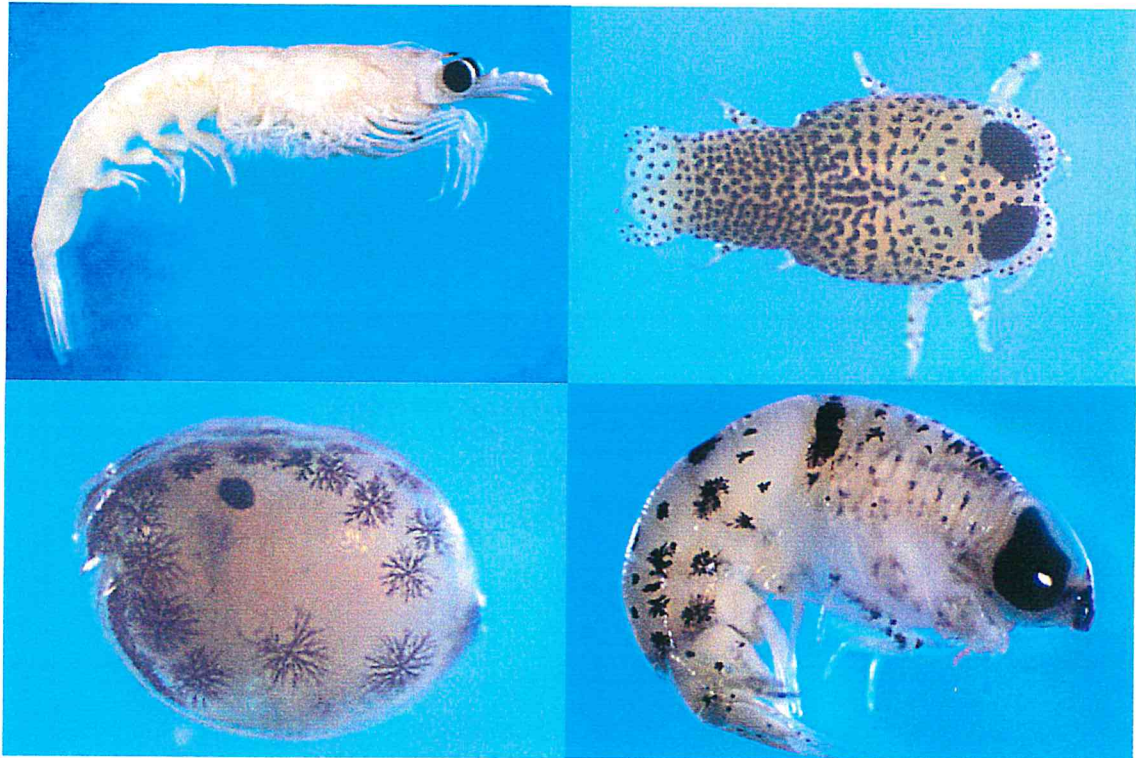


MARINE MANAGEMENT SUPPORT:  
NINGALOO MARINE PARK & WEST PILBARA OFFSHORE

**A CATALOGUE OF MACROZOOPLANKTON AND  
NEKTON FROM THE SOUTHERN NORTH WEST SHELF,  
WESTERN AUSTRALIA**

**Data Report: MMS/NIN,PIO/NIN,WPO-47/2001**



**Prepared by Wilson, S.G.  
University of Western Australia**

**November 2001.**



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## A catalogue of macrozooplankton and nekton from the southern North West Shelf, Western Australia

### Abstract

A taxonomic list and photographic record of 313 macrozooplankton and nekton taxa captured on the southern North West Shelf is presented. Specimens were collected using light traps deployed at the surface and at depth along two cross-shelf transects and one long-shore transect during the summer months of 1997/98 and 1998/99.

### Background and discussion

The North West Shelf (NWS) supports Australia's greatest zooplankton biomass (Tranter, 1962) and represents one of the country's most productive fishing areas (Sainsbury, 1979). Large zooplankton feeders, notably whale sharks, *Rhincodon typus* (Smith, 1828), manta rays, *Manta birostris* (Donndorff, 1798), and humpback whales, *Megaptera novaeangliae* (Borowski, 1781), seasonally aggregate on the southern NWS (Taylor, 1994) and form the basis of a burgeoning eco-tourism industry (Colman, 1997). This region is also the site of a well-established offshore oil and gas industry.

Despite their importance to the ecology and economy of the region, our understanding of NWS zooplankton has resulted largely from broadscale surveys conducted by CSIRO in the early 1960s (see Tranter, 1977 and other references in the same journal issue). In recent years, however, a major multidisciplinary project has been undertaken by the Australian Institute of Marine Science (AIMS) to examine the physical, chemical and biological oceanography of the region.

A key component of this study was an intensive, fine scale survey of fishes and invertebrates conducted during the summer months (October to February) of 1997/98 and 1998/99. Light traps were utilised as a sampling technique to selectively target the larger, more mobile components of the zooplankton capable of avoiding towed plankton nets (see Wilson *et al.*, submitted). Two light trap designs were deployed in 1997/98, a larger, three-chamber trap and a smaller, single-chamber design (Figure 1; Meekan *et al.*, 2001). Both traps were based on the original design of Doherty (1987). In 1998/99, only small traps were used. One cross-shelf transect (stations EA to EH) was sampled in the first summer, and two cross-shelf transects (stations EA to EH and TA to TD) and one long-shore transect (stations NE1 to NE6) in the second summer (Figure 2).

Commencing after sunset, light traps were deployed at the surface and at depth (3 m off the bottom to a maximum depth of 75 m) and allowed to drift freely with the current for approximately one hour. Catches were then removed from the traps and immediately preserved in 100% ethanol. In the laboratory, a total of 426 samples were sorted and enumerated on a gridded sorting tray. Approximately 2,200,000 macrozooplankton were collected over the two summers, the most abundant taxa being amphipods (41.1%), euphausiids (34.6%), copepods (6.9%), mysids (4.7%) and cumaceans (4.7%). Wilson *et al.* (submitted) analyse spatial and temporal patterns in the distribution and abundance of the 14 most abundant taxonomic groups.

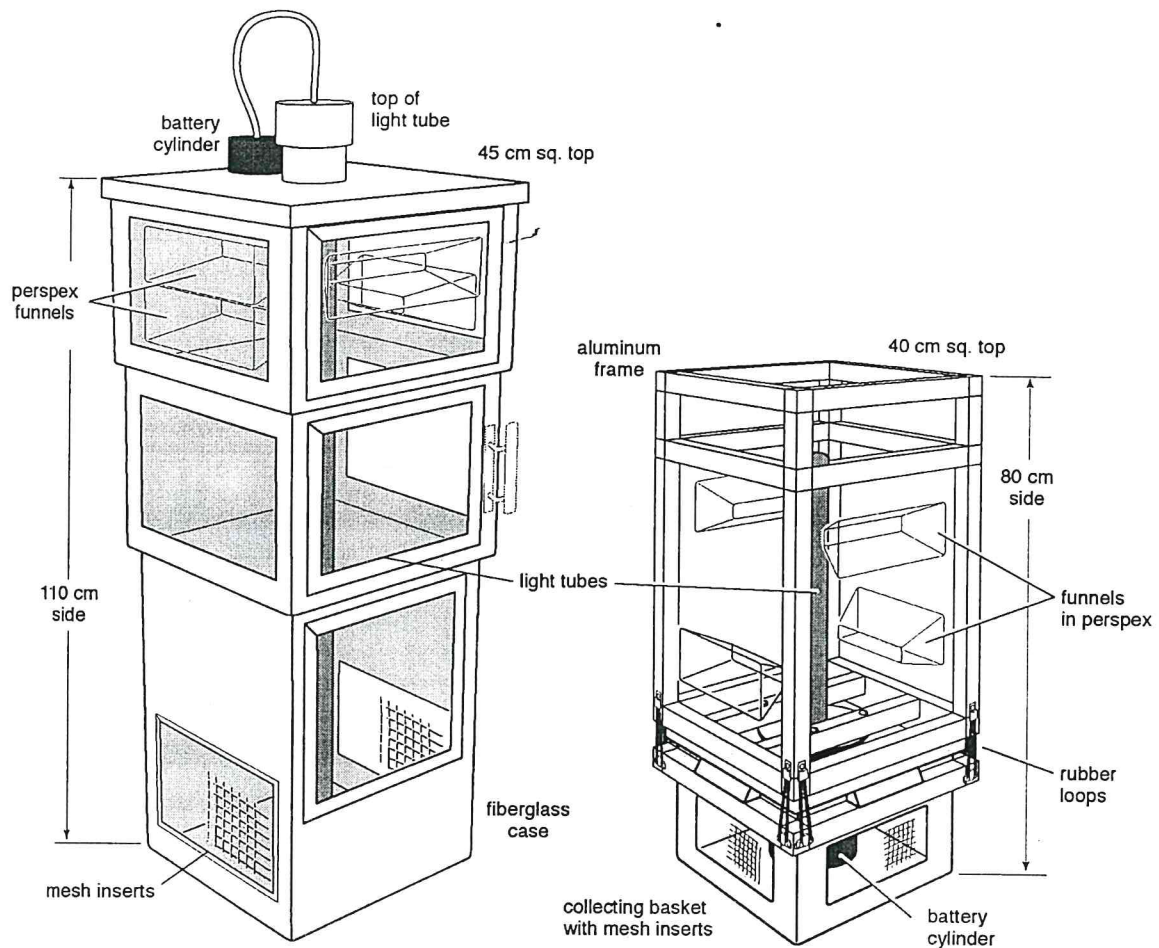


Figure 1. Large and small light trap designs.

Specimens of all new taxa were placed into a voucher collection and photographed against a blue background while submerged in 100% ethanol using an Olympus DP10 digital camera on an Olympus SZH stereo microscope. A total of 313 specimens were archived representing 5 separate phyla. Of these, 63 have been identified to species level, including two new records from Australian waters: the hyperiid amphipods *Schizoscelus ornatus* (Claus, 1879) and *Streetsia palmaspinosa* (Vinogradov, 1990). Here, I provide a taxonomic list of all macrozooplankton and nekton captured in this study and present a photographic record of the voucher specimens. With the exception of the amphipods, which are deposited in the South Australian Museum, this collection and all samples will be deposited in the Western Australian Museum.

