Step Five: Set Up, Maintain and Harvest

Set up

Most people find setting up and maintaining an oyster garden quite easy and enjoyable. By setting up your oysters in containment systems suspended above the bottom, both the quantity and quality of the food available to the oyster is improved and you’ve generally made life easier for them.

There are no strict guidelines regarding the best position in the water column to place the oysters. Often raising the oysters as little as 6 inches above the bottom is enough to reduce the amount of suspended sediments which they must filter and this improves their growth rates. Most people find it convenient to tie their containment systems to their dock as in the photos on pages 10 - 12. Keep in mind performance is site specific and depends on water depth, food availability, predators and presence of disease.

Placement of oysters in racks or bags in the intertidal zone can have advantages which include easy access to your oysters at low tide, fouling control, and predator protection. However, extended exposure out of the water reduces the feeding time available for oysters and reduces growth rates. If intertidal culture sites are used, oysters should be placed in the lowest depth of the intertidal area as possible to reduce exposure to extremes of heat and cold.

The steps below are for growing oysters in a Taylor float. However, the basic approach can be adapted to mesh bags and cages:

1. Secure floats in the water with lines or other means to keep them in place but allowing for tidal and storm surge flow. Try to place float(s) in a low wave action setting.

2. Place 3/4” (20 mm) seed oysters in bags with the largest mesh to retain them at a density not exceeding 1000 oysters/bag in Taylor float. (Numbers will vary in other floats.)

3. As the oysters grow, move them to the coarsest mesh bags or liners available that will retain them. Densities within a 2 ft. x 3 ft. float should not exceed 1000 small or 500 market size oysters. Some growers prefer to keep oysters in 3/8” - 1/2” mesh bags throughout the growing cycle. If this is done, densities should be reduced to about 200 oysters/bag, but you will experience slow growth rates due to restricted water flow.

Maintain

Maintaining an oyster garden is a little like caring for a vegetable garden, although many find it easier. But like vegetable gardening, it’s a good idea to stay on top of things and check on your oysters regularly.

The containment system should be cleaned periodically when fouling reduces water circulation through the mesh or liner. The cleaning schedule will vary according to conditions in your area, but usually every 3-4 weeks in winter and every 2 weeks in summer is sufficient.

Fouling (growth of small organisms) on floats, bags, and oysters can be removed by washing with water (fresh or salt) and scrubbing with a stiff brush. Also, allowing your float or bag to air dry on land for a day can kill many fouling organisms. Clean algae off your float or bag so that the mesh does not get clogged and smother your oysters. In some locations the settlement of barnacles, mussels, and even oysters onto the floats can be a problem, since these are not easily washed off. Please wear gloves and relevant protective clothing while handling your oyster shells or floats in order to prevent waterborne illness, cuts or infections.

Parasites, such as flatworms (see page 23), can kill your oysters. If detected early enough, these animals can be removed using a brine dip. A brine dip should be used only with oysters greater than 10 mm. Smaller oysters will die from the procedure. Leave oysters (>10mm or about 1/2 an inch) out of the water for about one hour before dipping to ensure they are closed. Make a brine solution by dissolving 25 pounds of salt in 10 gallons of estuarine water (plastic trash cans work well). Leave oysters in the bags and dip and agitate each bag for five minutes. Leave the bags out of the water for another hour or two then rinse them thoroughly before placing them back into the water. The amount of time that oysters should be left out of the water will depend upon

This fouled float has filamentous algae, sea grapes and barnacles on it that can be removed with freshwater, a brush and scraper, or by allowing the float to air dry and then brushing/scraping them off. Photo by Brian Wood.
their size and the weather conditions. If cleaning small oysters on a very hot day, the times given above should be reduced.

An alternative to the brine dip is to simply raise the bags above the low water mark so they are exposed to the sun at low tide. This method should also kill the flatworms but not the oysters. Occasionally flipping the bags over in the water can help to control fouling and improve water flow to the oysters. Make sure oysters are spread evenly in the bag, allowing all oysters space to feed and grow.

You may occasionally find dead oysters in your containment system. You should remove the dead oysters. However, clean, empty shells provide “nests” for beneficial small fish such as blennies and gobies so don’t throw them out! One of the benefits of your oyster garden is the habitat it provides for other animals, so do what you can to help out the welcome visitors to your garden. See pages 22 and 23 to learn about the animals that will be attracted to your oyster garden.

If a storm is coming, be sure lines are secure and your name and address are on your float. Use a waterproof sharpie marker. During more intense storms – hurricanes, tropical storms and northeasters – it is best to take your floats out of the water and store them in a safe, cool and dry place. The oysters will be fine out of the water for 1-2 days. The larger the oyster, the greater its ability to withstand being out of the water.

To eat or to donate?

With luck and a “Blue Thumb,” you should have oysters ready for harvest within about 12-18 months. Of course, like any form of gardening, you should expect some mortality and will probably not be able to grow all of the seed you purchased to the peak, 2 ½ - 3 inch size. Large oysters should be moved to separate containment systems so that any remaining, smaller oysters will have less competition for food.

Below are some considerations to guide you whether you choose to eat your oysters, donate them to a sanctuary reef, or simply release them to public waters. No matter what your choice, you can be proud of your accomplishment in raising your oysters and providing a small “cleaning” service to Virginia’s coastal waters and “housing” service to other small marine creatures needing places to feed, hide and “nest.”

Eating your oysters

For the gardener, the size at which you eat the oysters is up to you since regulations limiting harvest size for wild stocks do not pertain to cultured oysters in Virginia. Rapidly grown oysters tend to have thin shells and a high meat content, so they should be easy to open and tasty.

Since oysters filter their food from large volumes of water, they not only concentrate algal food in their gut, but they also concentrate some portion of any bacteria and viruses present in the water. Even if your oysters are located in approved waters, if a heavy rainfall has just occurred it would be wisest to wait 2-3 days after the water clears to harvest them. Delaying harvest will provide the oysters time to pass most bacterial contaminants through their digestive tract.

No one wants to make someone sick, but if you handle oysters in the warm weather months you should be aware of Vibrio bacteria and how to minimize their growth as you handle shellfish during and after harvest. Vibrios are a group of bacteria, some of which cause illness in people who eat raw oysters or undercooked oysters. In some cases, people with certain health conditions are at risk from a particular kind of Vibrio (V. vulnificus), which can cause severe illness or even death. There are several types of Vibrio bacteria that live naturally in Virginia shellfish harvest waters and are not associated with contamination. These bacteria tend to die back during the winter months, but begin to grow as the water warms above 50-55° F (10-13°C) in the spring. Shellfish concentrate these bacteria from the water, and if the shellfish are not placed under refrigeration and cooled quickly after harvest, the bacteria that have accumulated can multiply at alarming rates. Therefore, it is important that shellfish be placed in refrigeration below 50° F (10°C), or iced, as quickly as possible after harvest.

For more information on Vibrio, go to the Center for Disease Control web site at www.cdc.gov/nczved/divisions/dfbmd/diseases/vibriov/.

Fried oysters with caper sauce made with oysters from Jeff and Marianne Donahue’s oyster garden. Photo by Laura McKay.