

Arthropoda – Amphipoda: amphipods

UNDERWATER FIELD GUIDE TO ROSS ISLAND & MCMURDO SOUND, ANTARCTICA

Peter Brueggeman

Photographs: Norbert Wu, Steve Alexander, Peter Brueggeman, Canadian Museum of Nature (Kathleen Conlan), Paul Cziko, Shawn Harper, Uwe Kils, Jim Mastro, & M. Dale Stokes



The National Science Foundation's Office of Polar Programs sponsored Norbert Wu on an Artist's and Writer's Grant project, in which Peter Brueggeman participated. One outcome from Wu's endeavor is this Field Guide. This Field Guide builds upon principal photography by Norbert Wu, with photos from other photographers, who are credited on their photographs and above. This Field Guide is intended to facilitate underwater/topside field identification from visual characters. Organisms were identified from photographs with no specimen collection. Therefore these identifications are to the taxonomic level possible from photographs, and there can be some uncertainty in identifications solely from photographs.

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corophiid amphipod
Haplocheira plumosa

Haplocheira plumosa is found in Antarctica and the Antarctic Peninsula, South Orkney Islands, South Georgia Island, and Kerguelen Island at depths from 0 to 250 meters [1].



Haplocheira plumosa is a filter-feeder and has been collected up to nine millimeters in length [1].

Antarctic benthic amphipod predators include fish and squid [3].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: **1:** Zoological Journal of the Linnean Society 79(2):179-221, 1983; **2:** Polar Biology 11(1):73-79, 1990; **3:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/



epimeriid amphipod *Epimeria* sp.

Epimeria species are found throughout Antarctica [4]. Most *Epimeria* species have characteristic dorsal outgrowths on their bodies, though a few are smooth [3].

The stomach contents of one species of *Epimeria* had 42% organic matter including 10% holothurian matter [1]. Some *Epimeria* species have been observed as ambush predators, sensing food or prey with their antennae and then grasping it [1,2]. With live, swimming zooplankton prey, one *Epimeria* species moves its first pair of

antennae back and forth, creating a current to bring the prey closer to grasp [1].

Predators of Antarctic benthic amphipods include fish and squid [5].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [1].

References: **1:** Polar Biology 11(1):73-79, 1990; **2:** Antarctic Science 3(2):159-166,1991; **3:** Journal of Natural History 28(3):555-576, 1994; **4:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **5:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/



epimeriid amphipod
***Epimeria* sp., possibly**
Epimeria robusta

The amphipods in these photos look like *Epimeria robusta* [7].

A few *Epimeria* species are smooth dorsally as shown here, but most species have characteristic dorsal outgrowths [3].

Epimeria species are found throughout Antarctica [4].



Some *Epimeria* species have been observed as ambush predators, sensing food or prey with their antennae and then grasping it [1,2].

With live, swimming zooplankton prey, one *Epimeria* species moves its first pair of antennae back and forth, creating a current to bring the prey closer to grasp [1].



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Epimeria robusta is an opportunistic predator, with its stomach contents including sedimenting plankton, sponges, cnidarians, polychaete worms, crustaceans, and holothurians [8].



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Here a juvenile is perched on the back of its parent; clusters of juveniles have been observed riding piggy-backed on *Epimeria* sp. [5].

Antarctic benthic amphipod predators include fish and squid [6].



Here are several juvenile *Epimeria* sp. clustered on the bush sponge *Homaxinella balfourensis*.

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [1].

References: **1:** Polar Biology 11(1):73-79, 1990; **2:** Antarctic Science 3(2):159- 166,1991; **3:** Journal of Natural History 28(3):555-576, 1994; **4:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **5:** Christian McDonald, personal communication, 1999; **6:** Checklist of the Amphipods of the Sothern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/; **7:** Fauna der Antarktis. J Sieg & JW Wagele, eds. Berlin : P. Parey, 1990; **8:** Polar Biology 24:657-662, 2001



eusirid amphipod *Eusirus perdentatus*

Eusirus perdentatus is found throughout Antarctica and the Antarctic Peninsula, South Shetland Islands, and South Orkney Islands from 20 to 928 meters depth; it has also been collected in the Indian sector of the Southern Ocean from 0 to 2,000 meters depth [3,4,7].

