

Parvocalanus crassirostris



Adult, female *Parvocalanus crassirostris*: Photo courtesy of Jim Welsh



Nauplius of *Parvocalanus crassirostris*: Photo courtesy of Jim Welsh

Parvocalanus crassirostris fact sheet

Biology and Classification:

- 12 molts
- Females are larger than males
- Broadcast spawners
 - As eggs are fertilized they are released into the water column as opposed to other species of copepods that will hold the eggs while the embryo matures.
- Eggs are negatively buoyant.
- Stage 1 Nauplii are approximately 50µm.
- Nauplii to reproductive adult at 26C (78.8F) takes approximately 6 days.
- Positively phototactic.
 - Attracted to light.
- Truly planktonic (drift in the water column) as opposed to nektonic organisms that can swim against the ambient flow and control their position (e.g. squid, fish, and marine mammals)
- Life span is 12 to 15 days.

Paracalanidae

Scientific classification

Kingdom: Animalia

Phylum: Arthropoda

Subphylum: Crustacea

Class: Maxillopoda

Subclass: Copepoda Order:

Calanoida

Family: **Paracalanidae** Giesbrecht, 1893 ¹¹ 1

Paracalanidae is a family of copepods. It contains the following genera:

Acrocalanus Giesbrecht, 1888

Bestiolina Andronov, 1991

Delibus Vives & Shmelava, 2007 Paracalanus

Boeck, 1865

Parvocalanus Andronov, 1970

Pseudoparacalanus Robinson, 1948

Culture Recommendations:

- **NOTICE! DUE TO THEIR HIGHLY SENSITIVE FEEDING MECHANISMS, THESE ANIMALS WILL ONLY ACCEPT LIVE ALGAE. Reed Mariculture does not sell live algae starter cultures.**
 - We recommend that you always use *Tisochrysis lutea* (T-Iso) as the main feed. You can also use *Isochrysis galbana*.
 - You can find live algae starter cultures here:
<https://ncma.bigelow.org/ccmp1324#.VdtkYfkYH8I>
 - Before you plan to purchase and culture this animal, we suggest that you gain experience with culturing the algae.
 - A diatom such as *Thalassiosira weissflogii* or *T. pseudonana* can also be added to the diet if you would like to take a binary feed approach.
 - **NOTICE! *Nannochloropsis sp.* is not an ideal feed for this animal and should never be incorporated into the diet.**
- Acceptable temperature range is 24C - 26C (75.2F - 78.8F).
 - Culture temperature may be reduced to 19C – 20C (66.2F – 68F) to slow down reproduction and growth.
- Overfeeding live algae can result in mortalities.
 - We recommend that you start off with 50,000 cells of *Tisochrysis lutea* per ml of culture water. This cell concentration is ideal and should be maintained.
- No direct light is required.
- Low aeration – 1 to 2 bubbles per second
- pH range of 8.0 - 8.2.
- Ammonia must not exceed 4ppm.
 - ClorAm-X used to control ammonia.
- Salinity range is 30 to 35ppt (1.023 to 1.026 specific gravity).
 - We recommend that you culture this copepod at the same salinity that your larval fish are in.
- Below is a diagram of the different mesh sizes required for capturing the different life stages.

Mesh Size (µm)	Life stages retained
40	All Adults, copepodites, late stage nauplii
100	Adults and large copepodites
300	Adults only, some loss

- Microscopic evaluation of the algae is preferable, but if you don't have a microscope, simply keep the water lightly tinted with live algae.
 - Overfeeding algae can cause problems with the culture. Overfeeding will result in algae and bacteria sticking to the bodies of the copepods, which creates a lot of drag on the animal resulting in stress and mortality.
 - Excess feed will also create poor water quality conditions.

- Run multiple culture vessels in case one crashes.
 - Inverted carboys with the bottoms cut off are acceptable culture tanks.
 - A conical vessel with aeration from the very bottom is ideal.
 - Perform 100% water changes weekly.
- Daily inspection of the population is ideal.
 - Take a tank sample daily and perform a visual inspection of the pods.
 - A healthy culture will consist of all size ranges including eggs. The copepods will be visibly dark if they are well fed and all water quality parameters are stable.
 - Cutting off the air and shining a light into the culture vessels is another good method of assessing overall health.
 - When the pods are healthy and well fed, they will react to light by rapidly swimming towards it.
- Daily population estimates are ideal.
 - A good culture will consist of all size ranges and eggs.
 - Population estimations will provide the aquarist with more resolution of how the culture is persisting.
 - Copepods can be anesthetized with household vinegar. This will make counting a lot more accurate.
 - Population estimates make feeding and harvesting more accurate.
- Keep adult numbers low to maximize nauplii production.
 - We recommend no more than 3 adults per milliliter.
- Harvest nauplii daily and feed to larval fish.