



## Commercial Fish & Shellfish Technology *fact sheet*

### *When Considering a Recirculating Aquaculture Venture, Prudence Pays*

**Q:** I've heard that aquaculture is a great opportunity. Should I begin setting up or converting my own facility for aquaculture right now?

**A:** The wisest course of action would be to wait a bit. Aquaculture, like any business venture, carries a significant risk. We are promoting it because it can be a viable source of supplemental or alternative income, but that does not mean that beginning aquaculturists will be successful without doing substantial work to educate themselves and to consider how this opportunity meshes with their capabilities and resources.

The Southwest Virginia Aquaculture Center is being built for the specific purpose of providing the economic information, basic education, and technical guidance that new aquaculturists will require to make a business plan, negotiate financing with a lender, and begin their venture. We will be sharing all our information with the public. We will also be on hand to lend assistance in managing fish health, optimizing growth, and marketing the products. But the necessary first step is to begin learning as much as possible about recirculating aquaculture and the kind of investments it requires. Be sure that your name is added to our mailing list, so that you can receive regular updates and notice of upcoming opportunities and events.



#### Other Frequently Asked Questions

##### 1. What is aquaculture?

Aquaculture is the husbandry of aquatic organisms such as finfish, shellfish, or plants. Fish may be raised in ponds, sea cages, raceways, or in recirculating aquaculture systems (RAS). The Southwest Virginia Aquaculture Center will use recirculating aquaculture systems for fish production.

*Businesses that begin by developing solid plans for operations and marketing have the lowest failure rates overall.*

##### 2. What species of fish will the SW Virginia Aquaculture Center produce?

The Southwest Virginia Aquaculture Center will initially grow Yellow Perch (*Perca*

*flavescens*), a popular food fish in the Great Lakes region of the United States. Since the closure of the commercial fishery for Yellow Perch in Lake Michigan, the supply of these flavorful fish has not met demand. The fish produced in Saltville will be sold to wholesale buyers for distribution to restaurants. The income returns to the Center, and pays for facility operations.

##### 3. What is a recirculating aquaculture system (RAS)?

A RAS utilizes several components to continually filter impurities from the water and to reuse the water many times. The advantages of the RAS method of aquaculture are:

- ◆ Reduced water usage
- ◆ Full control of temperature and light
- ◆ Faster growth of fish
- ◆ Reduced incidence of disease
- ◆ Reduced site limitations
- ◆ Year around availability of product
- ◆ A safe, high quality product

#### 4. What are the components of a RAS?

A RAS will contain the following components with specific functions. The systems at Southwest Virginia Aquaculture Center will use the following:

- A. Fish tank or culture vessel – holding area for the fish as they mature, the systems used hold 6400 gallons each.
- B. Particulate removal device – Microscreen drum filter for the removal of solid waste (feces and food particles).
- C. Metabolite removal – Rotating biological contactor (RBC) for the removal of metabolic fish waste (ammonia) by biological filtration using naturally occurring bacteria.
- D. Aeration – adds oxygen to water for fish respiration by pumping action and surface aerators.
- E. Circulation pump – moves water through the system using a propeller pump.

*Note:* The components used in a RAS may vary due to design parameters or species raised.

#### 5. How many fish can be produced in a RAS?

This depends on the fish species, water temperature, feeding rates, system design and other parameters. The Yellow Perch being grown in Saltville will grow to harvest size, about 5.5 ounces, in 9–11 months. The system capacity is approximately 0.7 lbs per gallon of water, or 12,600 fish. Initially the Southwest Virginia Aquaculture Center will use three systems, with plans to expand to nine systems.

#### 6. Where do you obtain fish for the systems?

Fingerlings, fish 1 to 3 inches long, will be purchased from commercial hatcheries in Ohio, Wisconsin or North Carolina for 10 to 20 cents apiece.

#### 7. What do the fish eat?

The fish will be fed a commercial diet made from fishmeal, fish oil, soy meal, corn meal, other grains and vitamins. No hormones or chemicals are added to the feed. The fish are fed 2 to 4 times each day.

#### 8. How much labor is needed to manage an aquaculture farm?

About four hours per day are required for daily feeding, checking water quality and maintenance for nine systems similar to the ones used in Saltville. These daily duties must be done seven days a week. Additional help is needed for stocking and harvesting.

#### 9. What water source will be used?

Every aquaculture venture needs an adequate supply of good quality water. Ground water (wells), springs and municipal water may be used for fish farming. Surface water from streams or ponds is not recommended due to possible contamination or pathogens. The SWVAC will use municipal water that is dechlorinated. Any water source should be laboratory analyzed. Five to ten percent of the system volume water is replaced each day.

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