

A microscopic image of a planktonic larva, likely a trochophore or veliger larva, showing its characteristic shell and internal organs. The larva is translucent with a dark, central body and long, thin, hair-like appendages extending from its sides. The background is a light, slightly grainy blue-grey.

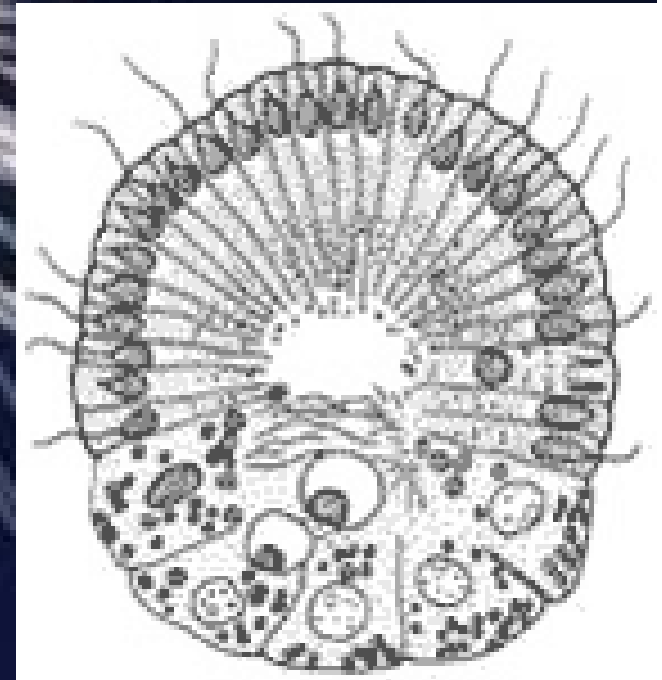
Planktonic Larvae

**Department of Oceanography
Xiamen University**

1 Planktonic Larvae of Diferent Phyla

1.1 Porifera (海绵动物)

Amphiblastular larva (两囊幼虫)



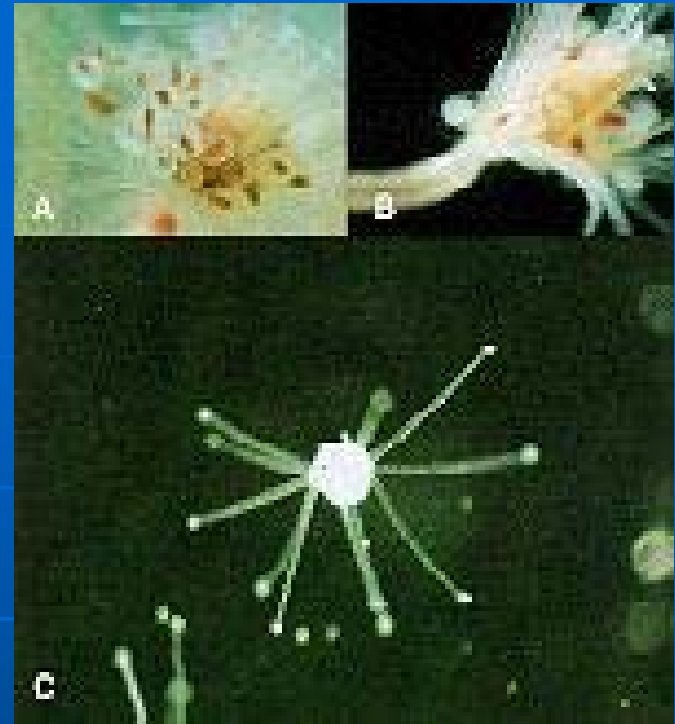
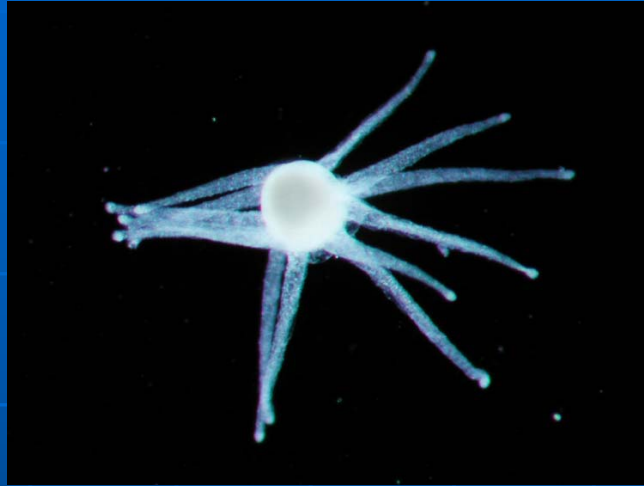
1.2 Coelenterata (腔肠动物)

