

Hardbottom Shoal Ecology Field Trip

Grade Level: All

Timing: 3 hours

Summary: The hardbottom shoal ecology field trip is best suited for students groups who are interested in extending our basic 3 day/2 night program. This field trip focuses on coral horizontal zonation as the students will see how the biotic and abiotic components change from a hardbottom site to a patch reef (and compare this to what they have seen at the bank reefs during the coral reef ecology program.) As the hardbottom habitat provides refuge in a transitional zone where there are few places to hide, the diversity of fish and invertebrates on a single coral head is impressive. Organism sightings at the hardbottom site are often unique and include invertebrates such as basket stars, sea cucumbers and banded coral shrimp and fish such as lionfish, moray eels, tarpon and intermediate phase coral reef fish.

Program Objectives:

- Students will be able to explain how ecological conditions differ in inshore versus offshore reefs

Concepts Covered:

- Harbottom habitat
- Reef zonation: hardbottom→patch reef→bank reef
- Diversity of the hardbottom shoal habitat in comparison to patch and bank reefs
- Effects of environmental conditions on overall diversity of a habitat
- Abiotic preferences of specific coral species
- Intermediate fish phase

Vocabulary: horizontal zonation, hardbottom, patch reef, bank reef, diversity, transitional zone, abiotic, biotic

Procedures: The program begins with a brief explanation of the hardbottom shoal environment, the organisms commonly found in this habitat, and the effects the environmental conditions have on the diversity of the habitat. Students are taken to a hardbottom site to observe the concepts discussed firsthand. Students will also snorkel at a patch reef habitat in order to better compare biotic and abiotic differences between the two zones.

Resources:



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Standards Addressed:

Next Generation Sunshine State Standards

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.

Ocean Literacy Principles

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.



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