E. perdentatus can be up to eight centimeters long [1].



Eusirus perdentatus is benthic, waiting to sense prey with its antennae (and probably vision), and then quickly grasping prey to capture it [1].

E. perdentatus has been observed preying on *Epimeriella* and *Epimeria* amphipods and lysianassid amphipods [1].

E. perdentatus stomach contents have included polychaetes such as *Pontodora pelagica*, calanoid copepods, crustaceans, and cnidarians [1,6].



Predators of *Eusirus perdentatus* include the fish *Trematomus hansonii* and *Trematomus loennbergii* [5].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: **1:** Polar Biology 10(5):359-364, 1990; **2:** Polar Biology 11(1):73-79, 1990; **3:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **4:** A Survey of the Marine Fauna in Shallow Coastal Waters of the Vestfold Hills and Rauer Islands, Antarctica. MJ Tucker & HR Burton. ANARE Research Notes 55, 1987; **5:** Polar Biology 17(1):62-68, 1997; **6:** Polar Biology 24(9):657-662, 2001; **7:** Polar Biology 24:744-753, 2001



eusirid amphipod *Eusirus perdentatus* or *propeperdentatus*

Captured in a fish trap 2 miles off the end of Hut Point peninsula, from 415 meters [1].

References: 1: Paul Cziko, personal communication, 2004



**eusirid amphipod probably
Eusirus or *Rhachotropis* sp.**

Predators of Antarctic benthic amphipods include fish and squid [2].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [1].

References: **1:** Polar Biology 11(1):73-79, 1990; **2:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/



Notothenia coriiceps neglecta and the Adelie penguin [3,4].

probably eusirid amphipod *Paramoera walkeri*

Paramoera walkeri is found throughout Antarctica and the Antarctic Peninsula, South Shetland Islands, and South Georgia Island from intertidal to 310 meters depth [1]. *P. walkeri* is usually found in shallow water and, at some locations, can be the most abundant benthic animal from 0 to 15 meters depth [2,3].

Here *Paramoera walkeri* is swarming on an anchor ice formation. Though living in close association with ice, *P. walkeri* doesn't freeze because its haemolymph ("blood") is hyperosmotic compared to seawater; seawater freezes at -1.86°C whereas *P. walkeri* haemolymph freezes at -2.06°C [3]. *P. walkeri* is a major benthic species during summer and dominates the sub-fast ice community during winter [2]. *P. walkeri* moves off the bottom during late autumn and is found clinging to the underside of young fast ice soon after diatoms begin populating that ice; *P. walkeri* returns to the gravel bottom after the breakout of the fast ice [3]. *P. walkeri* is a detritivore-omnivore and feeds near the bottom or under fast ice upon the fungi, bacteria, and algae associated with ice [2]. Predators of *P. walkeri* include the fish *Trematomus bernacchii*, *Trematomus borchgrevinki*, *Trematomus newnesii*, and



Here is a closer view of *Paramoera walkeri* on anchor ice. *P. walkeri* grows rapidly during summer phytoplankton blooms, doesn't grow during winter, and breeds seasonally after its first or second year [2]. *P. walkeri* lays its large yolky eggs into a brood pouch in June [3]. The young hatch after 4.5 months and then remain in the pouch for another month while they do not grow or feed [3]. Newly-released young *P. walkeri* migrate offshore populating the fast ice and then return to shallow water starting in December [3].



Paramoera walkeri has been collected at lengths up to 2.28 centimeters and lives up to four summers [3].

References: **1:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **2:** Hydrobiologia 337(1-3):107-112, 1996; **3:** Journal of the Royal Society of New Zealand 10(3):259-270, 1980; **4:** Polar Biology 13:291-296, 1993



hyperiid amphipod
Hyperia macrocephala

Hyperia macrocephala is found in Antarctic coastal regions and South Georgia Island [1].

H. macrocephala is up to 2.9 centimeters long [1].



As shown here, *Hyperia macrocephala* can be found on the medusa *Diplulmaris antarctica* [3].

Hyperiid amphipods are found throughout the world oceans and are found from the surface down to abyssopelagic depths, though they have not been collected deeper than 7,000 meters [1].

Hyperiid amphipods are mostly commensals and parasitoids of gelatinous zooplankton like medusas, salps, and coelenterates; they are pelagic and none are benthic [1].



Side view of *Hyperia macrocephala*.

