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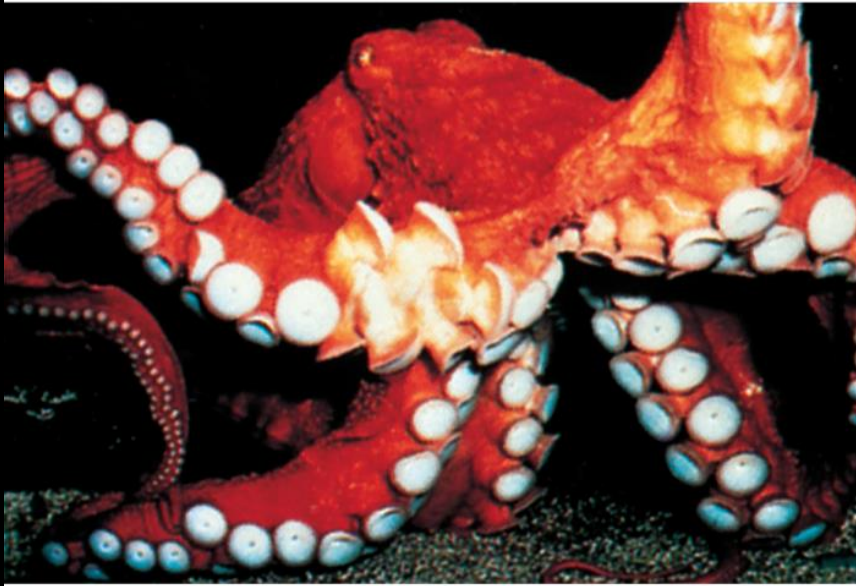
Have You Wondered?

1. What role sponges play in marine ecosystems?
2. Why some animals are radially symmetrical?
3. If all gelatinous animals are jellyfishes?
4. What flatworms are?
5. What a lophophorate is?

