**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Acartiidae

---

**Synonyms**  
*Acartia danae* Giesbrecht, 1889

**Size**  
Female: 1.00 - 1.30 mm

**Genus notes**
- Slender cigar-shaped body
- Single prominent naupliar eye
- The A1 setae are long. In males the A1 is geniculate on the right side only
- The cephalosome and pedigerous somite 1 are separate, pedigerous somites 4 and 5 fused
- Maxilla form are typically ‘basket’ like
- Female P5 uniramous, reduced, symmetrical, comprising basis bearing an inner spine and an outer seta
- Male P5 uniramous, asymmetrical, larger on right, exopod segment 2 with large inner lobe, segment 3 in form of clasper
- Female urosome 3 segmented, male 5 segmented
- Caudal rami short, often slightly asymmetrical, separated from anal somite, 6 setae
- Robust fan-shaped caudal rami setae

**Subgenus notes**
- Rostral filaments present
- Male P5 larger on right, exopod segment 2 with large inner lobe, segment 3 in form of clasper

**Female**
- A1 extends to the tip of the caudal rami
- Spine on basal segment of A1
- Prosome terminates in pair of symmetrical points
- P5 exopod is a modified spine, serrated on both sides
- Urosome has fine dorsal hairs on posterior border of first 2 somites
- Genital somite longer than the following somite

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*Illustration by Bradford-Grieve (1999); Taw (1978)*

*Image by C. Davies, CSIRO © 2012*
Acartia (Acartia) danae
Giesbrecht 1849

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**Size**
Male: 0.70 - 0.90 mm

**Male**
- Right leg of P5, exopod segment 1 with distal process
- Prosome terminates in pair of symmetrical points and tufts of setae
- Lateral hairs on urosome somite 1
- A spine and 2 lateral hairs on each side of urosome somite 2

**Distribution**
- Epipelagic
- Coastal and oceanic
- Australian distribution includes Moreton Bay, Western Port Bay, Swan River estuary, Melbourne, Port Hacking, Sydney, Tasmania
- Cosmopolitan species, found throughout tropical and subtropical regions of oceans worldwide
- One of two species of Acartia that primarily inhabit oceanic waters

**Ecology**
- Generally found in oceanic waters between 40° N and 40° S except in areas in the extreme north and south Pacific, where warm equatorial waters extend beyond this range
- Most abundant off New South Wales coast from March to June
- Present December to June in Tasmania, most abundant from February to May
- A. danae is considered an indicator species for changing or moving water currents
- Related to warmer, less saline water in Mediterranean and Bay of Bengal
- Unusual amongst calanoids as it functions both as a suspension feeder and a raptorial carnivore

**Source**
Bradford-Grieve (1999)
Dakin and Colefax (1940)
Fernandez de Puelles et al (2009)
Razouls et al (2010)
Taw (1978)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)
**Acartia (Acartia) negligens**

Dana, 1849

**Synonym**

*Acartia negligens* Dana, 1849

**Size**

Female: 1.04 – 1.27 mm

**Genus notes**

- Slender cigar-shaped body
- Single prominent naupliar eye
- The A1 setae are long. In males the A1 is geniculate on the right side only
- The cephalosome and pedigerous somite 1 are separate, pedigerous somites 4 and 5 fused
- Maxilla form are typically ‘basket’ like
- Female P5 uniramous, reduced, symmetrical, comprising basis bearing an inner spine and an outer seta
- Male P5 uniramous, asymmetrical, larger on right, exopod segment 2 with large inner lobe, segment 3 in form of clasper
- Female urosome 3 segmented, male 5 segmented
- Caudal rami short, often slightly asymmetrical, separated from anal somite, 6 setae
- Robust fan-shaped caudal rami setae

**Subgenus notes**

- Rostral filaments present
- Male P5 larger on right; exopod segment 2 with large inner lobe, segment 3 in form of clasper

**Female**

- A1 reaches to caudal rami, segment 1 with a small, slender spine
- Posterior corner of prosome with one or many very small spines and a range of dorsal fine hairs
- The first two segments of urosome with dorsal spine on posterior border
- Outer distal plumose seta on P5, 5 times longer than terminal spine-like segment that has coarse spines for short distance at about mid length
- Basis of P5 longer than wide, inner spine dentate

**Distribution**

- One of two species of *Acartia* to primarily inhabit open ocean waters
- Epipelagic, mesopelagic
- Cosmopolitan
- Restricted to between latitudes 40°S and 40°N

**Ecology**

- Eggs released into water
- Omnivorous
- Indicator species of Kuroshio Current in winter when NE monsoon prevails

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Acartia (Acartia) negligens**

Dana, 1849

---

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Acartiidae

---

**Size**

Male: 0.8-1.02 mm

**Male**

- A1 shorter than body
- Posterior prosome rounded with setae
- The first 2 urosomal somites hairy laterally; somites 2, 3, 4 and anal somite all with tiny spinules
- Right P5 basipod 2 with rounded projection on internal border
- Left P5 exopod 2 with 3 terminal spines and a plumose spine at mid length

**Source**

- Bradford-Grieve (1999)
- Greenwood (1978)
- Hsiao et al. (2011)
- Mauchline (1998)
- Razouls et al. (2010)


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Bradford-Grieve (1999)
Acartia (Odontacartia) pacifica
Steuer, 1915

**Synonyms**
None

**Size**
Female: 1.15 – 1.20 mm

**Genus notes**
- Slender cigar-shaped body
- Single prominent naupliar eye
- The A1 setae are long. In males the A1 is geniculate on the right side only
- The cephalosome and pedigerous somite 1 are separate, pedigerous somites 4 and 5 fused
- Maxilla form are typically ‘basket’ like
- Female P5 uniramous, reduced, symmetrical, comprising basis bearing an inner spine and an outer seta
- Male P5 uniramous, asymmetrical, larger on right, exopod segment 2 with large inner lobe, segment 3 in form of clasper
- Female urosome 3 segmented, male 5 segmented
- Caudal rami short, often slightly asymmetrical, separated from anal somite, 6 setae
- Robust fan-shaped caudal rami setae

**Subgenus notes**
- Rostral filaments present
- Posterior prosome drawn out into lateral spines, also spines on posterior borders of urosome somites, especially in male

**Female**
- Large spines on end of prosome, 2 smaller spines dorsally
- P5 basis short, terminal spine with proximal knob and distal half bordered with hairs
- Posterior border of genital somite with 2 small spines, urosome somite 2 with a pair of larger spines
- Caudal rami with patches of hairs anterior to lateral setae

**Distribution**
- Epipelagic coastal and brackish waters
- Pacific and Indian Oceans, not Atlantic

**Ecology**
- Resting eggs in sediments can be viable for up to 20 years
- Exposure to heavy metals and pesticides in sediments can reduce recruitment from sediments to plankton
- Can migrate horizontally to avoid UV-B harm

**Phylum** Arthropoda
**Order** Calanoida
**Family** Acartiidae

Tanaka (1965); Greenwood (1978); Phukham (2008)
Acartia (Odontacartia) pacifica
Steuer, 1915

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Acartiidae

---

**Size**
Male: 1.12 mm

**Male**
- Spines on end of prosome
- Inner edge setae of P5 left exopod long and with distinct hairs
- Urosome somite 1 naked
- Urosome somite 2 with a pair of spines
- Urosome somite 3 with a pair of spines
- Urosome somite 4 with a pair of smaller spines more towards midline
- Anal segment with large hairs
- Caudal rami with outer and inner edged hairs

**Source**
Bradford-Grieve (1999)
Greenwood (1978)
Jiang et al. (2004)
Jiang et al. (2007)
Phukham (2008)
Razouls et al. (2010)
Tanaka (1965)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Acartia (Acanthacartia) tonsa
Dana, 1849

**Synonyms**
Acartia tonsa Dana 1849

**Size**
Female: 0.90-1.50 mm

**Genus notes**
- Slender, cigar-shaped body
- Single prominent naupliar eye
- A1 setae long and spaced out. In males A1 is usually geniculate on right side only
- Head and pedigerous somite 1 separate, pedigerous somite 4 and 5 always fused
- Female P5 uniramous, small, symmetrical, 3-segmented. Male P5 uniramous, asymmetrical
- Female urosome 3-segmented, male 5-segmented
- Caudal rami often slightly asymmetrical
- Robust fan-shaped caudal rami setae
- Maxilla form typically ‘basket’-like

**Subgenus notes**
- Rostral filaments usually present
- Posterior prosome borders rounded
- Female P5 smooth terminal spine bearing some distal hairs on both sides, evenly bulbous base
- Male P5 left terminal exopod segment has one or more accessory spines arising from its base

**Female**
- A1 without spines
- Last pedigerous somite has a few hairs on the posterior margin
- P5 segment 1 only about as long as wide
- P5 inner spine, about as long as the outside setae, moderately thickened at its base, straight, last half of setae serrated

**Distribution**

**Ecology**
**Acartia (Acanthacartia) tonsa**
Dana, 1849

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Acartiidae

**Size**  
Male: 1.00-1.10 mm

**Male**
- Urosome somites 1 and 2 with rows of fine hairs
- Right P5 segment 1 narrow, without spines on inner margin
- Left P5 last segment with sharp spine and finger-like projection

**Source**
Boltovskoy (1999)  
Mazzocchi (1995)  
Steuer (1915)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified:
Acartia (Acartiura) tranteri
Bradford, 1976

**Synonyms**
Acartia tranteri Bradford, 1976

**Size**
Female: 0.97-1.11 mm

**Genus notes**
- Slender cigar-shaped body
- Single prominent naupliar eye
- The A1 setae are long. In males the A1 is geniculate on the right side only
- The cephalosome and pedigerous somite 1 are separate, pedigerous somites 4 and 5 fused
- Maxilla form are typically ‘basket’ like
- Female P5 uniramous, reduced, symmetrical, comprising basis bearing an inner spine and an outer seta
- Male P5 uniramous, asymmetrical, larger on right, exopod segment 2 with large inner lobe, segment 3 in form of clasper
- Female urosome 3 segmented, male 5 segmented
- Caudal rami short, often slightly asymmetrical, separated from anal somite, 6 setae
- Robust fan-shaped caudal rami setae