1.2.1 Planular Larva (浮浪幼虫)

1.2.2 Ephyra (蝶状幼体)

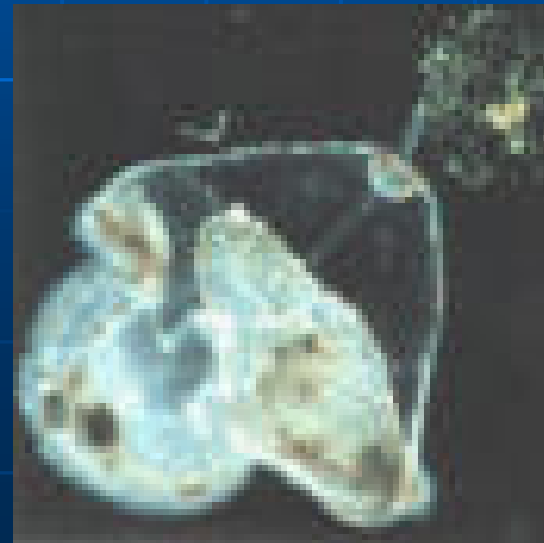


1.2.3 Actinula (辐射幼虫)



1.3 Nemertini (纽虫类)

Pilidium (帽状幼虫)

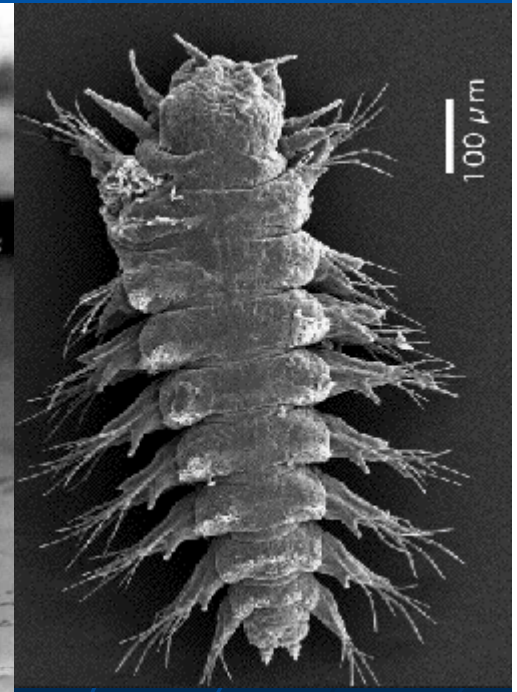
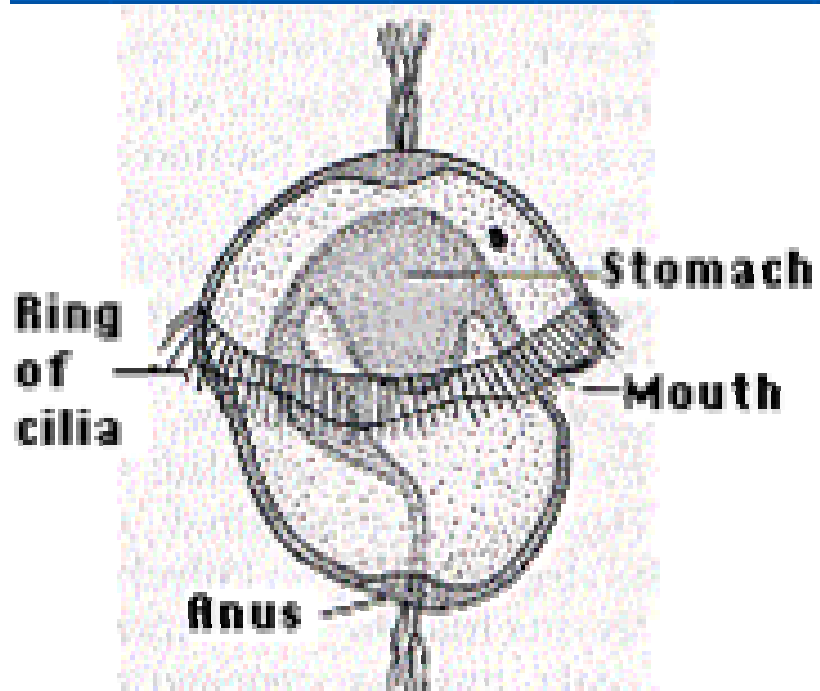


