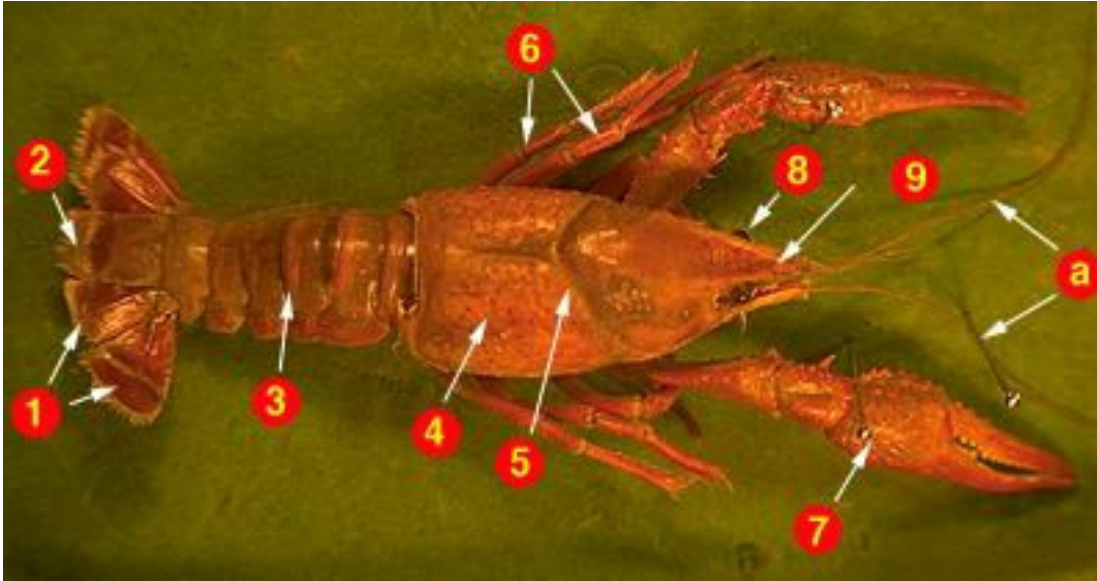


## Crayfish Dissection

Dorsal View:

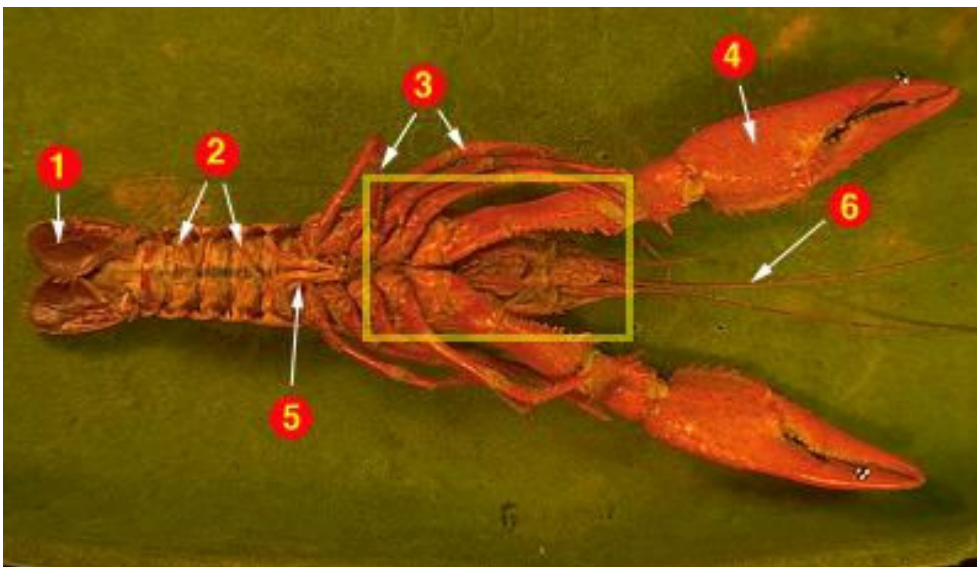


- 1) These are the crayfish's uropods. It has two pairs of these appendages.
- 2) This is the crayfish's telson, the posterior-most extension of the last body segment. It, in combination with the uropods, is used in rapid, backwards escape swimming.
- 3) This is the crayfish's abdomen.

Its paired appendages are the swimmerets and the uropods.

- 4) This is the crayfish's cephalothorax. It is covered with a heavily mineralized carapace that offers some protection from predators.
- a) This is the crayfish's left long antenna, a sensory organ.
- 5) This is the cephalic groove, a lateral seam in the carapace between the head and thorax regions.
- 6) These are two of 8 (4 pairs) of walking legs. Each walking leg has an attached gill that occupies the animal's branchial chamber.
- 7) This is the crayfish's left cheliped. These appendages are used for defense and food handling.
- 8) This is the crayfish's left eye.
- 9) This region of the carapace is called the rostrum.

