

**TITLE:** Hide and Sneak in SAV



Figure 1. Eelgrass in the Pamlico Sound, NC

**ABSTRACT:** North Carolina’s estuaries contain at least seven different species of subaquatic vegetation (SAV) providing crucial habitats for a wide array of organisms. SAV occurs in areas of shallow water depths where light may penetrate and can grow in mats the size of small cars and expand to cover whole acres. SAV is important in maintaining the health, productivity and maintenance of our estuaries by offering a sanctuary to various species of fish, turtles and invertebrates. This programming offers students a hands-on activity that is both engaging and instructive in understanding just one of the ecosystem services that SAV provides in North Carolina’s estuaries.

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

**TIME:** 30 mins.

**GRADE LEVEL:** 5-8

**STANDARDS:** 8.L.3.1, 8.L.3.2, 8.L.3.3, EEn.2.7.2, EEn.2.7.3,

**SUPPLIES:**

- ½ inch hardware cloth cut to fit into plastic container (any number of materials may achieve the effect of grounding SAV to the container’s floor)
- pipe cleaners
- transparent container
- small objects representing estuarine organisms (nuts, bolts, washers, dried beans, corn, or pasta)

- chopsticks or tongs or something similar
- small funnel
- data collection sheet
- 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 is grown in its greatest concentration in Southern and Eastern Pamlico Sound, Core Sound, Back Sound, and Bogue Sound. Many of the different 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 offer an important nursery for a number of organisms that humans rely on commercially such as shrimp, hard shell clams, blue crabs, sea trout, gag grouper, summer and southern flounder, red drum, mullet, pinfish, white grunt, 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 at least a portion of their lifecycle in SAV such as black sea bass, snapper, bluefish and spottail pinfish. Other species of juvenile fish such as silversides are vital to the ecology of the estuary through their role in the food web (South Atlantic Fishery Management Council 2013).

Habitat functions of SAV:

*Food:* some fish, turtles and birds eat SAV. Microorganisms, like plankton and bacteria, feed on dead SAV contributing to the food web of the estuary.

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

*Buffer:* SAV mitigates the effects of 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:* blue crabs, shrimp, and red drum hide in the long grass-like blades

### **PROCEDURES:**

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 within each container, with the greatest density of species in the total coverage area and the lowest density of species in the container lacking SAV. (For example: 10 objects in zero SAV, 20 in partial, 30 in full coverage)
3. Have the students record on a data sheet what types of objects they see and how many they see in each box.

4. Once each box has been recorded, provide the students with the plastic tongs 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 from the box containing no SAV, 3 minutes with partial coverage, and 3 with total coverage. If 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 recovered. 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?

