Dwarfs or giants? Sexual size dimorphism in Chondracanthidae (Poecilostomatoida, Copepoda)

Authors

Pia Østergaard[12], Geoff A. Boxshall[2] and Donald L. J. Quicke[13]

Addresses

[1]Department of Biological Sciences, Imperial College London, Silwood Park Campus, Ascot SL5 7PY, UK

[2]Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

[3]Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

Corresponding author

Pia Østergaard,

Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

Telephone: 0207 942 5671

Email: piao@nhm.ac.uk

Summary

Sexual size dimorphism in the Chondracanthidae is very marked: whether it is a consequence of males being dwarfs or females becoming giants is investigated. Chondracanthid females are between two and 30 times larger than their conspecific males. Plotting contrasts in male size against female size and vice versa lead to opposing results, namely that the relationship between male and female size is allometric in the first instance and isometric in the second. Based on the results of an analysis of sexual size dimorphism against morphological distance, although not significant when phylogeny is controlled for, we argue that the relationship between males and females might be allometric, i.e. showing a trend towards increasing sexual size dimorphism. Both sexes show changes in size compared with free-living forms, indicating that changes in sexual size dimorphism are not limited to one sex. Chondracanthid females are probably selected for high fecundity leading to large body size, whereas males are probably selected for small size. If the male receives nutrients from the female, a small male is less drain on the female's resources, which leaves more energy that can be allocated into egg production. Our data suggest that chondracanthid males are dwarfs and that chondracanthid females are giants.

Keywords: sexual size dimorphism, copepods, Chondracanthidae, independent contrast

1. INTRODUCTION

Sexual dimorphism is defined as morphological differences between sexually mature males and females (Fairbairn 1997) and sexual size dimorphism (SSD) is a common phenomenon within sexually reproducing species, though its expression varies with males typically being larger than females in mammals and birds, while the opposite is the case for most other taxa.

Among the parasitic copepods a variety of different SSD strategies is found. Some species do not show any SSD in body length (which does not mean they cannot show SSD in other morphological traits e.g. maxilliped and antenna size). Examples include the sea louse *Caligus minimus* (Caligidae) and the harpacticoid *Tegastes cnidicus* (Tegastidae) (Kabata 1979; Humes 1981). However, most species show some degree of body length SSD. Occasionally males are larger than their female counterpart, but in such cases they are only slightly larger (to a maximum of 1.25 times the body length of the female). Examples include both symbionts of invertebrates, such as *Monocheres cagarrensis* (Asterocheridae) on sponges (Johnsson & Bustamante 1997), and fish parasites such as *Caligus curtus* (Caligidae) (Kabata 1979). In the great majority of cases, SSD is female-biased and can be extreme. In fish parasites such as *Caligus zei* (Caligidae) (Kabata 1979), and in symbionts of invertebrate hosts such as *Scottomyzon gibberum* (Asterocheridae) on echinoderms (Gotto 1993) and *Lichomolgus digitatus* (Lichomolgidae) on corals (Humes & Ho 1968) the females are about 1.25 times longer than males. However, more extreme cases of SSD are found in the fish parasite families Lernaeopodidae (e.g. *Clavellisa scombri*) and Sphyriidae (e.g. *Tripaphylus musteli*), where the postmetamorphic adult females are approximately 25 times larger than males (Kabata 1979, 1992). Females of fish parasite *Lernaeocera branchialis* (Pennellidae) are about 45 times larger than their males (Kabata 1992). The most extreme case of sexual size dimorphism involves *Gonophysema gullmarensis* in the ascidian, *Ascidiella aspersa*,

which is cryptogonochoristic, with the mature male reduced to little more than a testis, which is housed within a special receptacle in the female genital apparatus (Bresciani & Lützen 1960).

The proportional relationship between the mean values of the trait of two sexes is the most intuitive quantitative measure of SSD and is often expressed as the ratio of male:female body size. However, the use of ratios has been questioned and various other measures have been proposed. For example, the use of residuals from the regression of male against female values has been suggested (Ranta et al. 1994) and is probably the most widely used alternative. The lack of consensus in the literature whether to use ratios or residuals to measure SSD led Smith (1999) to look at the statistics behind the two approaches. It is evident that residuals cannot replace ratios and two equally appropriate ratio measures of SSD are recommended: one on a logarithmic scale (ln [F/M]) (i.e. ln (mean female length) - ln (mean male length)), and one on a linear scale (the "two-step-ratio"). The property of both ratios is that they can also be used in comparative methods when correction for phylogenetic relationships among species in a data set is needed (Smith 1999).

Evidence suggests that SSD reflects the adaptation of males and females to their different reproductive roles (Fairbairn 1997). SSD has often been interpreted as being controlled by sexual selection alone, while natural selection or ecological divergence has been claimed not to play an important part in its evolution. There are examples of adaptation of the sexes to different ecological niches, and ecological divergence should therefore not be overlooked as a possible factor although testing this hypothesis empirically is problematic (Shine 1989). Fairbairn (1997) argued that it is difficult to exclude the hypothesis that trophic dimorphism evolved as a consequence of pre-existing sexual dimorphism and concluded that niche divergence only plays a subsidary role in the evolution of sexual dimorphism. Shine (1989) argued that sexual and natural selection can act at the same time in the same taxon and

that the ecological divergence hypothesis should not be rejected just because of difficulties in testing it.

Among sexually dimorphic invertebrates the female is usually larger than the male and it has been postulated since the time of Darwin, that large female size is typically driven by selection for high reproductive output as increases in female size have a greater positive impact on fitness than similar increases in males (Shine 1988, 1989). In parasites, a high reproductive output should be strongly favoured because of low probability of successful transmission, which is why female-biased size dimorphism in dioecious parasite taxa is expected (Poulin, 1996). Shine (1988) argued that this fecundity advantage model only applies to animals that are not energy-limited. Small male size, however, is more complicated to explain (Vollrath 1998). Often the reproductive success of male invertebrates is dependent on encounter rates with females and small, mobile males have been found to be favoured (Ghiselin 1974).

SSD is very marked in the copepod family Chondracanthidae. The size difference between sexes is variable, but females up to 30 times longer than their conspecific males have been recorded (e.g. *Medesicaste penetrans*) (Ho 1970) and chondracanthid males have often been referred to as dwarfs (e.g. Ho 1970; Kabata 1979; Rousset & Raibaut 1983). In Chondracanthidae, there is usually only one male per female, the former typically being found attached to the female genital region, gripping onto her nuptial organs with their antennae. It is speculated that the males of *Chondracanthus lophii* feed on secretions produced by the female in glands associated with the nuptial organs (Østergaard 2004; Østergaard & Boxshall in press). Vollrath (1998) defined a ‘true’ dwarf male as being on average 50% or less of the female size, and noted that this can be achieved by two different developmental mechanisms: 1) a reduction in the number of larval stages, or 2) a reduction in the time spent at each stage.

Alternatively, as Vollrath (1998) states, relatively small males may just be a consequence of natural selection for large females.

We address the following question: Are chondracanthid males true dwarfs, or are they only small relative to females that have become giants? We examine the distribution of body size on a genus-level phylogeny of Chondracanthidae to reveal whether there is any consistent pattern in the direction of body-size evolution in the sexes.

2. MATERIALS AND METHODS

Body size is defined as the length from anterior margin of the cephalosome to the posterior end of the urosome, excluding the caudal setae. Lengths of chondracanthids were taken from the literature (Østergaard 2003). Body lengths for 46 outgroup species (Taeniacanthidae and Bomolochidae) and for 493 species of free-living copepods (representing 213 genera from 71 families and 6 orders) were recorded (see electronic appendix for a full list of species and references on following URL: http://www....). Values used were either means based on measurements of several individuals, midpoints of ranges of variations, or measurements of holotypes when only those were available.

The analyses were performed on ln-transformed data. Fairbairn (1997) recommended using females as the independent variable, to facilitate comparison between studies, though Fairbairn & Preziosi (1994) had previously recommended the larger sex, in this case females, be used as the dependent variable. Here we present regressions of ln (female lengths) against ln (male length) and of ln (male length) against ln (female length) to test the strength of our data.

In order to correct data for phylogenetic non-independence, the same ln (lengths) were then used to calculate independent contrasts according to the methods described by Felsenstein (1985) and Pagel (1992) using the *ape* library (Analysis of Phylogenetics and

Evolution) for the computer program "R version 1.8.1" (R Development Core Team, 2003). The chondracanthid phylogeny used was the MFU tree from Østergaard et al. (2003: Fig 8a) which is a completely resolved tree giving a total of 40 independent contrasts. As branch lengths in the phylogeny were not known the lengths of all branches were set to 2. Relationships among contrasts were assessed using correlations and regressions forced through the origin.

The relationship between male and female size is isometric when every change in female size is accompanied by a change in male size in the same direction and of an equal magnitude (i.e. the slope is 1.0). A coefficient significantly different from 1.0 indicates that the degree of SSD changes allometrically (Fairbarn & Preziosi 1994; Fairbairn 1997).

SSD was calculated as ln (F/M) i.e. with the larger sex as the numerator as recommended by Smith (1999). These SSD values were arbitrarily divided into 6 intervals (scored 0-5), 0 = < 0.99, 1 = 1.00-1.49, 2 = 1.50-1.99, 3 = 2.00-2.49, 4 = 2.50-2.99, and 5 = >3.00. The character was then mapped onto the phylogeny using MacClade 3.0 (Maddison & Maddison, 1992).

Male size, female size and SSD for each genus were compared with the morphological distance of that taxon from the outgroup. The outgroup node was defined as zero and morphological distance was calculated as the number of character changes taking place from that node through all ingroup nodes to each individual taxon.

3. RESULTS

The frequency distributions of body size for free-living copepods and for chondracanthids (Fig. 1) suggest that on average chondracanthid females are larger than free-living ones, whereas their males are smaller. The mean body length of free-living males is 1.58 mm (n = 469 species) which is significantly larger than that of chondracanthid males whose mean

length is 0.72 mm (*t*-test: $p = 0.0016$). In contrast, the mean body length for free-living females of 2.03 mm (n = 493 species) is significantly shorter than the 5.90 mm of chondracanthid females (*t*-test: $p < 0.0001$).

The mean female:male size ratio for the Chondracanthidae is 9.0:1.0. Some chondracanthid females are only two to four times larger than the males (e.g. *Juanettia*, *Pharodes*, *Rhynchochondria*, *Hoia* and *Lagochondria*) but most are five to 15 times larger (e.g. *Blias*, *Auchenochondria*, *Strabax*, and *Andreina*) (see Appendix A). The most extreme ratio is *Medesicaste*, where mean body length of the female is 19.1 mm and the male is 0.6 mm, i.e. 30 times larger. In contrast, the mean female:male size ratio for free-living copepods is 1.1:1.0 and for the outgroup used here 1.8:1.0. In the free-living copepods, the outgroup and the Chondracanthidae, males are smaller than females, but in Chondracanthidae SSD is more pronounced than in the outgroup and free-living forms.

Male size and female size for Chondracanthidae were strongly correlated, however, the slope (0.574) of the linear regression of ln (male length) on ln (female length) was significantly different from 1.0 ($p < 0.0001$) (Fig. 2a). The slope for the phylogenetic contrasts (0.555) is also significantly less than 1.0 ($p < 0.0001$) (Fig. 2b). These regressions indicate an allometric relationship between male and female size, which increases with body size. In contrast, the slope (0.805) of the linear regression of ln (female length) on ln (male length) was not significantly different from 1.0 ($p = 0.1810$) (Fig. 3a). Using phylogenetic contrasts also gives a slope (0.8558) which is not significantly different from 1.0 ($p = 0.3541$) (Fig. 3b). This suggests that SSD is isometric, i.e. the proportional difference in male and female size did not change as body size increased. SSD appeared to remain constant relative to body size across genera.

Plots of ln (female length) as a function of morphological distance as well as female size contrasts as function of morphological distance showed a positive but not significant

correlation (p = 0.9189 and p = 0.6744 respectively). Similar plots of male size showed a negative correlation with distance which was not significant (p = 0.3701 and p = 0.5898).

