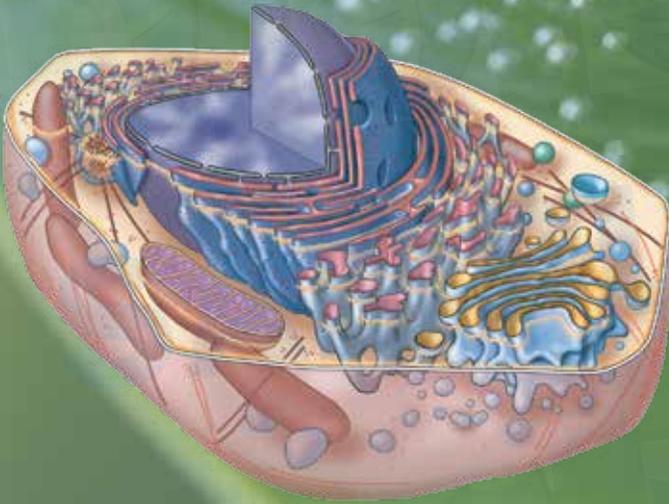


Phylum Chordata



EXPERIMENT 13.1: PERCH DISSECTION

Materials:

- Dissecting tools and tray that came with your dissection kit
- Perch specimen
- Magnifying glass
- Water
- Small bowl

Purpose:

To become more familiar with the anatomy of the perch through dissection

Note:

Dissection tools are SHARP! Also, the course website mentioned in the "Student Notes" section has several pictures of a perch dissection.

Procedure:

1. Examine your specimen. Identify all of the structures indicated in figure 13.9. **Note those found in table 13.1 and list any structures in the figure that you could not identify.**
2. Open the specimen's mouth and examine the teeth. **Write a description of them in table 13.1.**

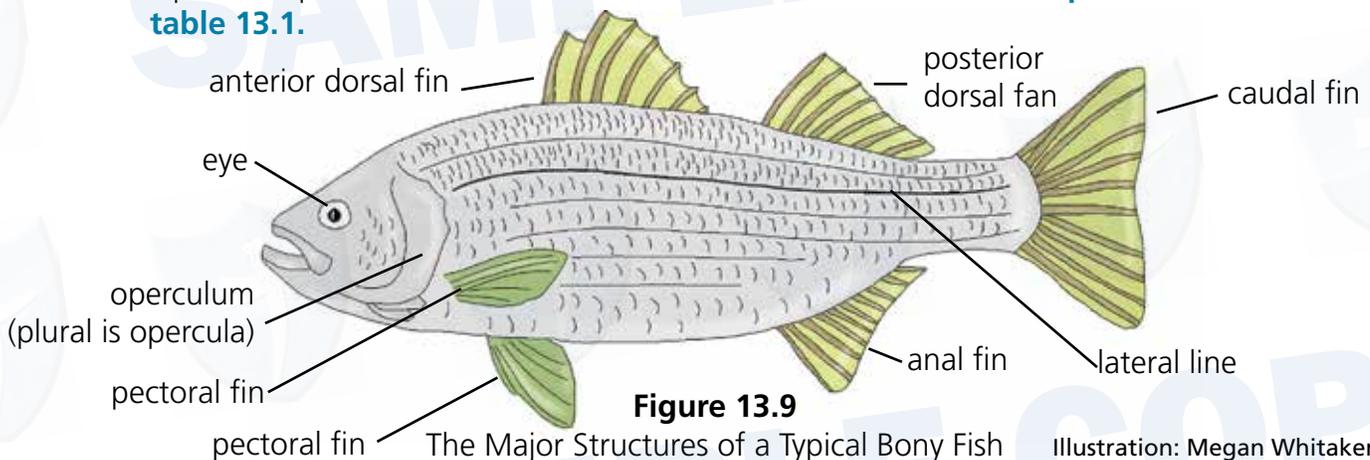
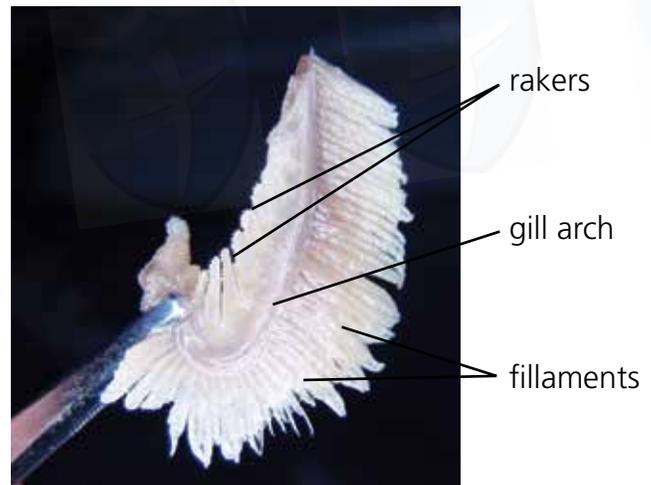
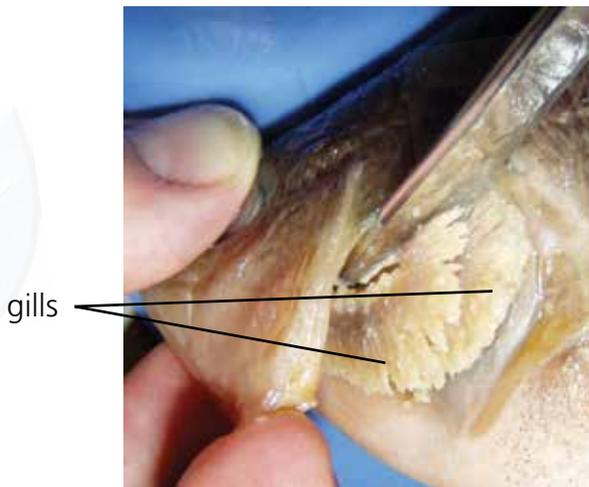