Hyperiid amphipods are highly variable in body morphology due to their lifestyle and encompass these body forms: near-spherical; needle-like; very large -- up to fourteen centimeters with eyes comprising up to 25% of the body; nearly sightless; house-constructors; and free-living pelagic [1].



The medusa *Diplulmaris antarctica* can also be infested with a hyperiid amphipod *Hyperiella dilatata* which sits with its dorsal (top) surface against the outside top of the medusa's bell, the exumbrellar surface [2]. The hyperiid amphipods are those white dots on the surface of the clear bell in the picture at left. Collectors have found up to 54 of these amphipods riding along, clinging tightly to the medusa. These riding amphipods are predominantly juveniles and females; this suggests that the medusa is both an amphipod mating platform (where females await more mobile males) and a predation refuge for juveniles and females [2]. The hyperiid amphipods do not appear to feed on the medusa and probably use it as a safe harbor between feeding forays [2]. The hyperiid amphipod *Hyperiella dilatata* grabs the pteropod *Clione antarctica* from the water and holds it to itself as a chemical defense against predation [6,7,9]. Predatory fish won't eat the amphipod/pteropod combination or the pteropod *C. antarctica* which has a chemical, pteroenone, which deters feeding [6,7,8,9]. *C. antarctica* preys on the shelled

pteropod *Limacina helicina* which doesn't have pteroenone so it appears that *C. antarctica* synthesizes it as part of its metabolic processes [8,9].



Diplulmaris antarctica medusa which get close enough to the bottom in shallow water are prey to be captured by the tentacles of an anemone (*Isotealia antarctica* shown here) [4]. The struggle can continue for quite awhile. The medusa pulses its bell as it tries to swim away while the anemone slowly pulls the medusa into its mouth. The hyperiid amphipods hitchhiking on this medusa are going to get consumed by the anemone.

Other hyperiid amphipod predators are the nototheniid fish (*Pagothenia borchgrevinki*, *Trematomus bernacchii*, *T. hansonii*, *T. centronotus*) which eat *Hyperiella dilatata* [5,10].

References: **1:** Hyperiid Amphipods (Amphipoda, Hyperiidea) of the World Oceans. ME Vinogradov, AF Volkov, TN Semenova; scientific editor, D Siegel-Causey. Lebanon, NH : Science Publishers, 1996; **2:** Polar Biology 11(1):19-25, 1990; **3:** Pelagic Scyphomedusae (Scyphozoa: Coronatae and Semaestomeae) of the Southern ocean. Ronald J. Larson. Washington, DC : American Geophysical Union, 1986; **4:** Antarctic Ecology, Volume 1. MW Holdgate, ed. NY: Academic Press, 1970. pp 244-258; **5:** Polar Biology 8(1):49-54, 1987; **6:** Journal of Organic Chemistry 60(3):780-782, 1995; **7:** Nature 346(6283):462-464, 1990; **8:** Antarctic Journal of the United States 29(5):151-153, 1994; **9:** Marine Biology 122:271-277, 1995; **10:** Environmental Biology of Fishes 36(3):313- 318, 1993



iphimediid amphipod
***Echiniphimedia* sp.,**
possibly *hodgsoni*

Echiniphimedia hodgsoni is found in Antarctica and the Antarctic Peninsula, South Shetland Islands, South Orkney Islands, and South Georgia Island, at depths from 20 to 1,120 meters [1]



Echiniphimedia hodgsoni feeds on sponges with a special cutting mechanism [2,3] Sponge spicules found in the gut of *E. hodgsoni* correspond to haplosclerid sponges, possibly the genera *Gellius*, *Hemigellius*, or *Haliclona* [2]

Gut content analysis of *E. hodgsoni* indicates that diatoms are either a food source or a prey item for a food source [3]

References: **1:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **2:** Polar Biology 9(5):287-294, 1989; **3:** Polar Biology 24(11):853-862, 2001



lysianassoid amphipod *Abyssorchomene plebs*

Abyssorchomene plebs is found throughout Antarctica and the Antarctic Peninsula, South Shetland Islands and the South Orkney Islands from 0 to 800 meters depth [2,6,8]. *A. plebs* is a dominant benthic amphipod in McMurdo Sound and is more commonly found deeper than fifty meters [1,4]. *A. plebs* has been collected at lengths up to 2.6 centimeters [5]. *A. plebs* is a voracious scavenger; it can swarm in hordes feeding on dead animals (necrophagous) and fecal material [1,4]. *A. plebs* has also been observed attacking fish,

clustering on gills, and causing death quickly [1]. *A. plebs* develop their eggs in winter with young hatching in spring [1]. Predators of *A. plebs* include the fish *Pagothenia borchgrevinki* and *Trematomus bernacchii*, and the Antarctic tern, who picks it from carrion washed ashore, on which the amphipod feeds in deeper water [3,6,10].