When mapping SSD, ln(F/M), on the tree there are apparent trends in size change (Fig. 4a). The basal genera generally have a smaller female to male size ratio compared to the more derived genera, with the largest proportional differences between the sexes in the more distal taxa. This is supported by a plot of SSD as function of morphological distance which showed a positive correlation (slope = 0.0044) (Fig. 4b). The slope is significantly different from zero (p = 0.0002) indicating that SSD is positively correlated with the degree of morphological divergence from the outgroup, which supports the findings of Fig. 4a. A similar positive correlation (slope = 0.0062) was found with phylogenetic contrasts although it is not significant (p = 0.2406) (Fig. 4c).

4. DISCUSSION

Locating a host is crucial and is the greatest challenge in a parasite's life cycle. A common strategy to meet this challenge is to increase probability of encounters with potential hosts by increasing reproductive output. The more difficult the host is to locate the more fecund the parasite (Gotto 1962). Further, it has been suggested that the challenge for fish parasites is greater than for invertebrate parasites, as fish may be more difficult to infect than invertebrates, the latter also tending to be less mobile or even sessile (Gotto 1962). Other things being equal, a high fecundity will be strongly favoured by selection, resulting in large females. Space and food are often not limiting, so many parasites evolve large body size, especially in females. Female gigantism is not only common in parasitic copepods but also among parasitic nematodes (Kirchner et al. 1980) and other crustaceans, e.g. Rhizocephala (Raibaut & Trilles 1993). However, alternative strategies are also known in Crustacea. Poulin (1995a) and Poulin & Hamilton (1995) found that switching from free-living to parasitic

strategies in both isopods and amphipods resulted in decrease in female body size, independently of the type of hosts colonised. Parasitic isopods and amphipods thus appear to have evolved towards higher fecundity without evolving towards larger body sizes after diverging from free-living ancestors (Poulin 1995a).

In parasitic copepods there is a general trend towards SSD in which females are significantly longer than males (Poulin 1996) and this is more pronounced in the Chondracanthidae than in close relatives, such as the Taeniacanthidae and Bomolochidae.

Whether the relationship between male and female size is isometric or allometric is equivocal. Following the recommendations of Fairbairn (1997) would lead to the conclusion that the relationship between males and females is allometric. However, placing the female as the dependent variable as recommended by Fairbairn & Preziosi (1994), would lead to the conclusion that the relationship between the sexes is isometric. Fairbairn (1997) advocated placing females on the x-axis in order to make standardize presentation and facilitate comparison of data from different studies. In theory, there should be no difference in results whichever way the data are presented. The difference observed here is likely due to relatively noisy nature of our data, which is probably not that uncommon. It is clear that if such noisy data is analysed only one way, false conclusions might arise.

Although not significant and not supported by analysis of phylogenetic contrasts, our data suggest that in chondracanthids the relationship is allometric. Poulin (1996) generalised for all copepods parasitic on fish that: "The pressures from life of parasitism on fish have not been felt equally by males and females: females have been selected for high fecundity, males for their ability to inseminate females. This has typically led to small, mobile males capable of exploring the surface of the host in search of the large permanently attached females... with male size under weak selection the degree of SSD may be determined to a large extent by female size itself" (Poulin 1996: pg. 2522). In contrast, we found that changes in body size

were not limited to female Chondracanthidae, males also showed changes (Fig. 1). It appears that both sexes are driving the SSD and that SSD is related to degree of morphological divergence. In a female-biased dimorphism, an increasing SSD with increasing female size, (called hyperallometry by Fairbairn & Presiozi (1994)), may indicate an increasing degree of specialization to a parasitic mode of life, which we saw when comparing SSD to morphological distance (Fig. 4).

We infer that selection for high fecundity in Chondracanthid females has resulted in a trend towards larger body size. Poulin (1995b) found that fecundity increases in copepods that become parasitic on fish and that it is positively correlated with female size. Conversely, Chondracanthid males are probably selected for small body size. Dwarf males commonly eat less than females but maximize their reproductive output by living in intimate association with the female (Shine 1988). Ghiselin (1974) observed that dwarf males are often found when the female parasite is sedentary and Vollrath (1998) concluded that when males derive nourishment from the female, the optimum strategy would be to commit resources into sperm production, reducing investment in basic metabolism, leading to small size. He argued that dwarfism could even be favoured in male-male competition, if large male size is too costly. Chondracanthid males conform to Vollrath's (1998) definition of a dwarf male, being less than half as long as conspecific females. This is partly due to dwarfing (males were smaller than in free-living copepods) but also due to selection for large females (which are larger than in free-living copepods). Small body size could benefit the male by reducing feeding requirements and since the male probably derives nourishment from the female (see Østergaard & Boxshall submitted), a small male is a lesser drain on resources. This allows the female to put highest possible amount of resources into egg production, which will lead to increased reproductive success; beneficial to both individuals. It appears that the strategy

exhibited by the Chondracanthidae combines dwarf males with giant females, but this needs further study.

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REFERENCES

Bresciani, J. & Lützen, J. 1960 *Gonophysema gullmarensis* (Copepoda parasitica). An anatomical and biological study of an endoparasite living in the ascidian *Ascidiella aspersa. Cah. Biol. mar.* **2,** 347-371.

Fairbairn, D. J. 1997 Allometry for sexual size dimorphism: Pattern and process in the coevolution of body size in males and females. *Annu. Rev. Ecol. Syst.* **28**, 659-687.

Fairbairn, D. J. & Preziosi, R. F. 1994 Sexual selection and the evolution of allometry for sexual size dimorphism in the water strider, *Aquarius remigis*. *Am. Nat.* **144**, 101-118.

Felsenstein, J. 1985 Phylogenies and the comparative method. *Am. Nat.* **125**, 1-15.

Ghiselin, M. T. 1974 *The economy of nature and the evolution of sex*. Berkeley: University of California Press.

Gotto, V. 1962 Egg-number and ecology in commensal and parasitic copepods. *Ann. Mag. nat. Hist.* **13**, 97-107

Gotto, V. 1993 *Commensal and parasitic copepods associated with marine invertebrates (and whales).* Synopses of the British Fauna (New series). Eds. Kermach, D. M., Barnes, R. S. K. & Crothers, J. H. No. 46. London: The Linnean Society.

Ho, J. S. 1970 Revision of the genera of the Chondracanthidae, a copepod family parasitic on marine fishes. *Beaufortia* **229**, 105-218.

Humes, A. G. 1981 Harpacticoid copepods associated with Cnidaria in the Indo-West Pacific. *J. Crust. Biol.* **1**: 227-240.

Humes, A. G. & Ho, J. S. 1968 Lichomolgid copepods (Cyclopoida) associated with corals in Madagascar. *Bull. Mus. Comp. Zool. Harv.* **136**, 353:413.

Johnsson, R. & Bustamante, A. O. 1997 *Monocheres cagarrensis* sp. nov. (Copepoda, Siphonostomatoida) from Brazil. *Crustaceana* **70**, 894-900.

Kabata, Z. 1979 *Parasitic Copepoda of British Fishes*. Vol. 152. 468pp. London: The Ray Society.

Kabata, Z. 1992 Copepoda parasitic on Australian fishes, XIV. An assemblage of bathypelagic species. *J. nat. Hist.* **26**, 9-45.

Kirchner, T. B., Anderson, R. V. & Ingham, R. E. 1980 Natural selection and the distribution of nematode sizes. *Ecology* **61**, 232-237.

Maddison, W. P. & Maddison, D. R. 1992 *MacClade 3.0. Interactive analysis of phylogeny and character evolution*. [Computer software and manual]. Sinauer Associates, Sunderland, Massachusetts.

Østergaard, P. 2003 Catalogue of genera and species of the family Chondracanthidae Milne Edwards, 1840 (Copepoda: Poecilostomatoida) with notes on morphology. *Syst. Parasitol.* **55**, 135-150.

Østergaard, P. 2004 Does male *Chondracanthus lophii* (Crustacea: Copepoda) feed?). *J. mar. biol. Ass. U.K.* **84**, 721-726.

Østergaard, P. & Boxshall, G. A. 2004 Giant Females and Dwarf Males: A Comparative Study of Nuptial Organs in Female Chondracanthidae (Crustacea: Copepoda). *Zool. Anz.* (submitted)

Østergaard, P., Boxshall, G. A. & Quicke, D. L. J. 2003 Phylogeny within the Chondracanthidae (Poecilostomatoida, Copepoda). *Zool. Scr.* **32**, 299-319.

Pagel, M. 1992 A method for the analysis of comparative data. *J. Theor. Biol.* **156**, 431-442.

Poulin, R. 1995a Evolutionary influences on body size in free-living and parasitic isopods. *Biol. J. Linn. Soc.* **54**, 231-244

Poulin, R. 1995b Clutch size and egg size in free-living and parasitic copepods: A comparative analysis. *Evolution* **49**, 325-336.

Poulin, R. 1996 Sexual size dimorphism and transition to parasitism in copepods. *Evolution* **50,** 2520-2523.

Poulin, R. & Hamilton, W. J. 1995 Ecological determinants of body size and clutch size in amphipods: A comparative approach. *Funct. Ecol.* **9**: 364-370.

R Development Core Team 2003 R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-00-3. URL: http://www.R-project.org/

Raibaut, A. & Trilles, J. P. 1993 The sexuality of parasitic crustaceans. *Adv. Parasitol.* **32**: 367-444.

Ranta, E., Laurila, A. & Elmberg, J. 1994 Reinventing the wheel: analysis of sexual dimorphism in body size. *Oikos* **70**, 313-321.

Rousset, V. & Raibaut, A. 1983 Intégration de nouveaux caractères structuraux a la systématique des Chondracanthidae (Copepoda, Poecilostomatoida). *Bull. Soc. zool. Fr.* **108,** 115-127.

Shine, R. 1988 The evolution of large body size in females: A critique of Darwin's "fecundity advantage" model. *Am. Nat.* **131**, 124-131.

Shine, R. 1989 Ecological causes for the evolution of sexual dimorphism: A review of the evidence. *Q. Rev. Biol.* **64**, 419-461.

Smith, R. J. 1999 Statistics of sexual size dimorphism. *J. Hum. Evol.* **36**, 423-459.

Vollrath, F. 1998 Dwarf Males. *Trends Ecol. Evol.* **13,** 159-163.

FIGURE CAPTIONS

Figure 1. Length-frequency distributions of copepods included in the analysis. White arrows indicate median and black arrows indicate mean length. (a) Male Chondracanthidae, median = 0.64; mean = 0.72; $n = 40$. (b) Free-living males, median = 0.97; mean = 1.58; $n = 469$. (c) Female Chondracanthidae, median = 4.61; mean = 6.00; $n = 40$. (d) Free-living females, median = 1.20; mean = 2.03; $n = 493$.

Figure 2. Relationship between male and female body length. (a) Ln (male length) plotted versus ln (female length). (Regression: $y = 0.574x - 1.396$; $p < 0.0001$). (b) Phylogenetically independent contrast in male length on contrast in female length. (Regression: $y = 0.555x$; $p < 0.0001$). Slopes in (a) and (b) are not significantly different ($p = 0.9155$) from each other. They are both significantly different from 1 ($p < 0.0001$).

Figure 3. Relationship between female and male body length. (a) Ln (female length) plotted versus ln (male length). (Regression: $y = 0.805x + 1.9593$; $p < 0.01$). (b) Phylogenetically independent contrast in female length on contrast in male length. (Regression: $y = 0.856x$; $p < 0.001$). Slopes in (a) and (b) are not significantly different ($p = 0.8433$) from each other and they are not significantly different from 1 ($p = 0.1810$ and $p = 0.3541$ respectively).

Figure 4. Relationship between sexual size dimorphism (SSD) and morphological distance. (a) SSD mapped as size ratio (Ln (F/M)) on the Chondracanthidae tree. (b) SSD plotted versus morphological distance. (Regression: $y = 0.004x + 1.1706$; $p = 0.0003$). (c) Phylogenetically independent contrast in sexual size dimorphism plotted versus contrast in morphological distance. (Regression: $y = 0.006x$; $p = 0.2409$). Slopes in (b) and (c) are not significantly different ($p = 0.8657$) from each other. They are both significantly different from zero ($p < 0.0002$).