### Appendix

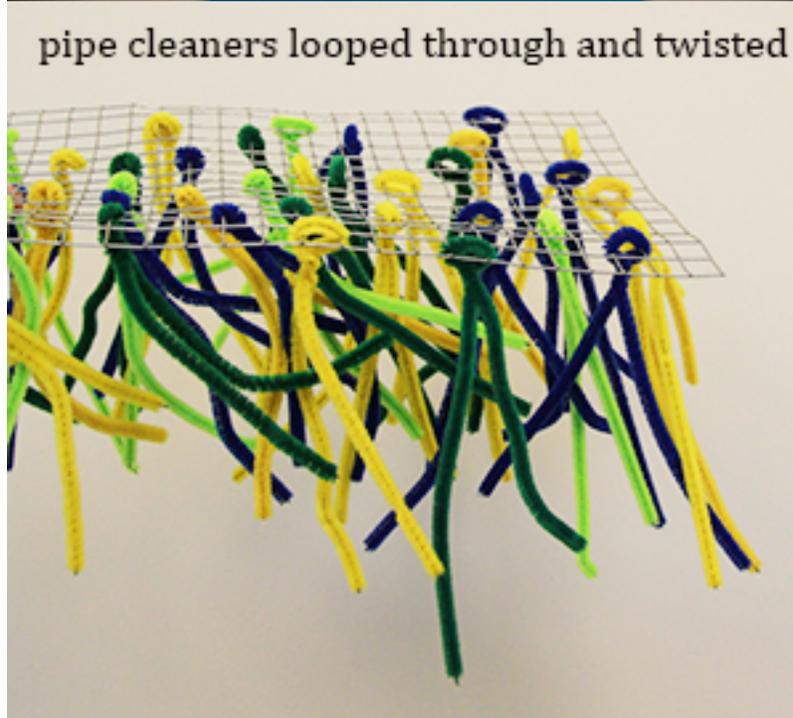
#### Supplies Needed

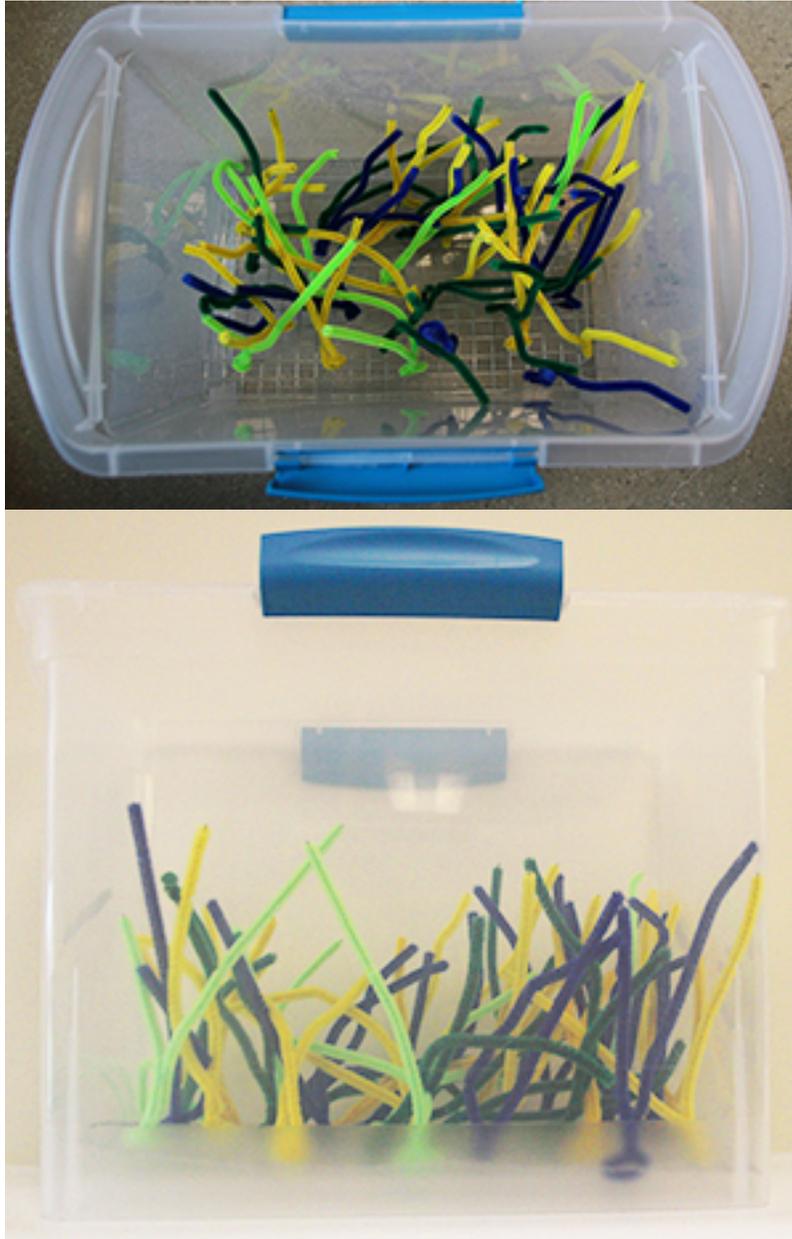


#### Mesh cut to size and fit in tub



#### pipe cleaners looped through and twisted





#### Citations

Hartig, B., Chariman, Duvall, M., Vice Chairman, Mahood, R. K., Executive Director, & Waugh, G. T., Deputy Executive Director. (2013). *SAFMC Policy for Protection and Enhancement of Estuarine and Marine Submerged Aquatic Vegetation (SAV) Habitat* (Re-Draft September 2013) (United States, South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201 North Charleston, South Carolina 2940 NC: South Atlantic Fishery Council.