



## **Crayfish dissection internal anatomy**

Crayfish Surgical Objective: Identify the external anatomical characteristics of typical crustaceans. Describe the appearance of various organs that make up the crayfish system Describe how crayfish can move and get food. Click HERE for Crayfish Lab Companions (will give you some information about what to look for when you take your lab quiz) REQUIRED INGREDIENTS: crayfish preserved disinfecting sacks of tray tweezers probe glass magnifying Crayfish Phylogeny: Kingdom Animalia Phylum Arthropoda Class Malacostraca Order Decapoda Family Cambaridae Genus Procambarus Species Procambarus Clarkii CRAYFISH BACKGROUND INFORMATION: Like all crustaceans, the crayfish has a rather harsh exoskeleton that covers its body. The exoskeleton consists of a nitrogen-based carbohydrate polymer known as chitin. These polymers are available in many different organisms in the natural world, from exoskeleton arthropods to the wall composition of fungal cells. It is a very versatile substance. As shown in the diagram below, the crayfish body is divided into two main parts: Cephalothorax consists of a cephalic (or region of the head) and the thoracic region. Rostrum is the most anterior part of the cephalic region of cephalothorax and will form what is commonly known as brow ridges. The exoskeleton section covering the cephalothorax is called carapace. Cephalothorax is divided into 13 segments. The stomach is located behind the cephalothrorax and consists of six clearly divided segments. Each segment of cephalothorax and stomach will contains 5 pairs of attachments: one pair of attachments (balance organ, touch, and taste) a longer pair of attachments. The cephalothorax and stomach will contain a pair of attachments (balance organ, touch, and taste) a longer pair of attachments. smells) one pair of baths (crushing food by moving from side to side) two pairs of maxillae (holding solid food, ripping it, and passing into the mouth, the 2nd pair helps pull water over the gill) Cephalothorax divided into 8 pairs : The first 3 pairs of maxillipeds of two maxillipeds are used to hold food while eating the last pair of maxillepeds called bailers; this is used to keep the water moving over the gills 1 pair of chelipeds (large nails used for defense and catching food) 4 pairs of walks (locommotion) Diagram below shows all these attachments: 1. antennaul 2. antenna 3. room 4. maxillae 5. 6. 7. maxillipeds 8. Abdominal chelipeds segment known as stomach somites include the following attachments: 5 pairs of swimms (make water current and functions in breeding) 2 pairs of uropods (two on each side of the telson) 1 telson (containing anal) Uropods and telson together making Crayfish capable of moving backwards with with its tail fan. Crayfish Behavior Crayfish, common in flow and tasik, often spout themselves under rocks or balaks. They are most active at night, when they feed mostly on slugs, algae, insect larvae, worms and tadpoles; some eat of the herbs. Dead fish worms, corn, and salmon eggs are also a favorite of keli fish. Studies show that adults (a year old) become most active at sensum times and continue heavy eating activities until daybreak. Younger crayfish are more likely to be those that come out during sunny days, while older crayfish are more active on cloudy days and at night. General movements always go slowly, but when started, crayfish use the rapid hull of their tails to swim backwards and escape danger. Most crayfish lead short lives, usually less than two years. Therefore, rapid breeding of high-handedness is essential for the sustainability of the species. Many crayfish become sexually mature and mate in October or November after they are born, but the preparation and laying of eggs usually occurs in the next spring. The suckled egg is attached to the female swimmer at the bottom of her shared abdomen. There are 10 to 800 eggs changing from dark to lutsinar as they develop. The woman carrying the egg is said to be a berry, because the egg jisim looks like a berry. Females are often seen berry in May or June. Eggs hatch within 2 to 20 weeks, depending on the temperature of the water. Newly hatched crayfish remain attached to their mother until shortly after their second molt. DAY ONE PROCEDURE PART 1: The outer anatomy of Crayfish 1. Put the crayfish on its side in the surgical dulang. Use the stoning image above to look for the cephalothorax and stomach. Carapace, a chitin shield, covers the dorsal surface of the cephalothorax. On the carapace, look for the indent known as cervical grooves. The indent extends throughout the middle and separates the head and thoracic regions of the cephalothorax. 2. Place the clams so that the dorsal side faces up. Use the rajah image above to search for rostrum. Below the rostrum are two eyes, each located at the end of the trunk. Having a snoring eye helps crayfish to see in all directions. This will help them search for predators and allow them to swim for safety. The indent along the dorsal surface is known as dorsal suture. It separates the two carapace. 3. Find five pairs of attachments in the head region. At first look for antennae in the most anterior segments, behind them see a longer pair of attachment of the crayfish. Watch the shower, and two maxillae which is the last attachment of the cephalic crayfish region. 5. On thoracic thoracic parts thoracic observes 3 maxillipeds points. 6. In turn observes a pair of the biggest attachments, most prominent, chelipeds or nails. Sometimes you might see one bigger than the other. Crayfish has the ability to regenerate lost attachments. The smaller ones represent who are still regenerating. Cheliped is divided into three different parts: claws are formed from propodite and dactylopodite. Dactylopodite is a stable part of the non-moving nails. The bottom claw is installed on a divided carpodite and attaches directly to the cephalothorax. 