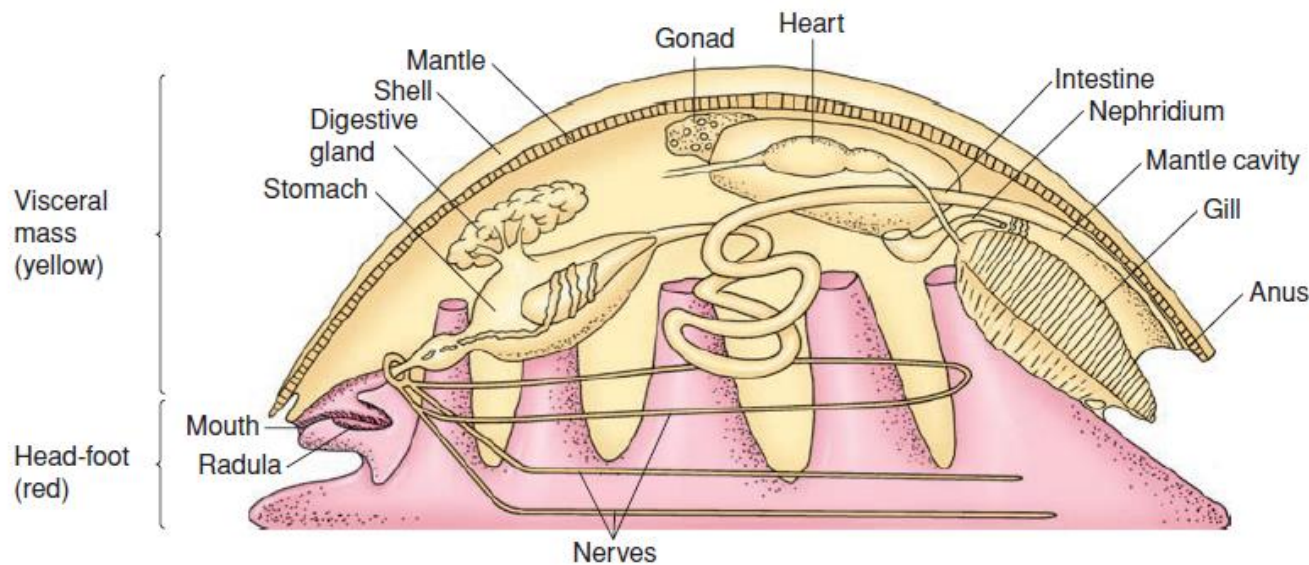
Molluscs



Molluscs



Molluscs



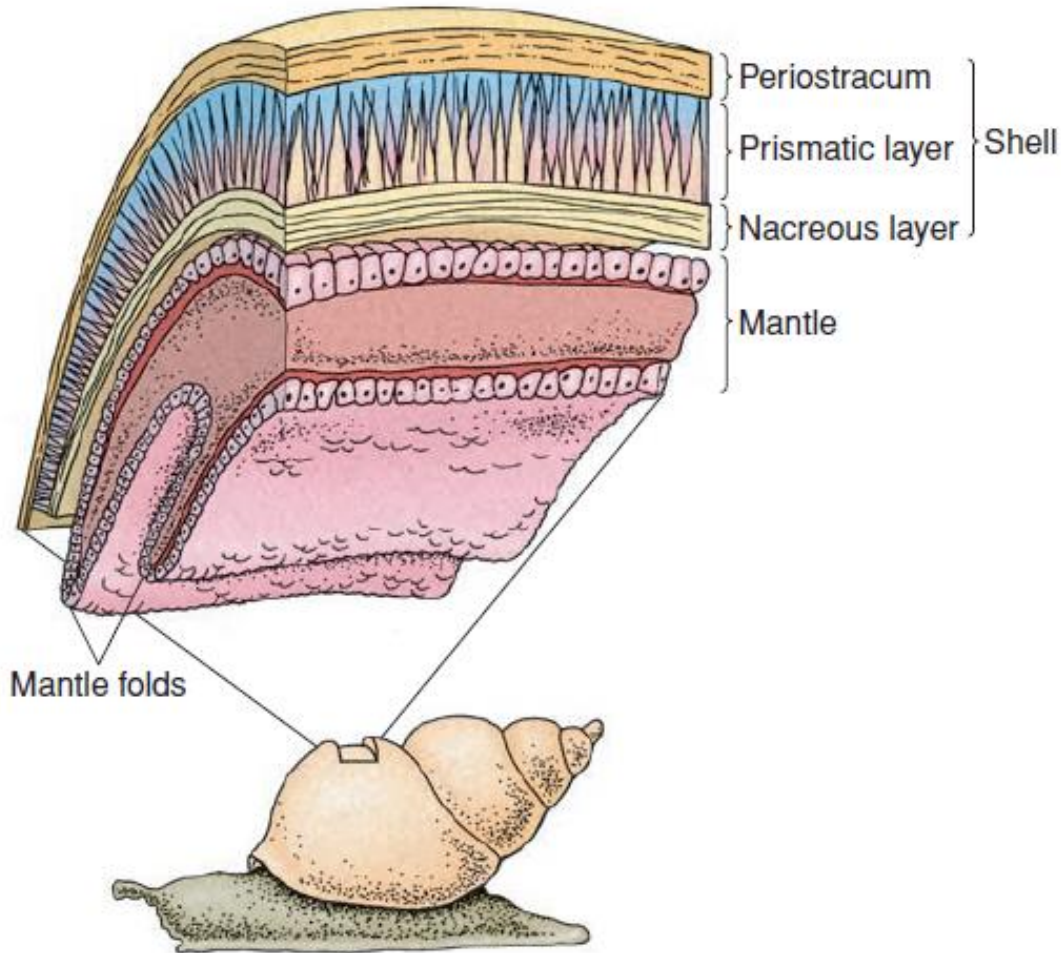
The ***mantle*** is the part of a mollusc's body that secretes the shell.

The ***radula*** is a ribbon of tissue that contains teeth. It is unique to molluscs.

GLOSSARY

■ Head foot and visceral mass

Shell

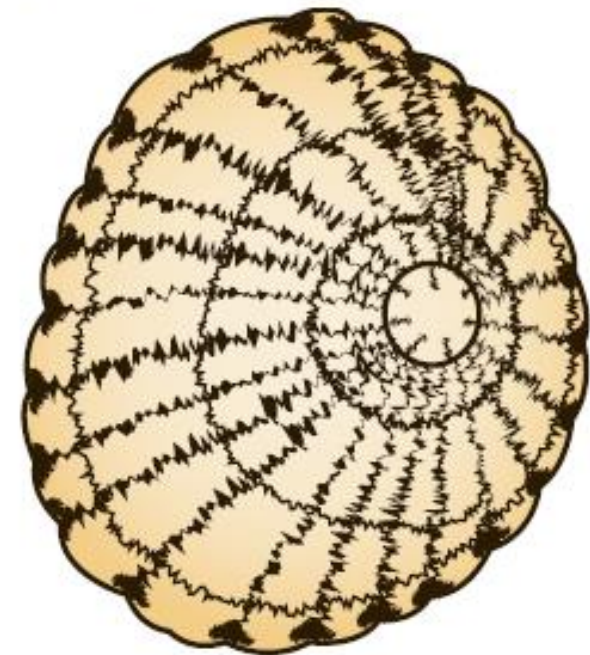
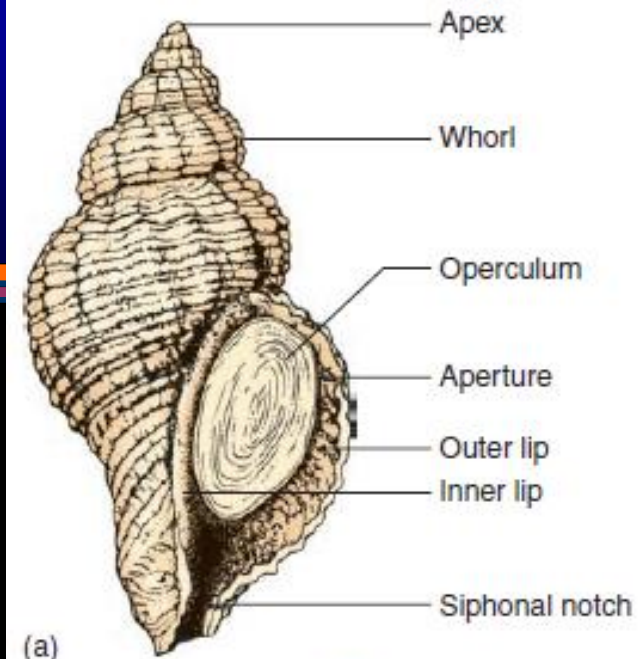