1.4 Tubellaria (扁虫类)

1.5 Polychaeta (多毛类)

1.5.1 Trochophora (担轮幼虫)

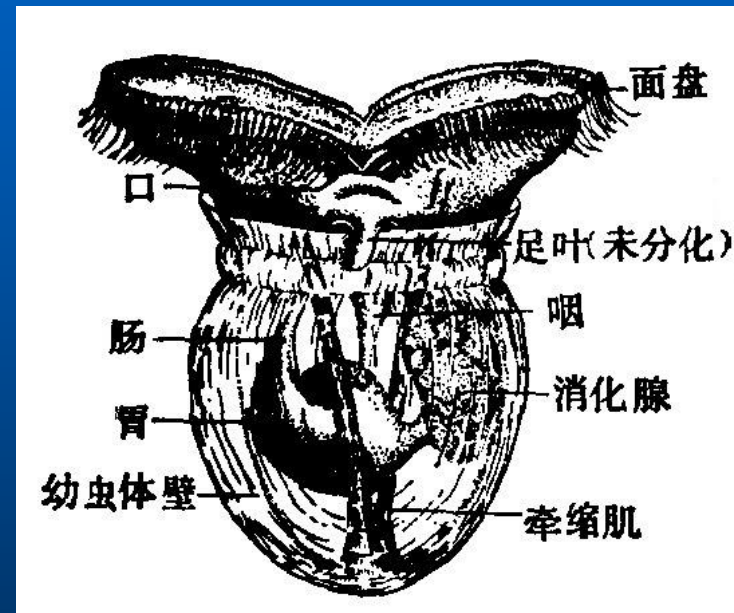
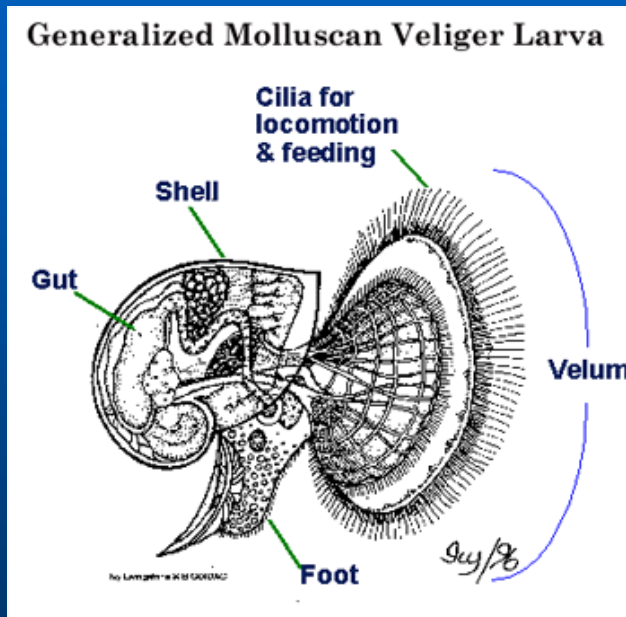
1.5.2 Notochaete (疣足幼虫)