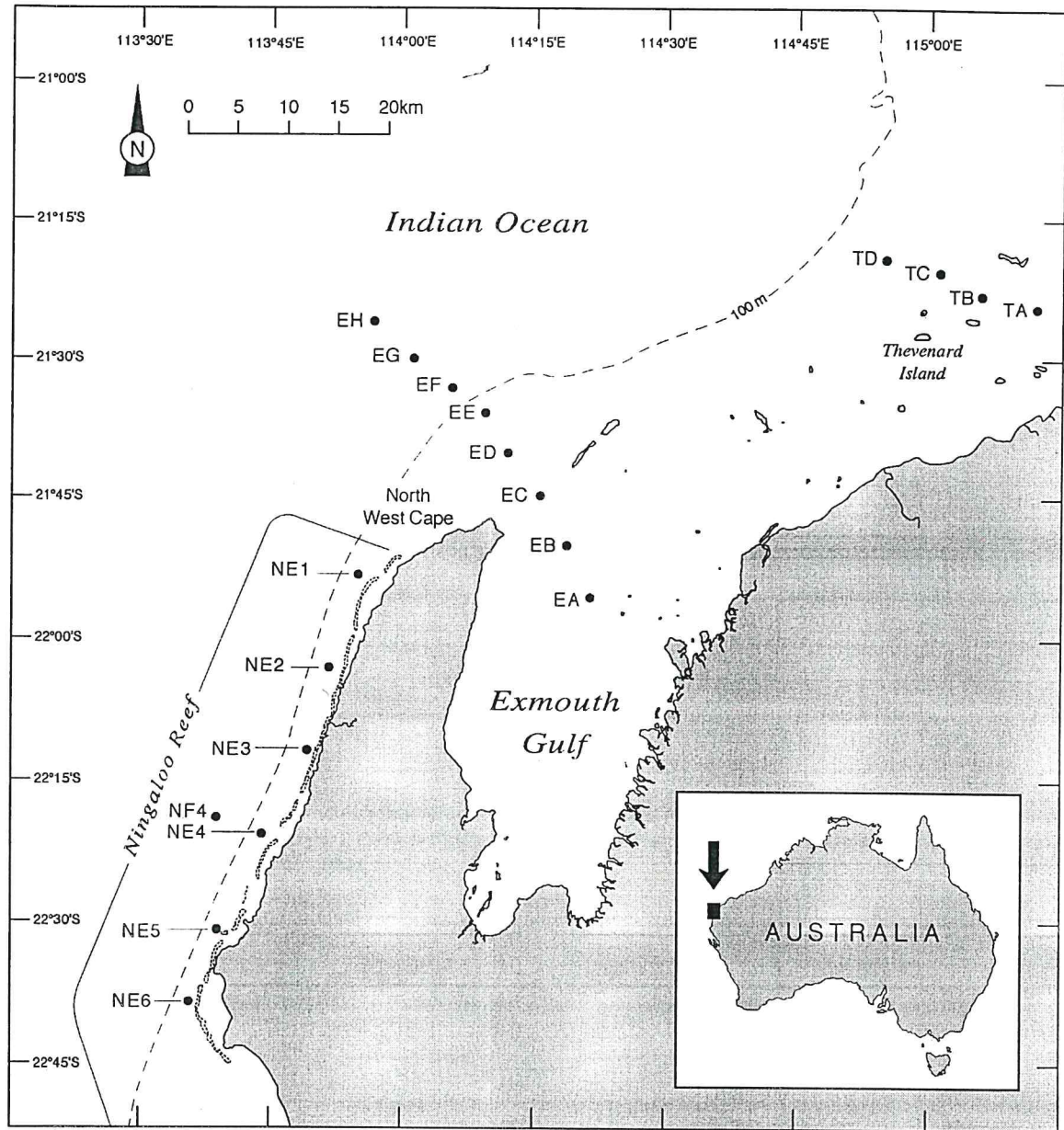


Figure 2. Location map of light trap sampling stations on the southern NWS.

## List of macrozooplankton and nekton

	Plate no.
Phylum Echinodermata	1
Phylum Annelida	
Class Polychaeta	2-28
Phylum Chaetognatha	29-35
Phylum Mollusca	
Class Gastropoda	
Subclass Prosobranchia	
<i>Phillipia</i> sp.	36
<i>Atlanta</i> sp.	37
Unidentified	38-42
Subclass Opisthobranchia	
Order Thecosomata	
<i>Cavolinia gibbosa</i> (d'Orbigny, 1835)	43
<i>Diacria trispinosa</i> (Blainville, 1821)	44
Phylum Arthropoda	
Class Copepoda	45-54
Class Ostracoda	55-61
Class Malacostraca	
Order Amphipoda	
Suborder Gammarideae	
Family Ampeliscidae	62-64
Family Dexaminidae	65
Family Lysianassidae	66-68
Family Phoxocephalidae	69
Family Synopidae	
<i>Tyron</i> sp.	70
Unidentified	71
Suborder Hyperiidea	
Family Vibiliidae	
<i>Vibilia chuni</i> (Behning and Woltereck, 1912)	72
<i>Vibilia viatrix</i> (Bovallius, 1887)	73
Family Hyperiididae	
<i>Hyperoche mediteranea</i> (Senna, 1908)	74
<i>Hyperietta stephenseni</i> (Bowman, 1973)	75
<i>Hyperietta vosseleri</i> (Stebbing, 1908)	76
<i>Lestrignonus ducrayi</i> (Zeidler, 1992)	77-78
<i>Lestrignonus macrophthalmus</i> (Vosseler, 1901)	79
<i>Lestrignonus</i> sp.	80
Family Phronimida	
<i>Phronima pacifica</i> (Streets, 1877)	81

<i>Phronimella elongata</i> (Claus, 1862)	82
Family Phrosinidae	
<i>Phrosina semilunata</i> (Risso, 1822)	83
<i>Anchylomera blossevillei</i> (Milne-Edwards, 1830)	84
Family Pronoidae	
<i>Eupronoe armata</i> (Claus, 1879)	85
<i>Eupronoe intermedia</i> (Stebbing, 1888)	86
<i>Eupronoe maculata</i> (Claus, 1879)	87
<i>Eupronoe minuta</i> (Claus, 1879)	88
<i>Parapronoe campbelli</i> (Stebbing, 1888)	89
<i>Parapronoe parva</i> (Claus, 1879)	90
<i>Parapronoe crustulum</i> (Claus, 1879)	91
Family Lycaeidae	
<i>Lycaea</i> sp.	92-95
<i>Simorhynchotus antennarius</i> (Claus, 1871)	96
<i>Simorhynchotus antennarius</i> (Claus, 1871)	97
Family Brachyscelidae	
<i>Brachyscelus cruscolum</i> (Bate, 1861) M, F	98-99
<i>Brachyscelus globiceps</i> (Claus, 1879)	100
<i>Brachyscelus rapacoides</i> (Stephenson, 1925) M, F	101-102
Family Oxycephalidae	
<i>Oxycephalus clausi</i> (Bovallius, 1887)	103
<i>Oxycephalus latirostris</i> (Claus, 1879)	104
<i>Streetsia challengerii</i> (Stebbing, 1888)	105
<i>Streetsia palmaspinosa</i> (Vinogradov, 1990)	106-107
<i>Streetsia steensrupi</i> (Bovallius, 1887)	108
<i>Streetsia porcella</i> (Claus, 1879)	109
<i>Leptocotis tenuirostris</i> (Claus, 1871)	110
<i>Calamorhynchus pellucidus</i> (Streets, 1878)	111
<i>Cranocephalus scleroticus</i> (Streets, 1878)	112
<i>Rhabdosoma whitei</i> (Bate, 1862)	113
Family Platyscelidae	
<i>Platyscelus armatus</i> (Claus, 1879)	114
<i>Platyscelus serratulus</i> (Stebbing, 1888)	115
<i>Hemityphis tenuimanus</i> (Claus, 1879)	116
<i>Paratyphis promontori</i> (Stebbing, 1888)	117
<i>Amphithyrus bispinosus</i> (Claus, 1879)	118
Family Parascelidae	
<i>Schizoscelus ornatus</i> (Claus, 1879)	119
<i>Thyropus similis</i> (Stephenson, 1925)	120
<i>Thyropus sphaeroma</i> (Claus, 1879)	121
Order Isopoda	122-142
Order Cumacea	143-155
Order Mysidacea	
Family Mysidae	
<i>Siriella aequiremis</i> (Hansen, 1910)	156
<i>Siriella affinis</i> (Hansen, 1910)	157
<i>Siriella conformalis</i> (Hansen, 1910)	158
<i>Siriella</i> sp.	159-161

<i>Anchialina media</i> (Ii, 1964)	162
<i>Anchialina parva</i> (Ii, 1964) M, F	163-164
<i>Anchialina typica</i> (Kroyer, 1861)	165
<i>Gastrosacchus indicus</i> (Hansen, 1910)	166
<i>Gastrosacchus bengalensis</i> (Hansen, 1910)	167
Order Stomatopoda	168-189
Order Decapoda	
<i>Leptochela</i> sp.	190
Unidentified larvae	191-197
Infraorder Penaeidea	
<i>Lucifer</i> sp.	198
Unidentified	199-201
Infraorder Caridea	202-239
Infraorder Palinura	
Family Scyllaridae	240
Family Palinuridae	
Unidentified phyllosoma (zoea)	241
Infraorder Anomura	
Family Galatheididae	242-246
Infraorder Brachyura	
Family Portunidae	
<i>Charybdis feriata</i> (Linnaeus, 1758)	247
Unidentified adults	248-257
Unidentified megalopae	258-289
Unidentified zoea	290-294
Order Euphausiacea	
Family Euphausiidae	
<i>Pseudeuphausia latifrons</i> (Sars, 1883)	295-296
<i>Euphausia hemigibba</i> (Hansen, 1910)	297
<i>Euphausia recurva</i> (Hansen, 1905)	298-299
<i>Thysanopoda tricuspidata</i> (Milne-Edwards, 1837)	300
Unidentified	301-312
Unidentified	313

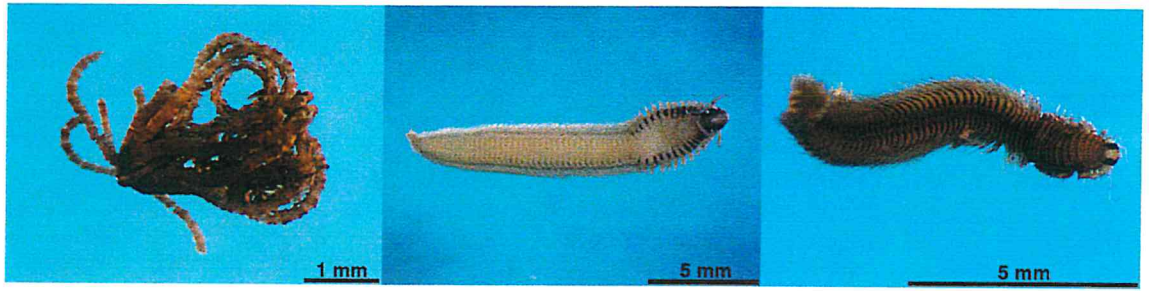


## Acknowledgements

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## References

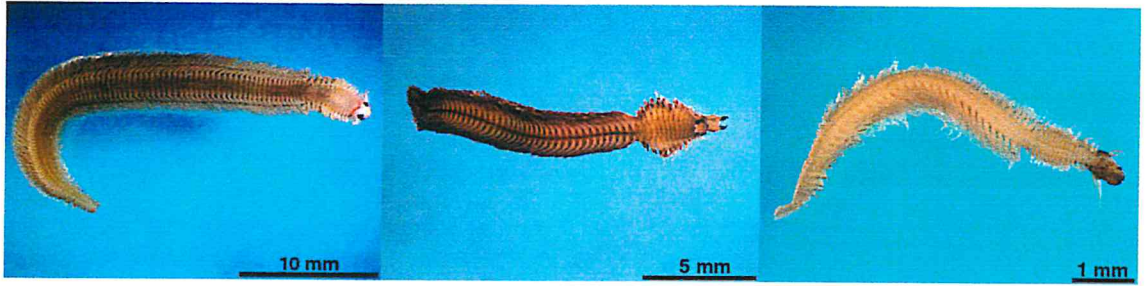
- Colman, J. (1997). Whale shark interaction management, with particular reference to Ningaloo Marine Park: 1997-2007. Western Australian Department of Conservation and Land Management, Western Australian Wildlife Management Program No. 27. 63 pp.
- Doherty, P.J. (1987). Light-traps: selective but useful devices for quantifying the distributions and abundances of larval fishes. *Bulletin of Marine Science* **41**: 423-431.
- Meekan, M.G., Wilson, S.G., Halford, A. and Retzel, A. (2001). A comparison of catches of fishes and invertebrates by two light trap designs in tropical NW Australia. *Marine Biology*
- Sainsbury, K.J. (1979). CSIRO defining fish stocks on NW shelf. *Australian Fisheries* **38**, 4-13
- Taylor, G. (1994). *Whale sharks: the giants of Ningaloo Reef*. Angus & Robertson, Sydney, 176 pp.
- Tranter, D.J. (1962). Zooplankton abundance in Australasian waters. *Australian Journal of Marine and Freshwater Research* **13**, 106-142.
- Tranter, D.J. (1977). Further studies of plankton ecosystems in the eastern Indian Ocean. 1. Introduction - the study and study area. *Australian Journal of Marine and Freshwater Research* **28**: 529-539.
- Wilson, S.G., Carleton, J.H. and Meekan, M.G. (submitted). Spatial and temporal patterns in the distribution and abundance of macrozooplankton on the southern North West Shelf, Western Australia. *Estuarine, Coastal and Shelf Science*