- The molluscan shell is secreted by the mantle and normally comprises three layers
- The nacreous layer of oysters is also known as **the mother-of-pearl layer**.

Chitons



Gastropods

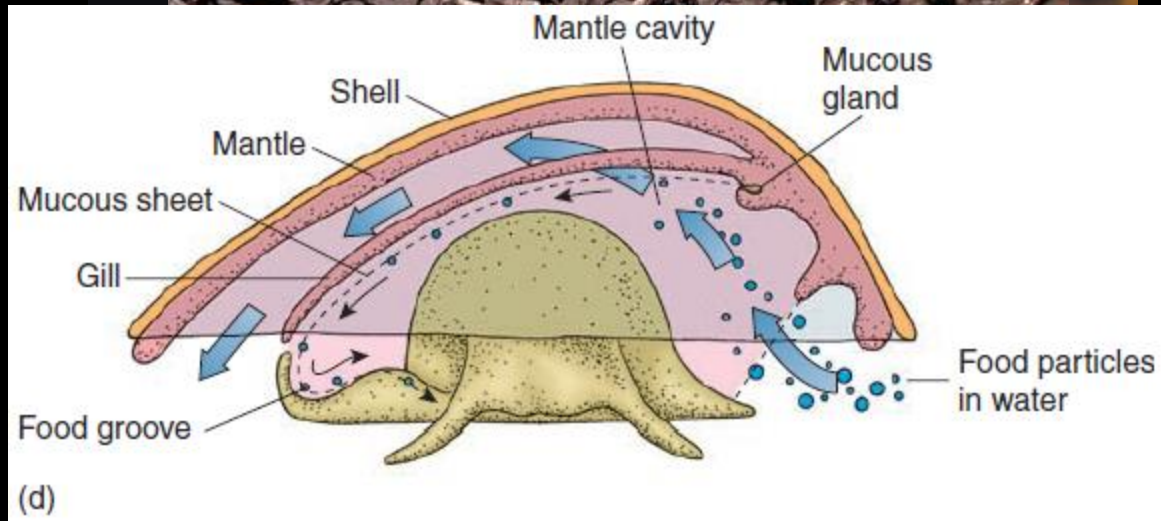
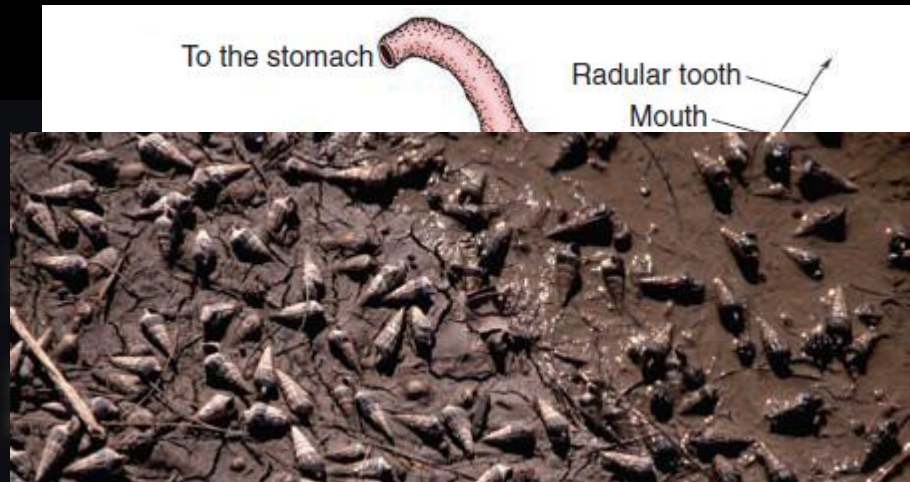


Feeding and Nutrition

- *Herbivores*
- *Carnivores*
- *Scavengers and Deposit Feeders*
- *Filter Feeders*

A *deposit feeder* is an animal that feeds on the organic material in bottom sediments.

