



Jr. Animal Scientist

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ALL ABOUT AQUACULTURE!

Dive into aquaculture!

From fish sticks to sushi—people eat a lot of fish! In fact, about one billion people around the world rely on fish as their main source of protein. Raising fish, shellfish and water plants is a form of agriculture called **aquaculture**. This word is pronounced “ah-kwaa-cull-chur.”

Aquaculture serves two main purposes! First, aquaculture allows us to raise nutritious foods like fish, which are rich in protein and vitamins like A, B, and D, and omega-3 fatty acids. These nutrients help you have strong muscles and fight off illness.

For thousands of years, people got most of their fish and other seafood by fishing in rivers and oceans. Many people still harvest seafood from the wild, but there is more and more demand for fish! To keep up with demand without harming wild populations, many people today rely on a more **sustainable** process, called aquaculture.

Animal scientists are very important in aquaculture. They work to design better farms and make sure the animals can grow and stay healthy.



Fresh prawn. Photo: iStock/ chayakorn lotongkum



Animal scientists work with floating oyster cages at Auburn University School of Fisheries. Photo: USDA/ Preston Keres

Word Watch

Look for these terms in this issue of Jr. Animal Scientist

AQUATIC: A word for an animal or plant that lives in the water.

FISHERY: A place where fish are raised or caught for food.

PARASITE: An animal that lives on another animal, often causing it harm.

MOLLUSC: A group of animals that include snails, squids, clams and oysters. These animals tend to have a shell.

SUSTAINABLE: When a resource, such as fish, can be harvested without running out of that resource.

Why do we farm underwater?

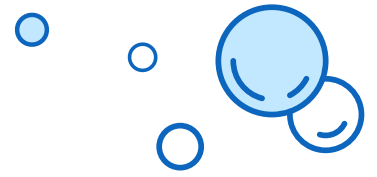
Aquatic animals can be raised in underwater tanks or pens! Here are examples of how we raise animals through aquaculture!

Salmon

Salmon is one of the most popular fish to eat around the world! To raise enough salmon for dinner tables, people often raise them in **fisheries** in the ocean. The fish swim in ocean water but are contained in pens made of nets. Salmon can also be raised on land in tanks. To keep these farmed salmon healthy, animal scientists need to make sure they have healthy diets and are free from diseases and **parasites**.



Trout



Have you ever gone fishing? A lot of people like to catch trout and other fish from rivers and streams! Of course, we don't want rivers to run low on fish, so aquaculture operations called hatcheries do the work of raising fish from eggs so they can be released back into the wild. This process, called "stocking," keeps wild fish from disappearing and supplies us with fish to catch!



Golden trout raised in a hatchery. Image: USDA

Oysters

Oysters are a kind of animal called a **mollusc**. They are related to snails, squids and clams. People often eat oysters grilled or in soups! People also raise oysters for their pearls. There are different ways to farm oysters. Oysters can be raised in aquaculture farms called hatcheries. They are then moved to floating tanks called nurseries. Once they are big enough, they are moved to floating racks, bags or lines, where they grow until they are big enough to be eaten. Some people also grow oysters in specially marked areas on the ocean floor. Thanks to aquaculture, we don't need to harvest as many oysters from the wild!



