Copepod Taxonomy Class

Initial Treatment of Specimens before Dissection: First we collected the sample from the field and for fixing the sample we took the below standard procedure by Huys and Boxshall (1991).

a. Narcotizing agents: Narcotizing agents can be useful to avoid flexion of the body and the antennae, and to aid retention of egg sacs and gut contents during fixation. The agent is usually added slowly, drop by drop. Different narcotizing agents are such as oxygen-depleted water, Cold: refrigerate specimens in refrigerator, than add fixative to sample at same temperature, $MgCL_2$ Alcohol, Formaldehyde, Propylene phenoxetol. In field we generally do not use the narcotizing agent we generally fix the sample.

b. Fixation: Fill sample bottles 3/4 full. Try to fix within 5 minutes after catch.

3-5% formalin buffered with one of several compounds to reduce acidity is the most commonly used fixative.

c. Staining for sorting: Staining samples before or during fixation helps visual separation of specimens from sediment or detritus-filled samples. However, staining is not recommended if the specimens are to be examined by Nomarski Differential Interference Contrast microscopy. Rose Bengal is an easily water-soluble vital stain, and is perhaps the most commonly used.

A long-term preservative for zooplankton is a solution of propylene phenoxetol (0.5 ml), propylene glycol (4.5 ml), and distilled water or sea water (95 ml) (Steedman, 1976).

Labels: Label paper should be heavy, with high rag content.

Microscopic Examination: Copepod taxonomy is based mainly on external morphology. Therefore one needs to see details of the integument. It may be desirable to use a clearing medium to reduce visual interference from internal structures, and to stain the integument in order to highlight spine patterns, pores, and other features. Sequence of treatment:

a. Pre-treatment
b. Stains
c. Mediums, temporary or permanent

d. Dissection
e. Mounting on slides, temporary or permanent
f. Making a record of the specimen

Dissection procedure: This is the most testing part of copepod identifiction and only much practice will produce results. Dissection sequences have been discussed by Coull (1973), Hamond (1969), Humes and Gooding (1964), and Huys and Boxshall (1991).

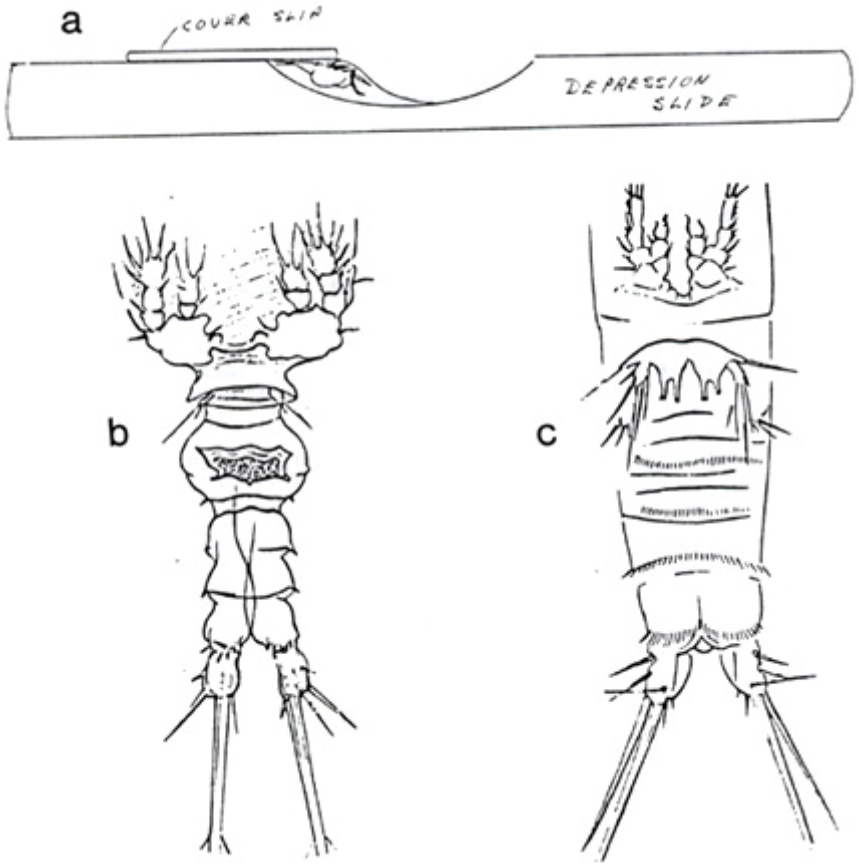
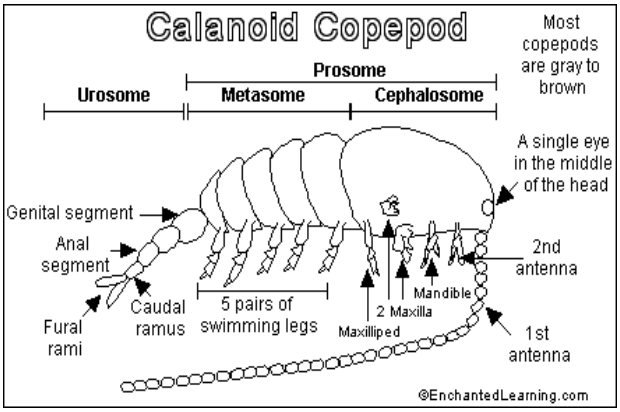


Fig 3 (a) Lateral view of entire cyclopoid under cover slip with swimming legs bent anteriorly; b, Ventral view of posterior body of cyclopoid with leg 4 bent anteriorly; c, ventral view of harpacticoid in same position (b, c from Graeter, 1910).