7. Behind the chelipeds are four pairs of walking legs. You can use walking legs as one way to determine your crayfish gender. Find the basic segment is where the legs attach to the body. Use magnifying glass to study the surface in the basic segment of the THIRD-foot couple walking leg. If you observe a crescent moon-shaped illary, you have located a woman's genital pores. In a man, the opening of the sperm channel is on the basic segment of the fourth-leg pair running. This may be difficult to find, so if you can't find it, you can still define your crayfish gender by looking at the next attachment group. 8. At the bottom of the stomach, you will find an attachment known as a swimor. As mentioned earlier, this is used to create current water to feed as well as function in breeding. TWO pairs of male first swimmels longer and sorted underneath and face forward. Men use these swimms to transfer sperm to women. Female swimmers are all relatively small and dainty. He will use this stomach until they hatch. When a female crayfish holds her eggs, it somewhat resembles a bunch of berries, so the term in Berry refers to the woman who breaks her egg under her stomach. See the picture below for help in determining your crayfish gender. Crayfish Di Berry woman CONCLUDES HER EXTERNAL ANATOMY SURGERY. PLEASE PUT YOUR CRAYFISH BACK IN THE CONTAINER. DAY TWO PROCEDURE PART 2: Internal anatomy Crayfish 1. Use one hand to hold the dorsal side of the crayfish inside the disinfection tray, use use to cut carefully through the back of the carapace along the cut line of #1 surgery (as seen below on the diagram). Cut along the indentation that separates the thoracic parts of carapace into three different regions. Make small and shallow cuts so as not to interfere with any structure under carapace. Start the cut on the edge of the carapace posterior, and along both sides in the Region. 2. Use tweezers to carefully lift the corapace. Try not to spoil any of the basic structures while doing this. Be careful not to pull the coral too quickly, such actions will interfere with the underlying structure. 3. Place the crayfish on its side with the head facing left on your tray, as shown in the diagram below. Using scissors, start cut at the base of the #1. Cut along the sides of the crayfish, as described by the #2 are shown below. Extend the cut towards the rostrum at the top of the head. 4. Use tweezers to lift the remaining parts of carapace, reveal basic gills and other organs. Use the diagram below to help you find these organs. 5. Muscles (gastric anterior, bathbular, and pyloric) are muscles used in the process of feeding and grinding foods. Find a digestive gland. This gland produces digestive enzymes to help break down food. The digestive glands are also involved in the absorption of nutrients. 6. Use the diagram below to help you find gills. They are feather-like structures found under carapace and mounted on chelipeds and walking legs. Constant blood flow to gills releases carbon dioxide and takes oxygen that can be found in the water. Structural-like feathers are designed to increase surface areas for more absorption areas. 7. Use the diagram below to help you find the organs of the circulation system. Find the heart of a dorsal tube. It is an shield structure as connected to some small arteries. Crayfish has an open blood circulation system where blood flows from the arteries into a small space in a tissue called sinuses. The gas exchange occurs when the blood flows over the gills before it returns to the heart. 8. To reveal intestine, carefully cut along the stomach towards the tail. Don't cut too deeply or you'll cut into intestine. Carefully peel off the chitinous exoskeleton away from the stomach as seen in the diagram below. 1. Muscle flexor 2. external muscle 3. intestine 4. Walk 5. uropods 6. telson 7. carapace 9. Carefully peel off the exoskeleton bottom from the stomach (an area containing swimmels) to reveal the bottom of the stomach. 10. Use the diagram below to help you find a veiled heart stomach. The heart tail contains several teeth-like clutum. This growth composes the gastric factory used to help grind food for simpler digestion. 11. The digestive journey begins as a bath smashes food into smaller beets that can be brought into the mouth. Food then goes to the stomach in the stomach Mechanical digestion. occurs because the gastric factory corrodes food into smaller beets. Small. the glands then restate the enzymes that will bring nutrients to the tissue. Untested food will then go to intestine that will evict waste that is not tried through anus, Use the diagram below to find intestine, 12. Use the diagram below to help you find ventral nervous straps. The nerve cord is located in the groove at the bottom of the stomach (directly opposite intestine). The ventral nerve cord will run the entire length of the cravitish. It is connected to a primitive brain located in the head region. Note the enlargement of the nervous straps on the lateral side. This is called ganglia (single = ganglion). This will be extended to individual nerves to communicate information to various muscles and organs. You have now concluded crayfish surgery. Please dispose of catfish in the garbage and clean the surgical tools and your area. Getting and completing the crayfish surgical review work. Click HERE for crayfish Surgical Laboratory Quiz (this will give you information on what quizes are available)

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