

Introduction to OPIHI Intertidal Species Identification

The best way to learn to identify OPIHI organisms is to collect some intertidal algae and invertebrates and bring them back to the classroom (see “Conservation and Collection Information” and “Intertidal Animals in the Classroom” under Field Trips). We have compiled a list of Key Species to refer to when looking for good representative organisms to collect. You can also refer to site-specific species lists (under “Data Sheets” in Field Trips) which list the most common species found at each intertidal site. Remember that the OPIHI program is set-up so you do not need any prior knowledge about the intertidal or intertidal organisms, thus you should not feel like you have to be an “expert” when identifying them. We encourage you to look through the books and identification cards with your students and allow them to conduct research and teach you about the diversity of different taxonomic groups. You and your students can learn together about the diversity of life between the tides.

At least one class day should be spent in class observing and identifying organisms before the first field trip. Demonstrate to your students how to handle organisms gently, and to only remove them from the water for limited periods of time. If you are going on multiple field trips to the same, you can have the students collect organisms for classroom observation on the first trip during their biodiversity search of the area. Organisms collected via the biodiversity search should be identified and recorded.

It is important that your students are aware of and are able to identify the common Potentially Hazardous Intertidal Organisms. These can be introduced by looking in books and discussing safe searching techniques, such as not putting fingers into crevices. You can also have your students research these organisms to develop their own field first aid kit (see “Tips for a Safe and Effective Field Trip” under Field Trips).

Taxonomic Groups

A good way to begin an OPIHI project is to organize students into teams responsible for studying specific taxonomic groups of organisms found in the intertidal zone, such as fish, echinoderms, or mollusks. During the first phase, students examine their assigned taxonomic group and develop questions by making observations and performing simple experiments to become more familiar with the organisms. These questions can then be answered through experimentations as well as library and internet research. Each group can then present what they discover about their taxonomic group to their colleagues, which provides accountability and helps build a learning community. This portion of the project can be shortened or eliminated depending upon your goals. For example, if you are focusing on a specific area, you may want to have students only focus their projects on organisms common to that site. Organizing your students into taxonomic groups is also a good way to introduce field notebooks.

If you will not be able to observe live organisms in class the student can still familiarize themselves with intertidal organisms by looking at photographs and field guides.

Student groups could still do library and internet research on their taxonomic groups to present to the class.

What to do with Live Organisms

Field Guide: You can have students develop their own personalized identification sheets by collecting the common species at your intertidal site and giving students a worksheet with the organisms' names, with space for students to write a description in their own words of the alga or animal and then draw a picture to remember the species. Students can note any observations made of the live animal's behavior. This identification sheet can be expanded by researching key characteristics and unique features of each species. These student-generated ID sheets can be used on subsequent field trips. (This field guide could also be developed in a similar way on the first field trip). (For more information on field guides – see “Field Guide Final Project” under Assessments.)

Organism Observation: Have students observe a particular intertidal organism for approximately 5 minutes. During this time the students should note the organisms' size, color, texture, morphology, special features, and behavior and draw its' picture (See sample Worksheet). Students should observe both invertebrates and algae. Students can formulate one or more questions about their organisms that can be answered through observation and simple experimentation over the rest of the class period (see Taxonomic Groups day 2 for how guide students to ask answerable questions and develop a testable hypothesis). At the end of class, have students identify their organisms using the ID cards and books and share their findings with their colleagues. (Identification materials should not be given out until the end of the activity to prevent organisms descriptions from limiting student questions.)

Algae: It is especially important to have your students become familiar with and identify the macroalgal species at their intertidal site before the field trip. Most of the organisms under our transects and quadrats will be algae. You may choose to have the students learn about the differences between green, red, and brown algae and identify species as such. It's fun to wrap up an algae lesson by making algae pressings (See Algae and Algae Pressing).

Classification: Have students group all of the organisms you brought back to the classroom based on common characteristics. You can then teach them the scientific classifications of their groups – e.g. echinoderms and crustaceans. This can lead into a discussion of the scientific nomenclature system.

Web ID resources

Bishop Museum website: <http://hbs.bishopmuseum.org/hbs1.html>

University of Hawaii at Manoa's Algae Pages:

<http://www.botany.hawaii.edu/reefalgae/default.htm>
<http://www.hawaii.edu/reefalgae/invasives/index.htm>

General algae webpage: www.algaebase.org

General fish webpage: www.fisbase.org