**Subgenus notes**
- Rostrum and rostral filaments absent
- Last prosome somite rounded but may bear spines
- Female P5 smooth terminal spine bearing some distal hairs on both sides, evenly bulbous base
- Caudal rami slightly asymmetrical, right side longer

**Female**
- Posterior prosome with 4-7 spines & with fine hairs on ventro-posterior margin
- Lateral faces of genital complex with rows of denticles, always extending on to posterior half of somite
- Length from anterioventral border of genital complex to apex of genital swelling about 0.28 length of genital complex
- Row of spinules usually on dorsoanterior margin of genital complex & 2nd urosome somite
- Mean length width ratio of caudal ramus 2.72

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Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Acartia (Acartiura) tranteri**
Bradford, 1976

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Arcartiidae

**Size**  
Male: 0.90-1.00 mm

**Male**  
- Posterior prosome with 3-6 dorsolateral spines  
- P5 small, uniramous and asymmetric  
- P5 left basis with 3 large spines and 1-2 small proximal spines, exopod segment 1 with anterior surface spinules, exopod segment 2-3 with anterior spine shorter than posterior spine, distal border of segment slightly convex  
- P5 right exopod segment 2 with outer edge spines, inner lobe long, proximal part of tip slightly tapering, produced more than distal part  
- Ursosome somites 2-4 with row of dorsoposterior denticles  
- Mean length width ratio of caudal rami 1.66

**Distribution**  
- Epipelagic  
- Estuarine, inshore coastal, coastal and oceanic  
- Australian distribution includes Moreton Bay, Western Port Bay, Swan River estuary, Melbourne, Port Hacking, Sydney and Tasmania  
- World distribution includes Australia, Tasman Sea, New Zealand and New Caledonia

**Ecology**  
- Very common in estuaries and nearshore plankton communities  
- Strong tolerance for fluctuations in salinity and temperature  
- Often dominates samples from regions with high particulate load  
- Filter-feeders of phytoplankton and small zooplankton  
- Known predator of *Paracalanus indicus* and *Gladioferens inermis* in Western Port Bay  
- Reproduces year-round, with overlapping generations if sufficient food available  
- Development is nearly constant throughout life  
- Turnover rates from 3 – 30 days

**Source**  
Bradford-Grieve (1999)  
Conway (2003)  
Kimmerer & McKinnon (1985)  
Landry (1983)  
Miller (1977)  
McKinnon et al (1992)  
Nyan Taw (1978)  
Razouls et al 2010  
Swadling & Bayly (1997)  

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Synonyms**
*Cetochilus australis* Vauzeme, 1834

**Size**
Female: 2.7-3.2 mm

**Genus notes**
- Cephalosome and pedigerous somite 1 partly fused
- A1 exceeds the body length by a few segments
- Swimming legs without modification or ornamentation
- P5 inner margin of coxa serrated in both sexes
- P5 endopods have 8 setae in both sexes
- Male P5 endopod and exopod are 3 segmented

**Female**
- A1 just reaches the tip of the caudal rami
- P5 serrations curved, with relatively small number of triangular teeth
- Terminal spine of P5 right exopod segment 3 is shorter than the segment
- Similar to *Calanus agulhensis*
- Differs from *Nannocalanus minor* in that *N. minor* is smaller, has a more indented prosome over urosome somite 1 and has a 5-segmented prosome

**Distribution**
- Epipelagic
- Inshore, coastal and oceanic waters of southeastern Australia and New Zealand

**Ecology**
- Often dominates copepod biomass in nearshore, temperate waters
- Maximum abundance occurs in summer, with copepodite stage 5 outnumbering adults
- Undergoes diel vertical migration
- Prefers seasonally stratified coastal waters
- Abundance declines as stratification weakens
- Summer breeding coincides with phytoplankton blooms
- Copepodite stage 5 often carries large lipid stores

---

**Phylum** Arthropoda
**Order** Calanoida
**Family** Calanidae

Author: C. H. Davies & A. S. Slotwinski 2012
Verified: D. V. P. Conway 2013
**Calanus australis**
Brodsky, 1959

**Phylum**  Arthropoda  
**Order**  Calanoida  
**Family**  Calanidae

**Size**
Male: 2.5-3.3 mm

**Male**
- P5’s are of unequal length, right P5 about 1.5 times shorter than left P5
- Right P5 exopod extends more than half way along left exopod segment 2
- Left P5 endopod extends only slightly beyond segment 1 of the left P5 exopod

**Source**
Bradford-Grieve (1994)  
Taw & Ritz (1979)  
Sabatini et al. (2000)

**Phylum** Arthropoda  
**Order** Calanoidea  
**Family** Calanidae

**Canthocalanus pauper**  
(Giesbrecht, 1888)

**Synonyms**  
*Calanus pauper* Giesbrecht, 1888

**Size**  
Female: 1.30-1.60 mm

**Genus Notes**  
- Cephalosome and 1st pedigerous somite fused
- P1 coxa anterior margin terminates in well defined projection; basis with a proximally thickened spine
- P2-4 no ornamentation
- No serrations on inner margin of coxa P5
- Female P5 endopod with 7 setae
- Male P5 both rami 3-segmented, right hardly modified, left endopod with only 2 terminal setae
- Female urosome 4-segmented; male 5-segmented
- Only one species in this genus

**Female**  
- Similar to *Nannocalanus minor* but urosome not as indented into prosome
- Anterior cephalosome and posterior prosome rounded, last prosome somite may be slightly asymmetrical
- P1 basis has a distinctive weakly prehensile spine on anterior, short extension at its base appears as a notch
- Strong setae on caudal rami

**Distribution**  
- Epipelagic, coastal
- Indian and Pacific, but presence in Atlantic needs confirmation
- Tropical, subtropical
- Common in Kuroshio Current

**Ecology**  
- Prefers salinity < 33
- Undertakes normal diel vertical migration
- Common intermediate host for parasitic isopods

Author: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
Canthocalanus pauper
(Giesbrecht,1888)

**Phylum**  Arthropoda
**Order**  Calanoida
**Family**  Calanidae

**Size**
Male: 1.30-1.50 mm

**Male**
- Right P5 asymmetrical, exopod with no inner marginal spines, left endopod with two terminal setae, left exopodite with elongated segments, with long outer distal setae on segments 2 and 3

**Source**
Bradford-Grieve (1994)
Chen & Zhang (1965)
Conway (2003)
Greenwood (1976)
Lan et al. (2004)
Lo et al. (2004)
Owens & Rothlisberg (1995)
Razouls et al. (2010)
Xu & Gao (2011)


**Author:** C. H. Davies & A. S. Slotwinski 2012
**Verified:** K. M. Swadling 2013

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Chen & Zhang (1965)
Cosmocalanus darwinii
(Lubbock, 1860)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

---

**Synonyms**

*Undina darwinii* Lubbock, 1860  
*Calanus darwinii* (Lubbock, 1860)  
*Cosmocalanus darwini* (Lubbock, 1860)

**Size**  
Female: 1.6-2.58 mm

**Genus notes**

- Only 2 species  
- Cephalosome and pedigerous somite 1 fused  
- Spines on anterior surface of basis of P1, 3-5 in female and P1, 3-4 in male  
- Inner margin of coxa of P5 finely serrated  
- Posterior prosome corners drawn into points in female  
- Caudal rami setae sometimes branch

**Female**

- A1 reaches almost to the end of urosome  
- Spines on posterior margin of genital and 2nd urosome somite  
- Genital somite bulges quite strongly and comes to blunt point towards the anterior somite

**Distribution**

- Epipelagic  
- Pacific, Indian and Atlantic  
- Subtropical and tropical

**Ecology**

- Eggs released into water column  
- Fine particle feeders, probably omnivorous  
- Usually restricted to surface layers  
- Females often found with 2 or more spermatophores

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Bradford-Grieve (1994); Dakin & Colefax (1940); Grice (1961)

CSIRO AusCPR

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
Cosmocalanus darwinii
(Lubbock, 1860)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Size**  
Male: 1.6-2.35 mm

**Male**  
- P5 extremely large and very asymmetrical, left exopod highly modified, right leg not modified
- Tooth on inner edge of external spine of left P5 is placed about 1/3 of length from the base of the spine

**Source**  
Bradford-Grieve (1994)  
Chiba (1953)  
Conway (2003)  
Dakin & Colefax (1940)  
Grice (1961)  
Razouls et al. (2012)

Mesocalanus tenuicornis
(Dana, 1849)

Synonyms
Calanus tenuicornis Dana, 1849

Size
Female: 1.80-2.40 mm

Genus notes
- Cephalosome and pedigerous somite 1 separate
- A1 elongated
- Maxillae with 6 setae on inner lobe 1
- P1-P4 without modification or ornamentation
- Smooth inner margin of P5 coxa in both sexes
- Female P5 endopod with 7 setae
- Male P5 with both rami 3-segmented, endopods with 7 setae

Female
- A1 around twice length of prosome
- Width to length ratio of pedigerous somites is equal or greater than 0.3
- Posterior margin of cephalosome not elevated in lateral view
- Urosome somite 2 about 1.25 x longer than somite 3

Distribution
- Epi-, meso- and bathypelagic
- Cosmopolitan
- Pacific, Indian and Atlantic
- Tropical, subtropical and temperate; possibly into subantarctic

Ecology
- Fine particle feeders, probably omnivorous
- Eggs released into water column
- Up to 3 generations per year
- Has been observed in Alaskan waters, so broad temperature (and possibly salinity) tolerance