1.6 Mollusca (软体动物)

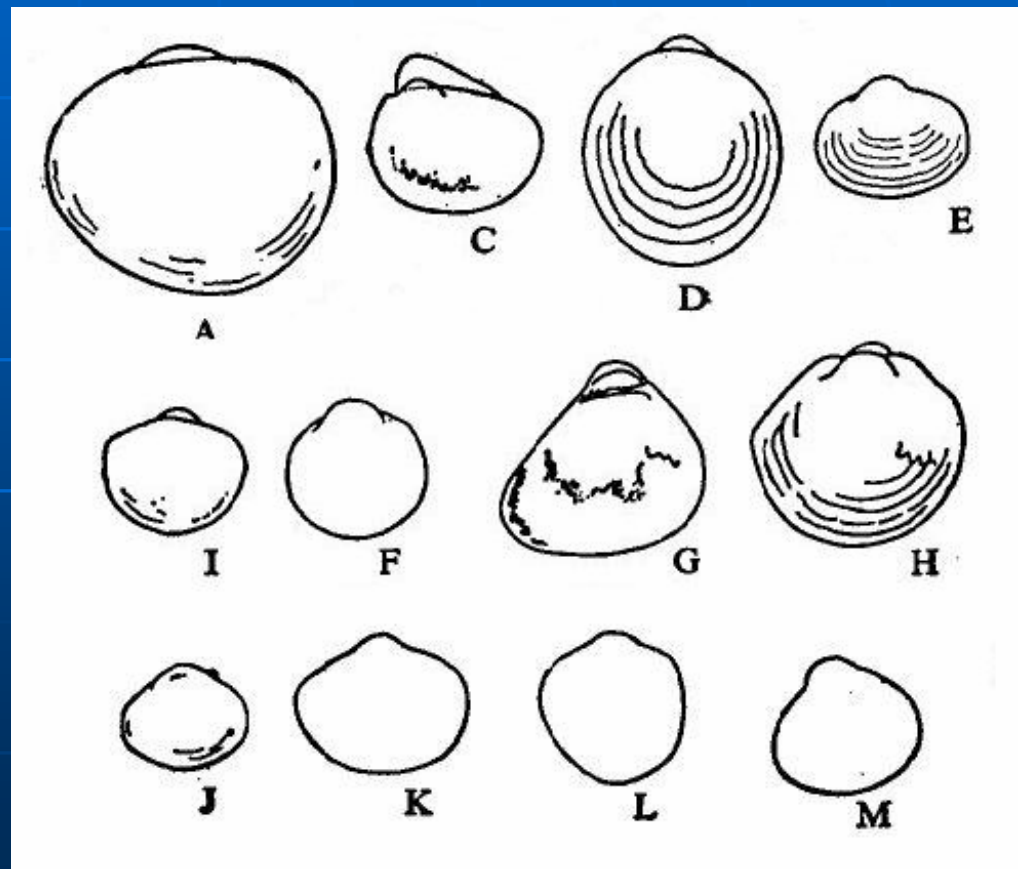
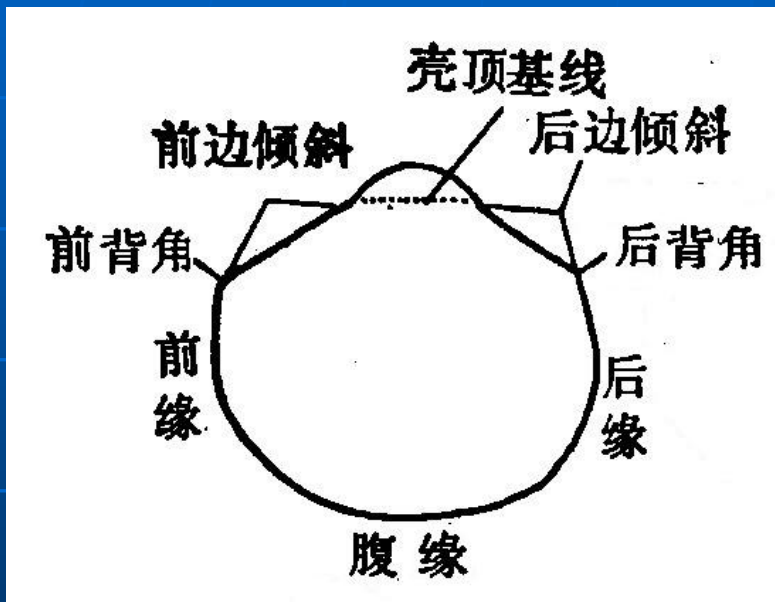
1.6.1 Trochophora (担轮幼虫)

1.6.2 Veliger (面盘幼虫)



1.6.3 Postlarva (后期幼虫)

umbo-veliger larva (壳顶幼虫)



1.7 Crustacea (甲壳动物)

1.7.1 Branchiopoda (鳃足类)

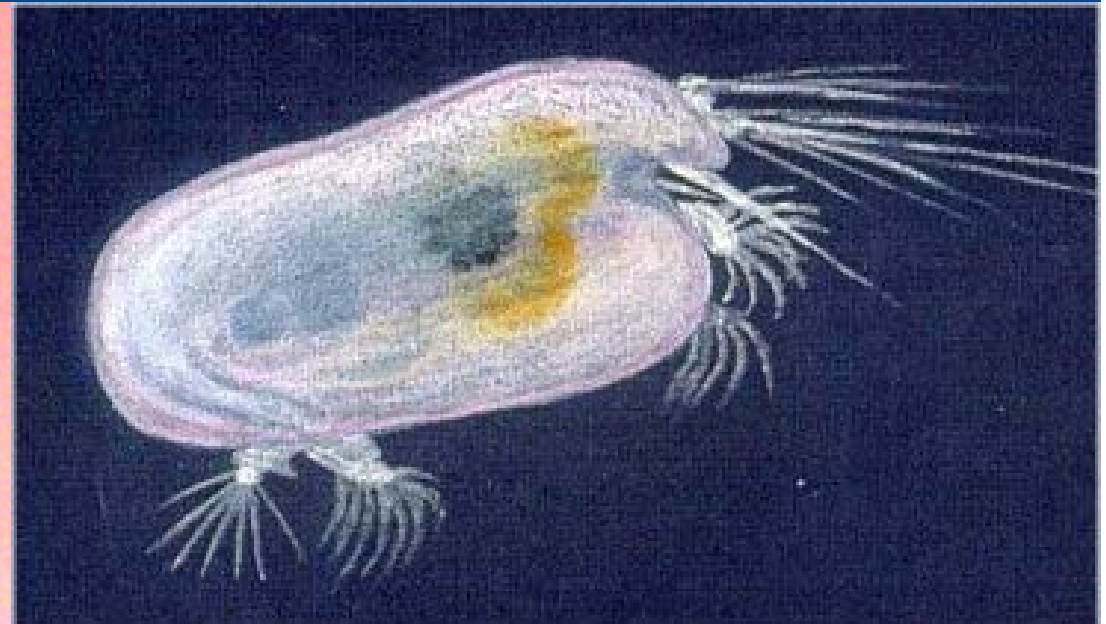
1.7.2 Cirripedia (蔓足类)