Figure 13.9

The Major Structures of a Typical Bony Fish

Illustration: Megan Whitaker

3. Examine the tongue. Where is it attached to the mouth? **Record this in table 13.1.**
4. Examine the anterior dorsal fin. Fins can be supported by one of two structures: rays or spines. The way to tell the difference is to put your finger on the tip of the supporting structure and push lightly. If the structure bends, it is a ray. If it does not bend, it is a spine. Raise the anterior dorsal fin so that it looks like the anterior dorsal fin in figure 13.9. Now put your finger on the tip of one of the supporting structures and push gently. Don't push too hard, or you will get stuck! Is the anterior dorsal fin supported by rays or spines?
5. Repeat the previous step for all other fins and **record in table 13.1 which are supported by spines and which are supported by rays.**
6. Pull a scale off the specimen and observe it under the magnifying glass. **Draw what you see.** Can you make out the rings? These are growth rings, which show you how the scales grew as the fish grew.
7. Raise the right operculum and use your probe to count the gills. Now do the same for the left operculum. **Record the number of gills on each side in table 13.1.**
8. Using your scissors, cut away the left operculum and remove one set of gills. Place the gills in the bowl and cover them with water. Note the structure. You should be able to see a strong **arch** in each gill. The arch should have a comblike structure on one side and feathery extensions on the other. The "teeth" of that comblike structure are called the **rakers**, while the feathery extensions are called the **filaments**.



Photos: John Skipper

9. **Draw a gill in your laboratory notebook, labeling the arch, rakers, and filaments.**
10. Now you are ready to look at the internal structures of the specimen. To do so, you will make a window cut, which is shown in the photo below step 13. Hold the specimen ventral side up with the head pointing away from you. Use your scalpel to make a cut from just anterior of the anus all the way to the operculum.
11. Turn the specimen so that its left side is facing you and so that the head is pointing left and the tail is pointing right. Now make a new cut from the point at which you left off in the previous step up towards the dorsal fins. Continue until your cut is just above the level of the fish's eye.