Figure 1

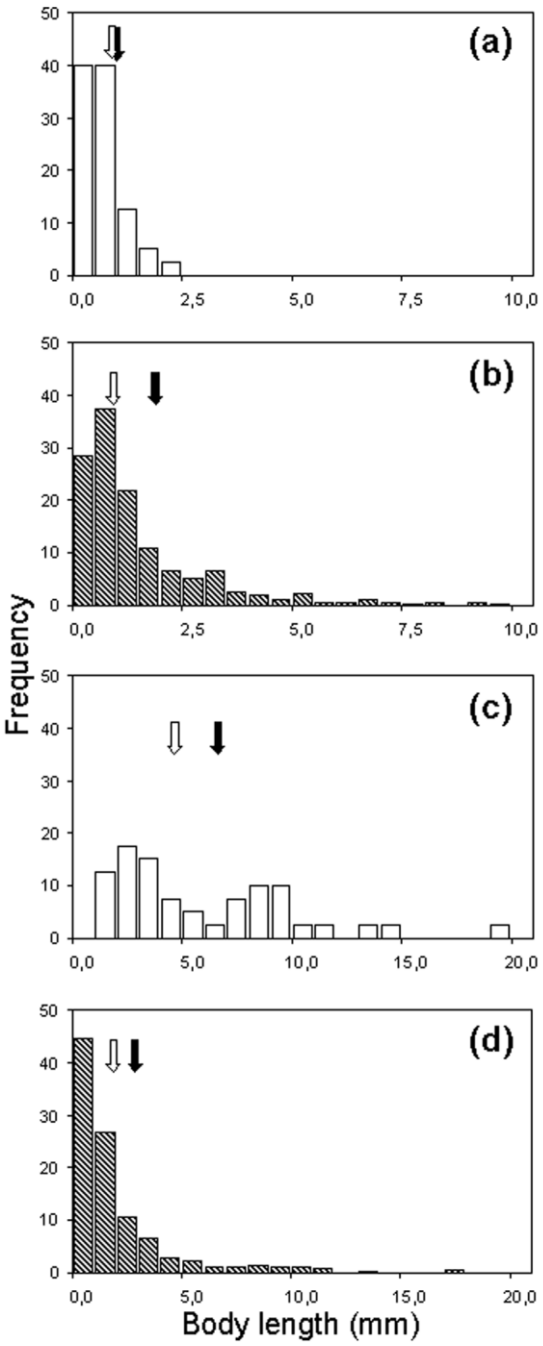

(a)
(b)
(c)
(d)
Frequency
Body length (mm)
0
10
20
30
40
50
0,0
2,5
5,0
7,5
10,0
15,0
20,0

Figure 2

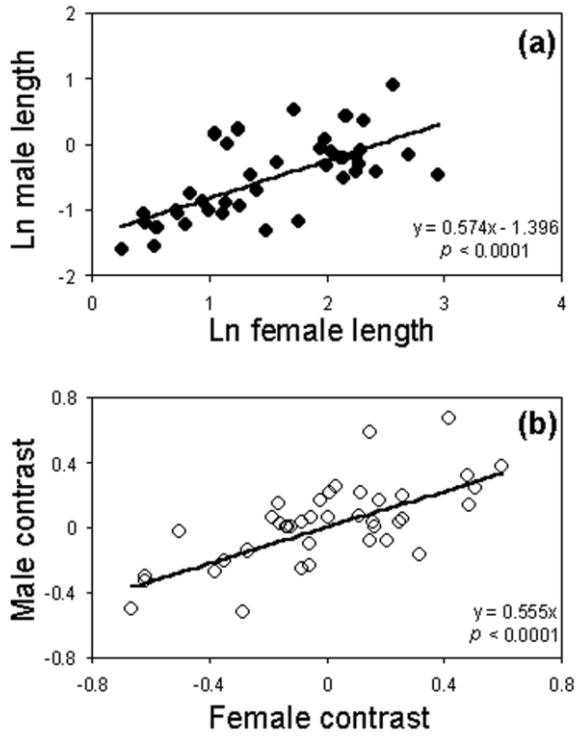

(a)
Ln male length
Ln female length
y = 0.574x - 1.396
p < 0.0001
(b)
Male contrast
Female contrast
y = 0.555x
p < 0.0001

Figure 3

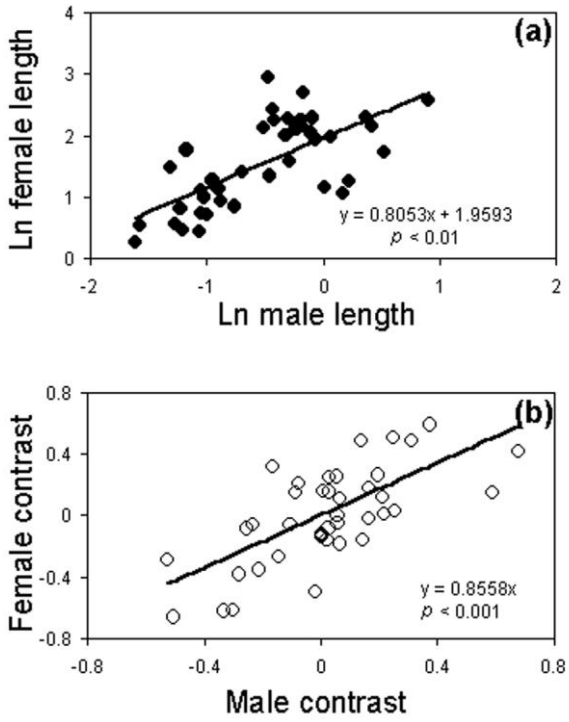
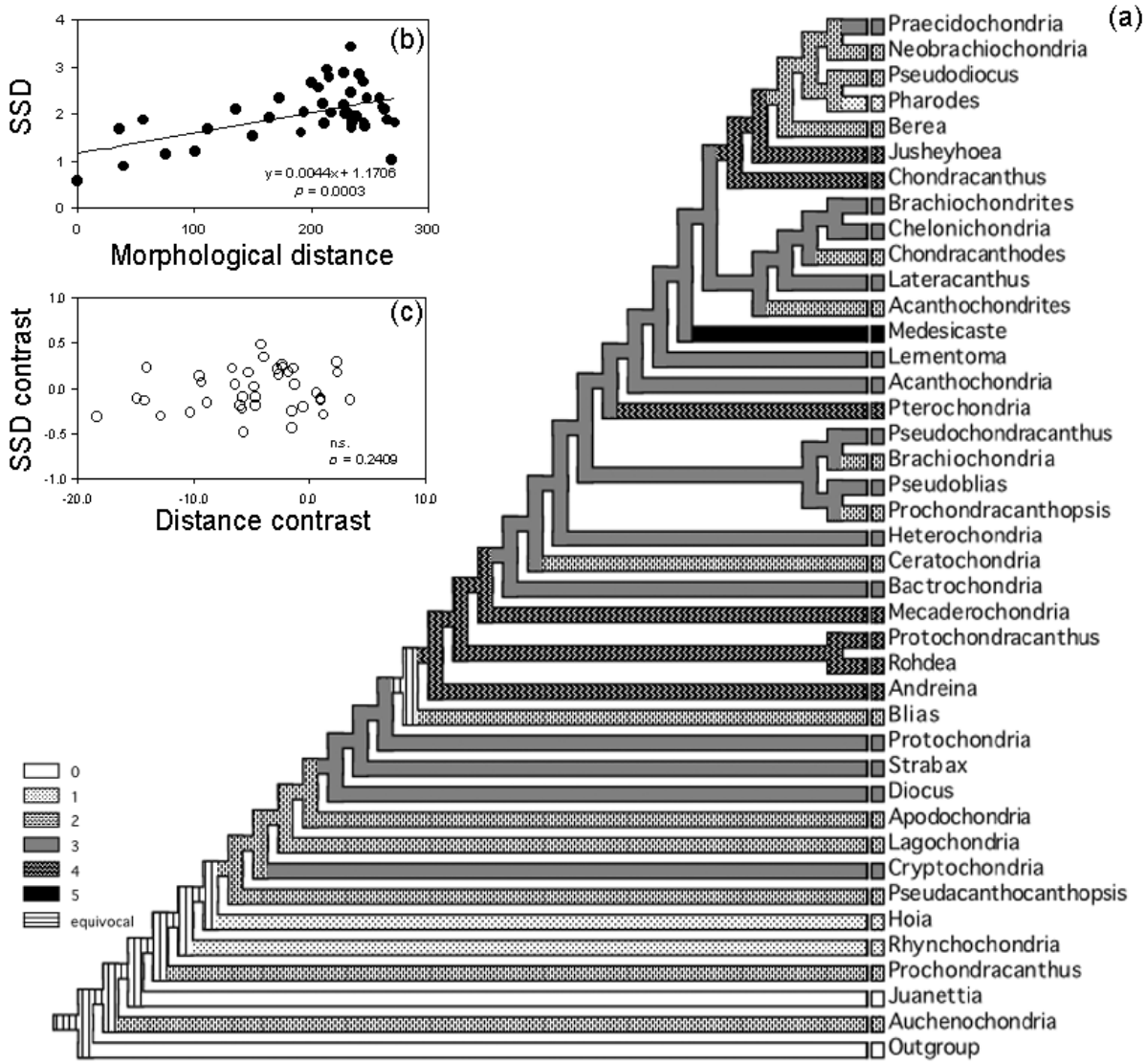

(a)
Ln female length
Ln male length
y = 0.8053x + 1.9593
p < 0.01
(b)
Female contrast
Male contrast
y = 0.8558x
p < 0.001

Figure 4


(a)
Praecidochondria
Neobrachiochondria
Pseudodiocus
Pharodes
Berea
Jusheyhoea
Chondracanthus
Brachiochondrites
Chelonichondria
Chondracanthodes
Lateracanthus
Acanthochondrites
Medesicaste
Lernentoma
Acanthochondria
Pterochondria
Pseudochondracanthus
Brachiochondria
Pseudoblias
Prochondracanthopsis
Heterochondria
Ceratochondria
Bactrochondria
Mecaderochondria
Protochondracanthus
Rohdea
Andreina
Blias
Protochondria
Strabax
Diocus
Apodochondria
Lagochondria
Cryptochondria
Pseudacanthocanthopsis
Hoia
Rhynchochondria
Prochondracanthus
Juanettia
Auchenochondria
Outgroup
0
1
2
3
4
5
equivocal
(b)
SSD
Morphological distance
y = 0.0044x + 1.1706
p = 0.0003
(c)
SSD contrast
Distance contrast
n.s.
p = 0.2409

References on male and females sizes can be found in: Østergaard, P. (2003). Catalogue of genera and species of the family Chondracanthidae Milne Edwards, 1840 (Copepoda: Poecilostomatoida) with notes on morphology. Systematic Parasitology, 55: 135-150.

Genus	Morphological distance	Male_length (mm)	Female_length (mm)	F/M-ratio
Acanthochondria	230	0.9	7.0	7.4
Acanthochondrites	239	1.4	10.1	7.0
Andreina	201	0.6	8.5	14.2
Apodochondria	165	1.1	7.2	6.8
Auchenochondria	36	2.5	13.1	5.3
Bactrochondria	210	0.4	3.5	9.1
Berea	246	0.6	3.9	6.1
Blias	192	0.5	2.3	4.9
Brachiochondria	235	0.4	2.1	5.5
Brachiochondrites	261	0.9	7.7	8.5
Ceratochondria	212	0.4	2.1	5.9
Chelonichondria	259	0.8	8.6	10.3
Chondracanthodes	247	1.5	8.7	5.7
Chondracanthus	242	0.7	11.2	17.2
Cryptochondria	136	0.5	4.1	8.2
Diocus	173	0.8	8.3	10.3
Heterochondria	218	0.3	2.2	7.6
Hoia	101	1.7	5.6	3.3
Juanettia	40	1.2	2.9	2.4
Jusheyhoea	245	0.7	9.5	14.4
Lagochondria	150	0.3	1.6	4.5
Lateracanthus	248	0.7	7.4	10.3
Lernentoma	234	0.8	9.5	11.4
Mecaderochondria	207	0.7	9.7	13.0
Medesicaste	234	0.6	19.1	30.5
Neobrachiochondria	266	0.2	1.3	6.5

Pharodes	269	1.3	3.5	2.8
Praecidochondria	264	0.2	1.7	8.1
Prochondracanthopsis	236	0.3	1.8	6.3
Prochondracanthus	57	0.8	4.8	6.4
Protochondracanthus	216	0.3	4.4	16.3
Protochondria	194	0.4	3.1	7.6
Pseudacanthocanthopsis	112	0.3	1.6	5.3
Pseudoblias	229	0.4	3.1	8.8
Pseudochondracanthus	233	0.4	2.7	7.5
Pseudodiocus	272	0.4	2.6	6.1
Pterochondria	229	0.9	14.8	17.4
Rhynchochondria	76	1.0	3.2	3.1
Rohdea	214	0.3	5.8	18.8
Strabax	183	0.9	9.9	10.7
OUTGROUP (B. soleae and T. lagocephali)	0	0.9	1.9	2.1

References on male and females sizes of outgroup species can be found in: Cressey, R. (1983): Smithsonian Contributions to Zoology, 389; Dojiri, M & Cressey, R. (1987): Smithsonian Contributions to Zoology, 447; and Vervoort, W. (1962): Zoologischer Verhandlingen, 56.