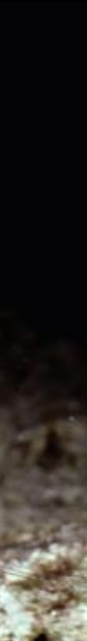
GLOSSARY



Deadly Snails and Medicine

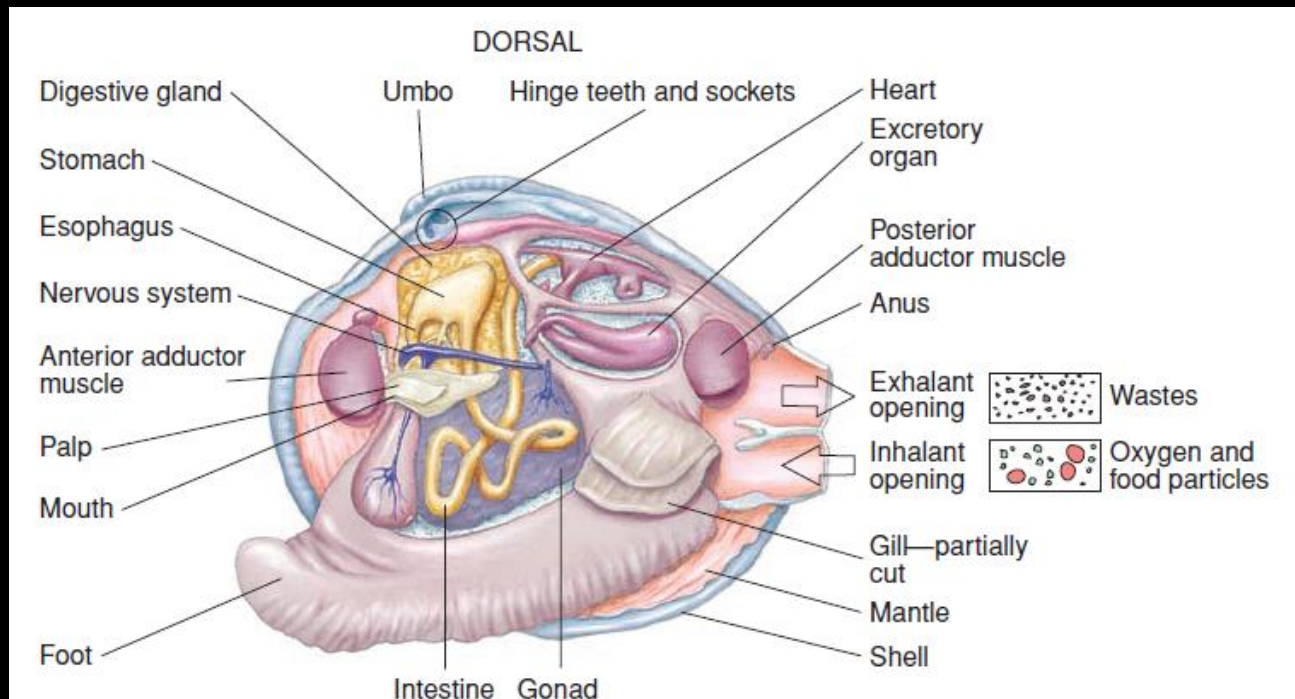


■ C



Bivalves

- Bivalves (class Bivalvia) are molluscs that have shells divided into two jointed halves called valves. This group includes **clams, oysters, mussels, scallops, and shipworms.**