Phylum       Arthropoda
Order        Calanoida
Family       Calanidae

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Mesocalanus tenuicornis**
(Dana, 1849)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Size**
Male: 1.70-2.20mm

**Male**
- A1 around twice as long as prosome
- P5 only slightly asymmetric
- Left P5 terminal spine of exopod segment 3 almost as long as it’s segment when measured along the outer border

**Source**
Bradford-Grieve (1994)  
Bradford-Grieve & Markhaseva (1999)  
Conway (2003)  
Cooney & Coyle (1985)  
Corral Estrada (1970)  
Razouls et al. (2012)  
Shmeleva & Kovalev (1974)  
Zheng et al. (1982)


Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Nannocalanus minor**
(Claus, 1863)

**Synonyms**
- Cetochilus minor Claus, 1863
- Calanus minor (Claus, 1863)
- Canthocalanus minor (Claus, 1863)
- Canthocalanus minor minor (Claus, 1863)
- Calanus valgus Brady, 1883
- Calanus caroli Giesbrecht, 1888
- Cosmocalanus caroli (Giesbrecht, 1888)
- Undinula darwinii caroli Giesbrecht, 1888
- Canthocalanus minor major Sewell, 1929
- Nannocalanus minor major Sewell, 1929

**Size**
Female: 1.45-2.40 mm

**Genus notes**
- Cephalosome and pedigerous somite 1 fused
- In fresh specimens edges of prosome somites may be tinged red
- Fine serrations on inner margin of P5 coxa in both sexes
- Male right P5 like other swimming legs, setae on inner border of the exopod
- Male P5 left endopod without setae, left exopod with outer edge spines greatly elongated
- Right and left spermathecae fused on female

**Female**
- A1 does not reach to end of urosome
- Rounded last prosome somite extending ½ way down genital somite leaving short, stubby urosome characteristically inset into prosome
- Obvious genital swelling bulging when viewed from side, with small projection low on surface
- May be confused with *Calanus australis*. *C. australis* differs as it is bigger, has 5 prosome somites, and the prosome indent is not obvious
- May be confused with *Canthocalanus pauper*. *C. pauper* has no serrations on inner margin of P5 coxa

**Andronov (2001); Bradford-Grieve (1994)**
**Nannocalanus minor**
(Claus, 1863)

**Phylum** | **Arthropoda**
---|---
**Order** | **Calanoida**
**Family** | **Calanidae**

### Size
Male: 1.17-2.01 mm

### Male
- A1 reaches just past urosome
- P5 slightly asymmetric
- Asymmetrical urosome somite 1
- Caudal rami divergent in dorsal view

### Distribution
- Epipelagic – mesopelagic
- Widespread oceanic
- Subtropical and tropical oceans
- Temperate coastal regions

### Ecology
- Omnivorous, feeding on fine particles
- Capable of responding very quickly when productivity in coastal waters increases, and moves inshore and undergoes rapid population expansion
- Continuous reproduction, can produce 2 – 5 generations year⁻¹

### Source
- Andronov (2001)
- Boxshall and Halsey (2004)
- Bradford-Grieve (1994)
- Conway et al. (2003)
- Mauchline (1998)
- Taw (1978)

Neocalanus gracilis
(Dana, 1849)

Phylum: Arthropoda
Order: Calanoida
Family: Calanidae

Synonyms
Calanus gracilis Dana, 1849

Size
Female: 2.4-4.0 mm

Genus notes
• Cephalosome and pedigerous somite 1 usually fused in female, separate in male
• P2 in both sexes with a recurved spine at the outer distal border of exopodite segment 1
• Coxa of P5 inner border without serrations in both sexes
• Male leg 5 with both exopodite and endopodite 3-segmented; left leg modified, endopodite usually with 8 setae; right leg unmodified or with inner edge setae of exopodite absent

Female
• Cephalosome and pedigerous somite 1 fused
• Basis of P1 with large spine at base of inner setae
• P1 terminal exopod setae with a proximally truncate external blade

Distribution
• Epi-, meso- and bathypelagic
• Cosmopolitan in temperate, subtropical and tropical water

Ecology
• Fine particle feeders, probably omnivorous
• Reproduction might occur at mesopelagic depths
• Multiple generations per year

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Neocalanus gracilis**
(Dana, 1849)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Size**  
Male: 2.3 – 3.1 mm

**Male**  
- Cephalosome and pedigerous somite 1 fused
- P2-4 distal exopod segments with dentate outer margins
- P5 right distal exopod segment with setae on the inner border

**Source**  
Bradford (1972)  
Bradford-Grieve (1994)  
Brady (1883)  
Chen & Zhang (1964)  
Corral Estrada (1970)  
Giesbrecht (1892)  
Razouls et al. (2012)  
Shmeleva & Kovalev (1974)


Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Neocalanus tonsus** (Brady, 1883)

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Calanidae

**Synonyms**
Calanus tonsus Brady, 1883

**Size**
Female: 3.3-4.1 mm

**Genus notes**
- Cephalosome and pedigerous somite 1 usually fused in female, separate in male
- Swimming leg 2 in both sexes with a recurved spine at the outer distal border or exopodite segment 1
- Coxa of P5 inner border without serrations in both sexes
- Male leg 5 with both exopodite and endopodite 3-segmented; left leg modified, endopodite usually with 8 setae; right leg unmodified or with inner edge setae of exopodite absent

**Female**
- Cephalosome and pedigerous somite 1 separate but not as distinctly as joints between other pedigerous somites
- Basis of P1 without large spine at base of inner setae
- Basis of P2 to P5 with conspicuous posterior surface spines on inner distal border of segment
- Genital segment bulbous at mid length in dorsal view

**Distribution**
- Subantarctic and Antarctic (but not coastal Antarctic)
- Indian, Pacific and Atlantic
- Occasionally take north of Sub Tropical Convergence in deep water

**Ecology**
- Reproduction might occur at mesopelagic depths
- Fine particle feeder, probably omnivorous
- Ingests up to 3.8% of body carbon and 5.7% of nitrogen per day
- Can form surface aggregations up to several 100 metres in length
- Undertakes ontogenetic vertical migrations
- Eggs released into water column; produces up to 450 eggs per female
- Two egg production strategies: Mesopelagic-dwelling females use stored lipids for egg production in winter, and epipelagic dwelling females rely on ambient food supply for egg production in spring

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
Neocalanus tonsus
(Brady, 1883)

**Phylum**
Arthropoda

**Order**
Calanoida

**Family**
Calanidae

**Size**
Male: 3.3 – 4.4 mm

**Male**
- Cephalosome and pedigerous somite 1 separate
- 5th leg only slightly asymmetrical, exopods without inner edge setae

**Source**
- Bradford-Grieve (1994)
- Brodsky (1967)
- Jillet (1968)
- Kawamura (1974)
- Ohman (1987)
- Razouls et al. (2012)
- Taw (1978)


Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Undinula vulgaris**

(Dana, 1849)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Synonyms**  
Cleanups orientalis Marukawa, 1908  
Calanus vulgaris Dana, 1849  
Undinula vulgaris giesbrechti Sewell, 1914  
Undinula vulgaris major Wickstead, 1963  
Undinula vulgaris minor Wickstead, 1963  
Undinula vulgaris typica Sewell, 1929  
Undinula vulgaris zeylanica Sewell, 1914

**Size**  
Female: 2.25 – 3.25 mm

**Genus notes**  
- Cephalosome and pedigerous somite 1 fused  
- Posteriors corners of pedigerous somite 5 extend into 1 or 2 points in female  
- P2 has notch on external margin on 2nd segment of expodite  
- P5 B2 with inner border naked, no serrations  
- Male left P5 highly modified; outer edge spines of exopod segments 1-2 very elongate and segment 3 very modified; endopod absent  
- Male right P5 both rami 3 segmented, endopod with reduced setation, exopod segment 2 with outer distal border elongate extending as far as first outer spine of segment 3  
- Genus is monotypic

**Female**  
- Prosome corners are prolonged into a claw like spine (may have 2 spines on either side of prosome)  
- 5 swimming legs, similar size and structure  
- A1 reaches to end of urosome

**Distribution**

**Ecology**

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: 

Chen & Zhang (1965); Bradford-Grieve (1994)
**Undinula vulgaris**
(Dana, 1849)

**Size**
Male: 2.04 – 2.5 mm

**Male**
- Large, left P5, extremely modified, very asymmetric, no serrations on internal margin of coxa, no endopodite and large spines on exopod segments 1 & 2 and a ‘wrinkled trunk’ structure on the end of the limb
- Right P5 tiny and with endopod

**Source**
Bradford-Grieve (1994)
Conway (2003)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

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**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Calanidae

**Mori** (1937); Dakin & Colefax (1940); Ramirez (1971)
Candacia bipinnata (Giesbrecht, 1889)

**Synonyms**
*Candace bipinnata* Giesbrecht, 1889

**Size**
Female: 2.35 - 2.50 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Posterior prosome corners extended into symmetrical points
- Genital somite large with triangular lateral extension on each side
- Lamella on ventral surface of urosome somite 2
- P5 asymmetrical and terminated in obtuse point and some miniscule outer edge spines

**Distribution**
- Epipelagic; mesopelagic
- Mainly open ocean; occasionally coastal
- Widespread in tropical, subtropical and temperate waters
- Pacific and Indian Oceans and Atlantic Oceans

**Ecology**
- Can live in the neuston
- Maxillae suited to grasping and piercing prey
- Feed selectively on larvaceans and other gelatinous zooplankton

**Phylum** Arthropoda
**Order** Calanoida
**Family** Candaciidae

Bradford-Grieve (1999); Chen & Zhang (1965)

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Candacia bipinnata**
(Giesbrecht, 1889)