Nauplius (无节幼虫)

Cypris Larva (腺介幼虫)



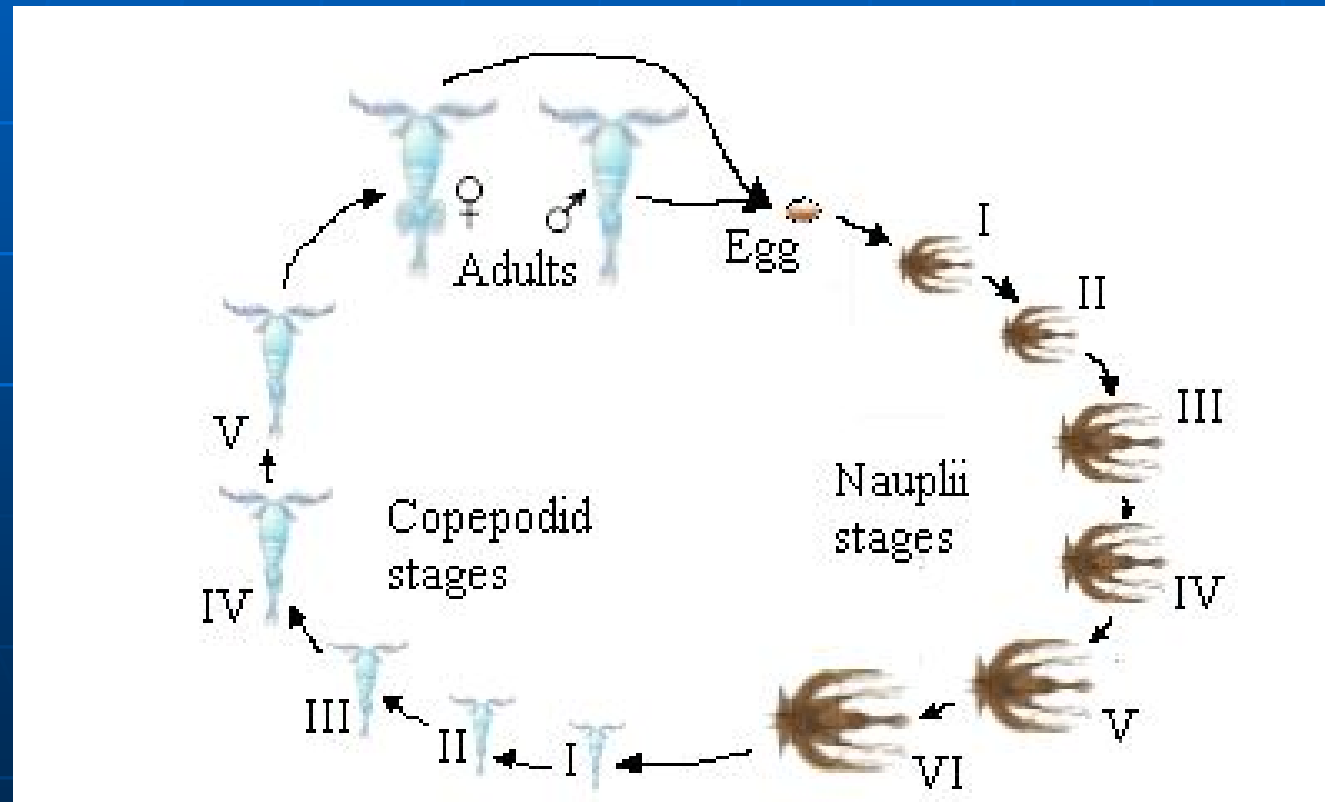
Barnacle nauplius (0.5 mm)



1.7.3 Copepoda (桡足类)

Nauplius (无节幼体)

Copepodite (桡足幼体)



1.7.4 Euphausia (磷虾类)

Nauplius

(无节幼虫)

Calyptopis

(节胸幼体)

Furcilia

(带叉幼体)

Cyrtopia

(节鞭幼体)

