

Hide and Seek in SAV



Eel grass in the Pamlico Sound, NC.

ABSTRACT

North Carolina's estuaries contain at least seven different species of submerged aquatic vegetation (SAV) that provide crucial habitat for a wide array of organisms. SAV occurs in areas of shallow water depths where light can penetrate and can grow in mats the size of small cars, expanding to cover acres of area in some instances. SAV is important in maintaining the health, productivity, and maintenance of our estuaries by offering sanctuary to various species of fish, turtles, and invertebrates. This program offers students an engaging hands-on activity and provides an understanding of one of the ecosystem services provided by SAV North Carolina's estuaries.

Grade Level: 5-8

Duration: 30 minutes

Standards: LS.5.2.1, LS.5.2.3, LS.6.2.2, LS.8.2.1, LS.8.2.2, LS.8.2.3, LS.8.2.4, ESS.EES.4.1, ESS.EES.4.4

Key Words: estuary, habitat, submerged aquatic vegetation, ecosystem services

OBJECTIVE

Provide an understanding of the important ecological role of SAV as habitat.

MATERIALS

- ½ inch hardware cloth cut to fit into plastic container (or any material that can achieve the effect of grounding SAV to container bottom)
- Transparent container
- Pipe cleaners
- Data collection sheet
- Small objects representing estuarine organisms (nuts, bolts, washers, dried beans, beads, etc.)
- Chop sticks/tongs
- Small funnel
- Sand

BACKGROUND

The seven species of submerged aquatic vegetation, or SAV, found in North Carolina's estuaries include shoal grass, eelgrass, widgeon grass, horned pondweed, wild celery, redhead pondweed, and southern naiad. Shoal grass is a subtropical species and does not grow north of Oregon Inlet. Eelgrass is a temperate species that grows in greatest concentrations in the Southern and Eastern Pamlico Sound, Core Sound, Back Sound, and Bogue Sound. Many of these species can be found in the southern back barrier sound areas as well as the western shoreline waters of the Pamlico Sound and the Neuse and Pamlico River Tributaries.

Characterized by long blades that move with the flow of water, SAV offers an important nursery for several organisms that humans rely on commercially such as shrimp, hard shell clams, blue crabs, sea trout, gag grouper, silver perch, spot, menhaden, and bay scallops. In addition, at least 40 different species of fish and invertebrates have been found in North Carolina SAV beds. A variety of offshore reef fish are known to spend a portion of their lifecycle in SAV such as black sea bass, snapper, bluefish, and spot tail pinfish. Other species of juvenile fish, like silversides, are vital to the ecology of the estuary through their role in the food web.

Habitat functions of SAV:

Food: some fish, turtles, and birds eat SAV. Microorganisms, like plankton and bacteria, feed on dead SAV.

Hunting ground: trout, striped bass, and flounder seek food hiding in the grass beds

Buffer: SAV attenuates wave energy, protecting organisms and preserving shorelines from the forces of erosion

Filter: SAV filters suspended sediment in the water column that can obstruct sunlight from reaching the sound floor, which in turn improves water quality

Sanctuary: species like blue crabs, shrimp, and red drum hide in the long grass blades

PROCEDURE

1. Set up three stations per group containing no SAV, partial coverage SAV, and total coverage SAV.
2. At each station add a predetermined number of objects to each container, with the greatest density of species in the total coverage SAV container and the lowest density of species in the zero coverage SAV container (For example: 10 objects in zero SAV, 20 in partial, 30 in full coverage).
3. Have the students record what types of objects they see and how many they see in each box.
4. Once each box has been recorded, give students tongs or chop sticks and a container. Using a stopwatch, limit the students to 3 minutes (this time will vary depending on the number of objects, size of the box, etc.) to collect as many objects as possible from the box containing no SAV. Repeat this process for the remaining two containers. If students are working in teams, make sure a rotation is in place, so that all students participate.
5. Have the students compare the numbers of the initial count to the numbers of objects actually collected. Discuss their findings.

EXTENSIONS

To take this program a step further sediment and water can be added to restrict visibility. This can encourage a discussion about turbidity and water quality. Based on availability, the objects that are added to the water can encourage a discussion about the prevalence of certain species available in the sound. For example, there could be a larger number of shrimp available, but due to their size, they cannot be retrieved in great numbers, at least via the tongs. This can lead to a discussion about the birds that inhabit North Carolina estuaries and how specific beaks of certain birds are suitably adapted to certain prey.

DISCUSSION

1. Which box was the easiest to remove objects from? Why?
2. Which box was the hardest? Why?
3. What does this exercise reveal about the importance of SAV as a habitat?