**Phylum**  | Arthropoda
**Order**   | Calanoida
**Family**  | Candaciidae

**Size**
Male: 2.35 mm

**Male**
- Rostrum platelike and strong with rounded points
- Right A1 geniculate, with serrations on section 18, segments 2-3 fused, segments 17-18 separate, segments 19-20 fused
- In lateral view distal end of posterior prosome is truncate, tip of process reaches beyond posterior end of genital somite
- Posterior prosome and genital somite asymmetrical with pointed extensions on the right, both extending posteriorly
- Right P5 chelate, left with hairs and a single, tiny terminal spine

**Source**
Bradford-Grieve & Markhaseva (1999)
Bradford-Grieve (1999)
Chen and Zhang (1965)
Hattori et al. (1983)
Ohtsuka & Onbé (1989)
Razouls et al. (2010)


Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013

*CSIRO AusCPR*
**Candacia bradyi**
Scott A., 1902

**Synonyms**
None

**Size**
Female: 1.4 - 2.1 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Posterior prosome somite corners each end in a short spine
- P1 with 1-segmented endopod
- P5 segment 3 curved slightly inwards, with 2 setae on inner margin and three spines on distal outer edge. These spines are blunt and pigmented on the left and sharp and non-pigmented on the right
- Genital somite broad and almost symmetrical in dorsal view, with slight protrusion on right side
- Urosome somite 2 has a pointed protrusion, half the length of genital somite, on the mid ventral surface
- Caudal rami twice as long as wide, slightly asymmetrical, the right wider than the left

**Distribution**
- Epipelagic; open ocean
- Temperate, tropical and subtropical
- Indian and Pacific Oceans; not Atlantic

**Ecology**
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item
- Has been observed feeding on *Sagitta*

**Images:** Greenwood (1978); Phukham (2008)

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Candacia bradyi**

*Scott A., 1902*

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Candaciidae

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**Size**

Male: 1.4 - 1.8 mm

**Male**

- A1 23-segmented, extends to posterior border of prosome
- Posterior prosome symmetrical, tip of right process does not reach beyond mid point of genital somite
- P2-4 terminal spines are more than half the length of its segment
- Left P5 segment 3 is produced at outer distal angle into a short, stout, pigmented tooth-like process, which is divided into 3 blunt points, segment 4 is elongated and narrow with 3 small terminal spines
- Genital somite produced into a small toothed process on right side
- Urosome somite 2 with patch of small spines near posterior end

**Source**

- Bradford-Grieve (1999)
- Conway (2003)
- Greenwood (1978)
- Phukham (2008)
- Razouls et al. (2010)
- Wickstead (1959)


**Images:** AusCPR

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Candacia catula**
(Giesbrecht, 1889)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Candaciidae

**Synonyms**
*Candace catula* Giesbrecht, 1889

**Size**
Female: 1.4 - 1.67 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’
- May be darkly pigmented
- Cephalosome and pedigerous somite 1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long seta; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- A1 23-segmented, with proximal 6 segments swollen
- Posterior prosome symmetrical and pointed
- P2-4 exopod terminal spine more than half the length of the segment
- P5 symmetrical, segment 3 long with 2 outer marginal spines and 3 inner marginal setae; apex with 3 teeth
- Genital somite symmetrical with both sides swollen, no spines or processes but with a backward projecting protuberance on the ventral surface
- Caudal rami nearly twice as long as wide

**Distribution**
- Epipelagic; open ocean
- Tropical and subtropical
- Pacific and Indian Oceans; more recently recorded from the Atlantic

**Ecology**
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Candacia catula
(Giesbrecht, 1889)

Phylum
Arthropoda
Order
Calanoida
Family
Candaciidae

Size
Male: 1.3 - 1.62 mm

Male
- Right A1 geniculate with 6 terminal segments
- Last prosome somite pointed, but not prominently
- Points are slightly asymmetrical
- P5 chelate on left, segment 3 terminal spine long and curved
- Unusual among Candacia males in having no processes or protuberances on the genital somite
- Urosome somite 2 symmetrical

Source
Bradford-Grieve & Markhaseva (1999)
Bradford-Grieve (1999)
Chen & Zhang (1965)
Conway (2003)
Greenwood (1978)
Razouls et al. (2010)
Tanaka (1935)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)
Candacia discaudata
Scott A., 1909

**Phylum**
Arthropoda

**Order**
Calanoida

**Family**
Candaciidae

**Synonyms**
None

**Size**
Female: 1.55 – 1.94 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’
- May be darkly pigmented
- Cephalosome and pedigerous somite 1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- A1 23-segmented and extends to middle of genital somite
- Posterior prosome points symmetrical, projected slightly forward
- P2-4 exopod segment 3 spines more than half length of terminal segment
- P5 asymmetrical, apex of segment 3 produced into 3 closely set teeth, outer margin with 2 small spines, 2 moderately long setae on inner margin
- Genital somite slightly asymmetrical dorsally, no lateral protrusions, short setae on each side; small protuberance on the front
- Second urosome somite is expanded in lateral view
- Anal somite short and asymmetrical

**Distribution**
- Epipelagic; open ocean
- Tropical and subtropical
- Pacific and Indian Oceans; probably not Atlantic

**Ecology**
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013

Mori (1937); Chen & Zhang (1965); Greenwood (1978)
**Candacia discaudata**

Scott A., 1909

**Phylum**  
Arthropoda

**Order**  
Calanioida

**Family**  
Candaciidae

**Size**  
Male: 1.48 – 1.82 mm

**Male**  
- Right A1 geniculate, outer margin of segments 16-18 with pigmented teeth
- P5 left segments moderately long and broad, segment 4 with 2 small outer edge spines and 2 small apical spines
- P5 right segment 3 has a large projection near distal end of inner margin
- Genital somite asymmetrical, with bulges on right hand side
- Viewed from the right the inflated region bears a small tooth at each end
- Anal somite is asymmetrical

**Source**  
Bradford-Grieve (1999)  
Chen and Zhang (1965)  
Conway (2003)  
Mori (1937)  
Mulyadi (1997)  
Razouls et al. (2010)  
Scott (1909)

**Candacia ethiopica**  
*(Dana, 1849)*

**Synonyms**
- *Candace aethiopica* Dana, 1849
- *Candace ethiopica* Dana, 1849
- *Candacia aethiopica* (Dana, 1849)

**Size**
Female: 1.97-3.03 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Prosome can be darkly pigmented
- Posterior prosome corners pointed
- Small crest on last prosome somite (also in other Candacia spp.)
- P5 segment 3 with 3 inner edge setae; distal 2 setae are coarse and of unequal length; segment 3 with 7 spines in total
- Genital somite asymmetrical, prolonged on left
- In lateral view genital somite has a small ventral spiny protuberance

**Distribution**
- Epipelagic; mesopelagic
- Mainly open ocean
- Widespread in tropical, subtropical and temperate waters
- Pacific and Indian Oceans and Atlantic Oceans

**Ecology**
- Can live in the neuston
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item
- Swimming speeds up to 7 mm s⁻¹

**Compiled:** C. H. Davies & A. S. Slotwinski 2012  
**Verified:** K. M. Swadling 2013
**Candacia ethiopica**
(Dana, 1849)

**Phylum**  Arthropoda  
**Order**  Calanoida  
**Family**  Candaciidae

**Size**
Male: 2.00 – 2.93 mm

**Male**
- Posterior prosome asymmetrical with curved spiny projection on the right side
- Genital somite with 2 triangular processes on right margin, protuberances on one side (a rounded knob and a pointed projection)
- Small crest on last prosome somite (also in other Candacia spp.)

**Source**
Bradford-Grieve & Markhaseva (1999)
Bradford-Grieve (1999)
Chen & Zhang (1965)
Conway (2003)
Hattori et al. (1983)
Razouls et al. (2010)
Woodson et al. (2005)

**Candacia truncata**
(Dana, 1849)

**Synonyms**
*Candace truncata* Dana, 1849
*Candacia turgida* Wilson C.B., 1950
*Paracandacia truncata* (Dana, 1849)

**Size**
Female: 1.84 - 2.10 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’
- May be darkly pigmented
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long seta; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- A1 23-segmented, proximal 8 segments thickened
- A characteristic square end to the last prosome somite when viewed laterally
- Corners of prosome are pointed & directed forwards, so points not visible in dorsal view
- P5 segment 3 with terminal finger-like processes finely serrated distally; inner margin setae subequal, distal most seta slightly longer than proximal seta
- Urosome symmetrical with no protuberances
- Anal somite short and often fused with caudal rami

**Distribution**
- Epipelagic; open ocean
- Tropical and subtropical
- Pacific and Indian Oceans; probably not Atlantic
**Candacia truncata**

Dana, 1849

### Size

**Male:** 1.87 – 2.11 mm

### Male

- Geniculate right A1 has a series of stout proximal segments followed by a thin section, then a broad club section, beyond club section, segment 16 has a finger-like protrusion which is difficult to observe clearly; fused segments 17 and 18 are characteristically curved
- Last prosome somite symmetrical with sharp points
- P5 left segment 4 with 3 setae; right P5 not chelate and segment 3 terminates in long plumose setae
- Urosome and caudal rami symmetrical with no projections

### Ecology

- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item

### Source

Bradford-Grieve (1999)
Chen and Zhang (1965)
Conway (2003)
Greenwood (1978)
Razouls et al. (2010)
Tanaka (1935)

[Full reference available at](http://www.imas.utas.edu.au/zooplankton/references)
**Centropages australiensis**
Fairbridge, 1944

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Centropagidae

**Synonyms**  
None

**Size**  
Female: 1.43 mm

**Genus notes**  
- Small to medium size
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
- Single naupliar eye
- Lateral corners of posterior prosome often end in asymmetrical points
- Characteristic undulating edge on last prosomal somite between spine and urosome
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
- Male P5 complex, right leg chelate
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**  
- A1 exceeds caudal rami by 2 segments
- Point on left prosone corner reaches to end of genital somite, point on right side reaches to middle of genital somite
- Genital somite almost symmetrical, with 2 small spines
- Urosomal somite 2 asymmetrical; left side slightly swollen, right side with thick spine
- Caudal rami symmetrical, twice as long as wide

