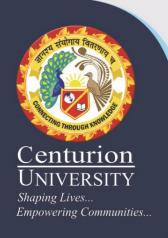


## Circulatory system of commercially important crustaceans and molluscs

Dr. Amrutha Gopan Assistant Professor School of Fisheries Centurion University of Technology and Management Odisha



## SHRIMP

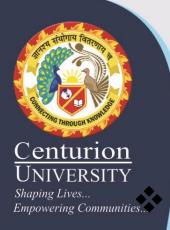
The heart of the white shrimp has three pairs of small openings known as ostia.

Through these ostia, the blood flows into the heart from the surrounding area, which is termed the pericardial sinus, or pericardium.

Valves prevent the blood from leaking out through the ostia as the heart contracts. Centurion UNIVERSITY Shaping Lives... Empowering Communities... Instead, the blood is driven into major arteries, most of which run forward to supply blood to the sense. organs and to vital organs within the cephalothorax.

However, the sternal artery runs to war ventral region of the shrimp, where it gives rise to a ventral thoracic artery that supplies blood to the thoracic appendages and to the thoracic portion of the ventral nerve cord.

The dorsal abdominal artery leaves the heart posteriorly and supplies blood to the gut, the abdominal muscles, and the abdominal portion of the ventral nerve cord.





In a crab, circulation of blood takes place much as in a shrimp or lobster.

- Arteries carry blood dorsally from the heart forward into the head and viscera and backward into the abdomen.
- ✤ A sternal artery carries blood ventrally, where main branches direct it both forward and back.
- Further branching of main arterial vessels leads the blood into thin walled capillaries, where exchange of gases and foodstuffs between blood and tissues can occur.

Centurion UNIVERSITY Shaping Lives... Empowering Communities...

- The blood collects in venous sinuses, goes to the gills, and then enters the pericardial sinus surrounding the heart.
- Here, when the heart relaxes and its three pairs of ostia open, the blood enters the heart.
- In keeping with the breadth of a crab's body, the heart is broad, filling much of the pericardial sinus, or pericardium.
- ✤ In the small tail of a crab, the ventral abdominal artery is of relatively small size compared with the same artery in the muscular tail of a lobster.



Shaping Lives... Empowering Communities...

## **SEPIA**

- The blood vascular system is well developed with a complete separation of venous and arterial blood.
- It consists of the heart, arteries, veins, and a system of capillaries.
- There are three hearts in Sepia, as in all the dibranchiate cephalopods.
- The systemic or arterial heart lies in the middle of the visceral mass enclosed in the pericardium.

Centurion UNIVERSITY Shaping Lives... Empowering Communities...

- It consists of a thick-walled median ventricle, and two thin walled lateral auricles, all spindleshaped
- The ventricle is slightly constricted into two lobes;
- ✤ It supplies arterial blood through a large anterior or cephalic or oral aorta and a small posterior or aboral aorta, to the anterior and posterior regions of the body, respectively.
- The aortae branch into arteries which lead into a system of capillaries and then into veins.