Bivalves



- Deposit Feeder and Filter Feeder
- Soft-Bottom Burrowers—Geoduck

Geoduck



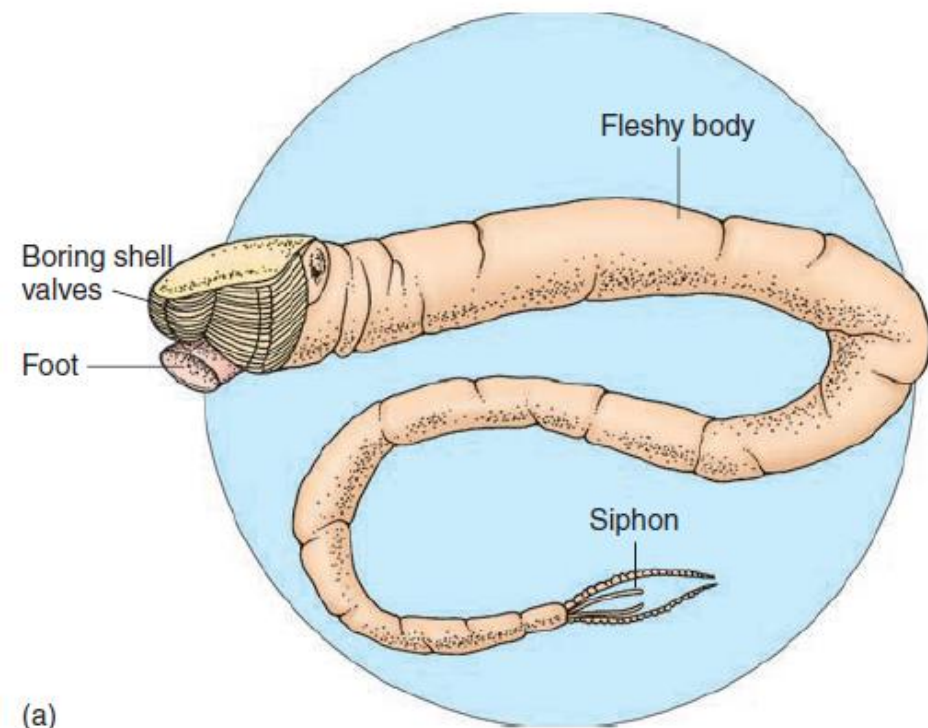
Bivalves



- Deposit Feeder and Filter Feeder
- Soft-Bottom Burrowers—Geoduck
- Attached Surface Dwellers
- Unattached Surface Dwellers
- Boring Bivalves-Shipworms

Queen Scallop Swimming





The Shape of Life: Molluscs



Cephalopods



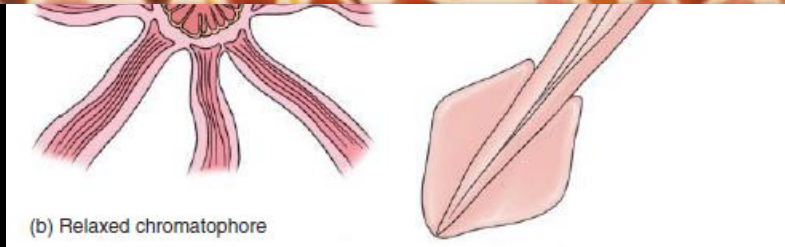
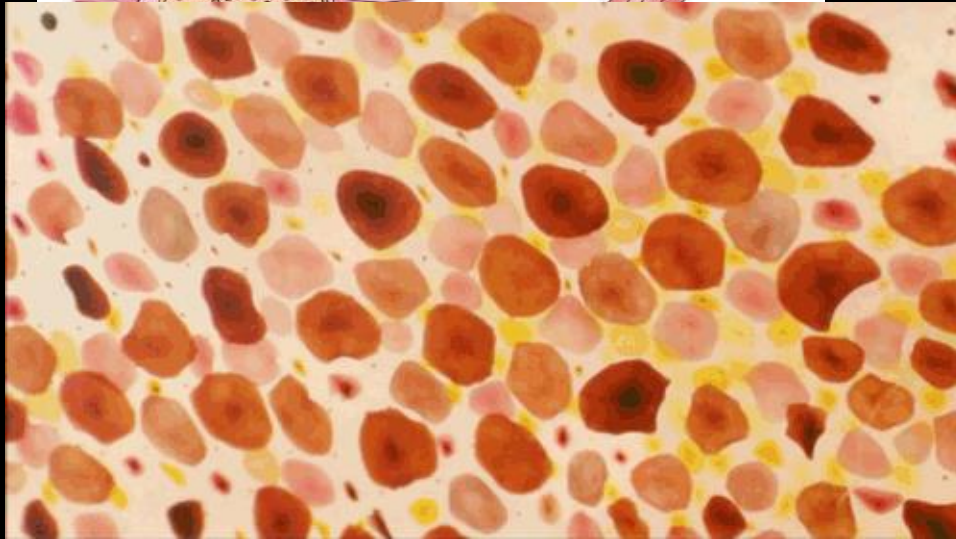
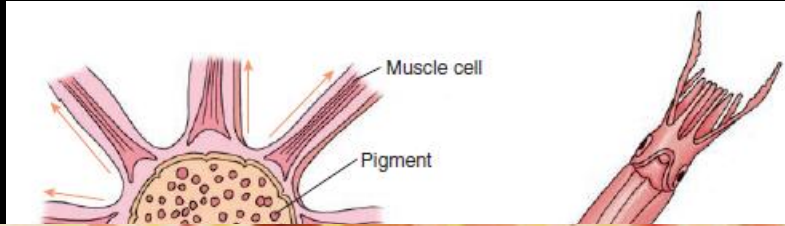
- Molluscs such as the octopus, squid, and cuttlefish are *cephalopods*.
- Nautiloids—*Nautilus*
- Coleoids:
Cuttlefish;
Squid ,
Octopods,

