

Aquaculture methods in use in other regions of the world are constantly being evaluated and fast growing and disease resistant strains of *Crassostrea virginica* continue to be developed.

About 20 years ago VIMS scientists enlisted a small group of amateur growers to help evaluate aquaculture methods and new seed strains. The VIMS people were somewhat surprised by the enthusiasm with which the amateurs undertook these projects and soon more than a thousand oyster gardeners were at work. Today that number has probably doubled. It was from among this group that TOGA was founded as a not-for-profit entity.

Oyster gardeners have generally three goals:

- to experiment with the aquaculture method in the hope of improving its efficiency
- to get a lot of oysters in the water to improve filtering of the Bay
- to harvest the crop and enjoy an oyster roast!

## For More Information:

Tidewater Oyster Gardeners Association web site:

[www.oystergardener.org](http://www.oystergardener.org)

### Contact:

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# Oyster Gardening In Virginia

*Crassostrea virginica*, the Chesapeake Bay oyster, was once a preeminent contributor to the ecology of the Bay. A filter feeder, it was instrumental in maintaining water quality and its erect, living reefs provided protective habitat for its own babies and a vast array of other marine species, many of them filter feeders. The combined impact of over harvesting, introduced oyster disease and habitat destruction severely diminished the number of oysters in Chesapeake Bay. The oyster harvest, once numbered in the millions of bushels, has been reduced to a few thousand bushels.

Scientists at the Virginia Institute of Marine Science (VIMS) pioneered in the introduction of clam aquaculture in the Chesapeake, have developed aquaculture methods which allow growth of hatchery bred oyster spat (baby oysters) to eating size (2½” or more) in 12–24 months. Oyster gardeners generally employ baskets constructed of one inch square plastic coated marine wire attached to PVC plastic pipe floats. Seed oysters (spat) are placed in plastic mesh bags with 1/4” openings, and the bags placed into the floats. The young oysters are transferred to bags of increasing mesh size as they grow larger. These cages allow good water flow and protection against major predators, the blue crab and the cownose ray. In essence, the rapidly growing seed oyster can “out grow” the effect of the main oyster diseases MSX and Dermo, and attain “eating size” before succumbing to ravages of disease. While native oysters were likely to die by the end of the third summer, recently both native and selectively bred strains are beginning to show significantly improved longevity.

## The Method

The principle of oyster aquaculture is really very simple: get the baby animals into an environment where they have enough room to feed, are protected from smothering by silt, are fed by flowing water of moderate salinity, and can't be reached by predators.

Oyster gardening starts with seed oysters, which are 1/4 to 1/2 inch in length or larger. They are easily handled in marine mesh bags. Oyster seed is produced in hatcheries where selected brood stock is

allowed to spawn under ideal conditions.

The microscopic animals "set" by

attaching to crushed shell where they begin to grow. The hatchery devotes about two months to developing the seed to the size for gardening; typically seed are distributed to gardeners in September or October.

The seed grow rapidly in fall and spring, and although they will encounter the diseases the first summer, they have at least two more rapid growing seasons before the disease may be fatal. Thus, the young oysters will reach harvest size by 12 to 18 months, and may be harvested through the winter and the following spring.



Various types of floating devices have been used successfully. The floats hold animals a few inches below the surface of the water. Baskets are generally made of plastic or metal mesh with openings large enough to let the water and food flow through while small enough to keep the oysters in, and are buoyed up by PVC pipe frames, or in some cases, plastic bottles.



The floats must be cleaned occasionally because algae and other creatures also find the environment attractive and clog the openings of the mesh. When the oysters are out of the original growing bags they must be protected from otters, raccoons and other predators. The Tidewater Oyster Gardeners Association (TOGA) web site, [www.oystergardener.org](http://www.oystergardener.org), describes the various devices in more detail.



## Current Developments

VIMS and other research labs have been working for several years on cross-breeding specimens of Chesapeake Bay oysters that have shown resistance to MSX and Dermo. The latest generation of these experiments also has a good growth rate. Seeds from *Crassostrea virginica* strains are now available to

gardeners in the fall and sometimes in the spring, although the inexperienced gardener is encouraged to

stay with the fall planting regimen.

TOGA provides newsletters and workshops, coordinates the ordering and distribution of oyster seed and provides training in oyster aquaculture. To become a member, check our web site or call the number listed on the back.



## Shellfish Consumption and Health Considerations

The Division of Shellfish Sanitation, Virginia Department of Health, condemns water that has been found to contain excessive coliform bacteria levels. Condemnation means that oysters cannot be eaten directly from those waters. Records of the condition of the waters in the Northern Neck and Middle Peninsula are kept at the office in White Stone and south of the York, at the Norfolk office.

Condemned waters do not hinder the growth and spawning of the oysters, and oysters that have grown in condemned water can be rendered safe by moving them to clean water for a period of time when the water is above 50° F. This relay process is done through the Virginia Marine Resource Commission (VMRC) and instructions for the process may be obtained through local VMRC offices.

The VMRC requires a permit for aquaculture of oysters. This permit is free and allows up to 160 sq.ft. of oyster floats from private docks. Permit applications may be obtained from the VMRC at (757) 247-2254.