**Distribution**  
- Epipelagic
- Inshore coastal and coastal waters
- Southern Australian distribution, particularly along eastern seaboard

**Ecology**  
- Produces distinctive spiny eggs
- Eggs can diapause in sediments to avoid unfavourable conditions
- Females often observed with 2 or more spermatophores attached
- Omnivorous

**Author:** C. H. Davies & A. S. Slotwinski 2012  
**Verified:** D. V. P. Conway 2013
**Centropages australiensis**
Fairbridge, 1944

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Centropagidae

**Size**

**Male**

- One side of right A1 typically thickened along part of length; spines on segments 15-16 at thickening of A1
- Sharp points on posterior of prosome asymmetrical
- Right P5 with large, slightly curved spur forming a claw on inner margin of exopod segment 2, outer apical margin furrowed
- Right P5 exopod segment 3 is pointed with furrowed inner margin, distinct spine on inner margin and minute spinule on outer margin
- Caudal rami twice as long as wide

**Source**

- Boxshall and Halsey (2004)
- Bradford-Grieve (1994)
- Conway et al. (2003)
- Vervoort (1964)

**Centropages bradyi**
Wheeler, 1900

**Synonyms**
None

**Size**
Female: 1.91-2.50 mm

**Genus notes**
- Small to medium size
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
- Single naupliar eye
- Lateral corners of posterior prosome often end in asymmetrical points
- Characteristic undulating edge on last prosom al somite between spine and urosome
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
- Male P5 complex, right leg chelate
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**
- A1 extends beyond caudal rami by 3-4 segments
- May have a blunt dorsal projection at bottom of cephalosome
- Body inflated, appears slightly ‘lumpy’, widest at pedigerous somites 1-2
- Posterior prosome corners rounded
- Genital somite inflated but without protrusions
- Caudal rami large, symmetrical with ‘peg’-like projection between 2 outer terminal setae
- P5 exopodal segment 2 inner edge spine stout and smooth

**Distribution**
- Epi-, meso- and bathypelagic
- Cosmopolitan
- Generally found more abundantly in warm (> 25 °C) waters

**Ecology**
- Found further north in Northern Hemisphere during El Niño years, associated with warm water

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**Phylum** Arthropoda
**Order** Calanoida
**Family** Centropagidae

**Centropages bradyi**  
Wheeler, 1900

### Size
Male: 1.90-2.40 mm

### Male
- A1 extends beyond caudal rami by 3-4 segments, right A1 geniculate
- Caudal rami large, symmetrical with ‘peg’ like projection between 2 outer terminal setae
- P5 right; chela projections of almost equal length, the proximal projection gently curved and narrow through length
- P5 left: exopodal segments 2-3 tapering and with 4 long spines

### Source
- Bradford-Grieve (1999)
- Conway (2003)
- Corral Estrada (1970)
- Keister et al. (2005)
- Mazzochi (1995)
- Mori (1937)
- Razouls et al. (2012)


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**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Centropagidae

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C. Davies, CSIRO © 2013
**Centropages calaninus**
(Dana, 1849)

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Centropagidae

**Synonyms**  
* Cyclopsina calanina * Dana, 1849  
* Hemicalanus calaninus * Dana, 1852  
* Hemicalanus tenuicornis * Dana, 1849

**Size**  
Female: 1.72 – 2.18 mm

**Genus notes**  
- Small to medium size  
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)  
- Single naupliar eye  
- Lateral corners of posterior prosome often end in asymmetrical points  
- Characteristic undulating edge on last prosomal somite between spine and urosome  
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process  
- Male P5 complex, right leg chelate  
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**  
- Last prosome somite rounded in dorsal view  
- Genital somite symmetrical with lateral swellings  
- Anal somite almost 2x as long as urosome somite 2  
- Caudal rami large and asymmetrical  
- A1 extends beyond caudal rami by last 2 segments  
- P5 exopodal segment 2 inner edge spine is straight and longer than exopodal segment 3  
- Notch on the proximal inner margin of exopodal segment 1

**Distribution**  
- Epipelagic, coastal  
- Tropical, subtropical, cold temperate  
- Indian and Pacific, Atlantic uncertain

**Ecology**  
- Little is known about the ecology of this species

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Centropages calaninus**

(Dana, 1849)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Centropagidae

**Size**

Male: 1.80 – 2.06 mm

**Male**

- Last prosome somite rounded
- Right P5 exopodite segment 3 claw is longer than the inner extension of exopodite segment 2 and is sharply bent

**Source**

Bradford-Grieve (1999)  
Chen & Zhang (1965)  
Conway (2003)  
Giesbrecht (1892)  
Grice (1962)  
Mulyadi (1998)  
Razouls et al. (2012)

Centropages elegans
Giesbrecht 1895

**Phylum**  Arthropoda  
**Order**  Calanoida  
**Family**  Centropagidae  

**Synonyms**  None  

**Size**  
Female: 1.86 – 2.14 mm  

**Genus notes**  
- Small to medium size  
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)  
- Single naupliar eye  
- Lateral corners of posterior prosome often end in asymmetrical points  
- Characteristic undulating edge on last prosomal somite between spine and urosum  
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process  
- Male P5 complex, right leg chelate  
- Urosome usually 3-segmented, often with spines, without seminal receptacles  

**Female**  
- Small semicircle projection on anterior cephalosome  
- Knoblike protrusion at the posterodorsal margin  
- Cephalosome and prosome somite 1 incompletely separated  
- A1 extends beyond caudal rami by last 5 segments  
- Posterior margins of prosome rounded  
- P5 exopod segment 1 has a round projection on inner margin, exopod segment 2 with a strong spiniform projection directed distally, with distal inner margin hairs  
- Genital somite symmetrical, wider than long with a posterodorsal row of spinules  
- Urosome somite 2 has a ventral knoblike projection and 2 posterodorsal rows of spinules  
- Caudal rami long and symmetrical  

**Distribution**  
- Epipelagic  
- Coastal  
- Tropical  
- Pacific Ocean  

**Ecology**  
- Little is known about the ecology of this species  

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
Centropages elegans
Giesbrecht 1895

Phylum: Arthropoda
Order: Calanoida
Family: Centropagidae

Size
Male: 1.84 – 2.05 mm

Male
- Cephalosome and prosome somite 1 incompletely separated
- Left A1 extends past caudal rami by last 2 segments
- Right A1 geniculate at segments 18 & 19, acute teeth on segments 17 – 19
- P5 right exopod, segment 2 extends internally into a long bluntly rounded extension, exopod segment 3 in the form of a much longer tapering spine.
- P5 left exopod, 2 segmented, exopod segments 2 & 3 bearing 2 spines which do not taper much and densely pitted tips

Source
Bradford-Grieve (1999)
Conway (2003)
Park (1968)
Razouls et al. (2012)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)
**Centropages elongatus**
Giesbrecht, 1896

**Phylum**  Arthropoda
**Order**  Calanoida
**Family**  Centropagidae

**Synonyms**
*Centropages pacificus* Chiba, 1956

**Size**
Female: 1.50 – 1.90 mm

**Genus notes**
- Small to medium size
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
- Single naupliar eye
- Lateral corners of posterior prosome often end in asymmetrical points
- Characteristic undulating edge on last prosomal somite between spine and uroosome
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
- Male P5 complex, right leg chelate
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**
- A1 passes the caudal rami by the last 2 segments
- Last prosome somite quite rounded
- Spine-like extension on exopodal segment 2 of P5 reaches or just exceeds the distal end of exopodal segment 3
- Notch in proximal internal part of exopodal segment 1 of P5
- No spines on urosome
- Genital somite almost symmetrical
- Caudal rami as long as 2 preceding somites

**Distribution**
- Epipelagic, coastal
- Indian and Pacific, not Atlantic
- Tropical, subtropical

**Ecology**
- Little is known about the ecology of this species

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Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Centropages elongatus**
Giesbrecht, 1896

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**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Centropagidae

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**Size**  
Male: 1.74 – 2.00 mm

**Male**  
- Last prosome somite quite rounded
- Right P5 exopodal segment 3 terminated by 2 thick spine like extensions
- Distinctive shape to end exopodal segment of left P5

**Source**  
Conway (2003)  
Grice (1962)  
Razouls et al. (2012)


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Grice (1962)
Centropages furcatus

(Dana, 1849)

**Phylum** Arthropoda
**Order** Calanoida
**Family** Centropagidae

**Synonyms**
- Catopia furcata Dana, 1849
- Centropages lenuclulari Oliveira, 1946

**Size**
Female: 1.38 – 1.90 mm

**Genus notes**
- Small to medium size
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
- Single naupliar eye
- Lateral corners of posterior prosome often end in asymmetrical points
- Characteristic undulating edge on last prosomal somite between spine and urosome
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
- Male P5 complex, right leg chelate
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**
- Conspicuous central ball-like eye
- May be quite transparent
- Strong spines on segments 1, 2, 5 of A1
- Prominent second spines between the lateral spines on the last prosome somite and the urosome
- P5 exopodal segment 2 inner edge spine does not reach distal border of exopodal segment 3
- No spines on genital somite
- Anal somite asymmetrical and long, twice the length of urosome somite 2
- Long and slender caudal rami

**Distribution**
- Epipelagic, coastal, cosmopolitan
- Most widely distributed species within the genus
- As far south as subantarctic

**Ecology**
- Cannibalistic feeding has been observed
- Preys on nauplii of other coastal calanoids
- Spawns at night
- Produces resting eggs