Genus	Species	Female_length (mm)	Male_length (mm)	F/M-ratio
Parabomolochus	pectinatus	1.4	0.6	2.4
Pumihopsis	sardinella	2.6	1.0	2.6
Bomolochus	soleae	1.6	0.9	1.8
Holobomolochus	confusus	1.5	1.0	1.5
Nothobomolochus	teres	1.6	0.7	2.4
Holobomolochus	prolixus	1.8	0.7	2.4
Acantholochus	galeichthyos	1.5	1.0	1.5
Acantholochus	divaricatus	2.6	1.2	2.2
Bomolochus	nitidus	2.0	0.8	2.3
Bomolochus	xenomelanirisi	1.5	0.7	2.1
Ceratocolax	euthynni	3.7	1.5	2.4
Unicolax	collateralis	1.6	1.1	1.4
Bomolochus	soleae	1.5	0.9	1.8
Anchistrotos	occidentalis	1.6	1.2	1.4
Pseudotaeniacanthus	longicauda	2.4	1.4	1.7
Pseudotaeniacanthus	muraenesocis	1.5	0.7	2.2
Anchistrotos	lucipetus	0.9	0.6	1.5
Taeniacanthus	sp.	2.2	0.9	2.4
Anchistrotos	onosi	1.3	1.0	1.3
Taeniacanthus	aluteri	1.3	0.7	1.9
Taeniacanthus	balistae	1.5	0.8	1.8
Taeniacanthus	digitatus	0.8	0.6	1.3
Taeniacanthus	fugu	3.5	1.7	2.1
Taeniacanthus	lagocephali	2.2	0.9	2.4

Taeniacanthus	longicervis	3.0	2.9	1.0
Taeniacanthus	miles	2.4	1.1	2.1
Taeniacanthus	nudicauda	1.1	0.7	1.6
Taeniacanthus	papulosus	1.4	0.6	2.2
Taeniacanthus	pollicaris	1.0	0.7	1.5
Taeniacanthus	pteroisis	2.2	0.8	2.6
Taeniacanthus	rotundiceps	2.6	1.4	1.9
Taeniacanthus	similis	1.9	1.3	1.5
Taeniacanthus	williamsi	1.0	0.9	1.2
Taeniacanthus	yamagutii	2.5	1.8	1.4
Irodes	gracilis	2.1	1.2	1.7
Irodes	remipes	0.9	0.8	1.1
Irodes	upenei	0.7	0.4	1.7
Phagus	muraenae	1.8	0.9	2.0
Pseudotaeniacanthus	congeri	1.6	0.6	2.5
Pseudotaeniacanthus	coniferus	3.6	2.2	1.6
Taeniacanthodes	gracilis	2.5	1.1	2.3
Taeniacanthodes	haakeri	1.5	0.7	2.2
Taeniacanthodes	californiensis	1.3	0.9	1.4
Taeniacanthus	lagocephali	2.2	0.9	2.4
Taeniacanthus	onosi	1.3	1.0	1.3
Taeniacanthus	lucipetus	1.0	0.6	1.7

Data on female and male length of free-living copepods. References are given after each record as: journal name, volume: first page number of reference. If the reference is a book, full information is given.

Order	Family	Genus	Species	Female length (mm)	Male length (mm)	F/M-ratio	Reference
Calanoida	Metridinidae	Pleuromamma	abdominalis	2.7	3.1	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalanidae	Spinocalanus	abyssalis	1.8	1.4	1.3	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Poecilostomatoida	Oncaeidae	Lubbockia	aculeata	2.3	2.3	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Paracalanidae	Paracalanus	aculeatus	0.8	1.2	0.7	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanidae	Pseudocalanus	acuspes	1.8	1.5	1.2	Can.J.Zool, 67:525
Calanoida	Euchaetidae	Euchaeta	acuta	3.0	3.3	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pontellidae	Labidocera	acutifrons	3.6	3.9	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Tachidiidae	Euterpina	acutifrons	0.6	0.5	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanidae	Calanus	acutus	5.3			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	acutus	1.3	1.0	1.3	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Calanoida	Scolecithricidae	Scaphocalanus	affinis	4.7	4.5	1.0	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.

Calanoida	Temoridae	Eurytemora	affinis	1.4	1.2	1.2	Crustaceana, 62:13
Cyclopoida	Cyclopidae	Microcyclops	afghanicus	0.7	0.5	1.3	Crustaceana, 70:849
Cyclopoida	Cyclopidae	Macrocyclops	albidus	2.0	1.2	1.7	Hydrobiologia, 164:103
Harpacticoida	Paramesochridae	Apodopsyllus	alejandrovillalobosi	0.3	0.3	0.9	J. Crust. Biol., 22:627
Harpacticoida	Porcellidiidae	Porcellidium	algoense	0.6	0.5	1.3	Zool.J.Linn.Soc., 75:49
Calanoida	Pontellidae	Calanopia	americana	1.4	1.5	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Longipediidae	Longipedia	americana	0.9	0.9	1.0	Zool.J.Linn.Soc., 70:103
Harpacticoida	Longipediidae	Longipedia	andamanica	1.0	0.7	1.4	Zool.J.Linn.Soc., 70:103
Harpacticoida	Ancorabolidae	Arthuricornua	anendopodia	0.7	0.5	1.5	J. Crust. Biol., 21:170
Harpacticoida	Ectinosomatidae	Halectinosoma	angulifrons	0.7	0.4	1.7	Zool.J.Linn.Soc., 114:247
Poecilostomatoida	Sapphirinidae	Sapphirina	angusta	4.0	5.5	0.7	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	annandali	1.3	1.1	1.1	Hydrobiologia, 87:255
Harpacticoida	Laophontidae	Paronychocamptus	anomalus	0.5	0.4	1.2	Crustaceana, 46:95
Calanoida	Euchaetidae	Euchaeta	antarctica	8.1	6.7	1.2	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.

Calanoida	Euchaetidae	Paraeuchaeta	antarctica	7.0	5.3	1.3	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Aetideidae	Gaetanus	antarcticus	8.6			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Scolecithricidae	Racovitzanus	antarcticus	2.3	2.0	1.1	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Laophontidae	Pseudonsiella	aotearoa	0.3	0.3	1.1	J.Nat.Hist., 22:639
Calanoida	Aetideidae	Aetideus	arcuatus	1.9	1.6	1.2	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Clausocalanidae	Clausocalanus	arcuicornis	1.4	1.2	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ectinosomatidae	Halectinosoma	argyllensis	0.6	0.5	1.2	Zool.J.Linn.Soc., 114:247
Calanoida	Aetideidae	Aetideus	armatus	1.9	1.5	1.3	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pontellidae	Pontella	atlantica	5.9	5.6	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ameiridae	Filexilia	attenuata	0.6	0.5	1.1	Zool. Scr., 25:317
Harpacticoida	Nitocrella	Parapseudoleptomesochra	attirei	0.5	0.5	1.0	Hydrobiologia, 110:177
Poecilostomatoida	Sapphirinidae	Sapphirina	auronitens	2.1	2.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Aetideidae	Aetideus	australis	1.9	1.6	1.2	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Calanidae	Calanus	australis	2.8	2.8	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.

Calanoida	Euchaetidae	Euchaeta	barbata	7.9	7.4	1.1	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Harpacticoida	Phyllognathopodidae	Phyllognathopus	bassoti	0.3	0.3	1.0	J. Crust. Biol., 19:510
Harpacticoida	Laophontidae	Xylora	bathyallis	0.6	0.6	1.1	J.Nat.Hist., 22:639
Harpacticoida	Peltidiidae	Eupelte	beckleyae	0.6	0.5	1.1	Zool.J.Linn.Soc., 75:49
Harpacticoida	Canthocamptidae	Psammotopa	biarticulata	0.4	0.4	1.2	Crustaceana, 59:69
Harpacticoida	Porcellidiidae	Murramia	bicincta	1.1	0.9	1.2	Rec.Aust.Mus, 46:303
Poecilostomatoida	Sapphirinidae	Sapphirina	bicuspidata	2.6	3.0	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Euchaetidae	Euchaeta	biloba	5.9	5.2	1.1	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Euchaetidae	Paraeuchaeta	biloba	5.5	5.0	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	binghami	1.1	0.9	1.3	Hydrobiologia, 87:255
Calanoida	Candaciidae	Candacia	bipinnata	2.4	2.3	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Candaciidae	Paracandacia	bispinosa	1.9	1.9	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Paranannopidae	Anapophysia	borealis	1.8	1.6	1.1	Cah.Biol.Mar., 37:227
Cyclopoida	Cyclopidae	Apocyclops	borneoensis	0.8	0.7	1.2	Hydrobiologia, 128:71

Calanoida	Centropagidae	Centropages	brachiatua	1.9	1.8	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Centropagidae	Centropages	bradyi	1.8	1.8	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Scolecithricidae	Scolecithrix	bradyi	1.2	1.4	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Megacalanidae	Bathycalanus	bradyi	11.6			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Diaptomidae	Colombodiaptomus	brandorffi	1.3	1.3	0.9	Hydrobiologia, 178:113
Calanoida	Aetideidae	Pseudeuchaeta	brevicauda	5.9			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Spinocalanidae	Spinocalanus	brevicaudatus	1.7	1.6	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Clausocalanidae	Clausocalanus	brevipes	1.6	1.4	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Ameiridae	Filexilia	brevipes	0.4	0.4	1.0	Zool. Scr., 25:317
Cyclopoida	Cyclopidae	Acanthocyclops	brevispinosus	0.8	0.7	1.1	Crustaceana, 70:129
Harpacticoida	Ectinosomatidae	Halectinosoma	brunneum	0.8	0.7	1.2	Zool.J.Linn.Soc., 114:247
Harpacticoida	Canthocamptidae	Ceuthonectes	bulbiseta	0.5	0.4	1.2	Crustaceana, 75:777
Harpacticoida	Cylindropsyllidae	Willemsia	calceola	0.5	0.5	0.9	Sarsia, 78:273
Cyclopoida	Cyclopidae	Metacyclops	campestris	0.4	0.5	0.9	Hydrobiologia, 153:121