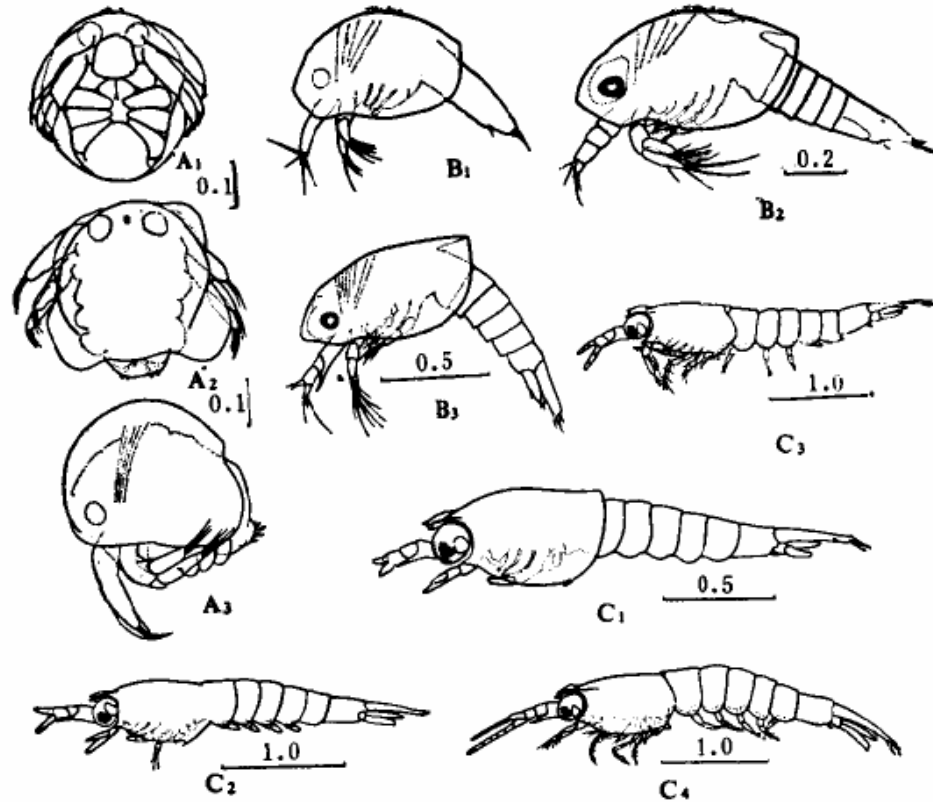


图 226 中华假磷虾各期幼体的形态(仿王荣, 1965)

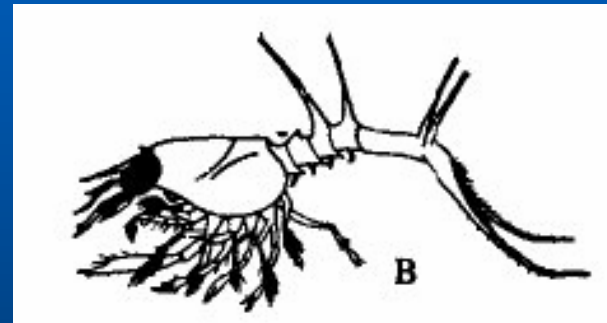
A. 无节幼虫: 1—3. 无节幼虫; B. 节胸幼体: 1—3. 第一至第三期; C. 带叉幼体: 1—4. 第一至第四期 (图中比例尺单位为毫米)

1.7.5 Decapoda (十足类)

Macruran Larvae (长尾类幼虫)

Anomura Larvae (歪尾类幼虫)

Brachyura Larvae (短尾类幼虫)



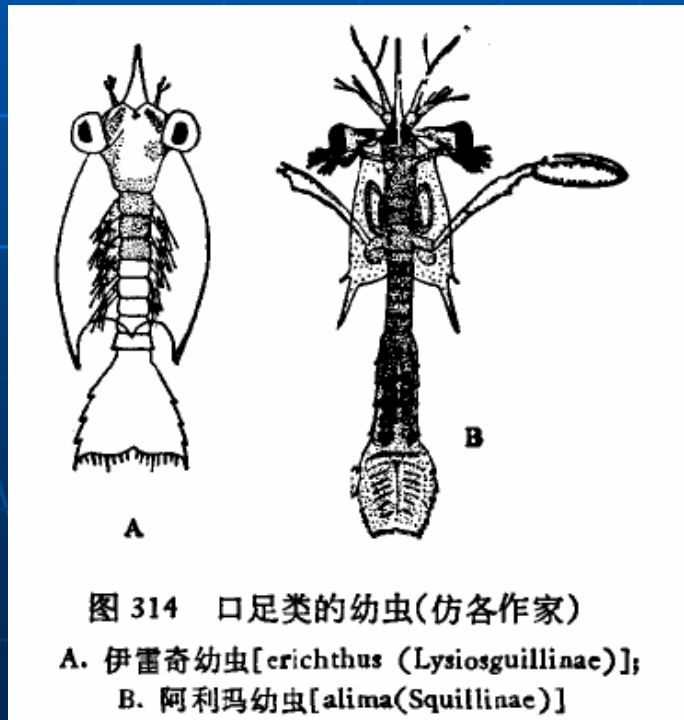
1.7.6 Stomatopoda (口足类)