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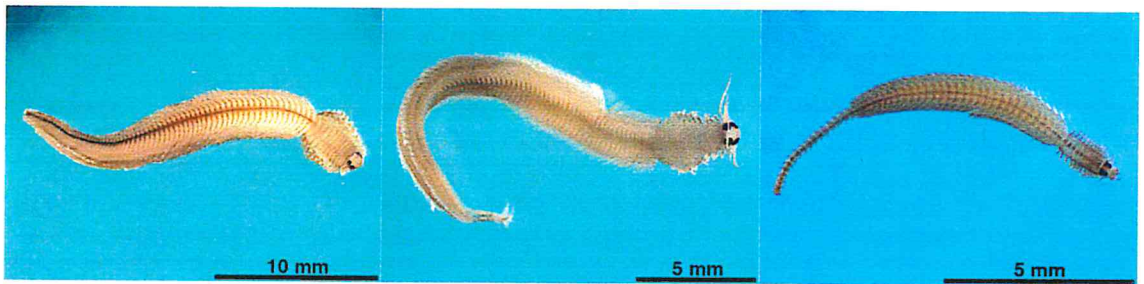
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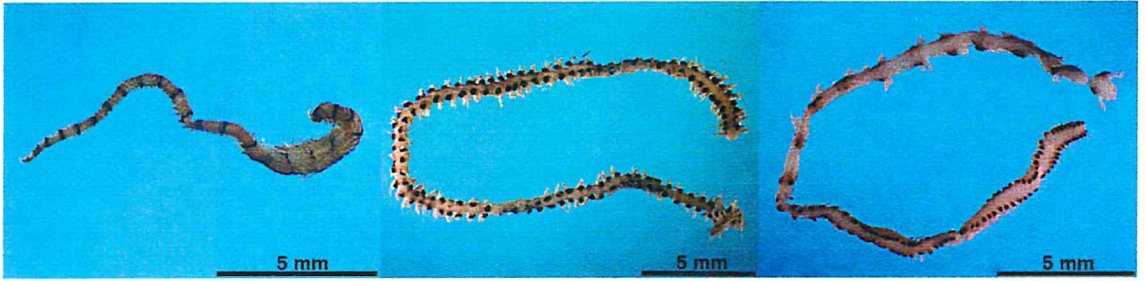
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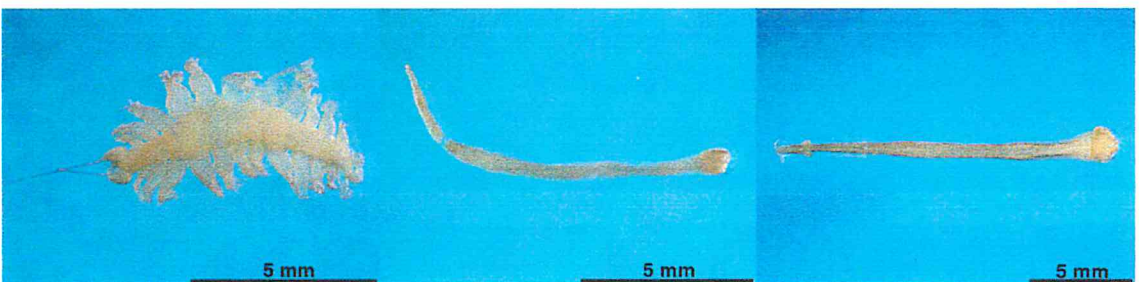
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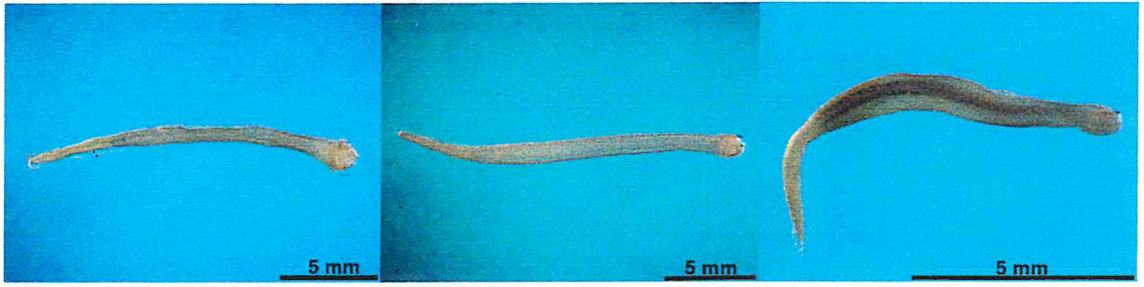
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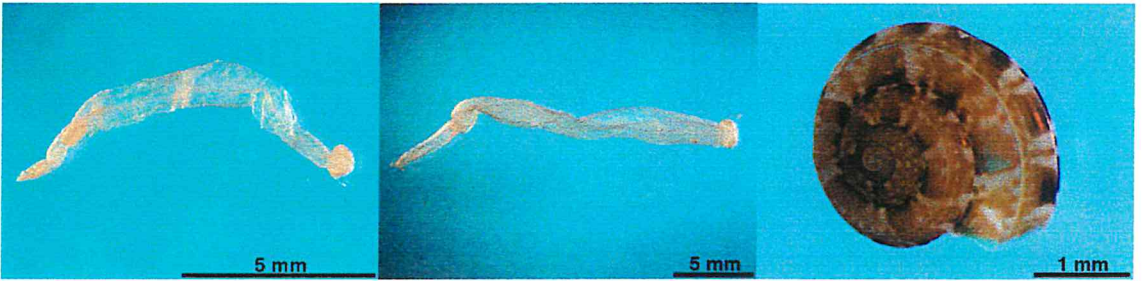
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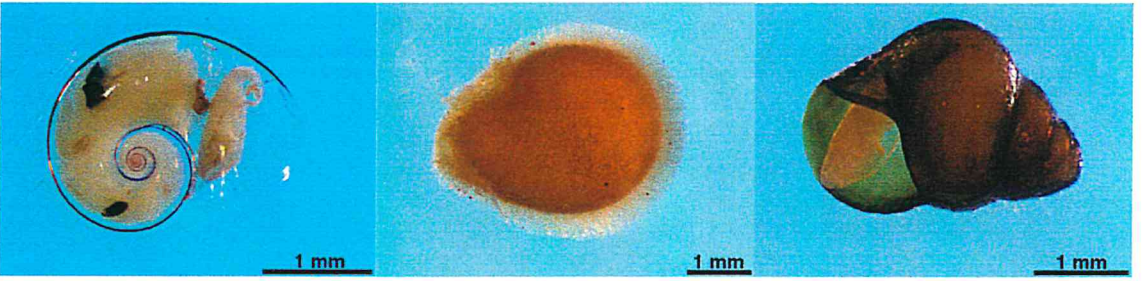
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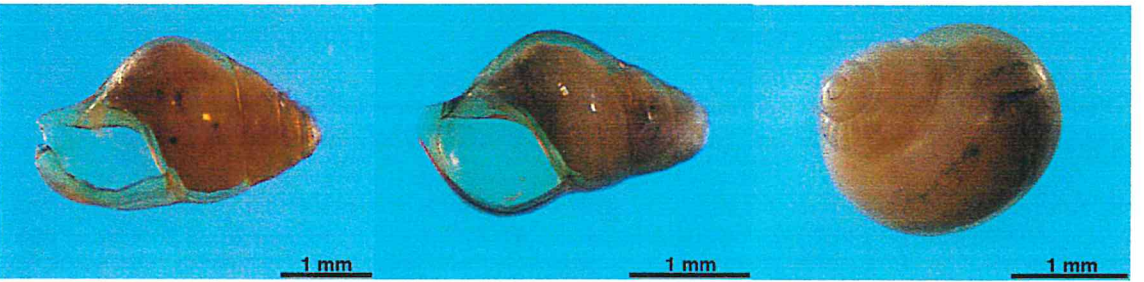
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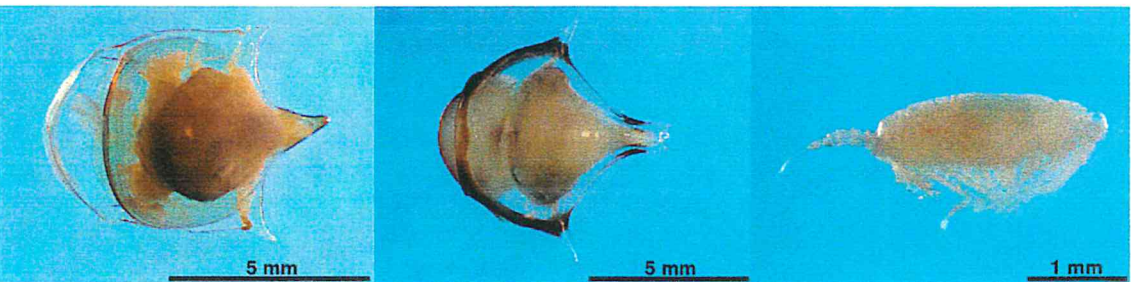
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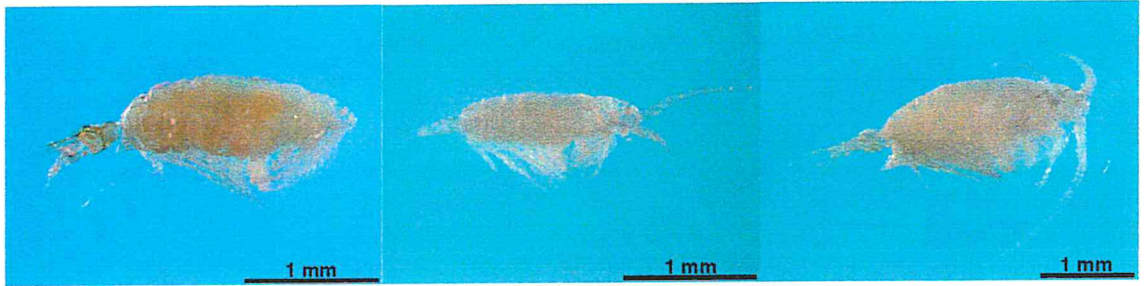
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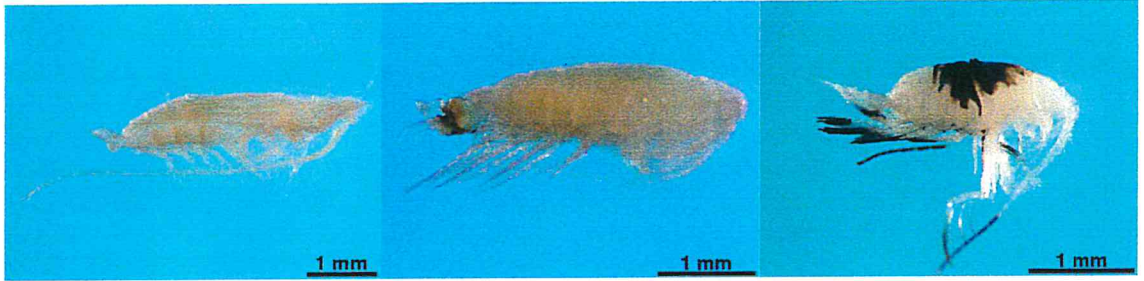
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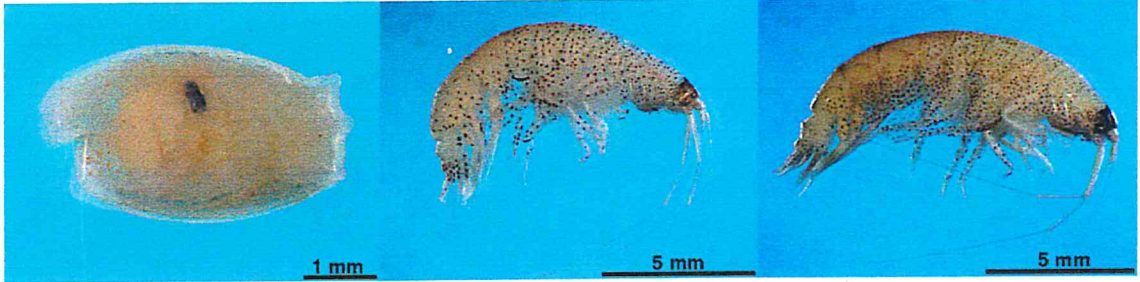
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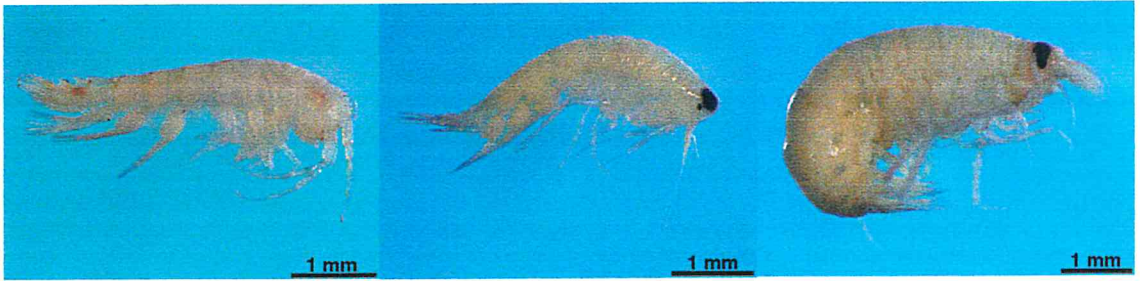
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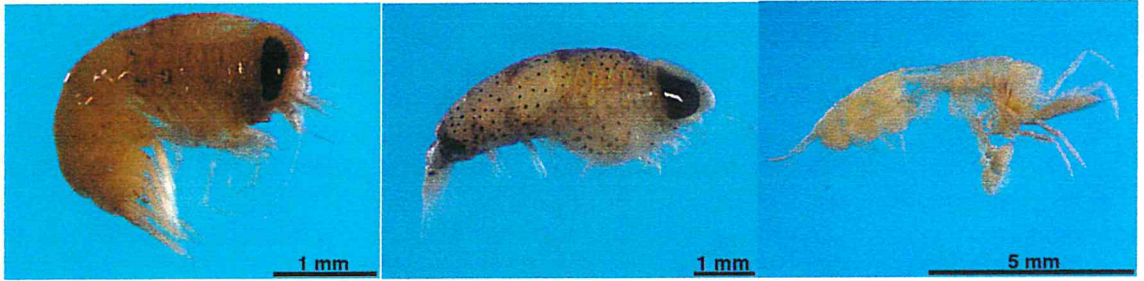
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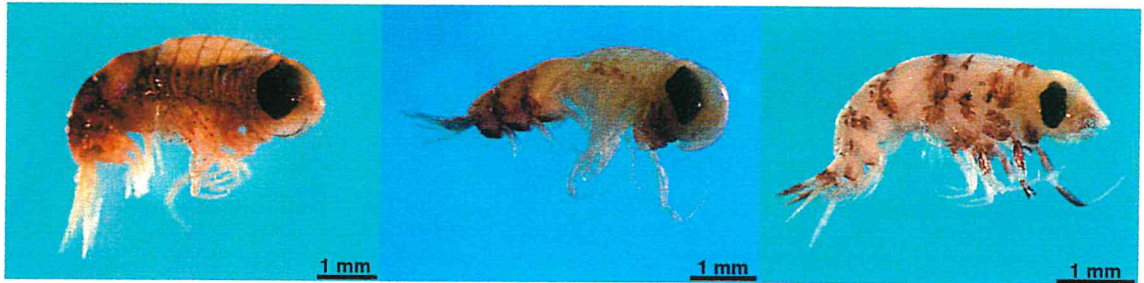
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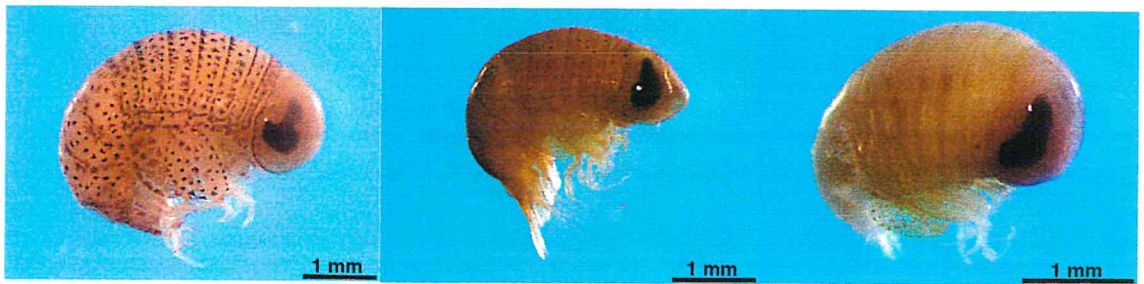
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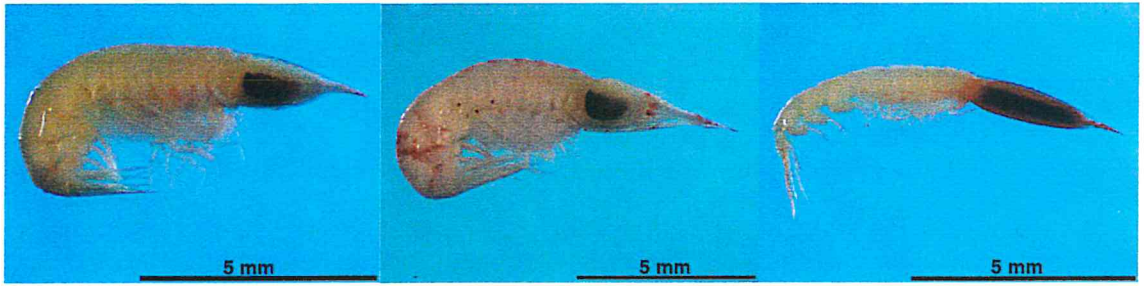


