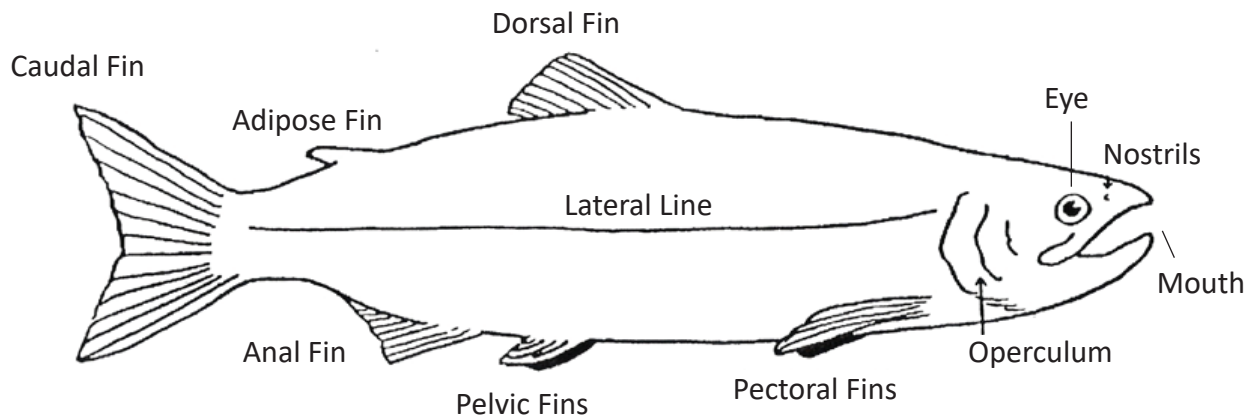


Salmon Anatomy Cheat Sheet





Salmon External Anatomy



Fish use their **EYES** for sight to navigate their aquatic environment. Fish have very sharp vision under water; some can see five meters or more.

Fish use their **MOUTH** to catch and hold food, and breathe. Water is constantly taken in through the mouth and forced out over the gills.

Salmon have a well developed sense of smell. When it's time to spawn, they use their **NOSTRILS** to navigate their way back to the streams they were born in.

The **OPERCULUM** covers the delicate gill filaments, and together with the mouth force water containing oxygen over the gills.

PELVIC FINS help with stability and slowing the fish down. Fish can also use these fins to move up or down.

PECTORAL FINS create lift and helps the fish turn left or right.

Fish don't have ears. Instead they have **LATERAL LINE**, a specialized set of cells, that is used to detected low frequency sound waves in the water.

ADIPOSE FIN is a small fleshy fin which serves no known purpose.

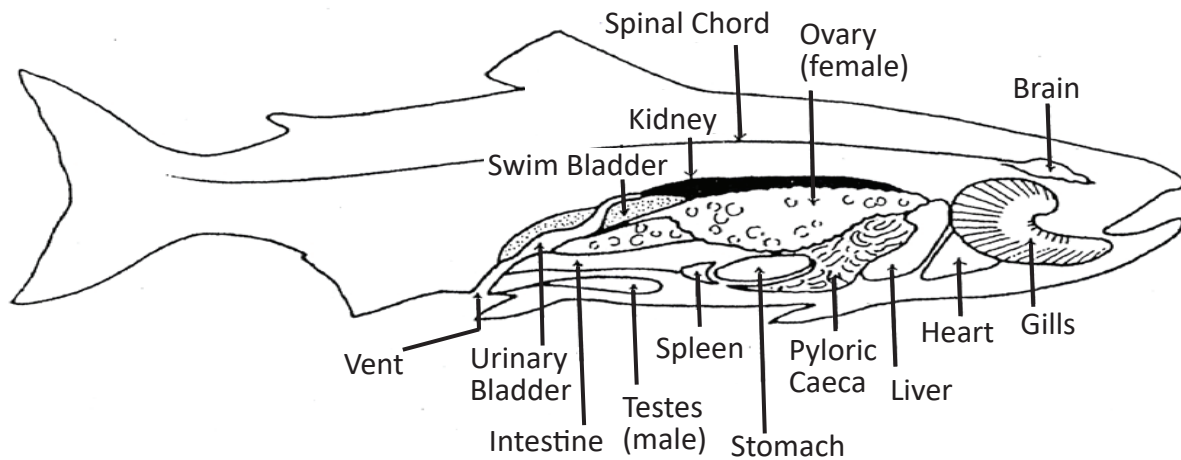
The **DORSAL FIN** helps fish make quick turns or stops. It also helps to prevent rolling.