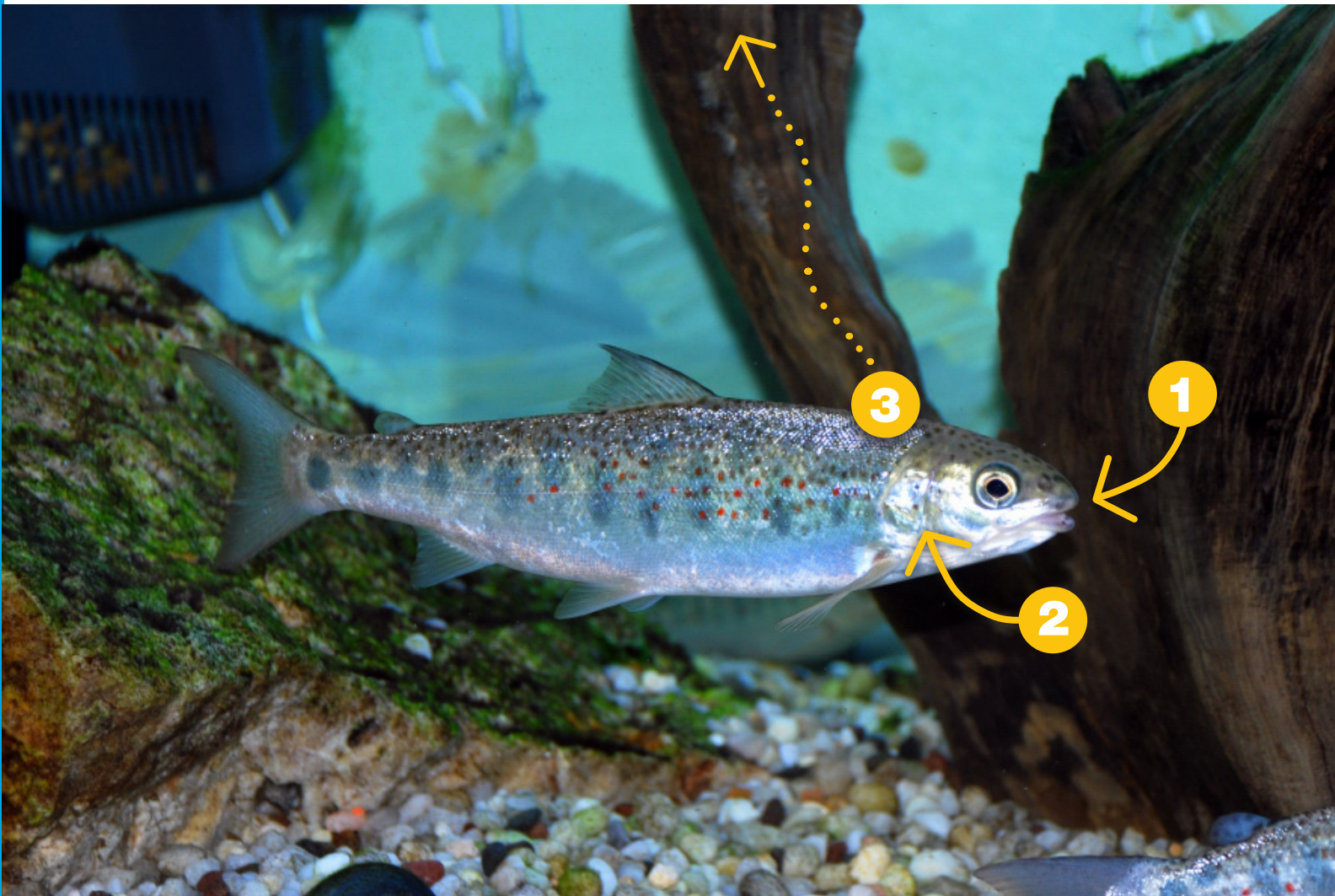
An oyster operation off the coast of Maryland. Image: USDA/ Lance Cheung

How do fish breathe?

When you go swimming, you have to come up to the surface to breathe. But fish don't need to swim to the surface to breathe. Instead, they breathe through special organs called gills.

How it Works?