Cephalopods

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Color change in Cephalopods



Blue ring Octopus

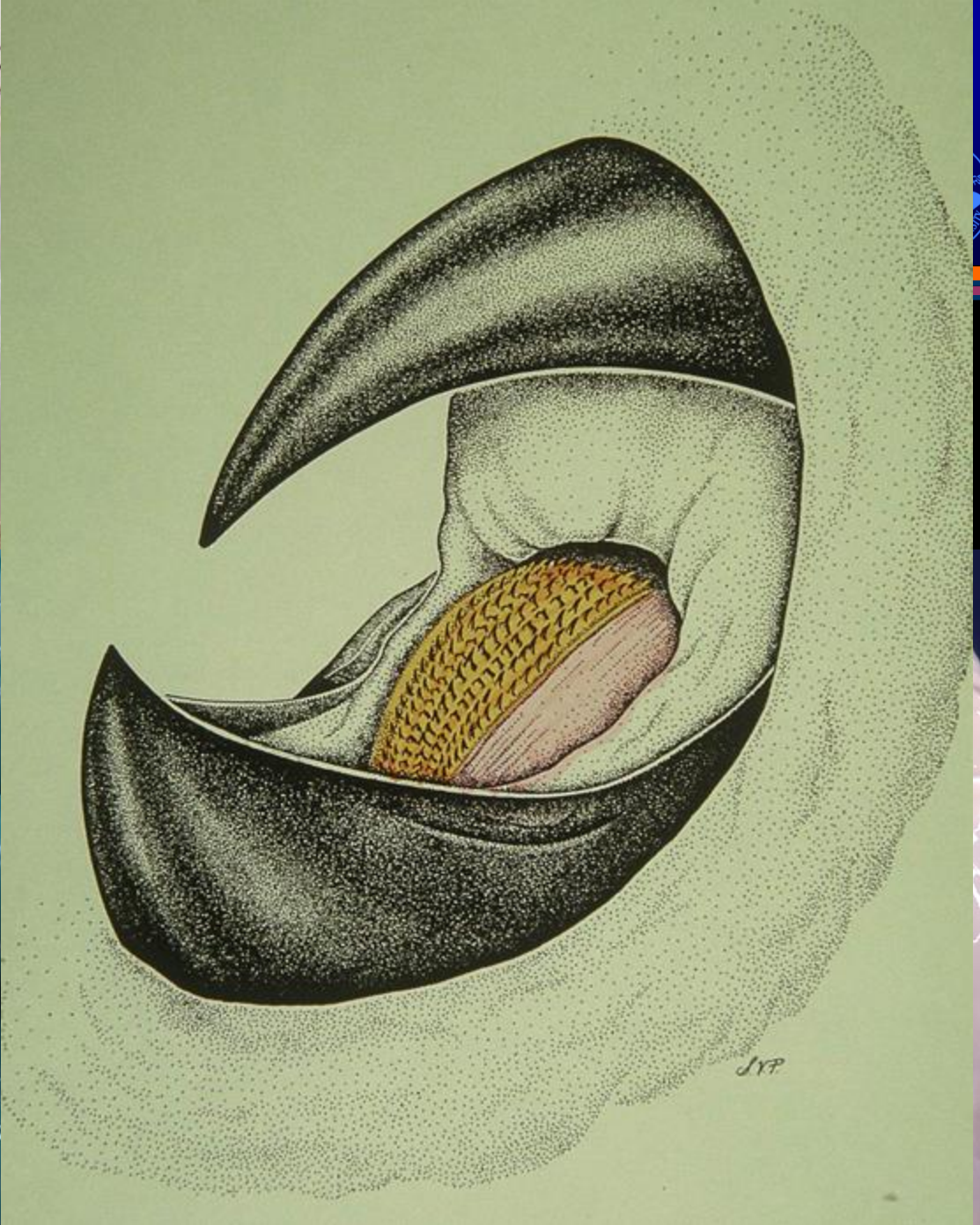


Cuttlefish



Color and Shape Changes





Feeding



Feeding



Reproduce



Ecological Role



- Molluscs are important to humans as well as to other animals as food, and snail shells are a major source of calcium for some marine birds.
- According to one study, sperm whales alone consume as large a mass of squid as humans do of all species of fish combined.
- Other molluscan foods include clams, oysters, mussels, abalone, conch, and scallops. The shells of many molluscs provide habitat for other species.