12. Make a similar cut from the anus straight toward the dorsal fins until that cut reaches essentially the same level as the cut in the previous step.
13. Lift the body wall and completely remove the flap of body covering by making a final cut with your scalpel that runs from the cut you made in step 11 to the cut you made in step 12. Your fish should look something like the photo below.

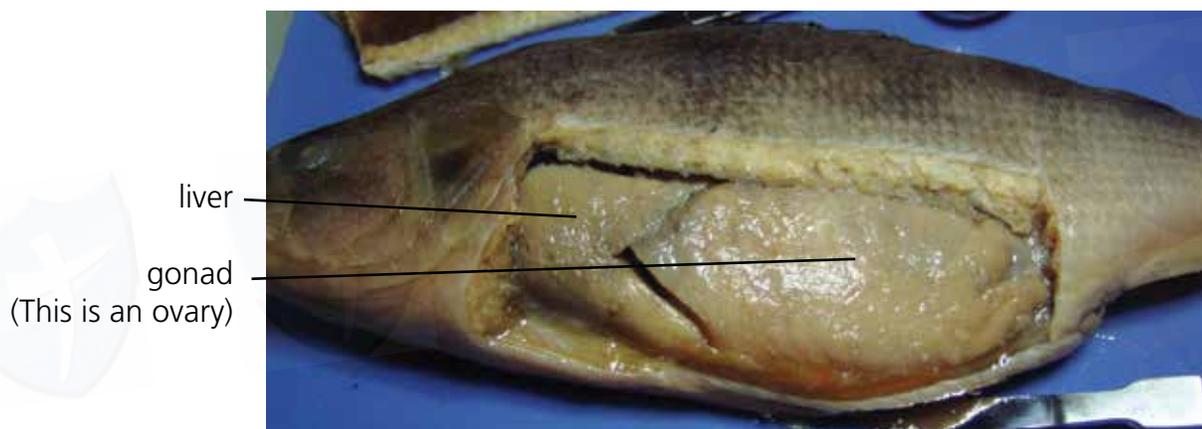


Photo: John Skipper

As shown in the photograph above, you should be able to see the following organs:

Liver – It should be large and lie in the anterior region of the fish.

Gonad – It may not be nearly as large as the one shown above. This female was almost ready to lay eggs, so her ovary is large. If your specimen is a female not ready to lay eggs, her gonad will be smaller. If it is a male, the gonad will be even smaller. **Record the sex of the specimen.**

14. If you gently raise the lobes of the liver, you should see the **gall bladder**, which looks like a deflated balloon, and the **stomach**.



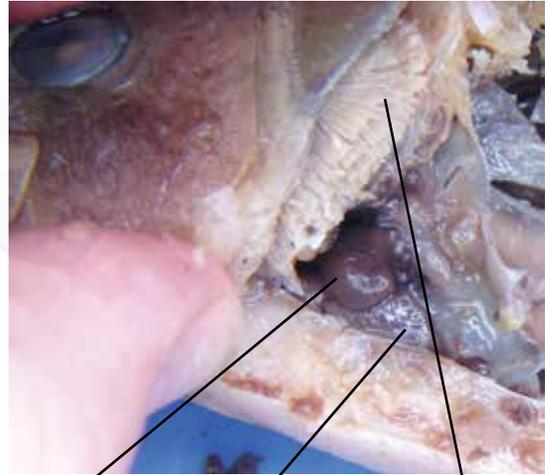
Photos: John Skipper

15. Try to follow the **esophagus**, which runs from the stomach to the gills.
16. Remove the liver, gonad, and stomach by cutting them out. If you want, cut open the stomach once you have removed it and see if you recognize the perch's last meal! You should now be able to find the **intestine** and **air bladder** (see photo on the next page). The air bladder might be popped.

17. You might be able to see strands just ventral to the vertebral column. These make up the **kidney**.
18. Now find the **heart**. Notice that it has two chambers. The upper one is the atrium and the lower one is the ventricle.



stomach intestine air bladder



atrium ventricle gills

Photos: John Skipper

19. It is now time to find the fish's brain. Hold the fish with its dorsal side up and position its head so that it points away from you. Using your scalpel, cut the skin away from the skull.
20. Once you expose the skull, begin scraping it with your scissors to wear away the bone.
21. As the bone gets thinner, start picking it away with your forceps instead of scraping it. If you are careful, you can expose the brain in this manner.