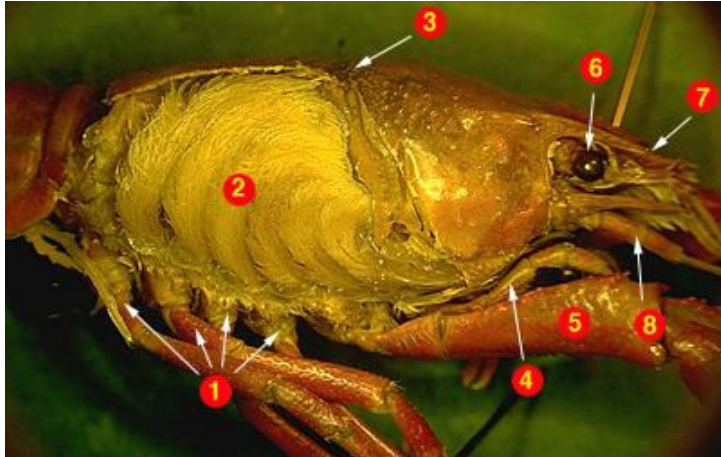
Ventral View:



- 1) These are the crayfish's uropods. It has two pairs of these appendages.
- 2) These are the crayfish's swimmerets. There are five pairs of these appendages.
- 3) These are the crayfish's walking legs. There are four pairs of these appendages.
- 4) This is the crayfish's right cheliped. These appendages are used for defense and food handling.
- 5) This specimen is a male. Its first two pair of

swimmerets are elongate and form a sperm transfer organ. In females, the first two pairs of swimmerets are unmodified.

- 6) This is the crayfish's right long antenna, a sensory organ.

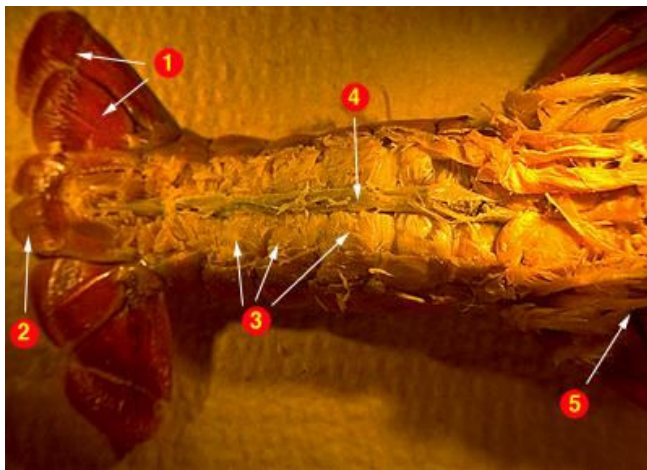


**Branchial Chamber:**

- 1) The arrows show where the gills are attached to each of the five pairs of walking legs.
- 2) The carapace covering the right branchial chamber has been removed showing the gills. Water is drawn into the posterior end of this chamber, flows across the gills, and leaves via the anterior end.
- 3) This is the cephalic groove, a lateral seam in the carapace between the head and thorax regions.
- 4) The arrow points to the right third maxilliped.
- 5) This is the crayfish's right cheliped. These appendages are used for defense and food

handling.

- 6) This is the crayfish's right eye.
- 7) This region of the carapace is called the rostrum.
- 8) This is the crayfish's right long antenna, a sensory organ.

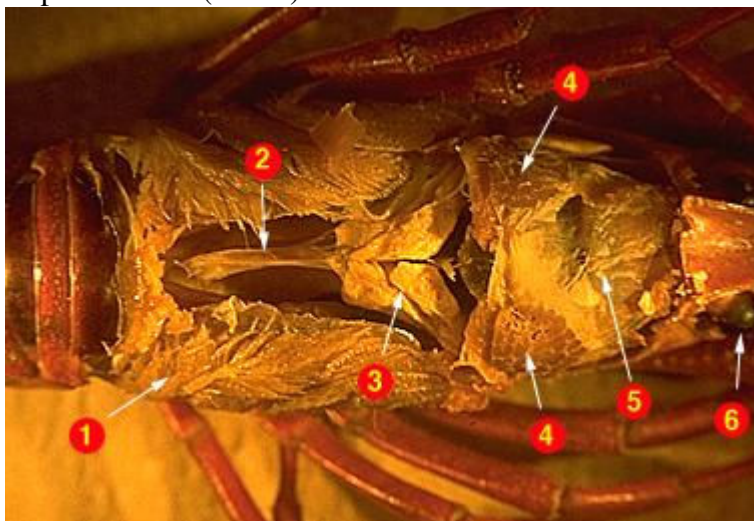


**Abdomen (Dorsal View):**

- 1) These are the crayfish's uropods. It has two pairs of these appendages.
- 2) This is the crayfish's telson, the posterior-most extension of the last body segment. It, in combination with the uropods, is used in rapid, backwards escape swimming.
- 3) These are the crayfish's abdominal flexor muscles. They provide the major force for rapid backwards swimming by flexing the tail.
- 4) These are the crayfish's intestine.
- 5) The arrow points to the posterior portion of the

crayfish's right branchial chamber.