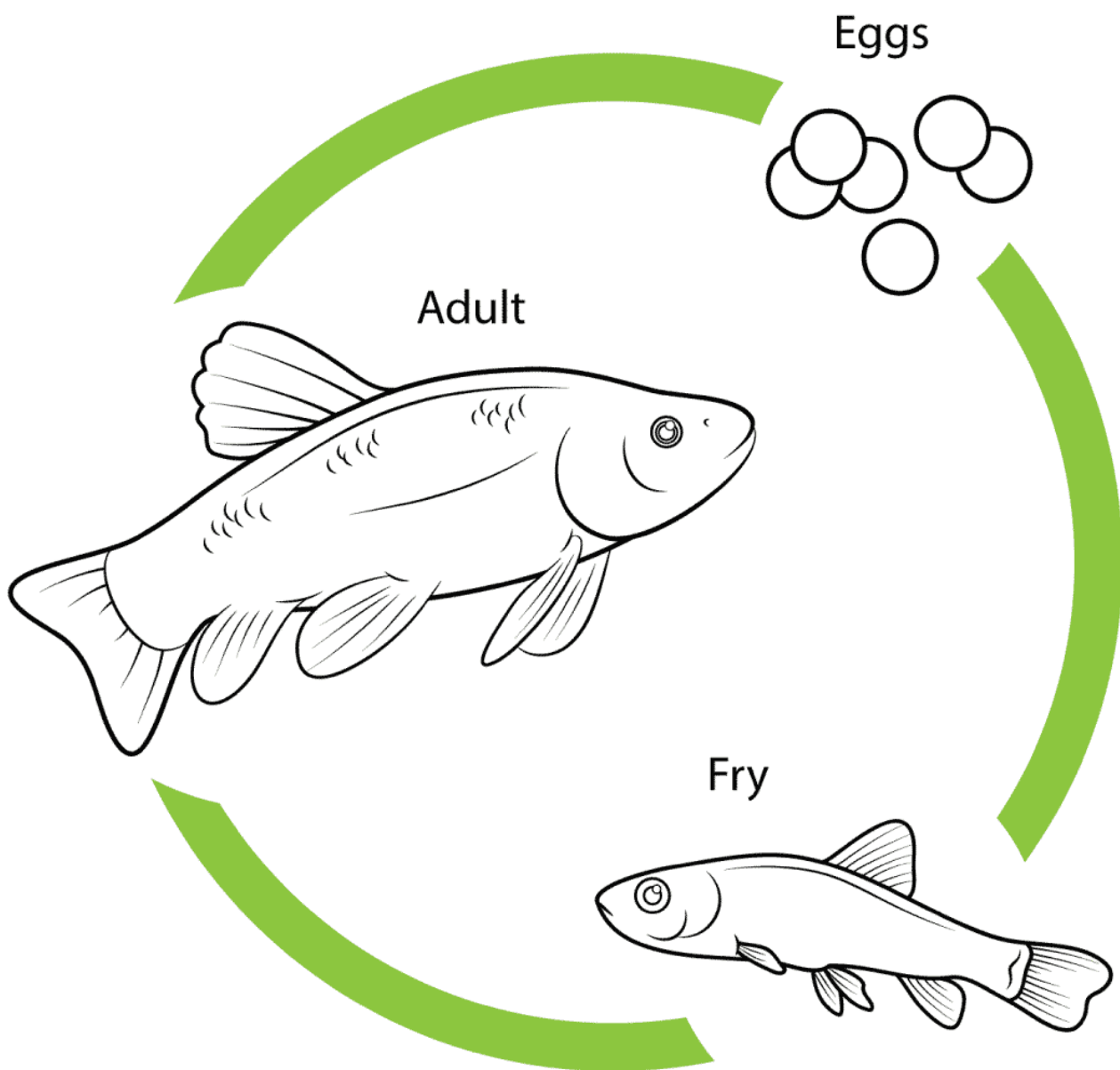
- 1** Water flows through the fish's mouth. The water contains tiny particles, called molecules, that are made of oxygen. This is the same as the oxygen in the air we breathe we breathe.
- 2** The water then passes out of the fish through the gills. The gills contain many tiny blood vessels. These blood vessels filter out oxygen from the water and send that oxygen through the body.
- 3** The water then flows out of the gills.



A young Atlantic salmon. Image: E. Peter Steenstra/USFWS

COLORING ACTIVITY!

Life Cycle of a Fish



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