**Author:** C. H. Davies & A. S. Slotwinski 2012
**Verified:** K. M. Swadling 2013
**Centropages furcatus**
(Dana, 1849)

**Phylum**
Arthropoda

**Order**
Calanoida

**Family**
Centropagidae

**Size**
Male: 1.40 – 1.75 mm

**Male**
- Right A1 geniculate
- May be quite transparent
- Posterior prosome somite slightly asymmetrical, left side protrudes further than right
- Prominent second spines between the lateral spines on the last prosome somite and the urosome
- Right P5 extension on exopodal segment 2 has a rounded protrusion on the proximal portion; exopodal segment 3 claw is stout and has a spine on the inner margin and 2 spines on outer margin
- Left P5 exopodal segments 2-3 with long terminal fixed appendages
- Long and slender caudal rami

**Source**
Bradford Grieve (1999)
Brodsky (1962)
Checkley et al. (1992)
Conway (2003)
Daan et al. (1988)
Marcus (1989)
Razouls et al. (2012)

(Full reference available at [http://www.imas.utas.edu.au/zooplankton/references])
**Centropages gracilis**
(Dana, 1849)

**Phylum**
Arthropoda

**Order**
Calanoida

**Family**
Centropagidae

**Synonym**
- Cyclopsina gracilis Dana, 1849
- Hemicalanus gracilis Dana, 1852

**Size**
Female: 1.85 – 2.00 mm

**Genus notes**
- Small to medium size
- Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
- Single naupliar eye
- Lateral corners of posterior prosome often end in asymmetrical points
- Characteristic undulating edge on last prosomal somite between spine and urosome
- Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
- Male P5 complex, right leg chelate
- Urosome usually 3-segmented, often with spines, without seminal receptacles

**Female**
- Lateral angles of the last prosome somite are rounded
- A1 extends beyond caudal rami by last 5 segments
- Inner marginal spine on exopodite segment 2 of P5 does not reach the end of segment 3
- Genital somite with naked lateral borders
- Urosome somite 2 has lateral knobs covered in small spines (flower like)
- Caudal rami are symmetrical

**Distribution**
- Epipelagic
- Coastal and offshore
- Tropical
- Indian, Pacific and Atlantic

**Ecology**
- Little is known about the ecology of this species

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Centropages gracilis
(Dana, 1849)

**Phylum**
Arthropoda

**Order**
Calanoida

**Family**
Centropagidae

**Size**
Male: 1.80 – 2.04 mm

**Male**
- Posterior corners of prosome rounded
- Right P5 terminal claw is longer than the appendage on exopod 2 (thumb) and has a pronounced triangular protrusion, absent in other species in the genus

**Source**
Bradford-Grieve & Markhaseva (1999)
Brodsky (1962)
Chen & Zhang (1965)
Conway (2003)
Grice (1962)
Mori (1937)
Razouls et al. (2012)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)
Centropages orsinii
Giesbrecht, 1889

Synonyms
none

Size
Female: 1.40 - 1.60 mm

Genus notes
• Small to medium size
• Cephalosome and pedigerous somite 1 are fused (fusion lines visible on sides)
• Single naupliar eye
• Lateral corners of posterior prosome often end in asymmetrical points
• Characteristic undulating edge on last prosomal somite between spine and uroscope
• Female P5 biramous, exopod segment 2 with a strong, inner spine-like process
• Male P5 complex, right leg chelate
• Uroscope usually 3-segmented, often with spines, without seminal receptacles

Female
• A1 reaches to end of caudal rami, no spines on segments 1, 2, 5
• Posterior borders of prosome are weakly pointed
• P5 nearly symmetrical
• Left P5 exopodal segment 2 inner spine curved, usually bordered by small spines
• Genital somite symmetrical, offset, backward pointed spine on ventral surface
• Caudal rami are twice as long as wide

Distribution
• Epipelagic
• Coastal, oceanic
• Indian and Pacific, not Atlantic
• Tropical, subtropical

Ecology
• Forms swarms, sometimes as part of a multi-species assemblage
• Herbivorous, feeding on mixed phytoplankton species
• Little is known about the ecology of this species

Author: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Size**
Male: 1.25 - 1.30 mm

**Male**
- Posterior corners of prosome hardly pointed
- Terminal claw on right P5 longer than the appendage on exopodal segment 2 (thumb)
- Terminal exopodal segment of left P5 ends in a spine

**Source**
Bradford-Grieve (1999)
Chen & Zhang (1965)
Giesbrecht (1892)
Mulyadi (1998)
Razouls et al. (2012)
Shek & Liu (2010)

**Clausocalanus arcuicornis**
(Dana, 1849)

**Synonyms**
- *Calanus arcuicornis* Dana, 1849
- *Calanus mastigophorus* Claus, 1863
- *Clausocalanus mastigophorus* (Claus, 1863)
- *Eucalanus mastigophorus* (Claus, 1866)

**Size**
Female: 1.15-1.62 mm

**Genus notes**
- Small to medium sized copepods
- Female rostrum bifurcated
- Male rostrum reduced to a knob
- Anterior cephalosome & posterior prosome segments are rounded
- Cephalosome fused to pedigerous somite 1
- Female P5 is uniramous, symmetrical and 3-segmented
- Male P5 uniramous, legs of unequal length, longer leg nearly always on left, 5-segmented with segment 5 short & attached sub-apically to the previous segment, shorter leg 3-segmented, less than half of the length of segment 1 of the other leg
- Female urosome 4-segmented
- Can be confused with *Paracalanus* but P5 is a different form

**Female**
- A1 as long or slightly longer than prosome
- Rostrum in lateral view is short, bifurcated, thick at base, usually straight or slightly curved and directed ventrally
- The 3rd segment of P5 as long as the preceding 2 segments together; segment 3 bifurcated, sometimes with tiny spinules on inner and outer margins
- Prosome : Urosome ratio 2.65-3.22:1
- Urosome shorter than 4th legs
- Genital somite in lateral view straight, or slightly concave, in region of seminal receptacle
- Genital somite 1.5 times as long as urosome somite 3
- Caudal rami about as long as broad

**Distribution**
- Epipelagic
- Inshore coastal, coastal and oceanic
- Australian distribution includes Tasmania, North West Cape, New South Wales and Great Barrier Reef
- World distribution: widespread in tropical and subtropical waters of the Pacific, Indian and Atlantic Oceans

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**Preserved specimen**

**North Stradbroke Island, Queensland**
**Clausocalanus arcuicornis**
(Dana, 1849)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Clausocalanidae

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**Size**

Male: 0.97-1.17 mm

**Male**

- Rostrum in lateral view knoblike and protruding ventrally
- P5 right, short, 3 segmented
- P5 left leg is longer than urosome, robust, with long, slender, straight setae distally
- Prosome urosome ratio 1.9—2.51:1
- 2nd urosome somite as long as the following 2 somites together

**Ecology**

- Tropical-subtropical, circumglobal
- Can be transported into temperate regions with warm currents
- Most abundant off New South Wales during April and May; 17 – 19º sea surface temperatures
- Carries eggs in a single, fragile sac
- Herbivorous

**Source**

Boltovskoy (1999)
Conway (2003)
Dakin and Colefax (1940)
Razouls et al (2010)
Saiz & Calbert (1999)


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Frost & Fleminger (1968); Razouls (1972)
**Cosmocalanus darwinii**  
(Lubbock, 1860)

**Synonyms**
- Undina darwinii Lubbock, 1860
- Calanus darwinii (Lubbock, 1860)
- Cosmocalanus darwinii (Lubbock, 1860)

**Size**
Female: 1.6-2.58 mm

**Genus notes**
- Only 2 species
- Cephalosome and pedigerous somite 1 fused
- Spines on anterior surface of basis of P1, 3-5 in female and P1, 3-4 in male
- Inner margin of coxa of P5 finely serrated
- Posterior prosome corners drawn into points in female
- Caudal rami setae sometimes branch

**Female**
- A1 reaches almost to the end of urosome
- Spinules on posterior margin of genital and 2nd urosome somite
- Genital somite bulges quite strongly and comes to blunt point towards the anterior somite

**Distribution**
- Epipelagic
- Pacific, Indian and Atlantic
- Subtropical and tropical

**Ecology**
- Eggs released into water column
- Fine particle feeders, probably omnivorous
- Usually restricted to surface layers
- Females often found with 2 or more spermatophores

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Cosmocalanus darwinii**
(Lubbock, 1860)

**Phylum** | **Arthropoda**
---|---
**Order** | **Calanoida**
**Family** | **Calanidae**

**Size**
Male: 1.6-2.35 mm

**Male**
- P5 extremely large and very asymmetrical, left exopod highly modified, right leg not modified
- Tooth on inner edge of external spine of left P5 is placed about 1/3 of length from the base of the spine

**Source**
Bradford-Grieve (1994)
Chiba (1953)
Conway (2003)
Dakin & Colefax (1940)
Grice (1961)
Razouls et al. (2012)

**Mesocalanus tenuicornis**  
(Dana, 1849)

**Synonyms**  
*Calanus tenuicornis* Dana, 1849

**Size**  
Female: 1.80-2.40 mm

**Genus notes**
- Cephalosome and pedigerous somite 1 separate
- A1 elongated
- Maxillae with 6 setae on inner lobe 1
- P1-P4 without modification or ornamentation
- Smooth inner margin of P5 coxa in both sexes
- Female P5 endopod with 7 setae
- Male P5 with both rami 3-segmented, endopods with 7 setae

**Female**
- A1 around twice length of prosome
- Width to length ratio of pedigerous somites is equal or greater than 0.3
- Posterior margin of cephalosome not elevated in lateral view
- Urosome somite 2 about 1.25 x longer than somite 3

**Distribution**
- Epi-, meso- and bathypelagic
- Cosmopolitan
- Pacific, Indian and Atlantic
- Tropical, subtropical and temperate; possibly into subantarctic

**Ecology**
- Fine particle feeders, probably omnivorous
- Eggs released into water column
- Up to 3 generations per year
- Has been observed in Alaskan waters, so broad temperature (and possibly salinity) tolerance

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Mesocalanus tenuicornis
(Dana, 1849)

