Bowman, 1955	
<i>Syncyamus chelipes</i> (Costa, 1866)	
<i>Delphinus delphis</i> ¹ Linnaeus, 1758 (common dolphin; temperate and tropical waters)	Gruner, 1975
<i>Syncyamus pseudorcae</i> Bowman, 1955	
<i>Pseudorca crassidens</i> (Owen, 1846) (false killer whale; temperate and tropical waters)	Bowman, 1955 Gruner, 1975 Sedlak-Weinstein, 1991
<i>Syncyamus aequus</i> Lincoln and Hurley, 1981	
<i>Tursiops truncatus</i> (Montagu, 1821) (bottlenose dolphin; tropical and temperate)	Sedlak-Weinstein, 1991
<i>Stenella longirostris</i> ² (Gray, 1828) (Spinner dolphin; tropical)	Sedlak-Weinstein, 1991
<i>Stenella coeruleoalba</i> (Meyen, 1833) (striped dolphin; tropical and temperate)	Raga and Raduan, 1982 Raga, 1988
<i>Syncyamus</i> sp. Bowman, 1958 (close to <i>S. pseudorcae</i> Bowman, 1955)	
<i>Stenella attenuata</i> ³ (Gray, 1846) (spotted dolphin; pan-tropical)	Bowman, 1958 Gruner, 1975
<i>Syncyamus</i> sp. Leung, 1970 (close to <i>S. pseudorcae</i> Bowman, 1955)	
<i>Delphinus delphis</i> ¹ Linnaeus, 1758 (common dolphin; temperate and tropical)	Leung, 1965; Gruner, 1975
<i>Stenella coeruleoalba</i> (Meyen, 1833) (striped dolphin; tropical and temperate)	Leung, 1965; Gruner, 1975
<i>Stenella longirostris</i> ² (Gray, 1828) (spinner dolphin; tropical)	Leung, 1965; Gruner, 1975
<i>Tursiops truncatus</i> (Montagu, 1821) (bottlenose dolphin; tropical and temperate)	Leung, 1965; Gruner, 1975
Gruner (1975: 93) lists as "doubtful species" the following:	
<i>Cyamus latreilleii</i> A. Smith, 1831	
<i>Cyamus leachii</i> A. Smith, 1831	
¹ <i>Delphinus delphis</i> has been divided into <i>D. delphis</i> and <i>D. capensis</i> Gray, 1828; see Heyning and Perrin (1994).	
² <i>Stenella longirostris</i> has been divided into <i>S. longirostris</i> and <i>S. clymene</i> (Gray, 1846); see Perrin et al. (1981).	
³ <i>Stenella attenuata</i> has been divided into <i>S. attenuata</i> and <i>S. frontalis</i> (G. Cuvier, 1829); see Perrin et al. (1987).	

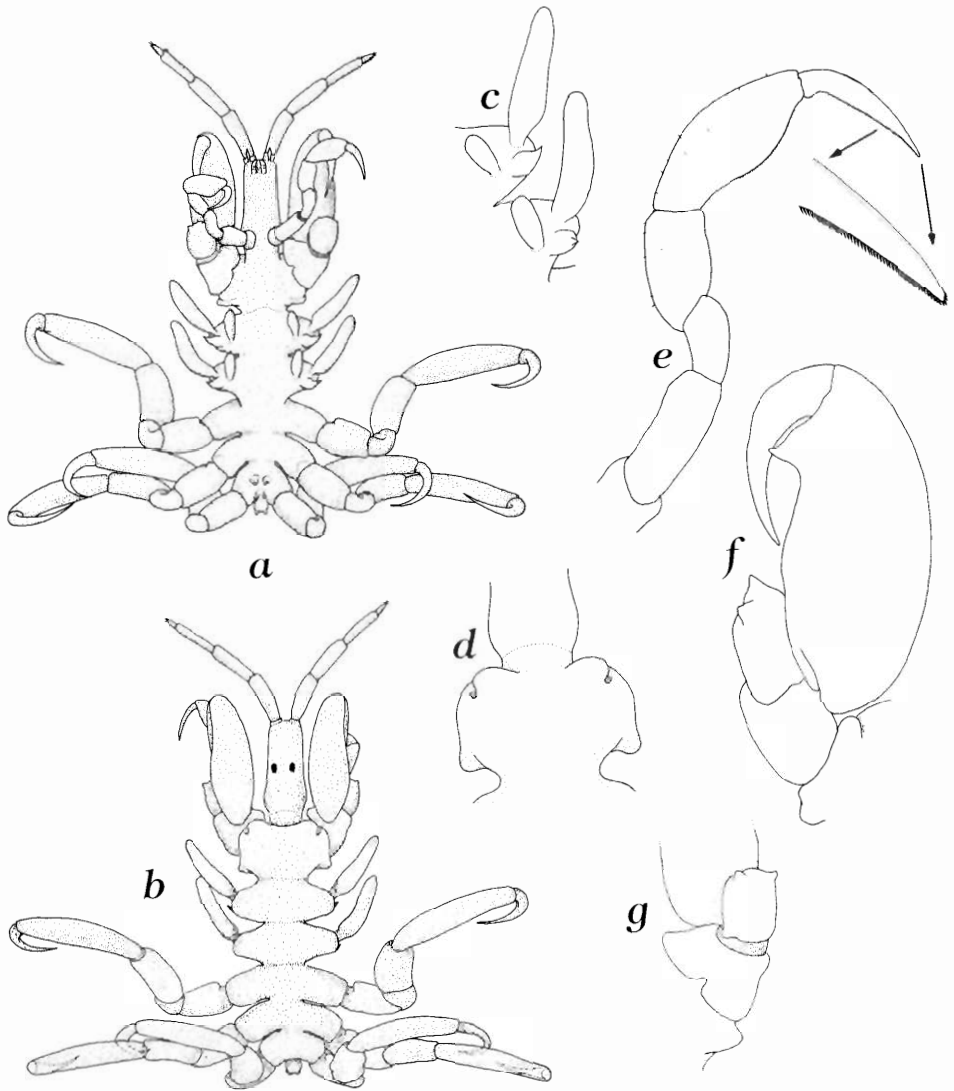


Fig. 1. *Isocyamus kogiae* Sedlak-Weinstein, 1992a. from pygmy sperm whale (*Kogia breviceps*) stranded in San Diego, California. a, Entire animal, ventral view. b, same, dorsal view. c, Primary and accessory gills and ventrally projecting processes of somites 3 and 4. Note ventrolateral process of somite 3 directed more laterally than that of somite 4. d, Dorsal view of somite 2. Note epaulet-like infoldings of cuticle at anterodorsal margins. e, First gnathopod with tip of dactylus enlarged at lower right showing comb row. f, Second gnathopod. g, Ventral view of proximal two articles of gnathopod 2 and part of propodus.

the legs that would be necessary to return the posterior most leg to its “usual” position is substantial, and would involve bilaterally pulling the back legs a considerable distance upward in order for the long claw-like dactylus to clear the other legs. This very unusual feature is immediately diagnostic, but could be overlooked in a disarticulated or damaged specimen, or even one that has been manipulated to the point that the pereiopods are in the “normal” arrangement.