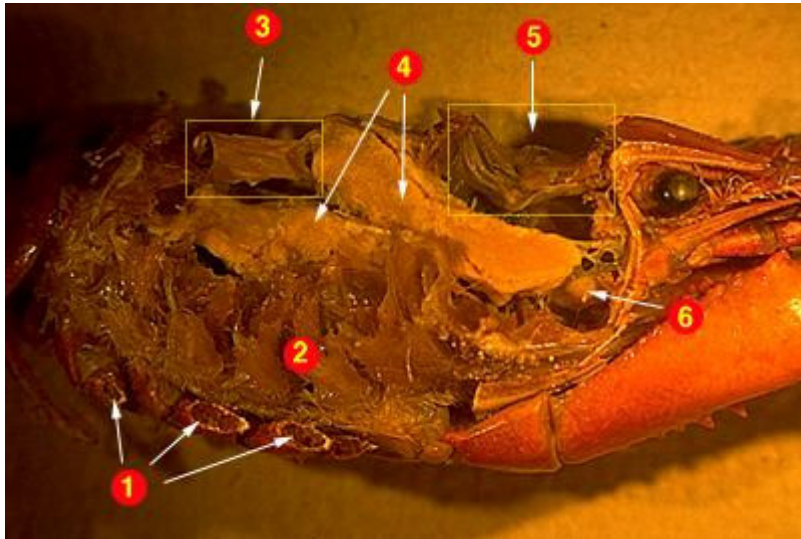
**Cephalothorax (dorsal)**



- 1) The arrow points to a gill within the exposed branchial cavity.
- 2) The arrow points to the crayfish's heart.
- 3) The arrow points to a portion of the crayfish's hepatopancreas gland.
- 4) The arrow points to the mandibular adductor muscle. It was attached to the inner surface of the carapace. It's contraction causes the mandibles to come together.
- 5) The arrow points to the gastric stomach, the portion of the digestive system containing the gastric mill, a chitinous arrangement of teeth, files, and sieves used to grind up the food.



6) The arrow points to the crayfish's right eye.



### Cephalothorax (lateral view)

The arrows point to the cut bases of walking legs 3, 4, and 5.

This is the right branchial chamber. The gill filaments have been trimmed to reveal deeper structures.

The arrow points to the heart. Click within the yellow rectangle to see an isolated crayfish heart.

4) The arrow points to a portion of the crayfish's hepatopancreas gland.

5) The arrow points to the stomach. Click within the yellow rectangle to see a dissection of the gastric mill within the cardiac portion of the stomach.

6) The arrow points to a green gland. These osmoregulatory organs secrete excess water and ammonia. The filtrate exits via the renal pore.

### Dissection Procedure

Obtain a preserved crayfish and place it in your dissecting pan. The body is divided into an anterior cephalothorax (fused head and thorax) and a posterior abdomen (see Figure 6). The chitinous exoskeleton protects the crayfish from predators. The carapace is a saddlelike covering over the cephalothorax. A transverse groove separates the fused head from the thoracic region. The rostrum is an anterior, pointed extension of the head. The abdomen consists of several segments and is terminated by the telson. Examine the appendages. The appendages are modified to serve a variety of functions: feeding, walking and swimming. Although male and female crayfish have an equal number of appendages, in male crayfish the appendages joining the thorax have been modified. They are elongate and can be brought together to form a troughlike channel, used for the transfer of sperm from the male to the seminal receptacles of the female. Use Figure 6 to assist you in determining if your specimen is a male or a female.

Position the crayfish dorsal side up. Using a pair of scissors, remove the carapace from the thorax by cutting along the mid-dorsal line anteriorly to the rostrum (refer to Figure 6). Carefully cut the carapace away along the side of the thorax; do not disturb any of the underlying organs.

The organs of the digestive system are illustrated in Figure 6b (internal anatomy of the crayfish) below. The mouth (not visible at this time) leads via a short esophagus to the large stomach which occupies most of the anterior region of the cephalothorax. Open the stomach and locate the chitinous teeth that form the gastric mill which is used to grind food. The intestine runs from the stomach through the abdomen ending at the anus. The large yellowish digestive gland, which secretes enzymes and stores food, occupies much of the area lateral and posterior to the stomach.

The gonads (testes or ovaries) are lateral to the proximal portion of the intestine. Testes are generally white and ovaries orange. Sperm from the testes exit the body through a pore at the base of the fifth pair of walking legs, and eggs are released at the base of the third pair of walking legs. During reproduction, males and females copulate and sperm cells are passed to the genital openings of the female. Fertilization is internal, and fertilized eggs are extruded and retained for maturation of the swimmerets (the appendages associated with the abdomen) of the female.