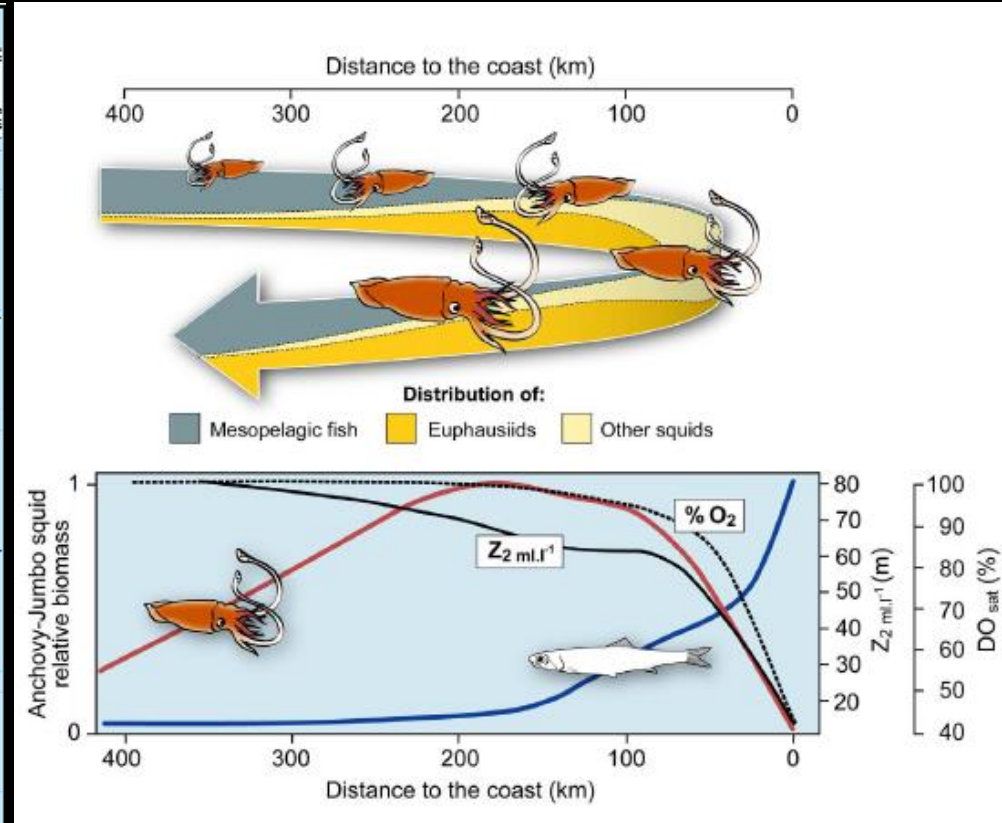
Ecological Studies



Ecological Studies



Ecological Studies



Arthropods



- Arthropods represent the most successful group of animals in the animal kingdom, and almost 75% of all identified animal species (most of them insects) belong to this phylum.
- Several factors contributed to the enormous success of marine arthropods, including the evolution of a hard exterior, jointed appendages, and sophisticated sense organs.

Arthropods



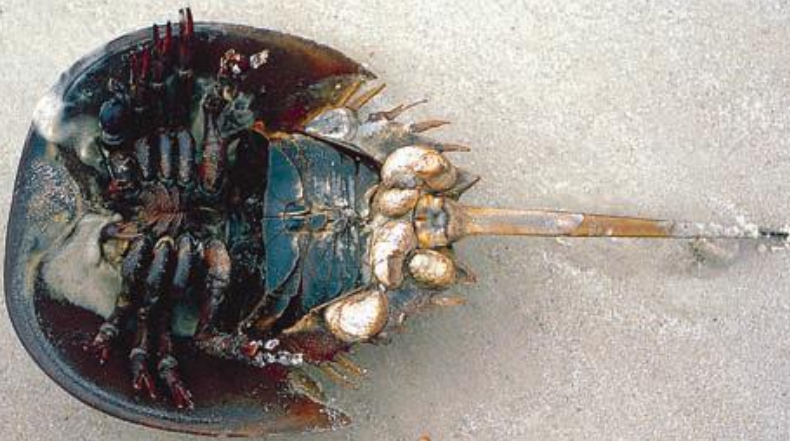
- There are two major groups of marine arthropods: chelicerates and mandibulates.

The ***mantle*** is the part of a mollusc's body that secretes the shell.

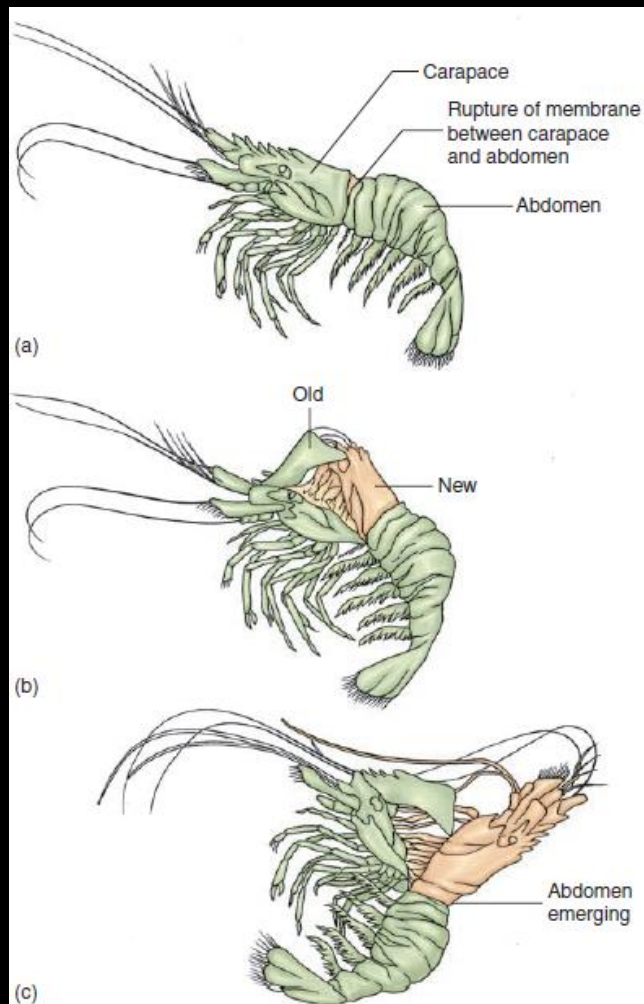
The ***radula*** is a ribbon of tissue that contains teeth. It is unique to molluscs.

