## What are the advantages of aquaponics?

**Healthy.** The fish and plants can be raised indoors, so no pesticides or chemical additives are needed. This produces very nutritious, high-quality food.

**Green.** The water in these systems recirculates, so very little is used. The fish waste is essentially recycled by the plants.

**Locally produced.** The fish, herbs, and vegetables can be grown in urban settings. This greatly reduces the costs of transporting the products to market, and it saves energy and reduces pollution.

**Creates jobs.** Many urban areas are suffering high unemployment, with associated high rates of crime and other social problems. Urban aquaponics can create jobs in places where they are sorely needed.

**Large market.** The Midwest consumes more than one billion pounds of seafood products per year, but currently less than four percent of this comes from aquaculture operations in the Midwest.

## For More Information

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# AQUAPONICS
## fish for the future

HEALTHY • SAFE • GREEN • SUSTAINABLE

# AQUAPONICS
## fish for the future

### What is aquaponics?
The term "aquaponics" means growing fish and plants together in a system where the waste from the fish fertilizes the plants, and the plants filter the water for the fish. These are also called integrated recirculation systems.

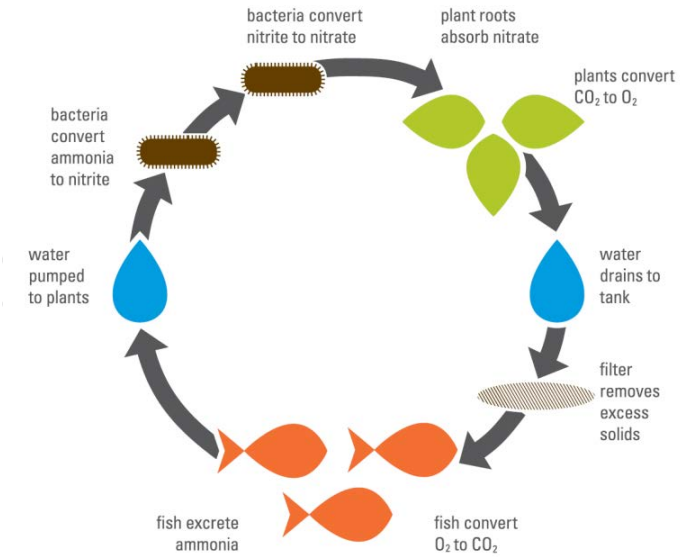
### What kind of fish can be used?
Many kinds of fish can be raised in aquaponics operations, but our demonstration system uses yellow perch. Yellow perch are found in the United States and Canada. Chefs and diners alike love them for their white, flaky, delicious meat.

In the Great Lakes, yellow perch are in short supply. Lake Michigan's yellow perch population has decreased 80 percent since 1990. As a result, Wisconsin banned commercial fishing for yellow perch in Lake Michigan in 1997.

### How does it work?
Aquaponics systems are closed-loop, which means that the water recirculates.

The fish produce waste, which contains ammonia and other compounds. These are toxic to fish when they build up. In aquaponics, however, beneficial bacteria convert the toxic ammonia to nitrite and then to nitrate, a key nutrient for plant development. The water is pumped from the fish tank to the plant bed, where it fertilizes the plants.

The plants absorb the nitrate in the water, which cleans it. In some systems, the water then passes through mechanical filters. Finally, the water completes its circuit by falling back into the fish tank.




### What kinds of plants can be grown?
Many different kinds of herbs and vegetables can be grown. The selection may be limited if the plants are grown only in water and fertilized only with the fish waste. Many people grow their plants on some sort of medium, which adds nutrients to the system. This permits the widest variety of plants to be grown.

Aquaponics systems come in all sizes — from desktop units to large-scale commercial operations. You can set up a small one just for fun and education, or you can start a business.