

HOME AND GARDEN COLUMN

AQUARIUM ECOSYSTEM

Our natural world is composed of ecosystems. Examples include forests, oceans, wetland ponds, prairies, scrub, deserts, and lakes. They represent a combination of factors that influence what grows there.

An aquarium is a way of studying those factors. It is a small-scale model for learning about the balance of nature in the big world.

Animals need water, food, shelter and space. Fish, animals with fins, may have plenty of water, but the water quality is important including such things as water clarity, dissolved oxygen, pH, and amount of nutrients.

Animals need food. Fish in waterways eat foods such as plankton, plants, insects, worms, and other fish. Aquarium fish depend on us to provide food for them, so check with aquarium stores to find out what your fish prefer.

In a limited space ecosystem such as an aquarium, it is important not to over feed. Feed only what the fish will eat in two or three minutes and feed only once or twice a day. Fish don't need to scavenge all day like teenagers! Some will do ok for a week or more without food.

Too much feed results in excess waste in the bottom of the tank. As the waste decomposes, dissolved nutrients are released. Nutrients encourage plant growth. If you don't have live plants in the tank, too many nutrients result in excess algae growth and green water or green film on the sides of the tank.

A similar situation happens in our ponds, lakes and rivers when animal waste and lawn and landscape fertilizer flows downstream after heavy rains. The fertilizer nutrients support vigorous growth of aquatic plants causing them to choke our waterways.

Shelter is also important for fish. In lakes, streams, ponds and rivers, fish find shelter in fallen logs, among tree roots growing at the water's edge, in clumps of aquatic plants and under rocks. You can create similar hiding places in an aquarium using natural, ceramic or plastic decorations and live or artificial plants. Some fish are more secretive and prefer dense vegetation, while others are more open water swimmers.

Some factors that influence what fish will do well in your aquarium include: size, location, light, temperature, pH, nutrients, and water quality.

Size of an aquarium relates to the home range of animals and the space they need to find adequate food, water and shelter. Some small animals such as insects, may move no more than a few feet after they are born however others such as the Florida panther and black bear travel halfway across the state as they roam for food and shelter.

In general, when considering aquarium size, bigger is better. Size of the fish when full grown determines how many you should have in the tank. Generally, aquarium hobbyists have found that you should have no more than one inch of fish length per gallon of water. A one gallon jar would only be space for a fish that grows no bigger than one inch long. Likewise, a twenty gallon tank could hold ten fish that only grow to be two inches long.

Location is important since you want a place suitable for the size aquarium you desire. One gallon of water weighs more than 8 pounds so plan for the weigh of the filled tank. Specially designed stands are a sturdy option.

It is also important to provide light for the fish, to simulate natural daylight cycles. However, too much light can result in an abundance of green algae in the tank. A light hood and timer will turn the lights on and off automatically to control the amount of light in the aquarium. It is best not to place the tank next to a sunny window because the sunlight may heat the water in addition to encouraging algae.

Temperature is important in determining where animals will live. Some fish are natural to cold water while many colorful aquarium fish are native to the warm waters of the tropics. It is good to research the natural home to better understand aquarium fish needs.

Water quality and chemistry are important factors for fish in natural waterways as well as in aquariums. Water test kits help you monitor water quality.

When selecting fish for the aquarium, select ones that prefer similar water temperature and chemistry and that are adapted to the size tank you have available. Some are aggressive while others are calmer and will do well in a community tank with several types of fish.

When you are no longer interested in maintaining your mini ecosystem, don't discard plants and fish into a natural one. Hydrilla was an imported aquarium plant that found its way into Florida waterways. Now it is causing major problems on our chain of lakes and lakes and rivers throughout the SE United States. Instead, contact a pet shop or check with friends and family who may be interested in your hobby. If you call our UF/IFAS Osceola County Extension office at 321-697-3000, we will try to find an interested 4-H youth.

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