GLOSSARY

Chelicerates



Mandibulates-Molting



Decapods

- Crabs, lobsters, and true shrimp are called decapods.



- Being Scavengers and Feeding on detritus.

Hermit Crab

BBC



Lobster



Coming up on Jonathan Bird's Blue World, Jonathan meets some

Mantis Shrimp



Krill



Polychaete- Bobbit worm



Copepods

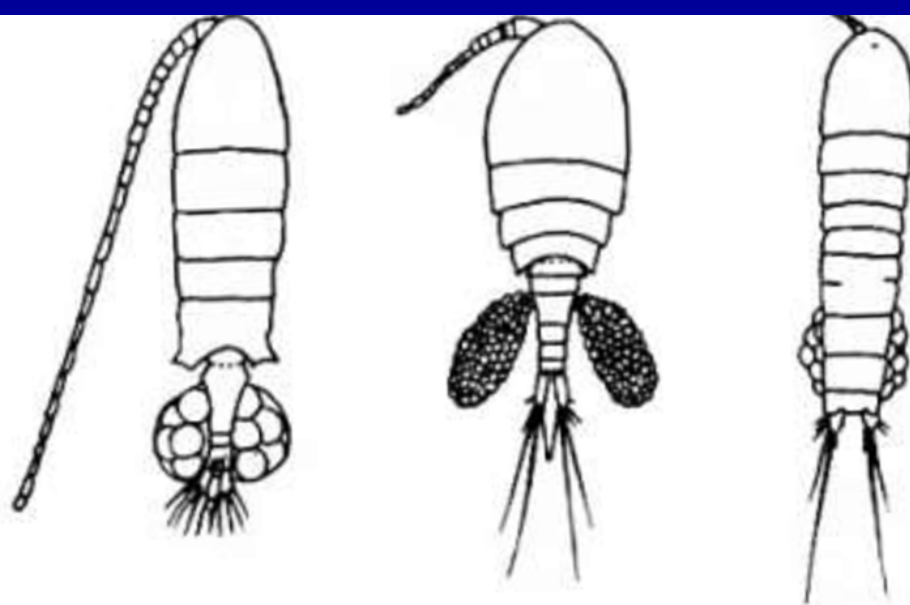
- *Copepods* are the largest group of small crustaceans. Marine copepods exist in enormous numbers and are usually the most abundant members of the marine *zooplankton*.



Copepods



- *Copepods* are major food source for several species of commercially valuable fishes, as well as some whales, sharks, and birds.
- Most planktonic copepods live in the upper 50 meters of the sea, many species live at greater depths, even in the deep sea.
- Vertical movement is oriented by light, and many species exhibit daily vertical migrations.
- Planktonic copepods are chiefly suspension feeders, feeding on **phytoplankton**, although some rely heavily on detritus as well.



	哲水蚤目	剑水蚤目	猛水蚤目
体形	前体部宽于后体部	前体部宽于后体部	前体部、后体部略等宽
活动关节	明显,第五胸节与生殖节间	明显,第四与第五胸节间	不明显,如有在第四五胸节间
卵囊	一个(许水蚤除外)	二个	一个
生活方式	主要浮游生活	主要浮游生活	以底栖生活为主
第一触角	23~25 节,长度超过后体部。最长可超过尾刚毛之末端。雄一侧变为执握器。	长度适中, 6~17 节组成, 长达 1/3 头节至头胸部末端之间。雄左右皆为执握器。	最短, 5~7 节, 仅为头节长的 1/5, 最长也不超过头节末端。雄左右均为执握器。

Arrowworms

- Arrowworms are all carnivorous and feed on other planktonic animals, particularly copepods, which they detect from the vibrations the copepods make.



Marine Arthropods



Molluscs that have shells composed of eight plates held together by a fleshy girdle are

- A. Snail
- B. Bivalves
- C. Scaphopods
- D. Cephalopods
- E. Chitons

Molluscs that have tentacles and a highly developed nervous system are

- A. Scallop
- B. Shipworm
- C. Nudibranch
- D. Oyster
- E. Surf clam

Which of the following adult animals is likely to be a member of the zooplankton?

- A. Crab
- B. Squid
- C. Sea star
- D. Larvacean
- E. Sea cucumber