

Fish ID with Parrotfish Feeding Surveys

Grade Level: High School or Above

Timing: Class is 1 hour, field trip is 3 hours (field trip can be shortened, if necessary)

Summary: The fish identification program is a part of MarineLab's core curriculum. An service learning option for our Fish ID program is to include parrotfish feeding surveys. As with our core program, students will learn the best field marks to use to identify a fish, behavioral characteristics of fish families, and how to identify fish species that we commonly see on Key Largo's reefs. For this particular program, students will also be taught in the classroom on the proper protocols for data collection for the study they will be participating in and the reasoning behind the study. The students are then taken out to a reef to put what they learned into practice! During the snorkel, each pair of students will spend 6 minutes recording parrotfish feeding data. All data is submitted to Dr. Deron Burkepile and entered into MarineLab's database.

Program Objectives:

After completion, students will be able to...

- Identify 10 common coral reef fish species in the Florida Keys including the terminal phase of four species of parrotfish.
- Use the proper field marks for fish identification
- Collect parrotfish feeding data

Concepts Covered:

- Identification of fish by field marks
- Basic external anatomy of a fish
- Associating behaviors and habitats with body shapes
- Distinguishing shape and behavior of common fish families
- Identifying characteristics and adaptations of specific families and/or species
- Value of citizen science
- Specific parrotfish characteristics
- Underwater data collection
- Parrotfish feeding habits and effects on the health of the reef

Vocabulary: macroalgae, algal turf, crustose corraline algae, field mark, caudal fin, dorsal, ventral, operculum, lateral line, anal fin, square/lunate/forked caudal fins, carnivore/omnivore/herbivore, ambush predator, opportunistic feeder, hydrodynamic, territoriality, mimicry, sexual dimorphism

Procedures: Students have a one hour long discussion with MarineLab staff which includes methods to ID fish, characteristics and behaviors to look for, and a slideshow with pictures and videos to help students ID fish when in the field. The instructor will also discuss the background of the parrotfish feeding survey, the specific protocols for the survey and how to properly fill out the data sheet. At the reef each pair of students will be give an underwater data sheet and a watch. They will follow the fish for 6 minutes and record the appropriate data. All data is submitted to Dr. Deron Burkepile and entered into the MarineLab database.

Resources: <https://labs.eemb.ucsb.edu/burkepile/deron/>, <http://www.fishid.com/>, <http://www.fishbase.org/search.php>



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Standards:

Standards:

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.7.L.17.1: Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

SC.912.L.17.6: Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.

SC.912.L.17.8: Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

Ocean Literacy Principles

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

d. Ocean biology provides many unique examples of life cycles, adaptations and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer) that do not occur on land.

e. The ocean provides a vast living space with diverse and unique ecosystems from the surface through the water column and down to, and below, the seafloor. Most of the living space on Earth is in the ocean.