ANAL FINS act to stabilize the fish and help control rolling motion.

The **CAUDAL FIN** acts as a propeller. Combined with very strong body muscles, fish use their caudal fins to create forward motion and speed.



Salmon Internal Anatomy



The **SWIM BLADDER** helps the fish stay buoyant. Salmon can adjust the air in their swim bladders to acclimate to changes in water pressure.

The **BRAIN** and **SPINAL CHORD** are part of the central nervous system, which controls functions such as movements, sensations and awareness.

Ammonia is a toxic byproduct of normal respiration in fish and **KIDNEYS** remove that waste from their blood stream. The kidney also plays a vital role in osmoregulation.

OVARIES and **TESTES** are salmon reproductive organs. The ovaries of the female salmon produce eggs, while the testes of male salmon produce milt.

The **VENT** is where fish eliminate waste. Additionally, eggs are laid from there by females and milt is released from there by males.

The **URINARY BLADDER** stores waste fluid. Urine is collected by ducts near the vent.

The **SPLEEN** is responsible for making white blood cells and recycling red blood cells.

The **INTESTINE** extends from the pyloric caeca to the vent. Similar to humans, intestines in fish function to absorb nutrients from food and transport solid waste to the vent.

The **STOMACH** uses digestive enzymes to break down food.

The **LIVER** is essential for digestion and maintaining blood chemicals.

The **HEART** is a muscular organ that circulated blood through the fishes' body.

PYLORIC CAECA in fish absorbs nutrients into the blood.

The **GILLS** absorb oxygen from water and remove carbon dioxide from the blood



Salmon Internal Anatomy

Did you know?...

- Salmon have two kidneys. The head kidney functions to replace red blood cells, and the rearward part filters waste out of the blood.
- The memory and smell centers' in a salmon's brain grow rapidly just before it leaves its home stream for the sea. A salmon can detect one drop of water from its home stream mixed up in 250 gallons of sea water.
- The ovaries from a single female salmon can produce anywhere between 1,000 to 17,000 eggs.
- The digestive tract in fish is surprisingly short and simple, compared to humans. This is because fish are cold-blooded, and do not require a large amount of energy to be extracted from their food since they do not heat their body by their metabolism
- Fish have sharp spines that guard the opening of their throat called gill rakers. Gill rakers prevent food from entering the gill passages, and instead guide it into the throat
- Salmon are covered in a layer of mucous that acts to protect the fish from disease organisms and helps it maneuver through the water more easily.

Salmon External Anatomy

Did you know?...

- Fish don't chew their food. Instead, they use their tongue to thrust their food items towards the back of their mouth to swallow them.
- Fish breathe through their gills, not their nostrils.
- Salmon can swivel each eye independently, which allows them to cover a much wider field of vision.
- Fish gills are very thin and filled with blood vessels. Gills are far more efficient at extracting oxygen than human lungs. Fish are able to extract 80% of the oxygen dissolved in water, while human lungs only extract 25% of the oxygen in the air.
- The lateral lines detects vibrations in the water which helps that fish "see" when they can't use their eyes; such as at night or in murky water.
- The caudal fin is used by female salmon to dig the redd where they deposit their eggs.
- Salmon born in hatcheries can sometimes have their adipose fins removed to help distinguish them from wild fish when they return or are caught.