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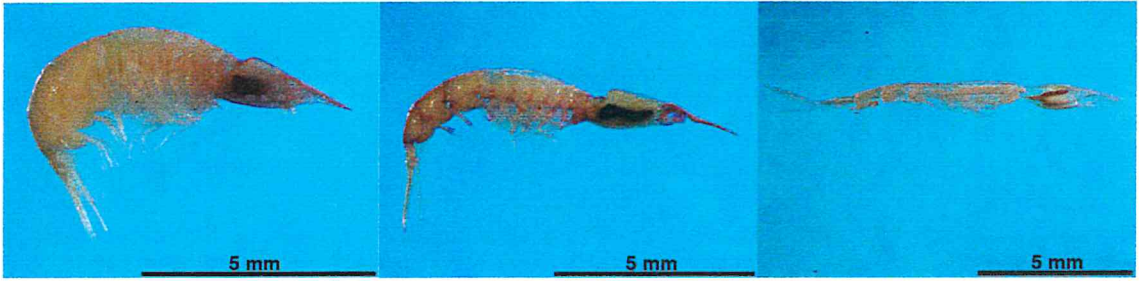




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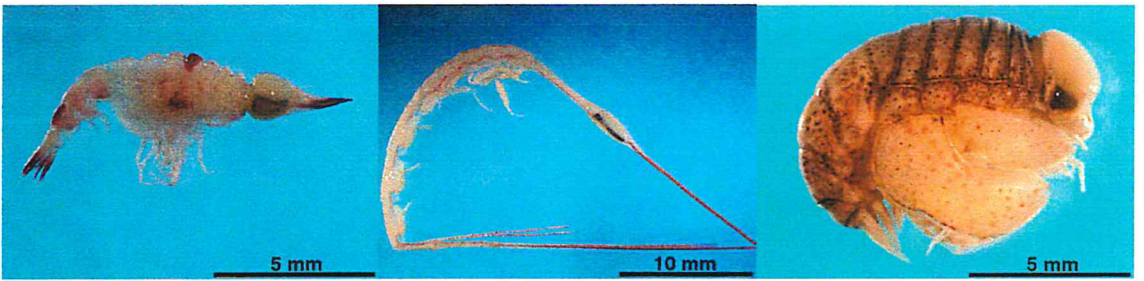
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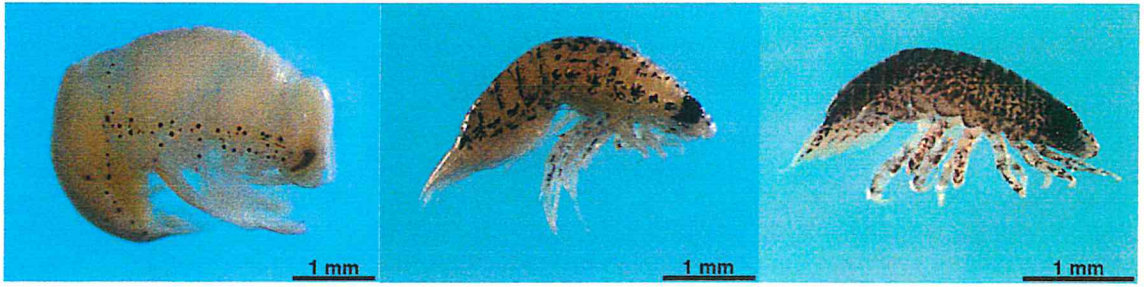
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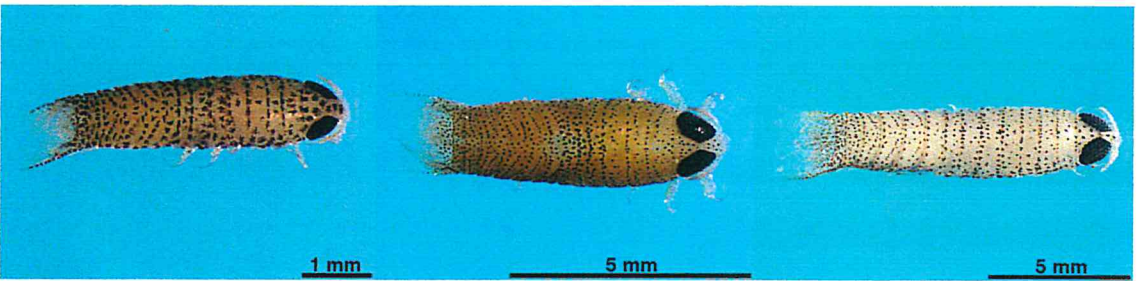
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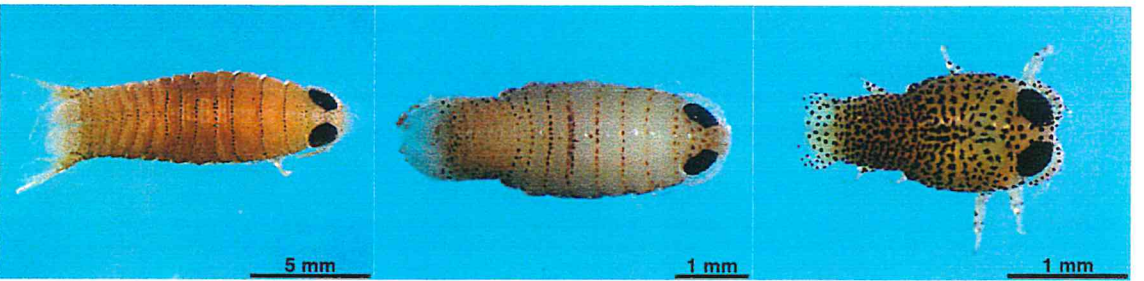
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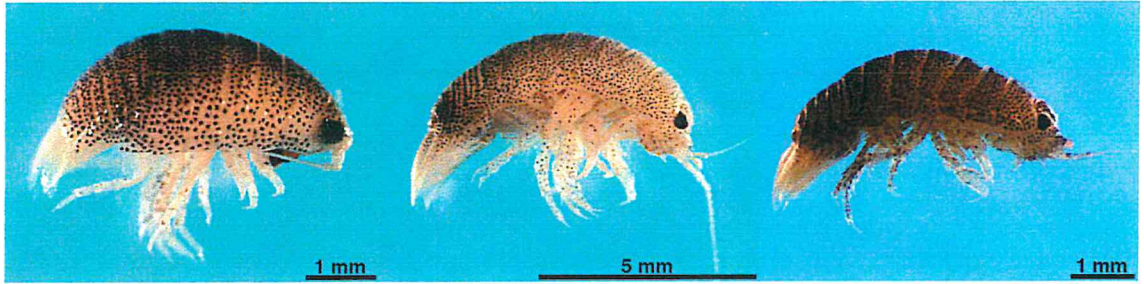
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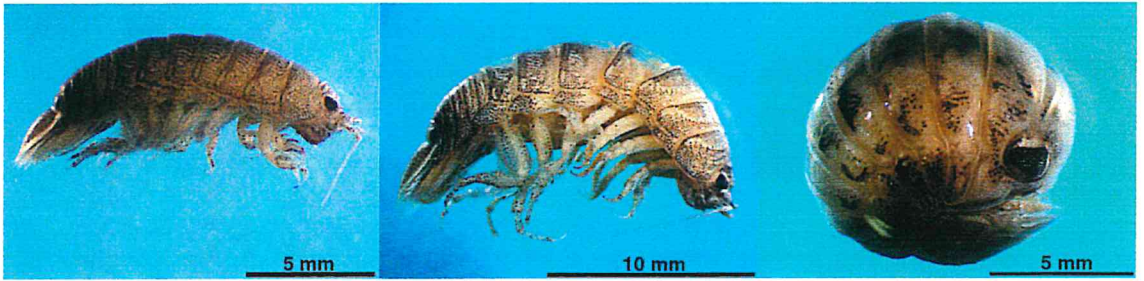
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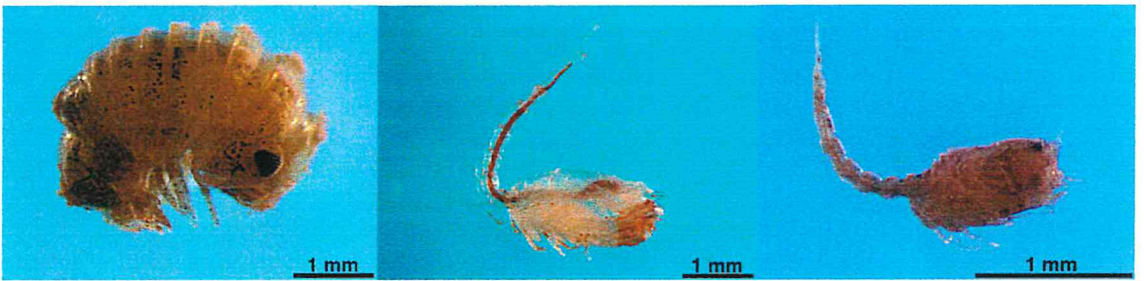
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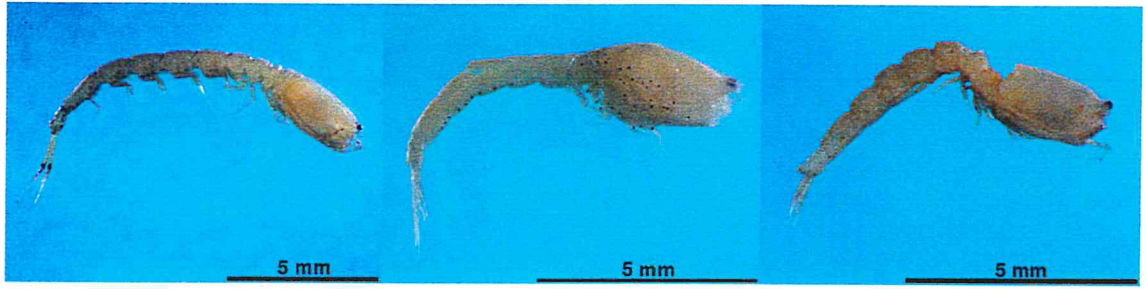
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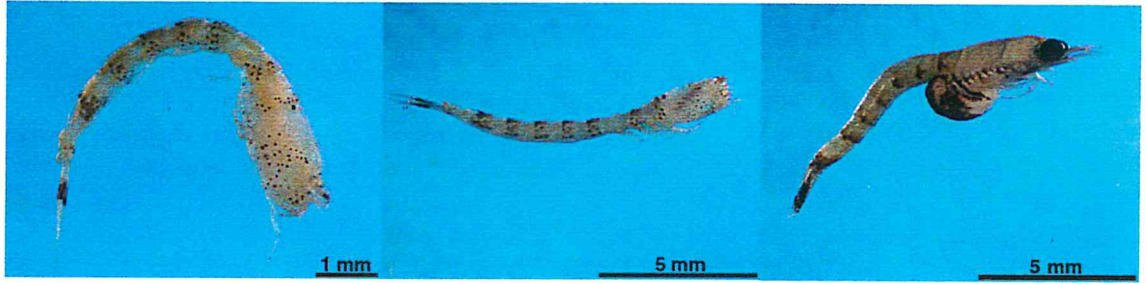
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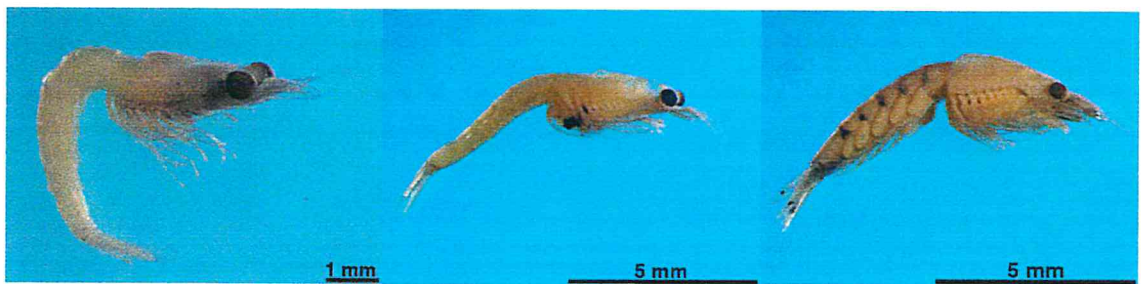
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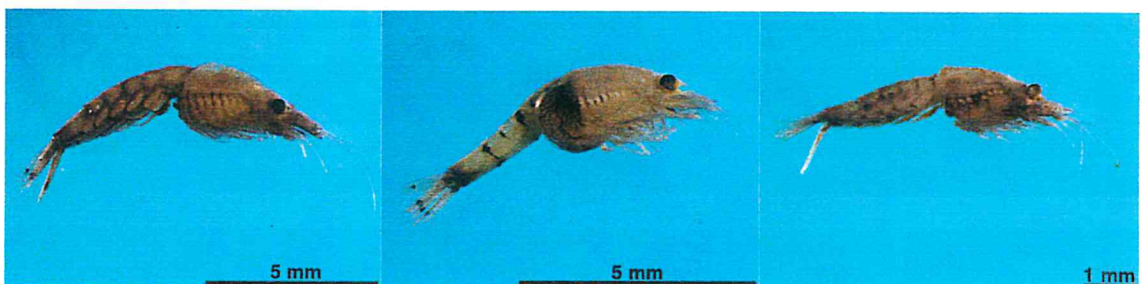
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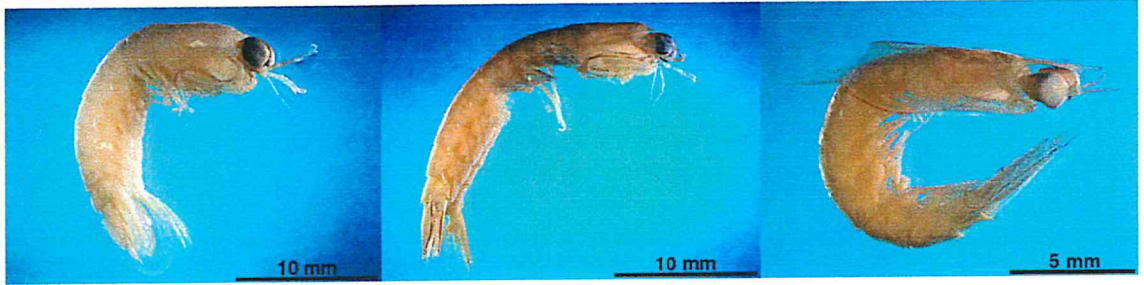
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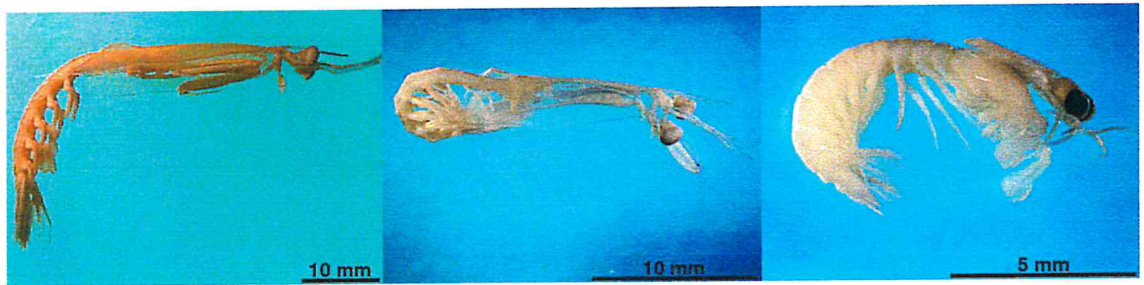
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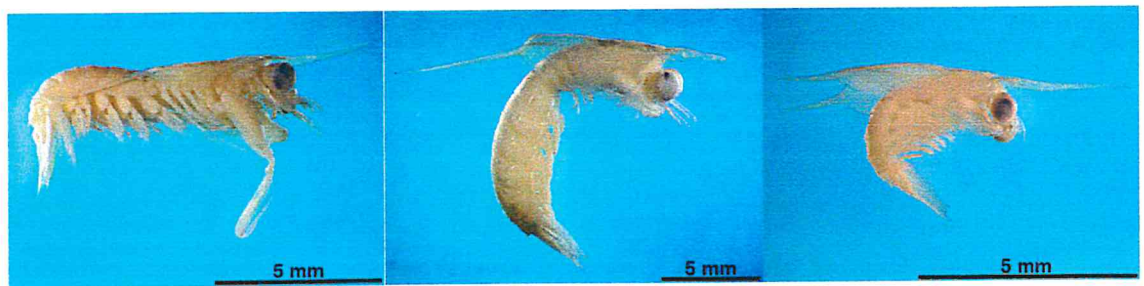
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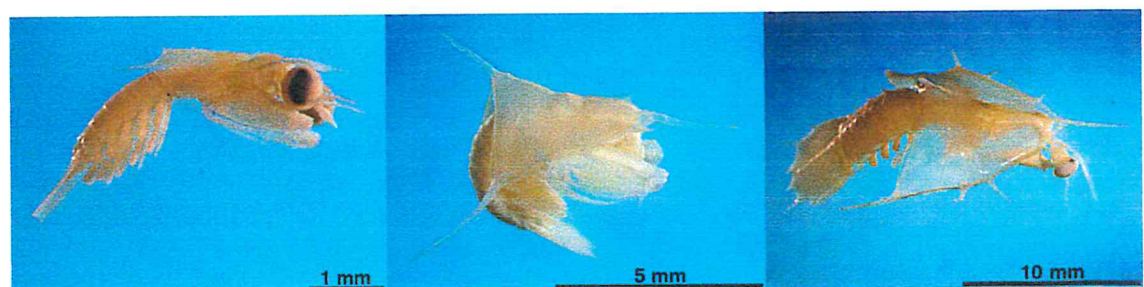
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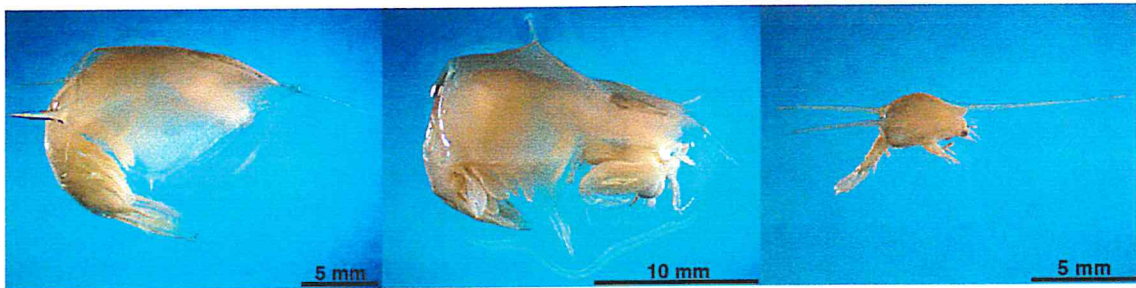
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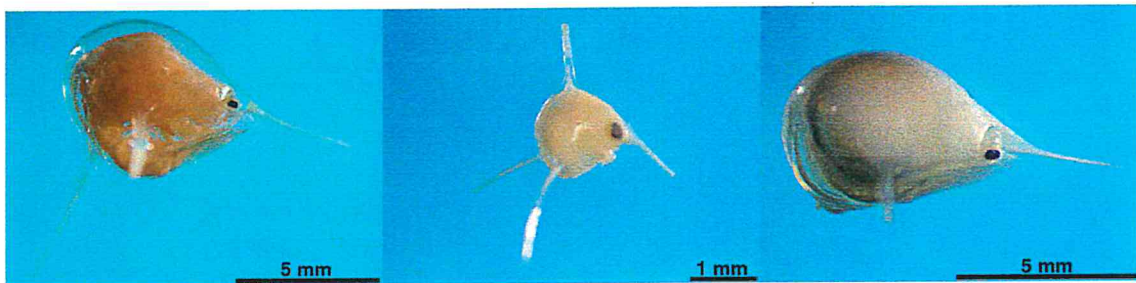
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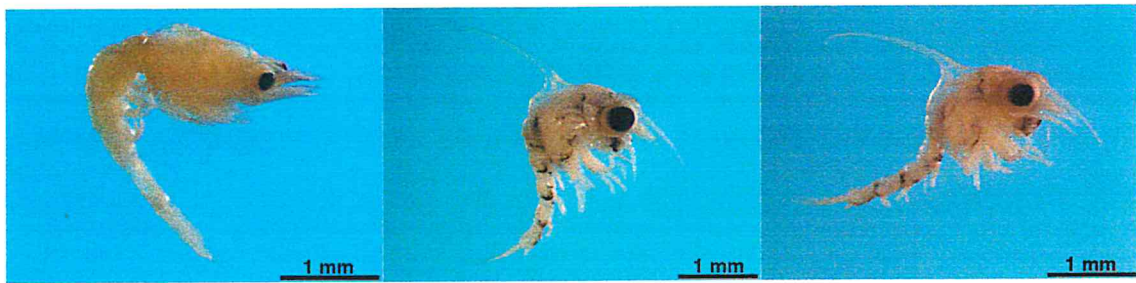
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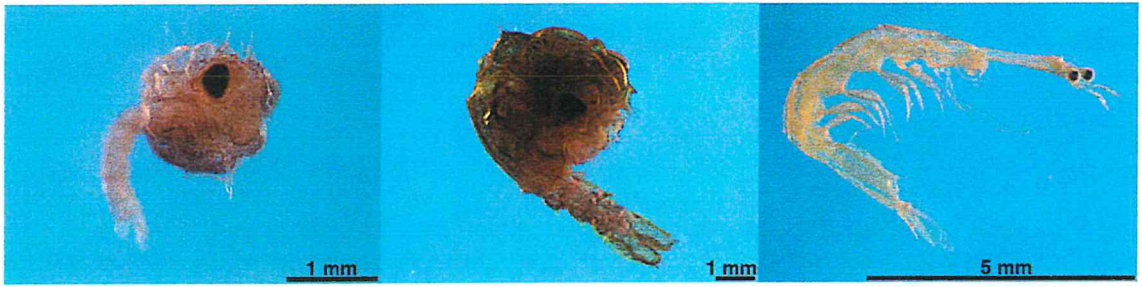
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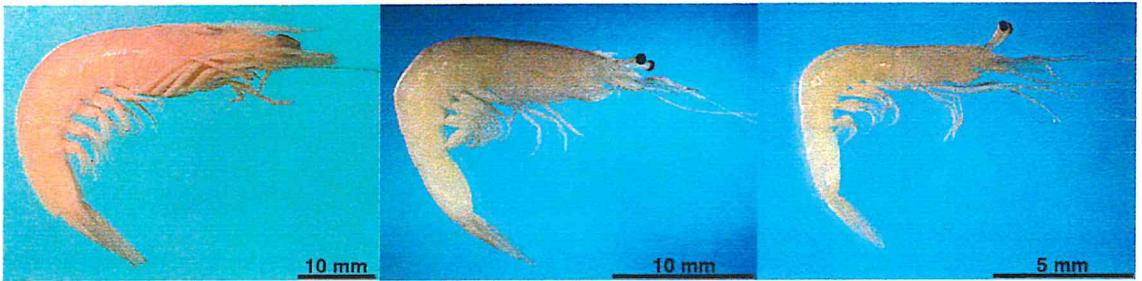
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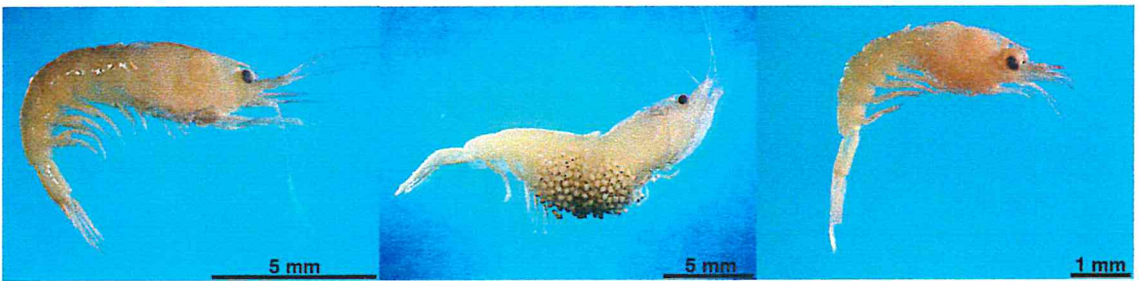
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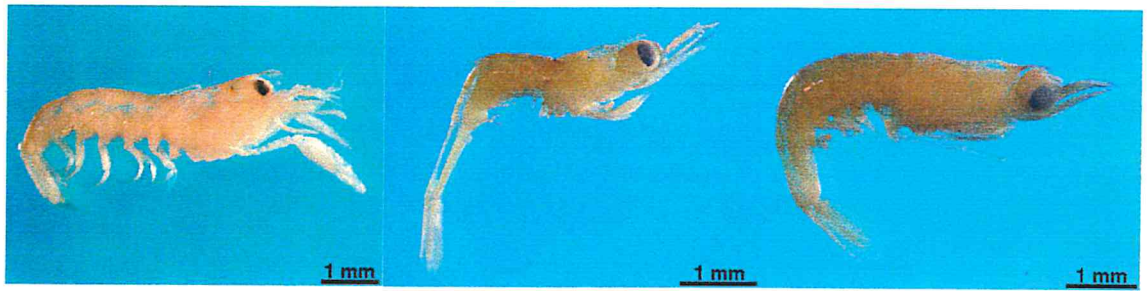
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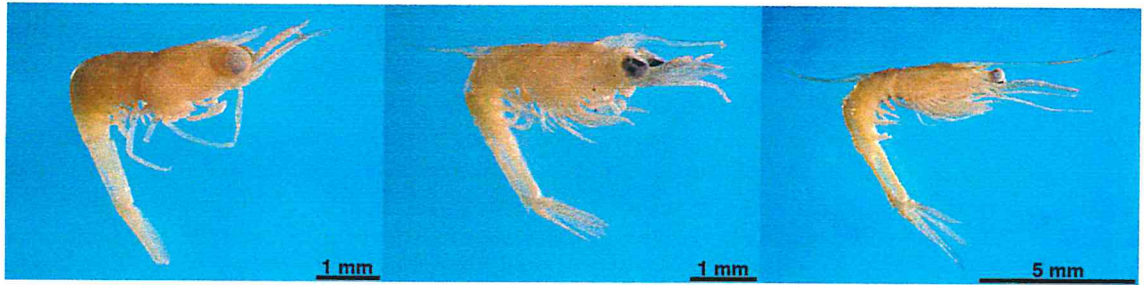
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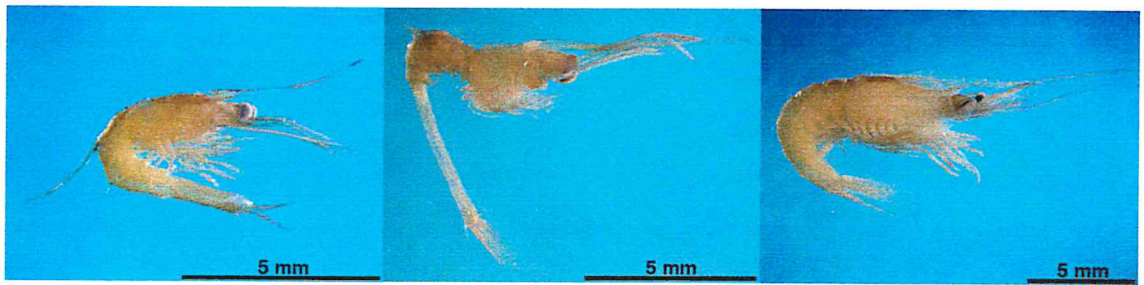
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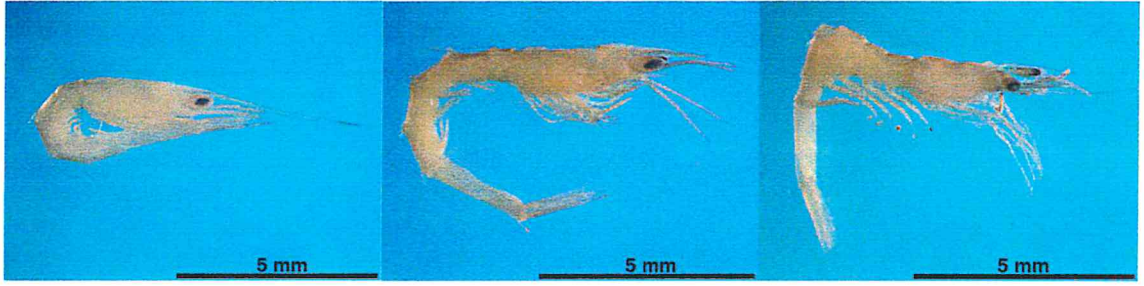