Harpacticoida	Canthocamptidae	Maraenobiotus	canadensis	0.4	0.4	1.1	Hydrobiologia, 234:7
Harpacticoida	Ectinosomatidae	Halectinosoma	canaliculatum	0.9	0.8	1.1	Zool.J.Linn.Soc., 114:247
Cyclopoida	Cyclopidae	Paracyclops	carectus	0.8	0.6	1.3	Hydrobiologia, 153:121
Poecilostomatoida	Corycaeidae	Farranula	carinata	0.9	0.8	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Corycaeus	catus	0.9	0.8	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Aegisthidae	Andromastax	cephaloceratus	3.1	2.9	1.1	Zool.J.Linn.Soc, 129:2
Calanoida	Candaciidae	Candacia	cheirura	2.7	2.5	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Cylindropsyllidae	Leptastacus	christelleae	0.3	0.3	1.0	Crustaceana, 57:288
Calanoida	Diaptomidae	Camerundiaptomus	christineae	1.6	1.4	1.1	J. Crust. Biol., 22:619
Harpacticoida	Ectinosomatidae	Halectinosoma	chrystalli	0.9	0.6	1.5	Zool.J.Linn.Soc., 114:247
Harpacticoida	Diosaccidae	Amphiascus	cinctus	1.1	0.6	1.7	N.Z.J.Mar.Freshw.Res, 5:86
Calanoida	Clausocalanidae	Ctenocalanus	citer	1.3	1.3	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Calocalanidae	Mecynocera	clausi	1.0	0.9	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Corycaeus	clausi	1.6	1.3	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Lucicutiidae	Lucicutia	clausi	1.9	1.8	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Calanoida	Lucicutiidae	Lucicutia	clausi	2.1	2.0	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	cokeri	1.4	1.0	1.5	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Calanoida	Diaptomidae	Metadiaptomus	colonialis	1.7	1.1	1.5	Hydrobiologia, 164:103
Calanoida	Diaptomidae	Prionodiaptomus	columbiensis	1.4	1.3	1.0	Hydrobiologia, 178:113
Calanoida	Tharybidae	Undinella	compacta	1.2	1.1	1.1	Bull. Mus. Comp. Zool. Harv., 139:4
Harpacticoida	Ameiridae	America	confluens	0.6	0.4	1.4	Crustaceana, 46:95
Harpacticoida	Ancorabolidae	Ancorabolus	confusus	0.7	0.4	1.8	Cah.Biol.Mar., 41:343
Poecilostomatoida	Oncaeidae	Oncaea	conifera	1.0	0.7	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Oncaeidae	Oncaea	conifera	1.3	0.9	1.4	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Poecilostomatoida	Lichomolgidae	Kelleria	corioensis	0.8	0.7	1.2	J. Crust. Biol., 1:279
Calanoida	Eucalandidae	Rhinocalanus	cornutus	3.5	2.7	1.3	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Parastenocarididae	Parastenocaris	corsica	0.4	0.4	1.1	Crustaceana, 73:345
Harpacticoida	Ameiridae	Pseudameria	crassicornis	0.5	0.3	1.8	J.Nat.Hist., 10:29
Calanoida	Paracalanidae	Parvocalanus	crassirostris	0.5	0.3	1.5	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalandidae	Subeucalanus	crassus	3.3	3.0	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Cyclopoida	Cyclopidae	Thermocyclops	crassus	0.6	0.6	1.0	Crustaceana, 73:705
Harpacticoida	Tegastidae	Syngates	craterifer	0.5	0.4	1.2	Mitt.hamb.zool.Mus.Inst., 90:187
Harpacticoida	Ectinosomatidae	Halectinosoma	crenulatum	0.8	0.7	1.0	Zool.J.Linn.Soc., 114:247
Harpacticoida	Canthocamptidae	Moraria	cristata	0.6	0.6	1.1	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Calanoida	Calanidae	Calanus	cristata	4.2	3.7	1.1	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Harpacticoida	Leptastacidae	Meloriastacus	ctenidis	1.0	1.0	1.1	Ital.J.Zool., 64:181
Calanoida	Candaciidae	Candacia	curta	2.5	2.5	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Thompsonulidae	Thompsonula	curticauda	0.5	0.5	1.1	Zool.J.Linn.Soc., 99:1
Harpacticoida	Diosaccidae	Robertsonia	curtisii	0.6	0.6	1.1	Crustaceana, 42:288
Poecilostomatoida	Oncaeidae	Oncaea	curvata	0.6	0.5	1.2	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Cyclopoida	Cyclopidae	Metacyclops	cushae	0.7	0.6	1.2	J. Crust. Biol., 11:639
Calanoida	Acartiidae	Acartia	danae	1.1	0.8	1.5	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Scolecithricidae	Scolecithrix	danae	2.3	2.1	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanidae	Cosmocalanus	darwini	2.1	1.9	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Cletodidae	Cletocamptus	deitersi	0.5	0.4	1.2	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.

Calanoida	Scolecithricidae	Scolecithricella	dentata	1.7	1.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Scolecithricidae	Scolecithricella	dentata	1.9	1.9	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Ectinosomatidae	Halectinosoma	denticulatum	0.8	0.6	1.3	Zool.J.Linn.Soc., 114:247
Harpacticoida	Tegastidae	Syngates	dentipes	0.5	0.4	1.2	Rec.Wes.Aust.Mus., 17:221
Harpacticoida	Porcellidiidae	Porcellidium	dilatatum	0.9	0.6	1.5	N.Z.J.Mar.Freshw.Res, 5:86
Calanoida	Tortanidae	Tortanus	discaudatus	2.6	1.9	1.3	J. Crust. Biol., 18:774
Cyclopoida	Cyclopidae	Diacyclops	disjunctus	0.5	0.4	1.1	Crustaceana, 73:469
Calanoida	Diaptomidae	Camerundiaptomus	djamai	1.5	1.4	1.1	J. Crust. Biol., 22:619
Gelyelloida	Gelyellidae	Gelyella	droguei	0.3	0.3	1.0	Hydrobiologia, 167/168:485
Harpacticoida	Normanellidae	Normanella	dubia	0.7	0.5	1.3	Cah.Biol.Mar., 40:203
Harpacticoida	Canthocamptidae	Bathycampus	eckmani	0.3	0.2	1.8	Hydrobiologia, 185:101
Calanoida	Tortanidae	Tortanus	ecornatus	0.9	0.8	1.2	J. Crust. Biol., 18:774
Cyclopoida	Cyclopidae	Mesoscyclops	edax	0.8	0.6	1.4	J. Crust. Biol., 15:317
Harpacticoida	Miraciidae	Miracia	efferata	1.7	1.5	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Diosaccidae	Schizopera	elatensis	0.6	0.5	1.0	Crustaceana, 42:308

Calanoida	Aetideidae	Pseudochirella	elongata	7.7			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Thompsonulidae	Caribbula	elongata	0.5	0.5	1.1	Zool.J.Linn.Soc., 99:2
Calanoida	Eucalandidae	Eucalanus	elongatus	5.5	4.4	1.3	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalanidae	Eucalanus	elongatus	6.3			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Phaennidae	Xanthocalanus	elongatus	2.6	2.7	1.0	Bull. Mus. Comp. Zool. Harv., 139:4
Calanoida	Calanidae	Pseudocalanus	elongatus	1.4	1.2	1.2	Can.J.Zool, 67:525
Calanoida	Eucalanidae	Eucalanus	elongatus	6.5	4.8	1.4	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Poecilostomatoida	Oncaeidae	Oncaea	englishi	0.8	0.8	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Porcellidiidae	Porcellidium	erythrogastrum	0.8	0.6	1.4	Rec.Aust.Mus, 46:257
Harpacticoida	Porcellidiidae	Porcellidium	erythrum	0.6	0.5	1.2	Zool.J.Linn.Soc., 75:49
Harpacticoida	Cylindropsyllidae	Paraleptastacus	espinulatus	0.3	0.3	1.1	J.Nat.Hist., 9:495
Calanoida	Diaptomidae	Paradiaptomus	falcifera	4.5	3.7	1.2	Hydrobiologia, 164:103
Calanoida	Euchaetidae	Euchaeta	farrani	10.9			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.

Calanoida	Scolecithricidae	Scaphocalanus	farrani	2.5	2.7	0.9	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Euchaetidae	Euchaeta	farrani	11.4	8.4	1.4	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Harpacticoida	Porcellidiidae	Brevifons	faviolatum	1.0	0.8	1.2	Rec.Aust.Mus, 46:303
Cyclopoida	Cyclopidae	Yansacyclops	ferrari	0.8	0.7	1.1	Hydrobiologia, 167/168:429
Calanoida	Fosshageniidae	Fosshagenia	ferrarii	0.7	0.7	0.9	J. Crust. Biol., 16:754
Calanoida	Calanidae	Calanus	finmarchicus	3.4			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Poecilostomatoida	Corycaeidae	Corycaeus	flaccus	1.6	1.5	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Lucicutiidae	Lucicutia	flavicornis	1.6	1.5	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Lucicutiidae	Lucicutia	flavicornis	1.4	1.1	1.3	Crustaceana, 43:265
Harpacticoida	Thompsonulidae	Caribbula	fleegeri	0.6	0.6	1.1	Zool.J.Linn.Soc., 99:3
Harpacticoida	Canthocamptidae	Elaphoidella	fluviusherbae	0.7	0.7	1.0	Crustaceana, 73:1171
Cyclopoida	Oithonidae	Oithona	fonsecae	0.5	0.5	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Clausocalanidae	Drepanopus	forcipatus	1.6	1.2	1.3	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Tegastidae	Syngates	foveatus	0.4	0.3	1.2	Spixiana, 17:161

Calanoida	Clausocalanidae	Clausocalanus	furcatus	1.2	0.9	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Corycaeus	furcifer	1.9	1.3	1.5	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	galapagensis	1.7	1.2	1.4	Crustaceana, 6:254
Calanoida	Diaptomidae	Thermodiaptomus	galebi	1.5	1.6	0.9	Hydrobiologia, 110:191
Calanoida	Diaptomidae	Thermodiaptomus	galeboides	1.5	1.2	1.2	Hydrobiologia, 110:191
Calanoida	Lucicutiidae	Lucicutia	gaussae	1.3	1.3	1.0	Crustaceana, 43:265
Harpacticoida	Parastenocarididae	Parastenocaris	gayatri	0.5	0.5	1.1	Crustaceana, 74:705
Poecilostomatoida	Sapphirinidae	Sapphirina	gemma	2.5	2.7	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopidae	Afrocyclops	gibsoni	0.8	0.8	1.0	Hydrobiologia, 164:103
Calanoida	Tortanidae	Tortanus	giesbrechti	2.6	2.4	1.1	Crustaceana, suppl.1:152
Calanoida	Eucalanidae	Rhincalanus	gigas	8.5			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Cyclopoida	Cyclopidae	Halicyclops	glaber	0.6	0.5	1.2	J. Crust. Biol., 3:636
Calanoida	Augaptilidae	Augaptilus	glacialis	4.9	4.2	1.2	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Euchaetidae	Euchaeta	glacialis	10.4	6.2	1.7	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.

Calanoida	Calanidae	Neocalanus	gracilis	3.0	2.0	1.5	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Farranula	gracilis	0.9	0.9	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Metridinidae	Pleuromamma	gracilis	2.1	1.9	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Miraciidae	Oculosetella	gracilis	1.5	1.0	1.5	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Miraciidae	Macrosetella	gracilis	1.5	1.1	1.3	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
	Boeckellidae	Boeckella	gracilis	1.7	1.4	1.2	Hydrobiologia, 178:113
Calanoida	Aetideidae	Chiridius	gracilis	2.8	2.4	1.2	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Lucicutiidae	Lucicutia	grandis	7.4	7.0	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Lucicutiidae	Lucicutia	grandis	3.9	3.3	1.2	Crustaceana, 43:265
Harpacticoida	Ameiridae	Filexilia	gravellicola	0.6	0.5	1.1	Zool. Scr., 25:317
Calanoida	Tharybidae	Undinella	hampsoni	2.0	2.0	1.0	Bull. Mus. Comp. Zool. Harv., 139:4
Cyclopoida	Cyclopidae	Diacyclops	harryi	0.5	0.5	1.2	Can.J.Zool, 70:1445
Harpacticoida	Porcellidiidae	Porcellidium	hartmannorum	0.7	0.5	1.4	Zool.J.Linn.Soc., 75:49
Cyclopoida	Cyclopidae	Rheocyclops	hatchiensis	0.3	0.3	1.1	J. Crust. Biol., 19:384
Cyclopoida	Oithonidae	Oithona	hebes	0.5	0.5	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Cyclopoida	Oithonidae	Oithona	hebes	0.5	0.5	1.1	Hydrobiologia, 135:95
Calanoida	Diaptomidae	Megadiaptomus	hebes	2.9	2.7	1.1	Hydrobiologia, 166:247
Calanoida	Augaptilidae	Euaugaptilus	hecticus	1.7	1.2	1.4	Crustaceana, 47:303
Cyclopoida	Cyclopidae	Stolonicyclops	heggiensis	0.4	0.4	1.2	J. Crust. Biol., 18:405
Harpacticoida	Cylindropsyllidae	Boreopontia	heipi	0.6	0.5	1.1	Sarsia, 78:273
Harpacticoida	Longipediidae	Longipedia	helgolandica	0.8	0.7	1.1	Zool.J.Linn.Soc., 70:103
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	hickmani	1.4	1.2	1.2	Hydrobiologia, 87:255
Calanoida	Aetideidae	Pseudochirella	hirsuta	9.7			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Temoridae	Eurytemora	hirundo	1.4	1.2	1.2	Crustaceana, 62:13
Calanoida	Temoridae	Eurytemora	hirundoides	1.1	1.0	1.1	Crustaceana, 62:13
Harpacticoida	Cylindropsyllidae	Paraleptastacus	holsaticus	0.3	0.3	1.0	J.Nat.Hist., 9:495
Harpacticoida	Porcellidiidae	Porcellidium	hormosirii	0.7	0.5	1.4	Rec.Aust.Mus, 46:257
Cyclopoida	Cyclopidae	Diacyclops	humphreysi	0.6	0.6	1.0	Crustaceana, 69:524
Harpacticoida	Thompsonulidae	Thompsonula	hyaenae	0.6	0.6	1.0	Zool.J.Linn.Soc., 99:4