Taxonomic Note: Genus revised from *Orchomene* to *Abyssorchomene* [9]. Sometimes referred to as *Orchomene plebs* in recent literature.

References: **1:** Polar Biology 1(1):47-54, 1982; **2:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **3:** Polar Biology 8(1):49-54, 1987; **4:** Polar Biology 6(3):171-177, 1986; **5:** Proceedings of the Seventh Symposium on Polar Biology. Memoirs of the National Institute of Polar Research, Special Issue 40:249-258, 1986; **6:** Antarctic Science 11(3):316-321, 1999; **7:** Contribution to the Marine Biodiversity Inventory. A Checklist of the Amphipoda (Crustacea) of the Southern Ocean. C De Broyer, K Jazdzewski. Documents de Travail de l'Institut Royal des Sciences Naturelles de Belgique, Number 73 = Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen, Number 73. Bruxelles, 1993 ANT'PHIPODA www.natuurwetenschappen.be/amphi/; **8:** Polish Polar Research 12(3):461-472, 1991; **9:** Annales de la Societe Royale Zoologique de Belgique 114 (Supplement 1): 197-198, 1984; **10:** Polar Biology 27(11):721-728, 2004



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lysianassoid amphipod *Hippomedon kergueleni*

Hippomedon kergueleni is found in Antarctica and the Antarctic Peninsula, South Shetland Islands, South Orkney Islands, South Sandwich Islands, South Georgia Island, Bouvet Island, Kerguelen Island, the Snares Islands, and New Zealand at depths from 0 to 750 meters [1,3,4,5,9].



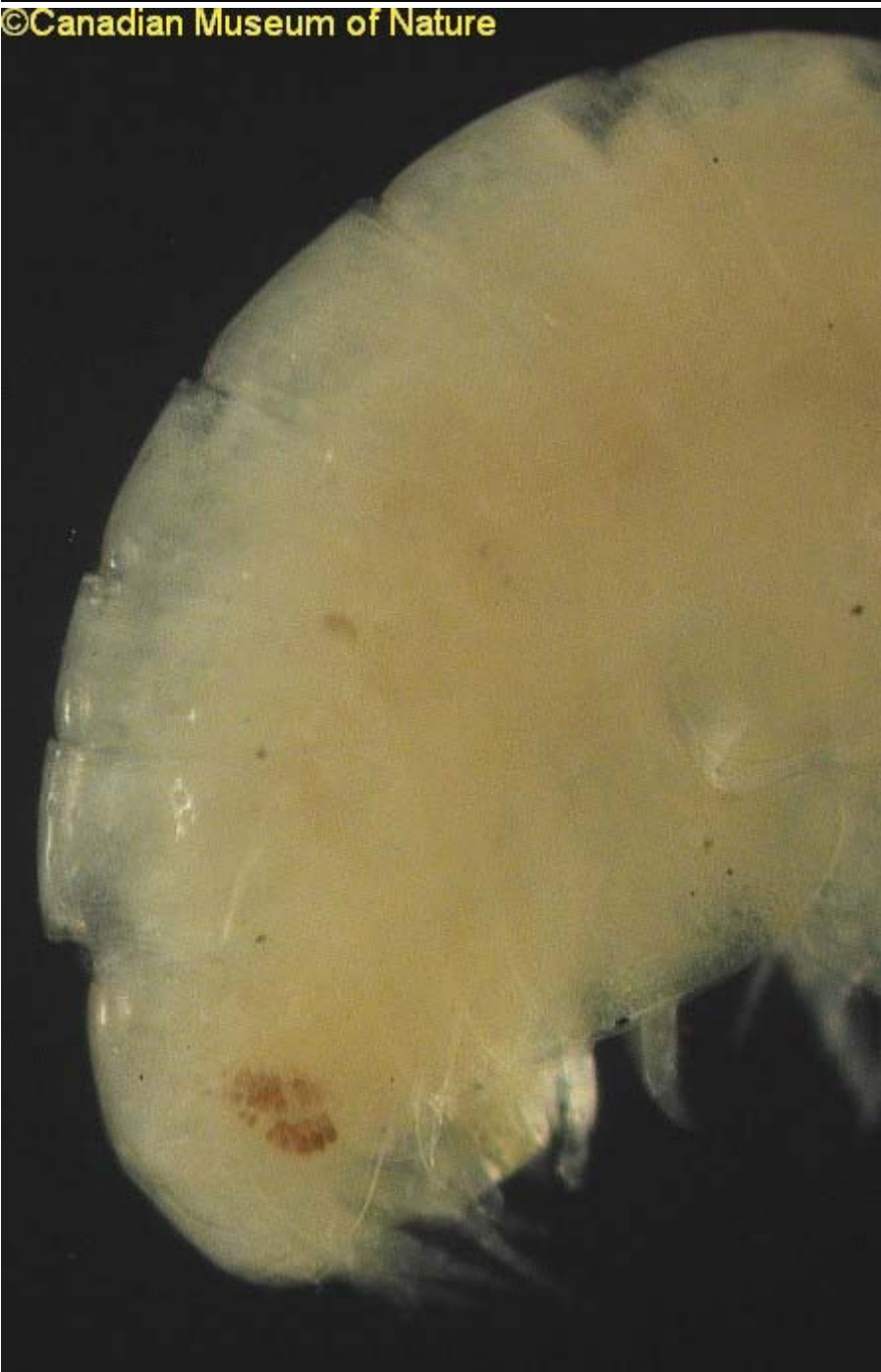
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Hippomedon kergueleni has been found at lengths up to 2.2 centimeters [5,6]. Males live up to four years and females longer [4]. *H. kergueleni* is a burrowing bottom-feeding and necrophagous (carrion feeding) amphipod; its gut contents have been found to include diatoms, algal chains, crustaceans, polychaetes, and probably detritus [3,4]. Males live up to four years and females longer [4]. Its predators include octopus and the fish *Trematomus bernacchii* [7,8].

Hippomedon species are found in the Northeastern Pacific, North Atlantic, Arctic Ocean, Australia, New Zealand, and subantarctic islands [1,2]. Lysianassoid

amphipods are found in diverse habitats including fish ectoparasites, invertebrate commensals, abyssopelagic, soft-bottom deposit-feeders or algal-dwellers, and demersal scavengers [1].

References: **1:** Journal of the Royal Society of New Zealand 13(4):279-294, 1983; **2:** Studies on Amphipod Crustaceans of the Northeastern Pacific Region. I. 1. Family Ampeliscidae, Genus Ampelisca. 2. Family Ampithoidae. 3. Family Aoridae. 4. Family Lysianassidae. Genus Hippomedon. JJ Dickinson, KE Conlan, EL Bousfield, NE Jarrett. National Museum of Natural Sciences. Publications in Biological Oceanography, Number 10. Ottawa : National Museums of Canada, 1982; **3:** VIIth International Colloquium on Amphipoda: Proceedings of the VIIth International Colloquium on Amphipoda, held in Walpole, Maine, USA, September 14-16, 1990. L Watling, ed. Hydrobiologia, volume 223; Developments in Hydrobiology, number 70. Boston: Kluwer Academic, 1991 pp.105-117; **4:** British Antarctic Survey Bulletin 30:1-34, 1972; **5:** The Crustacea Amphipoda of Signy Island, South Orkney Islands. MH Thurston. British Antarctic Survey Scientific Reports, Number 71, 1972; **6:** Adaptations within Antarctic Ecosystems : Proceedings of the Third SCAR Symposium on Antarctic Biology. George A. Llano, ed. Washington : Smithsonian Institution ; Houston, Tex. : distributed by Gulf Pub. Co., 1977. pp. 327-334; **7:** Polar Biology 13:291-296, 1993; **8:** Biodiversity, Molecular Phylogeny and Trophodynamics of Amphipod Crustaceans in the Antarctic Deep- sea. C De Broyer et al. IN: ANDEEP, Cruise Report ANT- XIX/3 and ANT-XIX/4 (ANDEEP I and II), ANtartic Benthic DEEP-sea Biodiversity (ANDEEP): Colonisation History and Recent Community Patterns. Zoological Institute and Zoological Museum, University of Hamburg, Germany. pp. 43-46. www.biologie.uni-hamburg.de/zim/niedere2/cruise_report.pdf; **9:** Polar Biology 29(2):83-96, 2006



lysianassoid amphipod *Orchomenella pinguides*

Orchomenella pinguides is found throughout Antarctica and South Shetland Islands, South Orkney Islands, and South Georgia Island, from 0 to 800 meters depth [2,7].

Orchomenella pinguides is a dominant benthic amphipod in McMurdo Sound and is commonly found on shallow water benches under ten meters depth [1].

O. pinguides has been collected at lengths up to 1.3 centimeter [3,7].

O. pinguides eats dead animals (including Weddell seals and grounded medusa), fecal matter, sedimenting plankton, and invertebrate prey, especially planktonic copepods that impact the bottom during winter [1,9].

O. pinguides is a much less aggressive and voracious swarming feeder compared to *A. plebs* [1].

Its predators include octopus and the fish *Trematomus bernacchii* [4,8].

Taxonomic Note: Genus revised from *Orchomene* to *Orchomenella* (*Orchomenopsis*) [5,6].

References: **1:** Polar Biology 6(3):171-177, 1986; **2:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **3:** Adaptations within Antarctic Ecosystems : Proceedings of the Third SCAR Symposium on Antarctic Biology. George A. Llano, ed. Washington : Smithsonian Institution ; Houston, Tex. : distributed by Gulf Pub. Co., 1977. pp.327-334; **4:** Polar Biology 13:291- 296, 1993; **5:** Contribution to the Marine Biodiversity Inventory. A Checklist of the Amphipoda (Crustacea) of the Southern Ocean. C De Broyer, K Jazdzewski. Documents de Travail de l'Institut Royal des Sciences Naturelles de Belgique, Number 73 = Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen, Number 73. Bruxelles, 1993. ANT'PHIPODA www.natuurwetenschappen.be/amphi/; **6:** Annales de la Societe Royale Zoologique de Belgique 114 (Supplement 1): 197-198, 1984; **7:** Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut 83:117-130, 1986; **8:** Biodiversity, Molecular Phylogeny and Trophodynamics of Amphipod Crustaceans in the Antarctic Deep- sea. C De Broyer et al. IN: ANDEEP, Cruise Report ANT- XIX/3 and ANT-XIX/4 (ANDEEP I and II), ANtartic Benthic DEEP-sea Biodiversity (ANDEEP): Colonisation History and Recent Community Patterns. Zoological Institute and Zoological Museum, University of Hamburg, Germany. pp. 43-46. http://www.biologie.uni-hamburg.de/zim/niedere2/cruise_report.pdf; **9:** Polar Biology 24:657-662, 2001

lysianassoid amphipod *Orchomenella franklini*



Orchomenella franklini is found in Antarctica and subantarctic islands ^[1].

Taxonomic Note: Genus revised from *Orchomene* to *Orchomenella* (*Orchomenopsis*) ^[1,2].

References: **1:** Contribution to the Marine Biodiversity Inventory. A Checklist of the Amphipoda (Crustacea) of the Southern Ocean. C De Broyer, K Jazdzewski. Documents de Travail de l'Institut Royal des Sciences Naturelles de Belgique, Number 73 = Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen, Number 73. Bruxelles, 1993. ANT'PHIPODA www.natuurwetenschappen.be/amphi/ ; **2:** Annales de la Societe Royale Zoologique de Belgique 114 (Supplement 1): 197-198, 1984



lysianassoid amphipod

Female with young in brood pouch, collected from the volcano sponge *Anoxycalyx (Scolymastra) joubini* [1]. Predators of Antarctic benthic amphipods include fish and squid [3].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: 1: Kathleen Conlan, personal communication, 1999; 2: Polar Biology 11(1):73-79, 1990; 3: Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/



oedicerotid amphipod
Monoculodes
curtipediculus

Monoculodes curtipediculus has been collected around the McMurdo Station seawater intake jetty, the Station sewer outfall, and Cinder Cones, at 20-23 meters depth [3].

An adult female is shown here, and a female has been collected up to 7.1 millimeters in length [1,3].



Here an adult male *Monoculodes curtipediculus* is above an adult female [1].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: 1: Kathleen Conlan, personal communication, 1999; 2: Polar Biology 11(1):73-79, 1990; 3: Crustaceana 76(1):49-63, 2003



pagetinid amphipod
Pagetina* sp., probably *P. antarctica

Pagetina antarctica has been collected from the Antarctic Peninsula, South Shetland Islands, South Georgia Island, and Kerguelen Island from 1 to 270 meters depth [1,2].

Predators of Antarctic benthic amphipods include fish and squid [2].

References: **1:** Sarsia 66(3):213-215, 1981; **2:** Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut 78:179- 196, 1981; **3:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA
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phoxocephalid amphipod *Heterophoxus videns*

Heterophoxus videns is found in Antarctica and the Antarctic Peninsula, South Shetland Islands, South Orkney Islands, South Georgia Island, Falkland Islands, Chile, and Argentina at depths from 2 to 457 meters [2,4,5,8]. *H. videns* has been collected at lengths up to one centimeter [6]. The family Phoxocephalidae are gammaridean amphipods with their head produced into a hood-like rostrum overhanging the

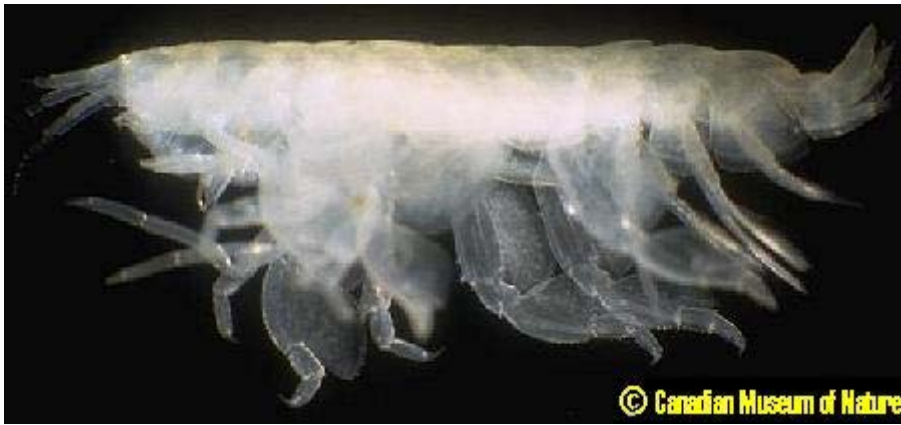
antennae, a well-developed accessory flagellum on the first antennae, and pereopods armed with spines and setae for burrowing into soft bottom sediments [2]. A terminal stage male is shown here [3]. At twenty meters depth at McMurdo jetty, a density of 6,367 *H. videns* per square meter was observed; it is less abundant in the shallower anchor ice zone [1].



Heterophoxus videns is a motile deposit feeder and predator, living buried just below the sediment surface and rarely emerging [1]. *H. videns* eats polychaete worms (including *Spiophanes tcherniai*, *Tharyx* sp., *Haploscoloplos kerguelensis*, malidanids or oweniids), nematodes, copepods, ostracods (including *Philomedes* sp.), sponges, and diatoms [1,7]. *H. videns* is a dominant species in the McMurdo jetty soft-bottom macrofaunal community and is a foundation species for the ecological community there, regulating species composition and population size (age) structure by preying on small species and small individuals of large species [1]. *H.*

videns is eaten by *Trematomus* fish which are hunt-and-peck predators [1]. A pre-terminal stage male is shown here [3].

References: **1:** Ophelia 24(3):155-175, 1985; **2:** The Amphipod Family Phoxocephalidae in the Eastern Pacific Ocean, with Analyses of Other Species and Notes for a Revision of the Family. JL Barnard. Allan Hancock Pacific Expeditions Volume 18, Number 3. Los Angeles: University of Southern California Press, 1960; **3:** Kathleen Conlan, personal communication, 1999; **4:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington: Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **5:** The Crustacea Amphipoda of Signy Island, South Orkney Islands. MH Thurston. British Antarctic Survey Scientific Reports, Number 71, 1972; **6:** Adaptations within Antarctic Ecosystems : Proceedings of the Third SCAR Symposium on Antarctic Biology. George A. Llano, ed. Washington: Smithsonian Institution ; Houston, Tex.: distributed by Gulf Pub. Co., 1977. pp. 327-334; **7:** Polar Biology 24(9):657-662, 2001; **8:** Marine Benthic Fauna of Chilean Patagonia. V Haussermann, G Forsterra. Puerto Montt, Chile: Nature in Focus, 2009. p. 711



sebid amphipod *Seba antarctica*

Seba antarctica is found in Antarctica and South Georgia Island and Bouvet Island at depths from 5 to 399 meters [3,4,7,8]. *S. antarctica* has been collected at lengths up to seven millimeters [5].



Both of these photos are males collected from the volcano sponge *Anoxycalyx (Scolymastra) joubini* [1]. *Seba antarctica* shows a high preference for living in sponges, but not exclusively so, having also been recorded on ascidians [7]. *S. antarctica* is an ectoparasite on sponges, both eating the sponge and using it for shelter from predators [7]. Predators of *Seba antarctica* include the fish *Trematomus bernacchii* [6].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: **1:** Kathleen Conlan, personal communication, 1999; **2:** Polar Biology 11(1):73-79, 1990; **3:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **4:** Amphipoda from the Southern Ocean: Families Colomastigidae, Dexaminidae, Leucothoidae, Liljeborgiidae, and Sebiidae. H Holman and L Watling. Biology of the Antarctic Seas 13. Antarctic Research Series 38(Paper 4):215-262, 1983; **5:** Adaptations within Antarctic Ecosystems : Proceedings of the Third SCAR Symposium on Antarctic Biology. George A. Llano, ed. Washington : Smithsonian Institution ; Houston, Tex. : distributed by Gulf Pub. Co., 1977. pp. 327- 334; **6:** Polar Biology 27(11):721-728, 2004; **7:** Polar Biology 24:744-753, 2001; **8:** Polar Biology 29(2):83-96, 2006



stenothoid amphipod
Torometopa antarctica

Torometopa antarctica has been reported from Ross Island and the South Shetland Islands and Bouvet Island at depths down to 391 meters [1,4,8]. *T. antarctica* has been collected at lengths up to seven millimeters [5].



Predators of Antarctic benthic amphipods include fish and squid [6].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [3].

Taxonomic Note: Name changed from *Proboloides antarcticus* to *Torometopa antarctica* in 1987 [2] and from *Proboloides antarcticus* to *Metopoides antarcticus* in 1990 [4]. Affirmed as *Torometopa antarctica* in 1993 [7]

References: **1:** Catalogue of the Marine Gammaridean Amphipoda of the Southern Ocean. JK Lowry, S Bullock. Wellington : Royal Society of New Zealand, 1976. Royal Society of New Zealand Bulletin 16; **2:** Proceedings of the Biological Society of Washington 100(4):856-875, 1987; **3:** Polar Biology 11(1):73-79, 1990; **4:** Mitteilungen aus dem Zoologischen Museum in Berlin 66(1):3- 39, 1990; **5:** Adaptations within Antarctic Ecosystems : Proceedings of the Third SCAR Symposium on Antarctic Biology. George A. Llano, ed. Washington : Smithsonian Institution ; Houston, Tex. : distributed by Gulf Pub. Co., 1977. pp. 327- 334; **6:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA <http://www.natuurwetenschappen.be/amphi/> ; **7:** Contribution to the Marine Biodiversity Inventory. A Checklist of the Amphipoda (Crustacea) of the Southern Ocean. C De Broyer, K Jazdzewski. Documents de Travail de l'Institut Royal des Sciences Naturelles de Belgique, Number 73 = Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen, Number 73. Bruxelles, 1993; **8:** Polar Biology 29(2):83-96, 2006



stenothoid amphipod, probably *Metopoides* sp.

This is a female collected from the volcano sponge *Anoxycalyx (Scolymastra) joubini* [1].

Predators of Antarctic benthic amphipods include fish and squid [3].

Among malacostracan crustaceans, amphipods are the most abundant and diverse group in benthic Antarctica [2].

References: **1:** Kathleen Conlan, personal communication, 1999; **2:** Polar Biology 11(1):73-79, 1990; **3:** Checklist of the Amphipods of the Southern Ocean. C. De Broyer, K. Jazdzewski. ANT'PHIPODA www.natuurwetenschappen.be/amphi/