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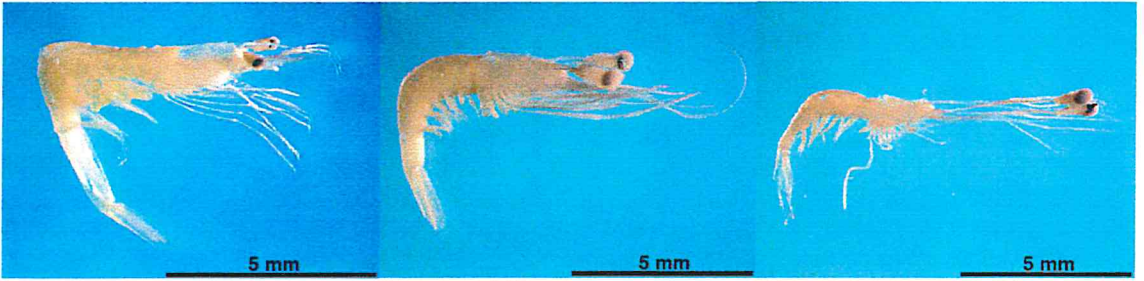




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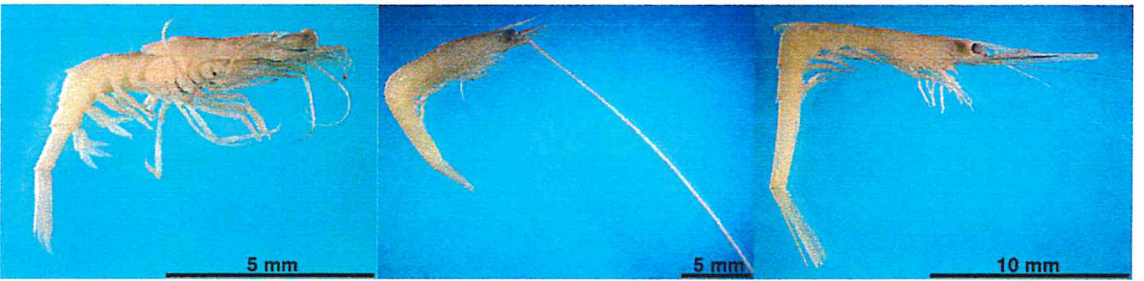
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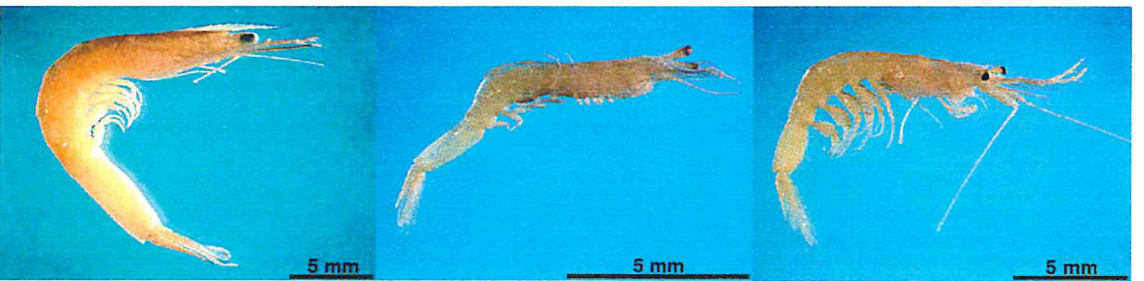
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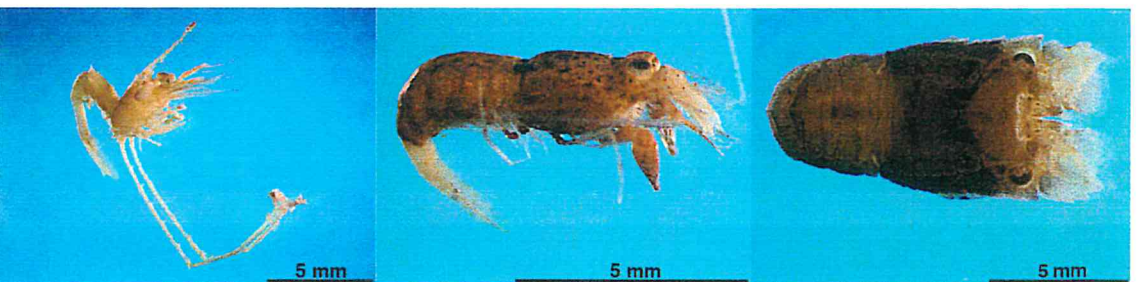
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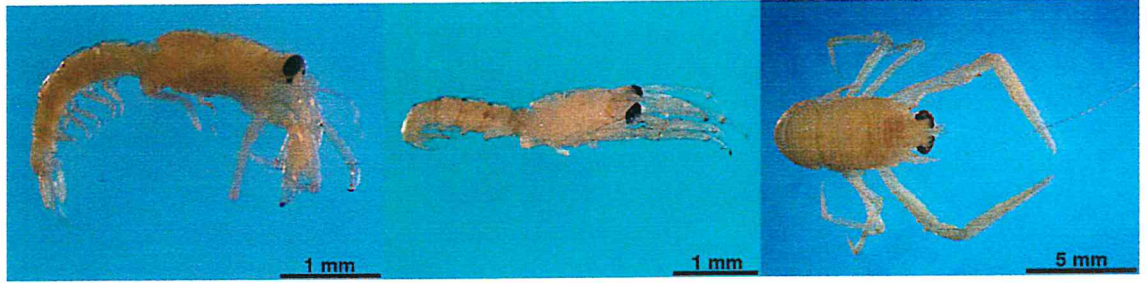
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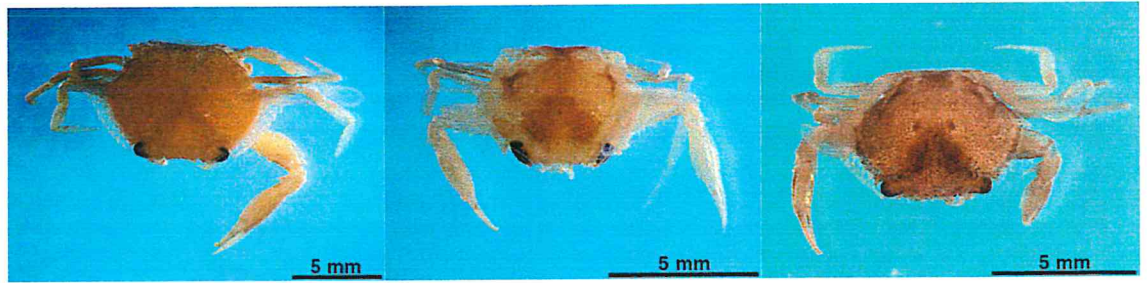
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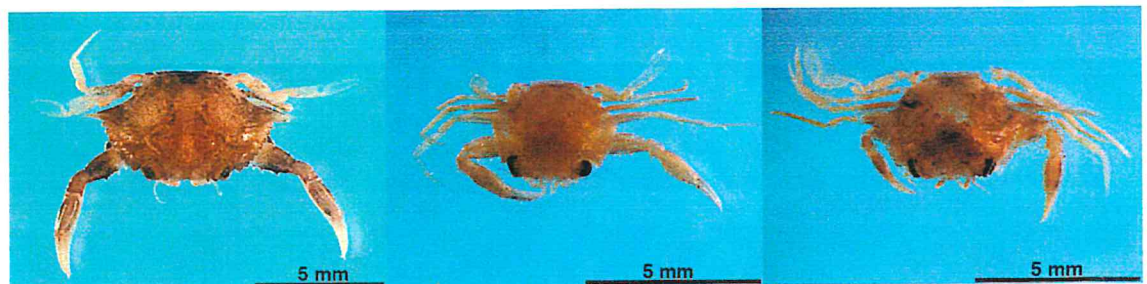
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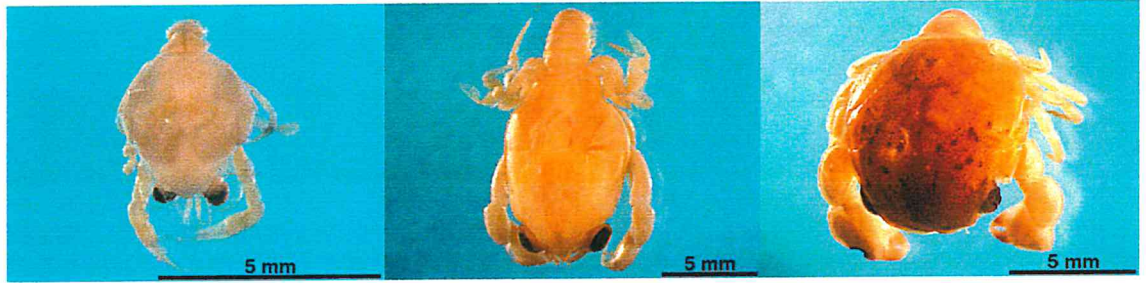
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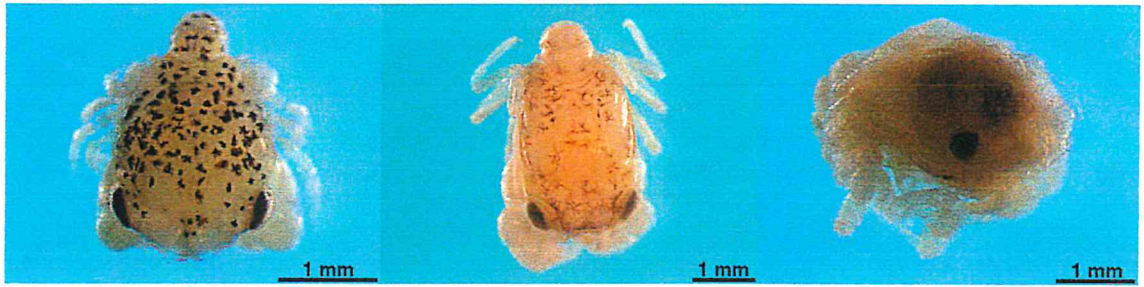
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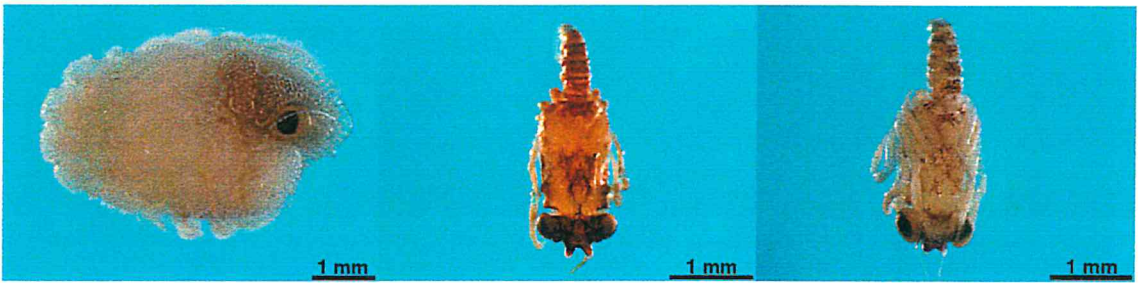
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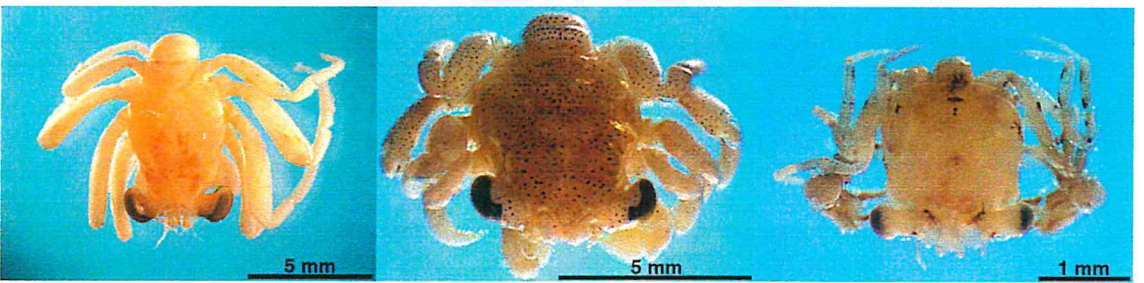