Harpacticoida	Ameiridae	Psammameira	hyalina	0.4	0.5	0.9	Zool. Scr., 27:247
Calanoida	Calanidae	Calanus	hyperboreus	8.3			The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Harpacticoida	Ancorabolidae	Ancorabolus	inermis	0.7	0.5	1.6	Cah.Biol.Mar., 41:343
Harpacticoida	Thalestridae	Parathalestris	infestus	1.6	1.4	1.2	J.Nat.Hist., 22:1623
Harpacticoida	Chappuisiidae	Chappuisius	inopinus	0.4	0.4	1.0	Zool. Scr., 18:411
Calanoida	Aetideidae	Valdiviella	insignis	11.9	9.0	1.3	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Metridinidae	Gaussia	intermedia	10.4	9.5	1.1	Crustaceana, 71:81
Calanoida	Aetideidae	Euchirella	intermedia	5.7	5.3	1.1	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Aetideidae	Gaidus	intermedius	4.0			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Cylindropsyllidae	Syrticola	intermedius	0.5	0.5	1.1	Bull.nat.Hist.Mus., 59:83
Calanoida	Diaptomidae	Diaptomus	intermedius	1.3	1.1	1.2	Can.J.Zool, 48:49
Calanoida	Diaptomidae	Neodiaptomus	intermedius	1.2	1.1	1.1	Hydrobiologia, 108:259
Cyclopoida	Cyclopidae	Cryptocyclops	intermedius	0.6	0.5	1.2	Hydrobiologia, 128:71
Poecilostomatoida	Sapphirinidae	Sapphirina	intestinata	2.2	2.2	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Calanoida	Pontellidae	Labidocera	javaensis	2.0	1.8	1.1	Crustaceana, 70:653
Cyclopoida	Cyclopidae	Fimbricyclops	jimhensoni	0.4	0.4	0.9	J. Crust. Biol., 13:383
Cyclopoida	Cyclopidae	Fimbricyclops	jimhensoni	0.4	0.4	1.0	J. Crust. Biol., 13:383
Calanoida	Pontellidae	Calanopia	kideysi	1.0	0.9	1.1	Crustaceana, 75:1
Cyclopoida	Cyclopidae	Cyclops	kolensis	1.4	0.7	1.8	J. Crust. Biol., 15:365
Cyclopoida	Cyclopidae	Halicyclops	korodiensis	0.4	0.4	1.2	Hydrobiologia, 144:155
Calanoida	Diaptomidae	Tropodiaptomus	kraepelini	1.5	1.5	1.0	Hydrobiologia, 110:191
Harpacticoida	Laophontidae	Onychocamptus	krusensterni	0.6	0.5	1.2	Crustaceana, 66:227
Calanoida	Pseudocyclopidae	Pseudocyclops	kulai	0.9	0.8	1.1	Crustaceana, 56:63
Calanoida	Pontellidae	Pontella	labuanensis	2.9	2.6	1.1	Crustaceana, 70:653
Harpacticoida	Ameiridae	Nitokra	lacustris	0.6	0.5	1.2	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Harpacticoida	Paramesochridae	Scottopsyllus	langi	0.4	0.3	1.3	Crustaceana, 62:85
Cyclopoida	Cyclopidae	Diacyclops	languidoides	0.7	0.6	1.1	Hydrobiologia, 218:133
Cyclopoida	Cyclopidae	Diacyclops	languidus	0.9	0.7	1.4	Can.J.Zool, 59:428
Calanoida	Diaptomidae	Tropodiaptomus	lateralis	1.5	1.3	1.2	Hydrobiologia, 239:163

Calanoida	Metridinidae	Euaugaptilus	laticeps	8.6	9.7	0.9	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Pseudocalanidae	Clausocalanus	laticeps	1.6			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Normanellidae	Sagamiella	latirostrata	0.7	0.5	1.3	Cah.Biol.Mar., 40:203
Poecilostomatoida	Corycaeidae	Corycaeus	latus	1.0	0.8	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ancorabolidae	Tapholaophontodes	laurenceae	0.3	0.3	1.1	Crustaceana, 55:104
Harpacticoida	Porcellidiidae	Porcellidium	laurencium	0.6	0.4	1.3	Zool.J.Linn.Soc., 75:49
Poecilostomatoida	Corycaeidae	Corycaeus	lautus	2.8	2.3	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Acartiidae	Acartia	levequi	1.6	1.3	1.3	Crustaceana, 6:254
Calanoida	Acartiidae	Acartia	liljeborgii	1.2	1.0	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Corycaeus	limbatus	1.3	1.4	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Diosaccidae	Schizopera	lindae	0.5	0.4	1.2	Crustaceana, 52:298
Harpacticoida	Diosaccidae	Amphiascus	lobatus	0.8	0.5	1.4	N.Z.J.Mar.Freshw.Res, 5:86
Calanoida	Centropagidae	Neoboeckella	loffleri	1.9	1.3	1.5	Hydrobiologia, 241:135
Harpacticoida	Porcellidiidae	Porcellidium	londonii	0.8	0.6	1.3	Rec.Aust.Mus, 46:303

Calanoida	Eucalanidae	Eucalanus	longiceps	4.0			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Heterorhabdidae	Heterostylites	longicornis	3.0	3.3	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Paracalanidae	Acrocalanus	longicornis	1.2	1.0	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Heterorhabdidae	Heterostylites	longicornis	3.2	3.3	1.0	Crustaceana, 65:120
Harpacticoida	Ameiridae	Filexilia	longifurca	0.7	0.7	1.0	Zool. Scr., 25:317
Calanoida	Candaciidae	Candacia	longimana	3.8	3.3	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Metridinidae	Metridia	lucens	2.9	1.9	1.5	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Canthocamptidae	Elaphoidella	mabelae	0.6	0.5	1.2	Crustaceana, 60:1
Harpacticoida	Cletodidae	Acrenhydrosoma	maccalii	0.7	0.3	2.0	Crustaceana, 68:329
Cyclopoida	Cyclopidae	Diacyclops	maggii	0.5	0.5	1.1	Hydrobiologia, 148:103
Calanoida	Lucicutiidae	Lucicutia	magna	3.5	3.4	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Porcellidiidae	Murramia	magna	1.4	1.2	1.1	Rec.Aust.Mus, 46:303
Calanoida	Phaennidae	Onchocalanus	magnus	8.5	7.9	1.1	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Calanidae	Pseudocalanus	major	1.9	1.5	1.2	Can.J.Zool, 67:525

Harpacticoida	Parastenocarididae	Parastenocaris	mangini	0.3	0.4	0.9	Crustaceana, 63:306
Calanoida	Acartiidae	Acartia	margalefi	0.8	0.8	1.0	Crustaceana, 70:252
Calanoida	Euchaetidae	Euchaeta	marina	3.0	3.0	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Euchaetidae	Euchaeta	marina	3.1	3.1	1.0	Pac.Sci, 28:159
Calanoida	Euchaetidae	Euchaeta	marinella	2.5	2.4	1.0	Pac.Sci, 28:159
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	marshi	1.4	1.0	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	marshi	1.4	1.0	1.4	Crustaceana, 50:39
Calanoida	Diaptomidae	Metadiaptomus	mauretanicus	1.4	1.8	0.8	Hydrobiologia, 110:191
Calanoida	Aetideidae	Euchirella	maxima	7.8	6.7	1.2	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Temoridae	Temoropia	mayumbaensis	1.0	0.9	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Oncaeidae	Oncaea	media	0.7	0.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Cerviniidae	Cervinia	mediocauda	1.0	0.8	1.2	Crustaceana, 71:258
Poecilostomatoida	Oncaeidae	Oncaea	mediterranea	1.2	1.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Cylindropsyllidae	Syrticola	mediterranens	0.6	0.5	1.3	Hydrobiologia, 153:71
Calanoida	Diaptomidae	Neodiaptomus	meggitti	1.4	1.3	1.0	Crustaceana, 73:257

Harpacticoida	Paramesochridae	Apodopsyllus	melitae	0.4	0.4	1.0	Crustaceana, 62:85
Calanoida	Aetideidae	Euchirella	messinensis	5.7	5.5	1.0	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Poecilostomatoida	Sapphirinidae	Sapphirina	metallina	2.1	2.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Diaptomidae	Arctodiaptomus	michaeli	1.6	1.3	1.2	Hydrobiologia, 190:223
Harpacticoida	Paramesochridae	Paramesochra	mielkei	0.3	0.3	1.0	Hydrobiologia, 144:155
Calanoida	Calanidae	Pseudocalanus	mimus	1.5	1.1	1.4	Can.J.Zool, 67:525
Calanoida	Pontellidae	Pontella	minocerami	2.8	3.4	0.8	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanidae	Calanus	minor	1.9	1.6	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Miraciidae	Miracia	minor	1.3	1.2	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Scolecithricidae	Scolecithricella	minor	1.3	1.3	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Miraciidae	Distioculus	minor	0.9	0.8	1.0	Sarsia, 79:207
Harpacticoida	Longipediidae	Longipedia	minor	0.8	0.7	1.2	Zool.J.Linn.Soc., 70:103
	Ridgewayiidae	Ridgewayia	minorcaensis	1.0	0.8	1.3	Crustaceana, 69:47
Platycopioida	Platycopiidae	Nanocopia	minuta	0.3	0.3	1.1	Adv. mar. Biol., vol 33
Harpacticoida	Normanellidae	Normanella	minuta	0.5	0.4	1.2	Cah.Biol.Mar., 40:203

Platycopioida	Platycopiidae	Nanocopia	minuta	0.3	0.3	1.1	Hydrobiologia, 167/168:357
Poecilostomatoida	Oncaeidae	Lubbockia	minuta	1.3	1.9	0.7	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Calanidae	Pseudocalanus	minutus	1.7	1.4	1.3	Can.J.Zool, 67:525
Harpacticoida	Canthocamptidae	Bryocamptus	minutus	0.7	0.5	1.5	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Poecilostomatoida	Sapphirinidae	Copilia	mirabilis	3.2	4.7	0.7	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalandidae	Subeucalanus	monachus	2.2	2.2	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Gelyelloida	Gelyellidae	Gelyella	monardi	0.3	0.4	1.0	Crustaceana, 55:1
Cyclopoida	Cyclopidae	Acanthocyclops	montana	1.2	1.0	1.2	Hydrobiologia, 218:133
Calanoida	Calanidae	Pseudocalanus	moultoni	1.5	1.2	1.3	Can.J.Zool, 67:525
Harpacticoida	Thalestridae	Parathalestris	mourei	1.2	0.9	1.3	Crustaceana, 54:104
Calanoida	Eucalandidae	Subeucalanus	mucronatus	3.0	2.8	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pontellidae	Labidocera	muranoi	2.2	2.1	1.0	Crustaceana, 70:653
Harpacticoida	Aegisthidae	Andromastax	muricatus	3.5	3.2	1.1	J. Crust. Biol., 19:408
Cyclopoida	Cyclopidae	Bryocyclops	muscicola	0.4	0.4	1.2	J. Crust. Biol., 19:84
Cyclopoida	Oithonidae	Oithona	nana	0.6	0.5	1.3	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Calanoida	Eucalandidae	Rhinocalanus	nasutus	4.5	3.3	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalanidae	Rhincalanus	nasutus	4.8	4.3	1.1	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Harpacticoida	Porcellidiidae	Porcellidium	naviculum	0.7	0.6	1.3	Rec.Aust.Mus, 46:257
Cyclopoida	Cyclopidae	Diacyclops	nearcticus	0.6	0.5	1.4	Crustaceana, 73:1171
Harpacticoida	Ectinosomatidae	Halectinosoma	neglectum	1.1	0.8	1.5	Zool.J.Linn.Soc., 114:247
Calanoida	Acartiidae	Acartia	negliens	1.1	0.9	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pontellidae	Labidocera	nerii	3.2	3.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Diaptomidae	Tropodiaptomus	neumanni	2.0	1.9	1.1	Hydrobiologia, 110:191
Cyclopoida	Cyclopidae	Macrocyclops	neuter	1.5	1.1	1.3	Hydrobiologia, 128:71
Calanoida	Calanidae	Pseudocalanus	newmani	1.2	1.0	1.2	Can.J.Zool, 67:525
Harpacticoida	Longipediidae	Longipedia	nicholIsi	1.0	0.7	1.4	Zool.J.Linn.Soc., 70:103
Calanoida	Acartiidae	Acartiella	nicolae	0.8	0.8	1.1	Crustaceana, 49:49
Harpacticoida	Parastenocaridae	Parastenocaris	nicolasi	0.4	0.5	1.0	Crustaceana, 69:41
Poecilostomatoida	Sapphirinidae	Sapphirina	nigromaculata	1.6	2.2	0.7	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Porcellidiidae	Tectacingulum	nigrum	1.0	0.7	1.4	Rec.Aust.Mus, 46:303