Our study: For copepods identification usually we first take out the appendages from the animal and these appendages name are as follow:



A1 : antennule (the longest in calanoida)

A2 : antenna

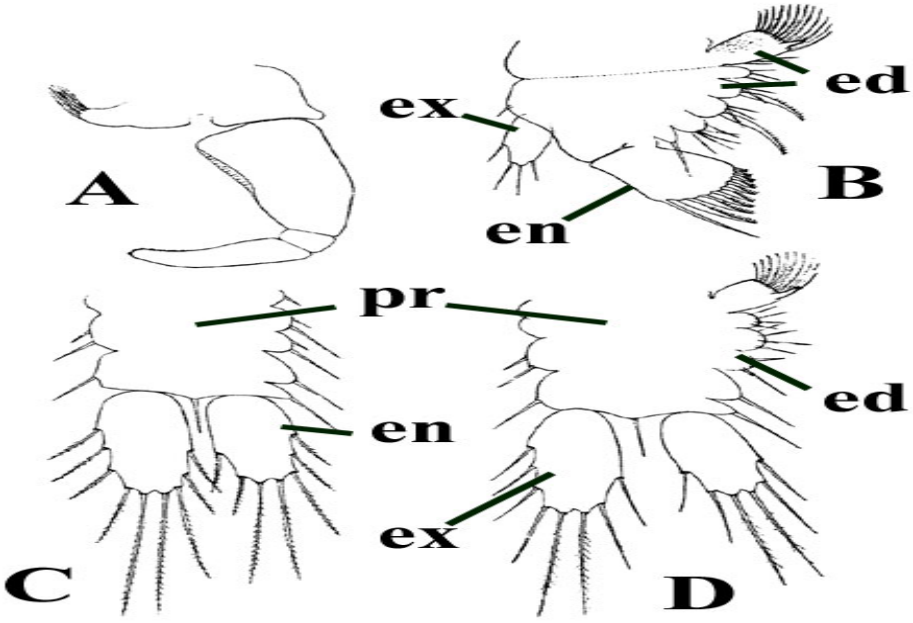
Md : mandible

Mx1 : maxillule

Mx2 : maxilla

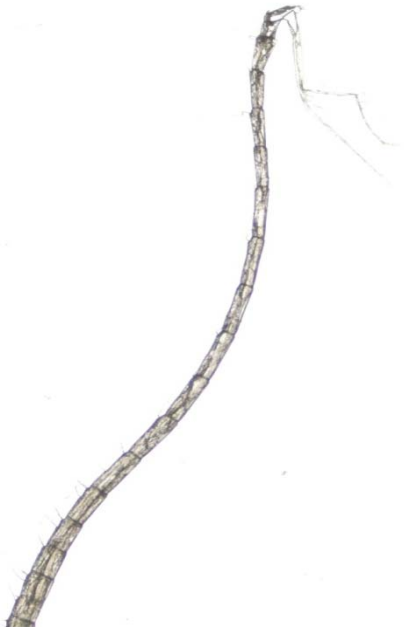
Mxp : maxilliped

P1 to P5 : Thoracic appendages (swimming legs)

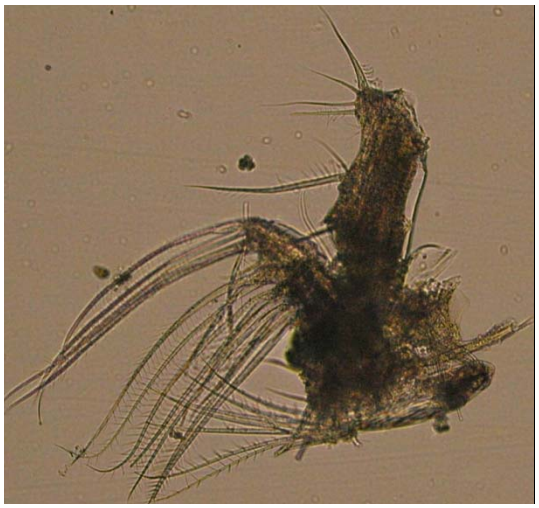


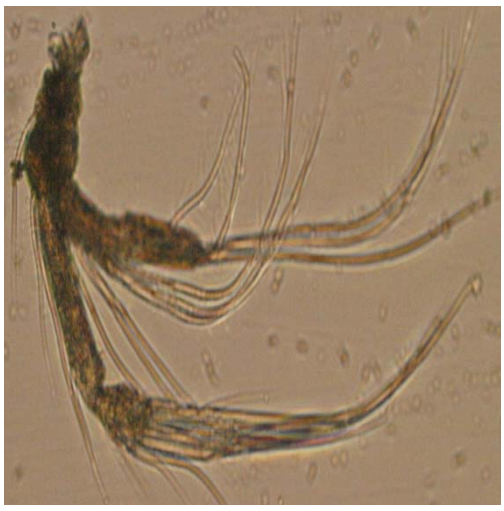
Exo and Endopodite in copepod

Urosome of copepod



Antennule (A1)





Maxillule, maxilla and swimming appendages of copepods

References:

Humes, A. G. & R. U. Gooding. 1964. A method for studying the external anatomy of copepods. Crustaceana 6: 238-240.

Huys, R. & G. A. Boxshall. 1991. Copepod Evolution. The Ray Society, London. 468 pp.