Photo: John Skipper

22. Once the brain has been exposed, look at figure 13.5 and the photo on the previous page to help you identify the following regions of the brain:

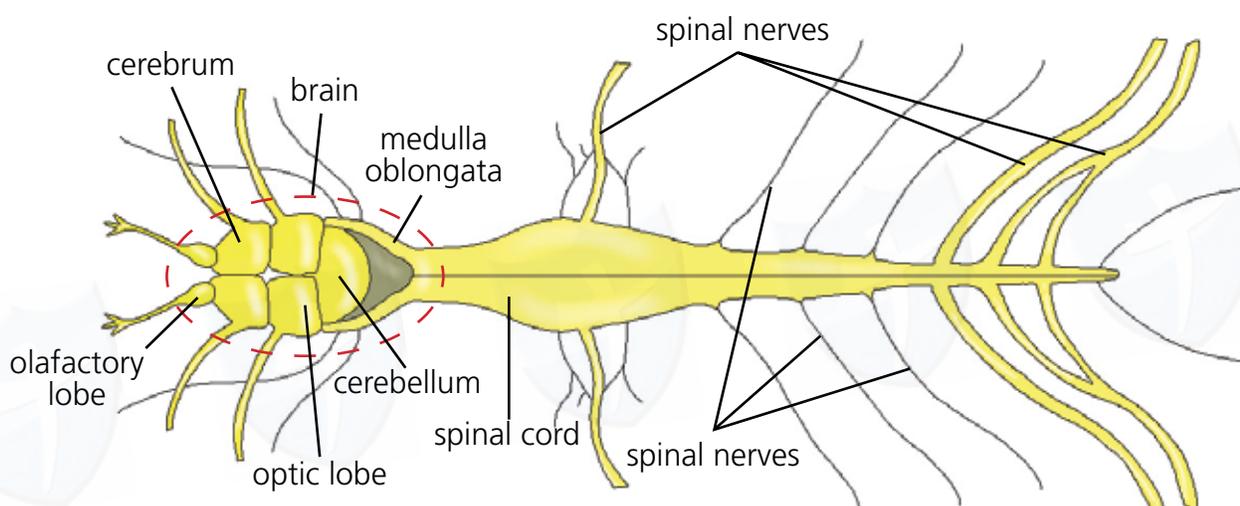


Illustration: Megan Whitaker

Figure 13.5
A "Typical" Vertebrate Nervous System

Olfactory lobes – Two small bulges in the front of the brain

Cerebrum – The two lobes behind the olfactory lobes

Optic lobes – The largest lobes just behind the cerebrum

Cerebellum – A single lobe behind the optic lobes

Medulla oblongata – Just underneath the cerebellum

23. **Draw the brain as you see it in your specimen, labeling all parts that you can identify. List those parts you could not identify.**
24. Clean up and return everything to the proper place.

Note any changes made to the materials or procedure of this experiment here.

Table 13.1

X	ANATOMY	OBSERVATIONS, INCLUDING RELATIVE SIZE OR NUMBER
	Eye	
	Anterior dorsal fin	
	Posterior dorsal fin	
	Caudal fin	
	Lateral line	
	Anal fin	
	Pelvic fin	
	Pectoral fin	
	Opercula	
	Mouth and teeth	
	Tongue	
	Gills	
	Liver	
	Gonad	
	Gall bladder	
	Stomach	
	Esophagus	

Table 13.1

X	ANATOMY	OBSERVATIONS, INCLUDING RELATIVE SIZE OR NUMBER
	Intestine	
	Air bladder	
	Heart	
	Olfactory lobes	
	Cerebrum	
	Optic lobes	
	Cerebellum	
	Medulla oblongata	

Sex of Fish: _____

Drawing of Gill:



Drawing of Gill:

