

Virginia Oyster Heritage Program Interactive Activity

“Build-A-Reef”

Designed by: Virginia Coastal Program. If you have any questions about this activity, please call the Virginia Coastal Program Outreach Coordinator at (804) 698-4320.

Background:

Based on “Amazing Oysters” Activity – see “Amazing Oysters” for a more detailed “Lesson Plan”, more information on species used in the activity, and applicable SOLs. The clipart marine animals to be used in conjunction with this activity are available on the VOHP Web site, or by calling (804) 698-4320.

Objectives:

Players will learn to:

- 1) Describe the natural three-dimensional structure of an oyster reef and why oysters benefit from this shape. They also learn that reefs are found in the intertidal zone (the tip of the reef extends out of the water at low tide) - on the oceanside, in the Bay and in the major rivers of the Bay;
- 2) Identify oyster reefs as important habitat for many species, and;
- 3) Identify species that inhabit and rely on the oyster reef, both predator and prey.

Method:

The player (child, student, even mom or dad!) is given an oyster, and chooses one of 11 reef animal species to color. The player helps build the reef by attaching the oyster to another oyster on the reef (start the activity with a layer of oysters at the bottom of the reef on which the player's oyster can settle).

As the reef grows, the shelter, or habitat, the reef offers increases, and the player places the animal they have colored in or around the reef.

Age Group: K – 6 (and toddler!)

Playing Tools: As many players, or little oysters, as possible!

One self-colored oyster

One self-colored animal or reef species

The Mural:

The canvas for your oyster reef construction, the mural represents an underwater ecosystem. A larger piece of foam board and rolled colored paper works well, and can be used to design a simple seaside or Bayside underwater environment – light blue for sky, darker blue for water - with waves cut in to delineate the water surface- and brown for the ocean or Bay floor. It is also helpful to provide an outline of how the reef will look as it grows in its mountainous 3-D shape up above the water's surface. All oyster reefs grow naturally in this shape, and the top of the reef can be seen at low tide in Virginia's shallow waters (about 9 ft. or less).

Coastal bird species can be added to the water surface and sky to enhance your mural, and further illustrate the importance of the reef habitat to some species of birds, e.g. the oyster catcher, which opens and eats oysters with a specialized bill. Omar of the Reef – the VOHP mascot can also be added to the mural to welcome your reef builders to the activity. Below are a few messages from Omar that can be added to the mural to enhance its educational value and help describe why reefs are important habitat and why the natural 3-d structure of the reef is so important to oysters:

“Hi! I'm Omar the oyster. Help me build an oyster reef home for my friends! (Here's a hint: bay oyster

settle on adult oysters and grow stacked on top of each other until the top of the reef actually out of the water! Oysters filter, or strain, algae from the water for food. The higher the reef is, the more algae the oyster finds in the water to eat!”

At the top of the mural under the water’s surface:

“Up near the surface of the water, at the top of the reef, there is more sunlight in the water. Algae are tiny plants that need sunlight to grow, and oysters need algae to grow!”

On the mural near the edge of the reef:

“Nooks and crannies” in between the oysters are great places for little fish to live and hide! Color in oyster and help build the reef. Then pick an animal, color him in, and put him in or near his new reef home!”

At the bottom of the mural: Referring to the line guide drawn on the mural

“Imagine this is an outline of the reef. Add your oyster inside the lines and help your reef grow!”

“This reef was built by Virginia Oyster Heritage Program volunteers!”

The Activity:

Each player colors an oyster and one animal (animals are copied from the *Amazing Oysters* activity - older children can cut out their own animal – a dotted line has been added to the “animal master sheet” to serve as a cutting guide). *Amazing Oysters* also includes a description of each of species to share with the player. As you explain how oyster reefs grow and where oyster reefs can be found (near shore), have the player tape his oyster to the mural, starting at the bottom, one atop another, to illustrate how oysters settle one upon another to build a three-dimensional, or mountain-like, structure.

Explain how the oyster life cycle includes a free-floating stage – when the young oyster is called a “veliger”. In order to develop, the veliger needs to settle or attach, preferably to an older oyster or shell, where it will remain for life. This is a very key point in the life cycle of the oyster. If oyster shell, or a clean hard surface like oyster shell, is not available when the “veliger” is ready to settle, it will not survive. Some may settle in sediment, which will suffocate the “veliger”. Once the young oyster has attached itself to an adult oyster shell, or other clean hard surface, it is referred to as “spat”.

Explain that the oyster reef grows both vertically and horizontally over time as oysters settle and grow (only the outer layer of the reef will contain live oysters – the core of the reef contains shell from dead oysters). The older a reef is the more surface area (nooks and crannies) it contains where other plants and animals can grow, hide, feed and breed. Reefs are shelter for a variety of animals throughout the food chain including striped bass, oyster toad fish, puffer fish, skates, blue crabs, grass shrimp, mussels, sponges and barnacles. Thin flat fish like skillet fish and blennies can slip in and hide in the small spaces within the reef. These small fish live, feed and breed in the reef. Their larval forms eat oyster larvae and other reef residents such as mud crabs and striped bass eat the mature fish.

You can also explain how living so close together makes it easier for the oysters to interact with one another and produce more oysters.

This game is an adaptation of the DEQ activity “Amazing Oysters”, designed and funded by the Virginia Coastal Program through a grant from NOAA, in support of the Virginia Oyster Heritage Program. Please credit the Virginia Coastal Program and the VOHP on the bottom of

your mural, and help spread our message of oyster reef restoration. Thank you.