Calanoida	Augaptilidae	Euaugaptilus	nodifrons	3.3	4.5	0.7	Crustaceana, 47:303
Harpacticoida	Ancorabolidae	Echinopsyllus	normani	1.0	0.9	1.1	Cah.Biol.Mar., 44:153
Calanoida	Candaciidae	Candacia	norvegica	3.0	2.9	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Poecilostomatoida	Oncaeidae	Oncaea	notopus	0.8	0.7	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
	Boeckellidae	Boeckella	occidentalis	1.6	1.4	1.1	Hydrobiologia, 178:113
Harpacticoida	Porcellidiidae	Porcellidium	ocellum	0.7	0.6	1.2	Rec.Aust.Mus, 46:257
Cyclopoida	Oithonidae	Oithona	oculata	0.7	0.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Sapphirinidae	Sapphirina	opalina	3.8	4.0	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopidae	Muscocyclops	operculatus	0.4	0.3	1.2	Hydrobiologia, 153:97
Harpacticoida	Thalestridae	Amenophia	orientalis	1.0	0.8	1.4	J.Nat.Hist., 22:1623
Calanoida	Augaptilidae	Haloptilus	ornatus	4.0	3.5	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Oithonidae	Oithona	oswaldocruzi	0.7	0.6	1.1	Hydrobiologia, 135:95
Calanoida	Lucicutiidae	Lucicutia	ovalis	1.4	1.4	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Sapphirinidae	Sapphirina	ovatolanceolata	2.6	3.7	0.7	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Calanoida	Metridinidae	Haloptilus	oxycephalus	4.3	2.6	1.7	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Candaciidae	Candacia	pachydactyla	2.5	2.4	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Candaciidae	Candacia	paenelongimana	2.7	2.4	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopinidae	Arctocyclopina	pagonasta	0.7	0.6	1.1	Can.J.Zool, 63:2389
Calanoida	Heterorhabdidae	Heterorhabdus	papilliger	2.0	2.0	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopidae	Diacyclops	paralanghidoides	0.6	0.6	1.1	Hydrobiologia, 148:103
Harpacticoida	Ameiridae	Psammameira	parasimulans	0.6	0.5	1.1	Zool. Scr., 27:247
Harpacticoida	Normanellidae	Normanella	paratenuifurca	0.6	0.5	1.1	Cah.Biol.Mar., 40:203
Harpacticoida	Tegastidae	Syngates	parilis	0.6	0.4	1.4	Spixiana, 17:161
Cyclopoida	Cyclopidae	Thermocyclops	parvus	0.5	0.5	1.0	Hydrobiologia, 175:149
Calanoida	Paracalanidae	Paracalanus	parvus	1.1	1.1	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Calanidae	Calanoides	patagoniensis	2.2	2.2	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Calocalanidae	Calocalanus	pavo	0.9	1.0	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopidae	Metacyclops	pectiniatus	0.7	0.5	1.4	Hydrobiologia, 128:71

Harpacticoida	Neobradyidae	Neobradya	pectinifera	1.2	1.1	1.2	Bull.inst.R.Sci.Nat.Belg., 57:133
Harpacticoida	Peltidiidae	Neopeltopsis	pectinipes	1.0	1.0	1.1	N.Z.J.Mar.Freshw.Res., 10:363
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	pelagicus	1.4	1.0	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Pontellidae	Pontellopsis	perspicax	3.8	3.2	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ameiridae	Filexilia	pestae	0.5	0.4	1.2	Zool. Scr., 25:317
Harpacticoida	Porcellidiidae	Porcellidium	phyllosporum	0.9	0.7	1.3	Rec.Aust.Mus, 46:257
Calanoida	Eucalandidae	Subeucalanus	pileatus	2.1	2.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Canthocamptidae	Attheyella	pilosa	0.8	0.7	1.1	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Harpacticoida	Canthocamptidae	Bryocamptus	pilosus	0.6	0.6	1.1	Hydrobiologia, 179:129
Calanoida	Pontellidae	Pontellina	plumata	1.7	1.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Oithonidae	Oithona	plumifera	1.3	0.8	1.6	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Thalestridae	Parathelestris	plumiseta	0.9	1.0	0.9	J.Nat.Hist., 10:29
Calanoida	Acartiidae	Acartia	plumosa	1.1	1.0	1.1	Crustaceana, 53:225
Calanoida	Calocalanidae	Ischnocalanus	plumulosus	1.1	0.6	1.8	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ancorabolidae	Juxtaramia	polaris	0.9	0.5	1.8	Cah.Biol.Mar., 41:343

Calanoida	Centropagidae	Centropages	ponticus	0.9	0.8	1.2	Crustaceana, 55:129
Harpacticoida	Laophontidae	Afrolaophonte	pori	0.4	0.3	1.1	Crustaceana, 62:283
Harpacticoida	Cylindropsyllidae	Psammopsyllus	pori	0.5	0.5	1.0	Crustaceana, 64:143
Harpacticoida	Paramesochridae	Caligopsyllus	primus	0.4	0.3	1.2	Hydrobiologia, 162:3
Calanoida	Megacalanidae	Megacalanus	princeps	9.4	10.1	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Metridinidae	Metridia	princeps	8.3	6.9	1.2	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Calanidae	Megacalanus	princeps	10.5	10.6	1.0	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Calanidae	Macrocalanus	princeps	13.5			The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Calanidae	Calanus	propinquus	5.5	5.0	1.1	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Paramesochridae	Apodopsyllus	pseudocubensis	0.3	0.2	1.2	J. Crust. Biol., 22:627
Calanoida	Diaptomidae	Megadiaptomus	pseudohebes	2.8	2.5	1.1	Hydrobiologia, 166:247
Cyclopoida	Cyclopidae	Tropocyclops	pseudoparvus	0.5	0.4	1.3	Crustaceana, 50:39
Calanoida	Calanoidae	Bradycalanus	pseudotypicus	17.5			Adv. mar. Biol., vol 33
Harpacticoida	Ectinosomatidae	Halectinosoma	pterinum	0.6	0.4	1.7	J.Nat.Hist., 8:469

Calanoida	Aetideidae	Euchirella	pulchra	3.7	3.3	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Porcellidiidae	Porcellidium	pulchrum	0.7	0.6	1.3	Rec.Aust.Mus, 46:257
Poecilostomatoida	Oncaeidae	Pachos	punctatum	2.1	1.9	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ameiridae	Nitokra	pusilla	0.5	0.5	1.1	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Calanoida	Pseudocalanidae	Microcalanus	pygmaeus	0.7			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Clausocalanidae	Microcalanus	pygmaeus	0.8	0.7	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Eucalanidae	Microcalanus	pygmaeus	0.8	1.1	0.7	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Poecilostomatoida	Sapphirinidae	Copilia	quadrata	3.6	4.6	0.8	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Paracalanidae	Paracalanus	quasimodo	0.8	0.9	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Porcellidiidae	Acutiramus	quinquelineatus	0.6	0.4	1.3	Rec.Aust.Mus, 46:257
Calanoida	Pontellidae	Pontellopsis	regalis	4.0	3.5	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Peltidiidae	Eupelte	regalis	0.7	0.5	1.2	N.Z.J.Mar.Freshw.Res, 5:86
Calanoida	Euchaetidae	Euchaeta	rimana	3.6	3.6	1.0	Pac.Sci, 28:159
Calanoida	Metridinidae	Pleuromamma	robusta	3.6	3.2	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.

Calanoida	Calanidae	Neocalanus	robustior	3.6	3.0	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Phaennidae	Cornucalanus	robustus	7.3			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Peltidiidae	Alteutha	roeae	0.6	0.4	1.3	Zool.J.Linn.Soc., 75:49
Harpacticoida	Clytemnestridae	Clytemnestra	rostrata	0.8	0.9	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Corycaeidae	Farranula	rostrata	0.8	0.7	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Aetideidae	Euchirella	rostromagna	5.7			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Porcellidiidae	Porcellidium	rubrum	0.7	0.6	1.2	Zool.J.Linn.Soc., 75:49
Harpacticoida	Porcellidiidae	Acutiramus	rufolineatus	0.5	0.5	1.1	Rec.Aust.Mus, 46:257
Harpacticoida	Paramesochridae	Apodopsyllus	samuelgomezi	0.4	0.4	1.0	J. Crust. Biol., 22:627
Harpacticoida	Parastenocarididae	Parastenocaris	sandhya	0.3	0.4	0.9	Crustaceana, 74:705
Calanoida	Euchaetidae	Euchaeta	sarsi	10.0	8.3	1.2	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Diaptomidae	Phyllodiaptomus	sasikumari	1.4	1.2	1.1	Hydrobiologia, 184:133
Calanoida	Diaptomidae	Neodiaptomus	satanas	1.7	1.4	1.2	Crustaceana, 41:1
Harpacticoida	Parastenocarididae	Parastenocaris	savita	0.5	0.5	1.0	Crustaceana, 74:705

Poecilostomatoida	Sapphirinidae	Sapphirina	scarlata	4.0	4.1	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Parastenocarididae	Forficatocaris	schadeni	0.4	0.4	1.0	J. Crust. Biol., 2:578
Calanoida	Pontellidae	Labidocera	scotti	2.4	2.2	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Longipediidae	Longipedia	scotti	1.4	1.0	1.5	Zool.J.Linn.Soc., 70:103
Harpacticoida	Clytemnestridae	Clytemnestra	scutellata	1.1	1.2	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Diosaccidae	Pseudostenhelia	secunda	0.4	0.4	1.2	Hydrobiologia, 114:149
Calanoida	Pontellidae	Pontella	securifer	4.4	4.0	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ancorabolidae	Arthropsyllus	serratus	0.9	0.6	1.4	Cah.Biol.Mar., 41:343
Harpacticoida	Porcellidiidae	Kioloaria	sesquimaculata	0.8	0.6	1.3	Rec.Aust.Mus, 46:303
Calanoida	Eucalandidae	Paraeucalanus	sewelli	4.3	3.0	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Diaptomidae	Eodiaptomus	shihi	1.0	0.8	1.2	Hydrobiologia, 231:1
Harpacticoida	Paranannopidae	Archisenia	sibirica	1.2	1.0	1.1	Bull.nat.Hist.Mus., 59:45
Harpacticoida	Paranannopidae	Archisenia	sibirica	1.3	1.0	1.4	Pac.Sci, 20:435
Harpacticoida	Parastenocarididae	Parastenocaris	silvana	0.4	0.3	1.2	Crustaceana, 73:345
Cyclopoida	Cyclopidae	Allocyclops	silvaticus	0.5	0.4	1.2	Hydrobiologia, 167/168:445

Cyclopoida	Oithonidae	Oithona	similis	0.8	0.7	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Euchaetidae	Euchaeta	similis	10.8			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Calanoida	Calanidae	Calanus	simillimus	3.5	3.0	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Candaciidae	Paracandacia	simplex	2.0	1.9	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Oithonidae	Oithona	simplex	0.4	0.5	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Chappuisiidae	Chappuisius	singeri	0.6	0.5	1.1	Zool. Scr., 18:411
Calanoida	Acartiidae	Acartia	sinjiensis	1.0	0.9	1.1	Crustaceana, 53:225
Harpacticoida	Paramesochridae	Scottopsyllus	smirnovi	0.5	0.5	1.0	Crustaceana, 62:85
Harpacticoida	Diosaccidae	Robertgyrneya	smithi	0.7	0.6	1.3	J.Nat.Hist., 7:65
Calanoida	Phaennidae	Xanthocalanus	sp	9.6	3.4	2.8	B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Poecilostomatoida	Corycaeidae	Corycaeus	speciosus	2.1	1.8	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Acartiidae	Acartia	spinata	1.2	1.0	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Tisbidae	Scutellidium	spinatum	0.8	0.5	1.5	N.Z.J.Mar.Freshw.Res, 5:86
Harpacticoida	Cylindropsyllidae	Paraleptastacus	spinicauda	0.3	0.3	1.0	J.Nat.Hist., 9:495