Antizoea (前水蚤幼体)

Erichthus larva (伊雷奇幼体)

Pseudozoea (假水蚤幼体)

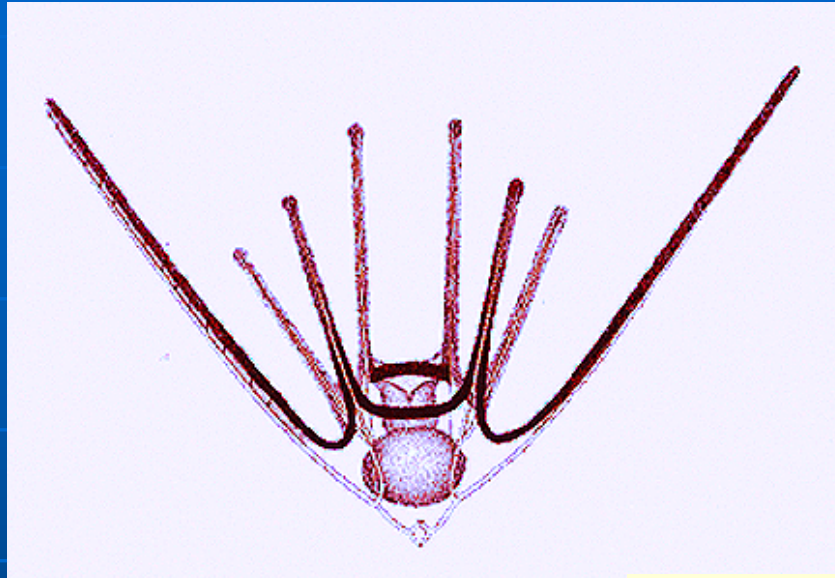
Alima larva (阿利玛幼体)



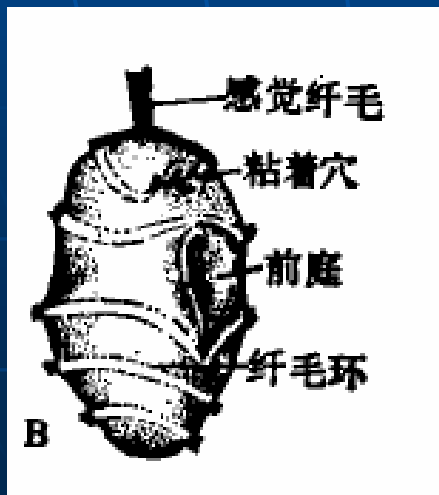
1.8 Echinodermata (棘皮动物)



bipinnaria larva
羽腕幼虫



ophiopluteus larva
长腕幼虫

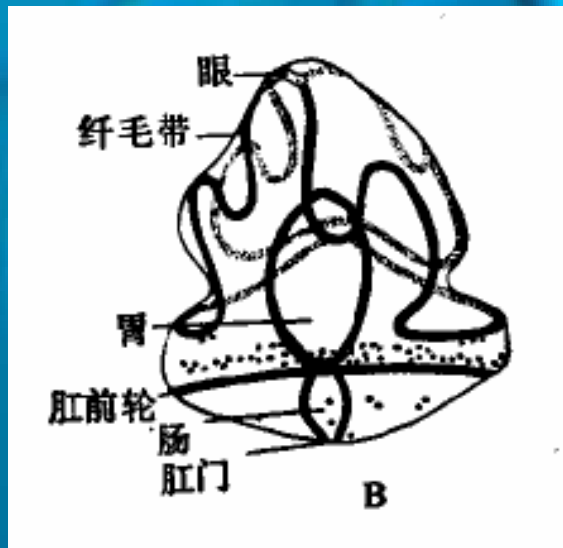


doliolaria larva
樽形幼虫

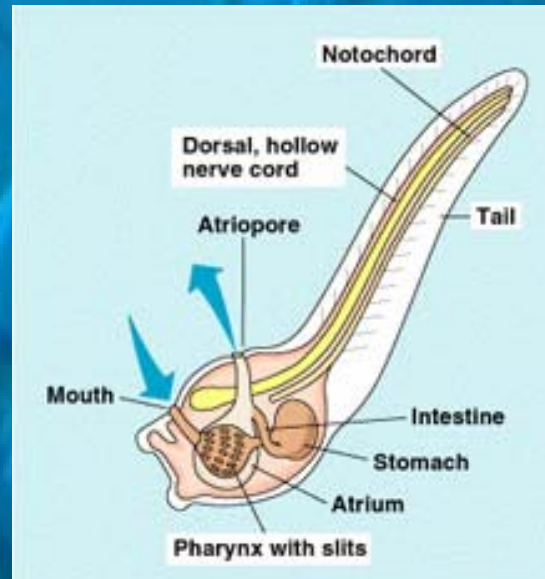


1.9 Chordata (脊索动物)

Hemicorda (半索类)



tornaria larva
柱头幼虫



Urochorda (尾索动物)

tadpole larva
蝌蚪幼虫

Fish

fish larva
仔鱼



2 Larval Ecology

2.1 Ecological Group of Planktonic Larvae

Meroplankton

Holoplankton

2.2 Ecological Characters of Planktonic Larvae

Periodicity (出现的周期性)