Size
Male: 1.70-2.20mm

Male
- A1 around twice as long as prosome
- P5 only slightly asymmetric
- Left P5 terminal spine of exopod segment 3 almost as long as its segment when measured along the outer border

Source
Bradford-Grieve (1994)
Bradford-Grieve & Markhaseva (1999)
Conway (2003)
Cooney & Coyle (1985)
Corral Estrada (1970)
Razouls et al. (2012)
Shmeleva & Kovalev (1974)
Zheng et al. (1982)

Corral Estrada (1970); Zheng et al. (1982)

(Dana, 1849)
**Nannocalanus minor**
(Claus, 1863)

**Synonyms**
- Cetochilus minor Claus, 1863
- Calanus minor (Claus, 1863)
- Canthocalanus minor (Claus, 1863)
- Canthocalanus minor minor (Claus, 1863)
- Calanus valgus Brady, 1883
- Calanus caroli Giesbrecht, 1888
- Cosmocalanus caroli (Giesbrecht, 1888)
- Undinula darwinii caroli Giesbrecht, 1888
- Canthocalanus minor major Sewell, 1929
- Nannocalanus minor major Sewell, 1929

**Size**
Female: 1.45-2.40 mm

**Genus notes**
- Cephalosome and pedigerous somite 1 fused
- In fresh specimens edges of prosome somites may be tinged red
- Fine serrations on inner margin of P5 coxa in both sexes
- Male right P5 like other swimming legs, setae on inner border of the exopod
- Male P5 left endopod without setae, left exopod with outer edge spines greatly elongated
- Right and left spermathecae fused on female

**Female**
- A1 does not reach to end of urosome
- Rounded last prosome somite extending ½ way down genital somite leaving short, stubby urosome characteristically inset into prosome
- Obvious genital swelling bulging when viewed from side, with small projection low on surface
- May be confused with *Calanus australis*. *C. australis* differs as it is bigger, has 5 prosome somites, and the prosome indent is not obvious
- May be confused with *Canthocalanus pauper*. *C. pauper* has no serrations on inner margin of P5 coxa

**Andronov (2001); Bradford-Grieve (1994)**

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Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: D. V. P. Conway 2013
**Nannocalanus minor**
(Claus, 1863)

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Calanidae

**Size**  
Male: 1.17-2.01 mm

**Male**  
- A1 reaches just past urosome  
- P5 slightly asymmetric  
- Asymmetrical urosome somite 1  
- Caudal rami divergent in dorsal view

**Distribution**  
- Epipelagic – mesopelagic  
- Widespread oceanic  
- Subtropical and tropical oceans  
- Temperate coastal regions

**Ecology**  
- Omnivorous, feeding on fine particles  
- Capable of responding very quickly when productivity in coastal waters increases, and moves inshore and undergoes rapid population expansion  
- Continuous reproduction, can produce 2 – 5 generations year$^{-1}$

**Source**  
Andronov (2001)  
Bradford-Grieve & Markhaseva (1999)  
Boxshall and Halsey (2004)  
Bradford-Grieve (1994)  
Conway et al. (2003)  
Mauchline (1998)  
Taw (1978)

**Neocalanus gracilis**

*(Dana, 1849)*

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Synonyms**

*Calanus gracilis* Dana, 1849

**Size**

Female: 2.4-4.0 mm

**Genus notes**

- Cephalosome and pedigerous somite 1 usually fused in female, separate in male.
- P2 in both sexes with a recurved spine at the outer distal border of exopodite segment 1.
- Coxa of P5 inner border without serrations in both sexes.
- Male leg 5 with both exopodite and endopodite 3-segmented; left leg modified, endopodite usually with 8 setae; right leg unmodified or with inner edge setae of exopodite absent.

**Female**

- Cephalosome and pedigerous somite 1 fused.
- Basis of P1 with large spine at base of inner setae.
- P1 terminal exopod setae with a proximally truncate external blade.

**Distribution**

- Epi-, meso- and bathypelagic.
- Cosmopolitan in temperate, subtropical and tropical water.

**Ecology**

- Fine particle feeders, probably omnivorous.
- Reproduction might occur at mesopelagic depths.
- Multiple generations per year.

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
Neocalanus gracilis
(Dana, 1849)

Size
Male: 2.3 – 3.1 mm

Male
• Cephalosome and pedigerous somite 1 fused
• P2-4 distal exopod segments with dentate outer margins
• P5 right distal exopod segment with setae on the inner border

Source
Bradford (1972)
Bradford-Grieve (1994)
Brady (1883)
Chen & Zhang (1964)
Corral Estrada (1970)
Giesbrecht (1892)
Razouls et al. (2012)
Shmeleva & Kovalev (1974)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

Brady (1883); Giesbrecht (1892); Corral Estrada (1970)
Neocalanus tonsus
(Brady, 1883)

**Phylum** Arthropoda

**Order** Calanoida

**Family** Calanidae

**Synonyms**

*Calanus tonsus* Brady, 1883

**Size**

Female: 3.3-4.1 mm

**Genus notes**

- Cephalosome and pedigerous somite 1 usually fused in female, separate in male
- Swimming leg 2 in both sexes with a recurved spine at the outer distal border or exopodite segment 1
- Coxa of P5 inner border without serrations in both sexes
- Male leg 5 with both exopodite and endopodite 3-segmented; left leg modified, endopodite usually with 8 setae; right leg unmodified or with inner edge setae of exopodite absent

**Female**

- Cephalosome and pedigerous somite 1 separate but not as distinctly as joints between other pedigerous somites
- Basis of P1 without large spine at base of inner setae
- Basis of P2 to P5 with conspicuous posterior surface spines on inner distal border of segment
- Genital segment bulbous at mid length in dorsal view

**Distribution**

- Subantarctic and Antarctic (but not coastal Antarctic)
- Indian, Pacific and Atlantic
- Occasionally take north of Sub Tropical Convergence in deep water

**Ecology**

- Reproduction might occur at mesopelagic depths
- Fine particle feeder, probably omnivorous
- Ingests up to 3.8% of body carbon and 5.7% of nitrogen per day
- Can form surface aggregations up to several 100 metres in length
- Undertakes ontogenetic vertical migrations
- Eggs released into water column; produces up to 450 eggs per female
- Two egg production strategies: Mesopelagic-dwelling females use stored lipids for egg production in winter, and epipelagic dwelling females rely on ambient food supply for egg production in spring

Bradford-Grieve (1994)

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Neocalanus tonsus
(Brady, 1883)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Calanidae

**Size**
Male: 3.3 – 4.4 mm

**Male**
- Cephalosome and pedigerous somite 1 separate
- 5th leg only slightly asymmetrical, exopods without inner edge setae

**Source**
- Bradford-Grieve (1994)
- Brodsky (1967)
- Jillett (1968)
- Kawamura (1974)
- Ohman (1987)
- Razouls et al. (2012)
- Taw (1978)


Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013

Brodsky (1967); Jillett (1968)
**Undinula vulgaris**

(Dana, 1849)

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Calanidae

**Synonyms**  
*Cleanups orientalis* Marukawa, 1908  
*Calanus vulgaris* Dana, 1849  
*Undinula vulgaris giesbrechti* Sewell, 1914  
*Undinula vulgaris major* Wickstead, 1963  
*Undinula vulgaris minor* Wickstead, 1963  
*Undinula vulgaris typica* Sewell, 1929  
*Undinula vulgaris zeylanica* Sewell, 1914

**Size**  
Female: 2.25 – 3.25 mm

**Genus notes**  
- Cephalosome and pedigerous somite 1 fused  
- Posteriors corners of pedigerous somite 5 extend into 1 or 2 points in female  
- P2 has notch on external margin on 2nd segment of expodite  
- P5 B2 with inner border naked, no serrations  
- Male left P5 highly modified; outer edge spines of exopod segments 1-2 very elongate and segment 3 very modified; endopod absent  
- Male right P5 both rami 3 segmented, endopod with reduced setation, exopod segment 2 with outer distal border elongate extending as far as first outer spine of segment 3  
- Genus is monotypic

**Female**  
- Prosome corners are prolonged into a claw like spine (may have 2 spines on either side of prosome)  
- 5 swimming legs, similar size and structure  
- A1 reaches to end of urosome

**Distribution**

**Ecology**

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: C. Davies, CSIRO 2013
**Undinula vulgaris**
(Dana, 1849)

**Size**
Male: 2.04 – 2.5 mm

**Male**
- Large, left P5, extremely modified, very asymmetric, no serrations on internal margin of coxa, no endopodite and large spines on exopod segments 1 & 2 and a ‘wrinkled trunk’ structure on the end of the limb
- Right P5 tiny and with endopod

**Source**
Bradford-Grieve (1994)
Conway (2003)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

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**Phylum** Arthropoda
**Order** Calanoida
**Family** Calanidae
**Candacia bipinnata** (Giesbrecht, 1889)

**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Candaciidae

**Synonyms**  
*Candace bipinnata* Giesbrecht, 1889

**Size**  
Female: 2.35 - 2.50 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite 1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long seta; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Posterior prosome corners extended into symmetrical points
- Genital somite large with triangular lateral extension on each side
- Lamella on ventral surface of urosome somite 2
- P5 asymmetrical and terminated in obtuse point and some miniscule outer edge spines

**Distribution**
- Epipelagic; mesopelagic
- Mainly open ocean; occasionally coastal
- Widespread in tropical, subtropical and temperate waters
- Pacific and Indian Oceans and Atlantic Oceans

**Ecology**
- Can live in the neuston
- Maxillae suited to grasping and piercing prey
- Feed selectively on larvaceans and other gelatinous zooplankton

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Candacia bipinnata**

(Giesbrecht, 1889)