Calanoida	Phaennidae	Phaenna	spinifera	2.0	1.8	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Euchaetidae	Phaenna	spinifera	3.0			L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Calanoida	Heterorhabdidae	Heterorhabdus	spinifrons	3.2	3.2	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Heterorhabdidae	Heterorhabdus	spinifrons	3.7	3.5	1.0	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.
Harpacticoida	Ameiridae	Nitokra	spinipes	0.8	0.7	1.1	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Calanoida	Centropagidae	Boeckella	spinogibba	1.3	1.1	1.2	Crustaceana, 71:686
Calanoida	Euchaetidae	Euchaeta	spinosa	6.2	6.3	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Oncaeidae	Lubbockia	squillimana	1.5	2.0	0.8	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Sapphirinidae	Sapphirina	stellata	2.7	2.8	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Diosaccidae	Stenhelia	stephensoni	0.7	0.6	1.1	Crustaceana, 46:127
Harpacticoida	Cylindropsyllidae	Psammopsyllus	stri	0.5	0.5	0.9	Crustaceana, 64:143
Calanoida	Diaptomidae	Tropodiaptomus	stuhlmanni	1.3	1.2	1.1	Hydrobiologia, 110:191
Calanoida	Temoridae	Temora	stylifera	1.6	1.4	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calocalanidae	Calocalanus	styliremis	0.9	0.6	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Eucalandidae	Subeucalanus	subcrassus	1.8	1.8	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.

Calanoida	Eucalandidae	Eucalanus	subtenuis	2.9	2.8	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanoidae	Bathycalanus	sverdrupi	18.0			Adv. mar. Biol., vol 33
Calanoida	Tortanidae	Tortanus	taiwanicus	2.1	1.7	1.2	Crustaceana, 72:265
Calanoida	Calanidae	Mesocalanus	tenuicornis	1.9	1.7	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Normanellidae	Normanella	tenuifurca	0.5	0.5	1.1	Cah.Biol.Mar., 40:203
Harpacticoida	Neobradyidae	Antarcticobradya	tenuis	0.6	0.6	1.0	Hydrobiologia, 182:249
Calanoida	Scolecithricidae	Scolecithricella	tenuiserrata	1.3	1.4	0.9	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Tortanidae	Tortanus	terminalis	2.0	2.0	1.0	J. Crust. Biol., 18:774
Cyclopoida	Cyclopidae	Muscocyclops	therasiae	0.3	0.3	1.1	Hydrobiologia, 153:121
Calanoida	Scolecithricidae	Scottocalanus	thomasi	5.3	5.5	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Diosaccidae	Schizopera	tobae	0.5	0.5	1.2	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Harpacticoida	Aegisthidae	Nudivorax	todai	1.8	1.5	1.2	Zool.J.Linn.Soc, 129:1
Calanoida	Pseudodiaptomidae	Pseudodiaptomus	tollingerae	1.5	1.2	1.3	Hydrobiologia, 87:255
Calanoida	Acartiidae	Acartia	tonsa	1.4	1.2	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Acartiidae	Acartia	tonsa	1.2	1.1	1.1	L. Guglielmo & A. Ianora (eds). 1994. Atlas of marine zooplankton. Straits of Magellan. Copeopds. Springer Verlag, Berlin.

Calanoida	Euchaetidae	Euchaeta	tonsa	6.4	5.9	1.1	The Danish Ingolf-Expedition. Vol. III. 4. Copepoda I, Calanoida Amphascandria. C. With (1915). Copenhagen, Denmark.
Calanoida	Calanidae	Calanus	tonsus	3.9			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Harpacticoida	Ameiridae	Filexilia	trisetosa	0.7	0.7	1.0	Zool. Scr., 25:317
Harpacticoida	Porcellidiidae	Porcellidium	tristanense	0.9	0.8	1.1	Zool.J.Linn.Soc., 75:49
Calanoida	Acartiidae	Acartia	tropica	1.0	0.9	1.2	Crustaceana, 53:225
Poecilostomatoida	Erebonasteridae	Amphicrossus	tuerkayi	1.3	1.1	1.2	J. Crust. Biol., 19:93
Harpacticoida	Porcellidiidae	Tectacingulum	tumidum	1.1	0.8	1.5	Rec.Aust.Mus, 46:303
Calanoida	Temoridae	Temora	turbinata	1.4	1.2	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ameiridae	Nitokra	typica	0.6	0.6	1.1	E.S. Morales, J.W. Reid, T.M. Iliffe & F. Fiers. (1996). Catalogo de los copepodos (Crustacea) continentales de la peninsula de Yucatan, Mexico. El Colegio de la Frontera Sur-unidad, Chetumal, Mexico.
Harpacticoida	Neobradyidae	Marsteinia	typica	0.9	0.7	1.3	Sarsia, 36:55
Poecilostomatoida	Corycaeidae	Corycaeus	typicus	1.6	1.4	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Adenopleurellidae	Sarsocletodes	typicus	0.6	0.5	1.1	J. Crust. Biol., 10:340
Harpacticoida	Porcellidiidae	Porcellidium	ulvum	0.8	0.5	1.5	Zool.J.Linn.Soc., 75:49
Harpacticoida	Parastenocarididae	Parastenocaris	vandeli	0.4	0.4	1.0	Crustaceana, 54:163

Calanoida	Pseudocalanidae	Ctenocalanus	vanus	1.0			B.A.N.Z. Antarctic Research Expedition 1929-1931. Reports - Series B (Zoology & Botany). Volume 3 Copepods from Antarctic and sub-antarctic plankton samples. W. Vervoort, 1957. B.A.N.Z.A.R. Expidition Committee, University of Adelaide.
Cyclopoida	Cyclopidae	Microcyclops	variabilis	0.6	0.5	1.4	Hydrobiologia, 139:123
Calanoida	Candaciidae	Candacia	varicans	2.4	2.3	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Cletodidae	Scintis	variifura	1.2	1.1	1.0	Crustaceana, 50:78
Calanoida	Centropagidae	Centropages	velificatus	1.7	1.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Laophontidae	Echinolaophonte	veniliae	0.3	0.3	1.0	Crustaceana, 62:283
Calanoida	Aetideidae	Euchirella	venusta	4.6	3.8	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Oncaeidae	Oncaea	venusta	1.2	0.9	1.4	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Ameiridae	Parevansula	vermiformis	0.3	0.3	1.1	J.Nat.Hist., 10:29
Calanoida	Centropagidae	Centropages	violaceus	2.0	1.8	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Poecilostomatoida	Sapphirinidae	Copilia	vitrea	4.3	7.3	0.6	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Scolecithricidae	Scolecithricella	vittata	1.7	1.6	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Calanidae	Undinula	vulgaris	2.6	2.3	1.2	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Harpacticoida	Longipediidae	Longipedia	weberi	0.6	0.6	1.1	Zool.J.Linn.Soc., 70:103

Harpacticoida	Tegastidae	Feregastes	wellensi	0.4	0.4	1.1	Crustaceana, 51:277
Harpacticoida	Diosaccidae	Pseudostenhelia	wellsi	0.5	0.4	1.3	Crustaceana, 73:69
Calanoida	Pontellidae	Labidocera	wilsoni	3.2	2.9	1.1	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Calanoida	Metridinidae	Pleuromamma	xiphias	4.5	4.4	1.0	A.C. Hernandez & E.S. Morales. (1994) Copepodos pelagicos del Golfo de Mexico y Mar Caribe. I. Biologia y sistematica. CIQRO, Mexico.
Cyclopoida	Cyclopidae	Itocyclops	yezoensis	0.5	0.4	1.3	J. Crust. Biol., 20:589
Harpacticoida	Aegisthidae	Scabrantenna	yooi	3.5	3.3	1.1	Zool.J.Linn.Soc, 129:3
Calanoida	Diaptomidae	Eudiaptomus	yukonensis	1.1	0.9	1.1	J. Crust. Biol., 11:647

Independent contrasts calculated using the ape library for the computer program "R vers. 1.8.1" (R Development Core Team, 2003). 'mf.dimorphism.contrasts' represent contrasts calculated using ln(M/F) and 'fm.dimorphism.contrasts' represents contrasts based on ln(F/M).

	male.contrasts	female.contrasts	distance.contrasts	mf.dimorphism.contrasts	fm.dimorphism.contrasts
-1	-0.30297191	-0.616164833	-18.26239593	0.313192921	-0.313192921
-2	0.375703727	0.595884178	-6.623152256	-0.220180451	0.220180451
-3	0.143854256	-0.165179455	-12.7631465	0.309033711	-0.309033711
-4	-0.08728655	0.144083982	-13.96426364	-0.231370527	0.231370527
-5	0.026784484	-0.086685115	-14.82058353	0.113469599	-0.113469599
-6	0.677226573	0.413324608	-10.19772128	0.263901965	-0.263901965
-7	-0.21159444	-0.35121681	-14.11263015	0.139622371	-0.139622371
-8	0.03048581	0.157102959	-9.488398672	-0.126617149	0.126617149
-9	-0.5046345	-0.665299786	-8.823234375	0.16066529	-0.16066529
-10	0.165388981	-0.02092872	-5.937702985	0.186317701	-0.186317701
-11	0.068645505	0.107874268	-6.392237933	-0.039228763	0.039228763
-12	0.314504766	0.484150235	-5.294554802	-0.169645469	0.169645469
-13	-0.10441004	-0.060881105	-1.277981935	-0.043528939	0.043528939
-14	-0.01828843	-0.503103717	-5.659766395	0.484815292	-0.484815292
-15	0.165360848	0.178087161	-4.720896354	-0.012726313	0.012726313
-16	-0.25250797	-0.083684056	2.390257494	-0.168823909	0.168823909
-17	0	-0.138126688	1	0.138126688	-0.138126688
-18	0.247987119	0.507381881	-2.323915225	-0.259394762	0.259394762
-19	0.00905499	0.162360026	-2.654638875	-0.153305036	0.153305036
-20	0.02386112	-0.159939582	-4.694036925	0.183800701	-0.183800701
-21	-0.27741419	-0.383218523	-5.723418157	0.10580433	-0.10580433
-22	-0.33034457	-0.621638674	1.192226431	0.291294108	-0.291294108
-23	0.058722857	0.003266056	0.612372436	0.055456801	-0.055456801
-24	0	-0.125657214	1	0.125657214	-0.125657214
-25	-0.14384104	-0.271807723	3.5	0.127966687	-0.127966687

-26	0.029139744	0.249006069	-1.322362435	-0.219866325	0.219866325
-27	-0.07635145	0.204796412	2.319888806	-0.281147863	0.281147863
-28	0.065598561	-0.188079832	-1.508834949	0.253678393	-0.253678393
-29	-0.16216442	0.315116682	-4.111969991	-0.477281106	0.477281106
-30	0.217398607	0.008402206	-0.54063118	0.208996401	-0.208996401
-31	0.213225415	0.113283779	-4.641442279	0.099941636	-0.099941636
-32	-0.23428552	-0.059249796	-1.841821841	-0.175035729	0.175035729
-33	0.254785251	0.029888072	-5.813776741	0.22489718	-0.22489718
-34	0.058891518	-0.055270937	1	0.114162455	-0.114162455
-35	0.053095499	0.256204768	-2.786447953	-0.203109269	0.203109269
-36	0.139562313	0.484432114	-3.879857154	-0.344869801	0.344869801
-37	0.195025334	0.260386223	-9.274231161	-0.065360889	0.065360889
-38	-0.5235681	-0.288893208	-2.245365598	-0.234674887	0.234674887
-39	0	-0.134131993	1	0.134131993	-0.134131993
-40	0.589327498	0.148625762	-1.5	0.440701736	-0.440701736