Transient (出现的短期性)

Patchy Distribution (分布的不均匀性)

2.3 Distribution of Planktonic Larvae

2.3.1 Horizontal Distribution (水平分布)

The biomass is greater in neritic waters than in oceanic waters.

Its abundance is greater in tropical than in polar sea.

Swarming of larvae.

2.3.2 Vertical Distribution (垂直分布)

light, age, other factors

Each developmental stage has its own reaction to optimum light intensity.

The older the animal, the deeper is its vertical distribution.

diurnal vertical distribution

2.3.3 Seasonal Distribution (季节分布)

In spring, summer and autumn, when the breeding of animal is in full swing, the larvae are abundant both in diversity and quantity, forming the predominant portion of the plankton community.

The seasonal distribution of pelagic larvae is affected by environmental factors, such as temperature and food. The internal factor of periodicity of reproduction is also responsible for the seasonal variation in species composition and abundance of pelagic larvae.

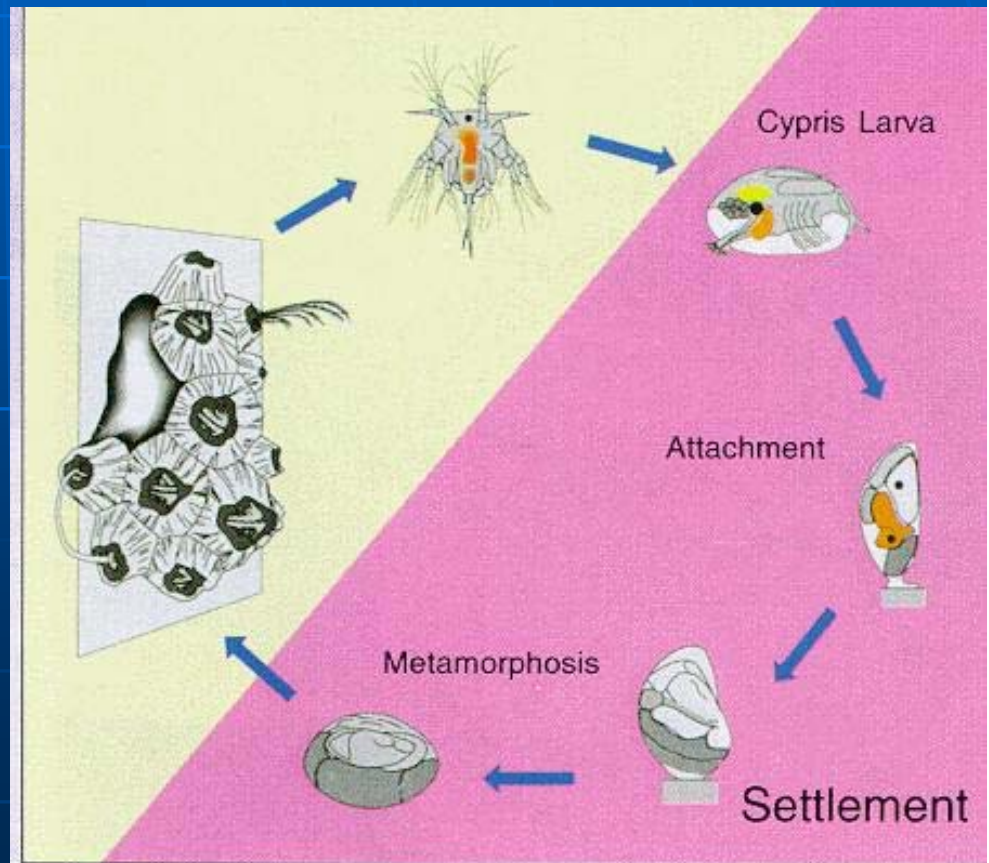
3 Biology of Planktonic Larvae

3.1 Growth and Development

temperature, salinity, food, light intensity
and antibiotics

3.2 Settlement and Metamorphosis

3.2.1 Settlement (附着)



Life Cycle of Barnacle

3.2.2 Metamorphosis (变态)

The importance of substratum for metamorphosis

Factor affecting metamorphosis

Temperature

Ion concentration

Amino acid

Other factors