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**Phylum**  
Arthropoda

**Order**  
Calanoida

**Family**  
Candaciidae

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### Size

**Male:** 2.35 mm

### Male

- Rostrum platelike and strong with rounded points
- Right A1 geniculate, with serrations on section 18, segments 2-3 fused, segments 17-18 separate, segments 19-20 fused
- In lateral view distal end of posterior prosome is truncate, tip of process reaches beyond posterior end of genital somite
- Posterior prosome and genital somite asymmetrical with pointed extensions on the right, both extending posteriorly
- Right P5 chelate, left with hairs and a single, tiny terminal spine

### Source

Bradford-Grieve & Markhaseva (1999)  
Bradford-Grieve (1999)  
Chen and Zhang (1965)  
Hattori et al. (1983)  
Ohtsuka & Onbé (1989)  
Razouls et al. (2010)


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*Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013*
**Candacia bradyi**
Scott A., 1902

**Synonyms**
None

**Size**
Female: 1.4 - 2.1 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite 1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long seta; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Posterior prosome somite corners each end in a short spine
- P1 with 1-segmented endopod
- P5 segment 3 curved slightly inwards, with 2 setae on inner margin and three spines on distal outer edge. These spines are blunt and pigmented on the left and sharp and non-pigmented on the right
- Genital somite broad and almost symmetrical in dorsal view, with slight protrusion on right side
- Urosome somite 2 has a pointed protrusion, half the length of genital somite, on the mid ventral surface
- Caudal rami twice as long as wide, slightly asymmetrical, the right wider than the left

**Distribution**
- Epipelagic; open ocean
- Temperate, tropical and subtropical
- Indian and Pacific Oceans; not Atlantic

**Ecology**
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item
- Has been observed feeding on *Sagitta*

Images: Greenwood (1978); Phukham (2008)

Collections:
- Preserved specimen

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
**Candacia bradyi**
Scott A., 1902

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Candaciidae

**Size**
Male: 1.4 - 1.8 mm

**Male**
- A1 23-segmented, extends to posterior border of prosome
- Posterior prosome symmetrical, tip of right process does not reach beyond mid point of genital somite
- P2-4 terminal spines are more than half the length of its segment
- Left P5 segment 3 is produced at outer distal angle into a short, stout, pigmented tooth-like process, which is divided into 3 blunt points, segment 4 is elongated and narrow with 3 small terminal spines
- Genital somite produced into a small toothed process on right side
- Urosome somite 2 with patch of small spines near posterior end

**Source**
Bradford-Grieve (1999)  
Conway (2003)  
Greenwood (1978)  
Phukham (2008)  
Razouls et al. (2010)  
Wickstead (1959)


Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Candacia catula**

(Giesbrecht, 1889)

**Synonyms**

*Candace catula* Giesbrecht, 1889

**Size**

Female: 1.4 - 1.67 mm

**Genus notes**

- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’
- May be darkly pigmented
- Cephalosome and pedigerous somite 1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**

- A1 23-segmented, with proximal 6 segments swollen
- Posterior prosome symmetrical and pointed
- P2-4 exopod terminal spine more than half the length of the segment
- P5 symmetrical, segment 3 long with 2 outer marginal spines and 3 inner marginal setae; apex with 3 teeth
- Genital somite symmetrical with both sides swollen, no spines or processes but with a backward projecting protuberance on the ventral surface
- Caudal rami nearly twice as long as wide

**Distribution**

- Epipelagic; open ocean
- Tropical and subtropical
- Pacific and Indian Oceans; more recently recorded from the Atlantic

**Ecology**

- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item
**Candacia catula**  
(Giesbrecht, 1889)

**Phylum** Arthropoda  
**Order** Calanoida  
**Family** Candaciidae

**Size**  
Male: 1.3 - 1.62 mm

**Male**  
- Right A1 geniculate with 6 terminal segments  
- Last prosome somite pointed, but not prominently  
- Points are slightly asymmetrical  
- P5 chelate on left, segment 3 terminal spine long and curved  
- Unusual among Candacia males in having no processes or protuberances on the genital somite  
- Urosome somite 2 symmetrical

**Source**  
Bradford-Grieve & Markhaseva (1999)  
Bradford-Grieve (1999)  
Chen & Zhang (1965)  
Conway (2003)  
Greenwood (1978)  
Razouls et al. (2010)  
Tanaka (1935)


Tanaka (1935); Chen & Zhang (1965); Greenwood (1978)
**Candacia discaudata**
Scott A., 1909

**Phylum** Arthropoda  
**Order** Calanioda  
**Family** Candaciidae  

**Synonyms**  
None

**Size**  
Female: 1.55 – 1.94 mm

**Genus notes**  
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’  
- May be darkly pigmented  
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded  
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region  
- Rostrum atrophied  
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long setae; setae may or may not be present on the inner lateral margins  
- Male right P5 is chelate or ends in a long feather like seta  
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented  
- Caudal rami short with 6 setae

**Female**  
- A1 23-segmented and extends to middle of genital somite  
- Posterior prosome points symmetrical, projected slightly forward  
- P2-4 exopod segment 3 spines more than half length of terminal segment  
- P5 asymmetrical, apex of segment 3 produced into 3 closely set teeth, outer margin with 2 small spines, 2 moderately long setae on inner margin  
- Genital somite slightly asymmetrical dorsally, no lateral protrusions, short setae on each side; small protuberance on the front  
- Second urosome somite is expanded in lateral view  
- Anal somite short and asymmetrical

**Distribution**  
- Epipelagic; open ocean  
- Tropical and subtropical  
- Pacific and Indian Oceans; probably not Atlantic

**Ecology**  
- Specialised predator, grasping prey with large and robust maxillae  
- Larvaceans are major prey item

Compiled: C. H. Davies & A. S. Slotwinski 2012  
Verified: K. M. Swadling 2013
**Candacia discaudata**

Scott A., 1909

**Phylum**
Arthropoda

**Order**
Calanioida

**Family**
Candaciidae

**Size**
Male: 1.48 – 1.82 mm

**Male**
- Right A1 geniculate, outer margin of segments 16-18 with pigmented teeth
- P5 left segments moderately long and broad, segment 4 with 2 small outer edge spines and 2 small apical spines
- P5 right segment 3 has a large projection near distal end of inner margin
- Genital somite asymmetrical, with bulges on right hand side
- Viewed from the right the inflated region bears a small tooth at each end
- Anal somite is asymmetrical

**Source**
Bradford-Grieve (1999)
Chen and Zhang (1965)
Conway (2003)
Mori (1937)
Mulyadi (1997)
Razouls et al. (2010)
Scott (1909)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)
**Candacia ethiopica**
(Dana, 1849)

**Synonyms**
- Candace aethiopica Dana, 1849
- Candace ethiopica Dana, 1849
- Candacia aethiopica (Dana, 1849)

**Size**
- Female: 1.97-3.03 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of 'shoulders'
- May be darkly pigmented
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female P5 terminal segments with one or more spine processes, a finger-like process or a single long seta; setae may or may not be present on the inner lateral margins
- Male right P5 is chelate or ends in a long feather like seta
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- Prosome can be darkly pigmented
- Posterior prosome corners pointe
- Small crest on last prosome somite (also in other Candacia spp.)
- P5 segment 3 with 3 inner edge setae; distal 2 setae are coarse and of unequal length; segment 3 with 7 spines in total
- Genital somite asymmetrical, prolonged on left
- In lateral view genital somite has a small ventral spiny protuberance

**Distribution**
- Epipelagic; mesopelagic
- Mainly open ocean
- Widespread in tropical, subtropical and temperate waters
- Pacific and Indian Oceans and Atlantic Oceans

**Ecology**
- Can live in the neuston
- Specialised predator, grasping prey with large and robust maxillae
- Larvaceans are major prey item
- Swimming speeds up to 7 mm s⁻¹

Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013
Candacia ethiopica
(Dana, 1849)

Phylum: Arthropoda
Order: Calanoida
Family: Candaciidae

Size
Male: 2.00 – 2.93 mm

Male
- Posterior prosome asymmetrical with curved spiny projection on the right side
- Genital somite with 2 triangular processes on right margin, protuberances on one side (a rounded knob and a pointed projection)
- Small crest on last prosome somite (also in other Candacia spp.)

Source
Bradford-Grieve & Markhaseva (1999)
Bradford-Grieve (1999)
Chen & Zhang (1965)
Conway (2003)
Hattori et al. (1983)
Razouls et al. (2010)
Woodson et al. (2005)

(Full reference available at http://www.imas.utas.edu.au/zooplankton/references)

Chen & Zhang (1965); Bradford-Grieve (1999)
**Candacia truncata**

(Dana, 1849)

**Synonyms**
- *Candace truncata* Dana, 1849
- *Candacia turgida* Wilson C.B., 1950
- *Paracandacia truncata* (Dana, 1849)

**Size**
- Female: 1.84 - 2.10 mm

**Genus notes**
- Body relatively robust, cephalosome rectangular in dorsal view, gives appearance of ‘shoulders’
- May be darkly pigmented
- Cephalosome and pedigerous somite1 separated, pedigerous somites 4-5 fused and extended into pointed, often asymmetrical processes; rarely rounded
- Right A1 of male with teeth present on one or more segments at the bend in the geniculate region
- Rostrum atrophied
- Female urosome 3-segmented, genital somite often spinose or asymmetrical, without seminal receptacles, somite 2 often asymmetrical; male 5-segmented
- Caudal rami short with 6 setae

**Female**
- A1 23-segmented, proximal 8 segments thickened
- A characteristic square end to the last prosome somite when viewed laterally
- Corners of prosome are pointed & directed forwards, so points not visible in dorsal view
- P5 segment 3 with terminal finger-like processes finely serrated distally; inner margin setae subequal, distal most seta slightly longer than proximal seta
- Urosome symmetrical with no protuberances
- Anal somite short and often fused with caudal rami

**Distribution**
- Epipelagic; open ocean
- Tropical and subtropical
- Pacific and Indian Oceans; probably not Atlantic

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Compiled: C. H. Davies & A. S. Slotwinski 2012
Verified: K. M. Swadling 2013