

Seagrass Ecology Program

The Seagrass Ecology program is a part of MarineLab's core curriculum. Seagrass beds make up the largest benthic habitat in the waters surrounding the Florida Keys. The seagrasses provide a vital habitat and are a key component to the overall Florida Keys marine ecosystem. There is lots of life to see in a seagrass bed but correct snorkeling techniques and knowing what to look for are key to spotting the seagrass critters. We purposely incorporate a classroom discussion before taking the students snorkeling so that they can fully enjoy and appreciate our unique seagrass beds. During the snorkel, a MarineLab instructor will be in the water to assist snorkelers, point out underwater life and collect seagrass and algae samples for students to see once back on the boat.

** Generally the snorkel is from a boat but we can do a shore based snorkel, if preferable

Grade Level: Adaptable for All Grade Levels

Timing: Discussion is 45 mins- 1 hour. Field trip is 1-2 hours.

Depending on the length of the school program, the snorkel portion will be a 2 hour snorkel in a seagrass bed OR the seagrass snorkel is in combination with the mangrove ecology program snorkel.

Concepts Covered:

- ecology and the abiotic factors controlling the geographic distribution of seagrass
- function of the seagrass habitat in the overall keys ecosystem
- distinguishing characteristics of algae and grass
- seagrass and algae identification
- threats to seagrasses and restoration efforts
- unique Florida Bay habitat
- common marine phyla, the characteristics of each phylum and examples of species of each phylum
- how to snorkel in a shallow estuary

Vocabulary: ecology, estuary, calcareous, substrate, vascular, obligate halophyte, autotroph, heterotroph, biotic, abiotic, sessile, prop scar, rhizome, salinity, evisceration, regeneration

Extensions:

- Long term seagrass data collected by MarineLab staff and students is available for analysis before or after your MarineLab seagrass program
- Florida Bay Survey citizen science program
- Seagrass Survey Program

Resources: www.seagrasswatch.org, <http://seagrass.fiu.edu/>, <http://floridakeys.noaa.gov/plants/seagrass.html>



Standards Supported:

Next Generation Sunshine State Standards

SC.5.L.17.1: Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

SC.6.L.15.1: Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.

SC.912.L.14.7: Relate the structure of each of the major plant organs and tissues to physiological processes.

SC.912.L.15.4: Describe how and why organisms are hierarchically classified and based on evolutionary relationships.

SC.912.L.15.7: Discuss distinguishing characteristics of vertebrate and representative invertebrate phyla, and chordate classes using typical examples.

SC.912.L.17.2: Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.

SC.912.L.17.4: Describe changes in ecosystems resulting from seasonal variations, climate change and succession.

Ocean Literacy Principles

Principle 3. The ocean is a major influence on weather and climate.

f. The ocean has had, and will continue to have, a significant influence on climate change by absorbing, storing, and moving heat, carbon and water. Changes in the ocean's circulation have produced large, abrupt changes in climate during the last 50,000 years.

Principle 5. The ocean supports a great diversity of life and ecosystems.

f. Ocean ecosystems are defined by environmental factors and the community of organisms living there. Ocean life is not evenly distributed through time or space due to differences in abiotic factors such as oxygen, salinity, temperature, pH, light, nutrients, pressure, substrate and circulation. A few regions of the ocean support the most abundant life on Earth, while most of the ocean does not support much life.

i. Estuaries provide important and productive nursery areas for many marine and aquatic species.

Principle 6. The ocean and humans are inextricably interconnected.

d. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, non-point source, and noise pollution), changes to ocean chemistry (ocean acidification) and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.