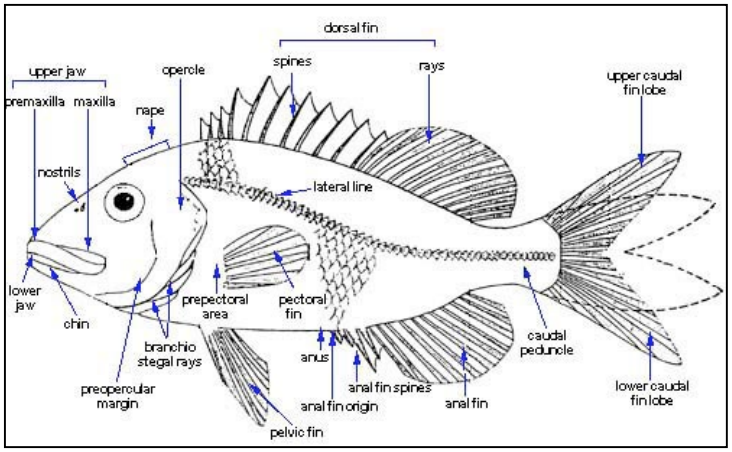
Department of Planning and Natural Resources
Division of Fish and Wildlife

U.S.V.I. Animal Fact Sheet #29

Fish



General Description

Fish make up more than 1/2 of all vertebrate species. Globally, there are 3 classes, Agnatha, Chondrichthyes and Ostiechthyes, with over 22,000 different species of fish. This is not too surprising, since over 71% of the planet is covered by water.

Fish are generally unable to internally regulate their own body temperature. The environmental temperature is used to regulate their body temperature. We refer to this as being cold-blooded.

We can split up the fishes into 6 general types, each of which can be used to identify the life style of the fish. These types are, the rover-predator (mackerel, tuna), lie-in-wait predator (barracuda, trumpet fish), surface-oriented fish (flying fish, mosquitofish), bottom fish (peacock flounder, goatfish), deep-bodied fish (butterfly fishes, tilapia), and snake-like fish (eels, loaches, and the agnatha).

Fish utilize many different techniques to move through the water, as can be seen in the different body types. Many propel themselves through the water by using wave like movements with their bodies and tails, using their fins to control their direction and for stability. While others, like sea horses and mola, have specialized dorsal and anal fins for moving through the water.

All fish have "slimy" secretions on their skin, which helps protect them from chemicals, decreases friction with the water and makes them more efficient swimmers. Other characteristics of fish are a lateral line system, used to detect pressure changes in the water (like hearing), and gills for respiration.

Classes of Fish

Agnatha

The fish found in the class Agnatha consists of two groups, the lampreys and the hagfishes. They are found in both fresh and salt water where they either act as parasites or scavenge on other dead animals for food. They have the simplest body shapes of all fishes. These fish have no hinged jaws, they lack scales and possess a skeleton made of cartilage. Cartilage is lighter than bone and is used by fish to reduce weight, especially in fish with no swim bladder. Instead of a jaw they have an oral sucker, which they use to attach to their food.

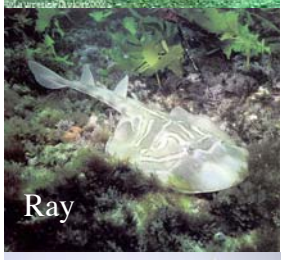
Chondrichthyes

These species include all the sharks, skates, rays, and ratfish. Like the Agnatha, they have a cartilaginous skeleton and no swim bladder. However, this is where the similarities end. The Chondrichthyes also have a cartilaginous jaw with a

loosely attached lower jaw. The jaw of a shark can be unhinged to open wider while feeding and can have as many as 8 rows of teeth. Whenever a shark loses a tooth, another one comes up. A shark may go through as many as 2,400 teeth a year.

Their skin is covered with denticles, which are tiny tooth-like projections. The denticles make the skin rough, giving it the texture of sandpaper. The denticles help the shark be more slippery in water so they are very efficient swimmers.


Skate


Ray

They have a large oily liver that helps maintain buoyancy. Sharks additionally have an asymmetrical tail fin, which along with flattened pectoral fins, provides lift, which compensates for buoyancy.

Ostiechthyes

The bony fish are the largest group of fish and are the most recognizable. They are called bony fish because their skeleton is calcified rather than the cartilage seen in the Agnatha and Chondrichthyes.


Coelacanth

The bony fishes are divided into two categories, the lobed finned and the ray-finned fishes. The ray-finned fishes make up over 95% of all living fish species. Only the lungfishes and coelacanths have survived as members of the fleshy-finned species. It is believed that the lobed fin fishes were the first vertebrates to settle on land, eventually becoming amphibians.

One of the other special adaptations that bony fish have is a swim bladder. The swim bladder is a gas filled sac found inside the abdomen. The majority of the gas found inside the sac is oxygen with some nitrogen and carbon dioxide present. Bony fish can regulate the amount of gas in the bladder to help them maintain neutral buoyancy, like a SCUBA divers B.C.D.

The fins of many bony fin fish have a web of skin supported by rays. Each ray is moved by a set of muscles allowing for great flexibility in the shape and position of the fin. As the most prolific fish group, they are the type of fish most likely seen while snorkeling in our waters.

Threats

About 950 million people rely on fish as their primary source of protein and 200 million people earn a living by fishing. To most people, the ocean seems to be an endless supply of fish and aquatic resources. This is no longer true. In some fisheries 3/4 of everything caught is "bycatch" and is thrown back into the water dead. As recreational fishing increases in popularity, so does the numbers of fish removed from the ocean.

Overfishing is a threat to many fish species. By practicing unsustainable fishing methods, such as net fishing (trawls, and tangle nets), fish populations can be rapidly depleted. It is very important to only take what is needed, and to take only fish that have had a chance to reproduce. If not, fish populations will decrease and there will not be enough fish for future generations.

Pollution and runoff from shore, sewage outflow and dumping at sea can all have negative effects on fish. Species may mistakenly consume plastic bags instead of jellyfish. They may also ingest chemical toxins released into their habitat. These may have negative effects on the health of the fish and the toxins will be passed on to people when the fish are consumed. For example, high levels of mercury have been found in tuna causing doctors to warn pregnant women against eating too much tuna.

Properly dispose of all garbage and contaminants so that our aquatic plants and animals are not negatively impacted. For more information on fish and other local species please refer to our website at:

www.vifishandwildlife.com

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REFERENCES FURNISHED UPON REQUEST

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