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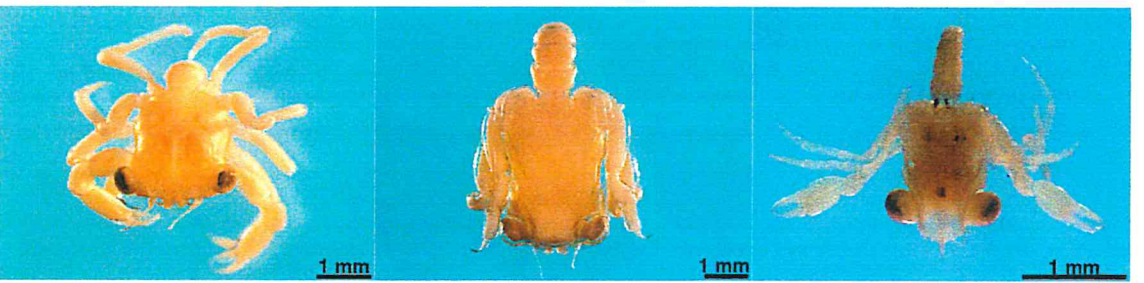
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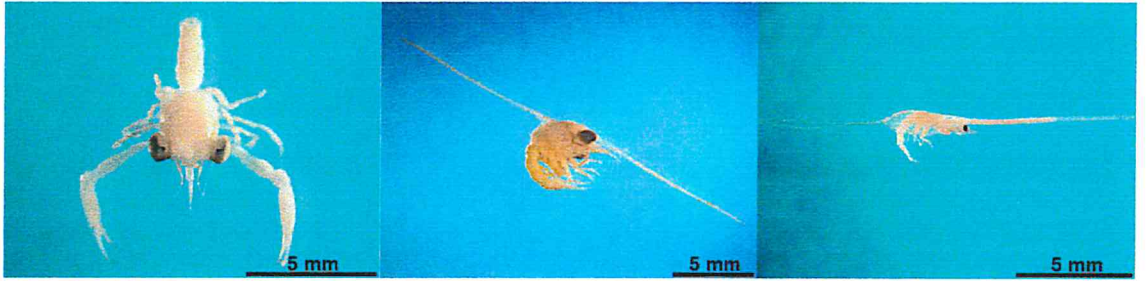
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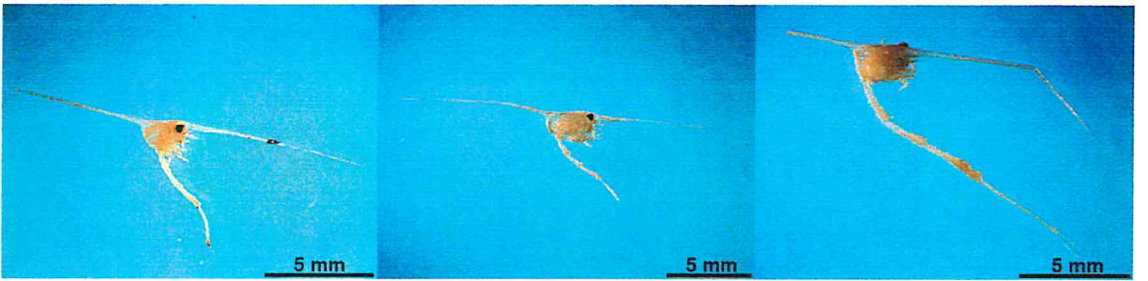
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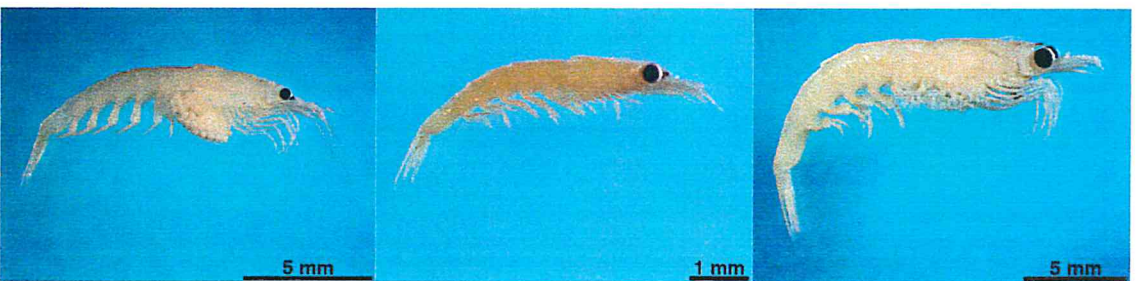
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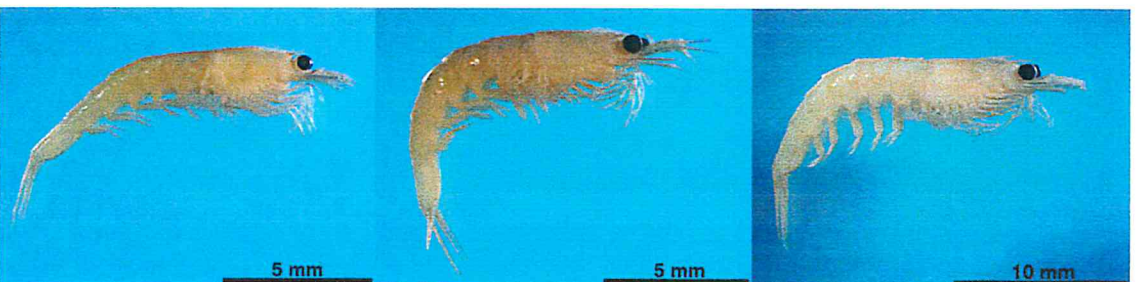
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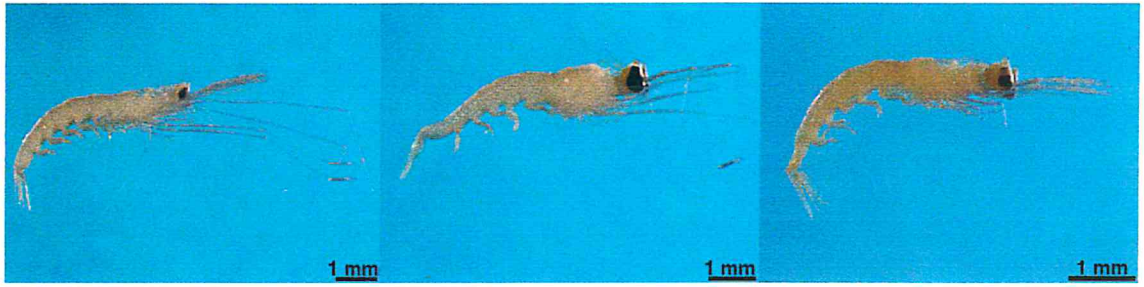
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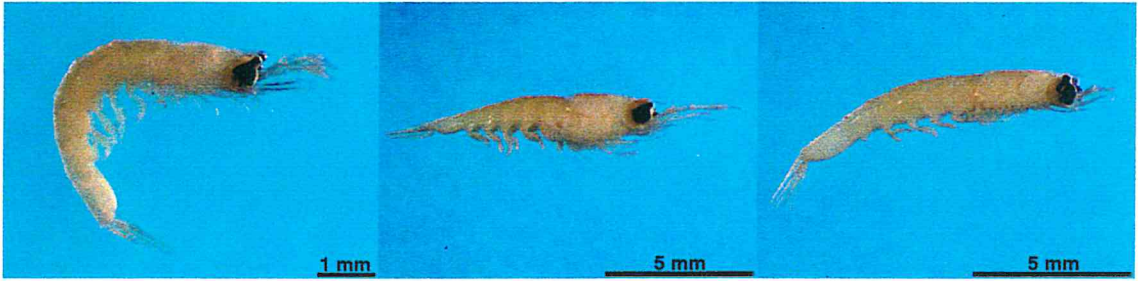
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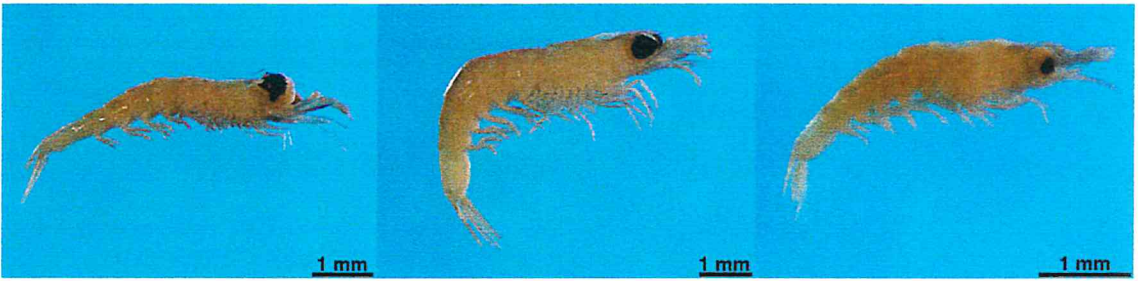
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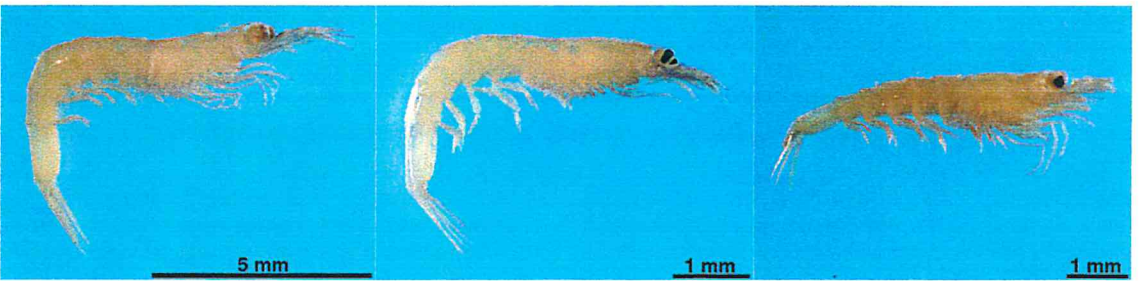
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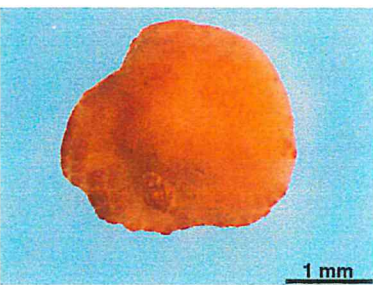
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