



Sandy Shores

Concepts

There are many aspects of the sandy shore in Hawaii. Many examples of **abiotic** (non-living) and **biotic** (living) components of a **habitat** (home) can be observed on the sandy shore. This includes a broad range of topics from the individual grains of sand to plants, animals, and more complex biological and ecological interactions. The **sandy shore** is an ecological junction where the sea meets the land providing a habitat where a multiplicity of life forms can find ways to survive, thrive, and interact with each other.

HCPS III Benchmarks

SC 2.1.1

LA.2.1.4

Duration

1 hour

Source Material

MARE Sandy Shores

Vocabulary

Abiotic

Biotic

Habitat

Sandy Shore

Hawaii's Sandy Shores

Summary

Students will be introduced to basic vocabulary that they will encounter continually throughout the sandy shores unit. As they acquire information and construct knowledge, they will gain a better understanding of the sandy shore and the plants and animals that live in and utilize the habitat.

Objectives

- Students will identify what they know about the sandy shore environment
- Students will identify things they want to know about the sandy shore environment.
- Students will learn the aspects of being a good observer through hands-on learning activities.
- Students will make predictions about what they might find on the sandy shores of Hawaii.

Materials

1 Beach Bucket

Example vocabulary words for the sandy shore

K-W-L Chart

“I think of” worksheet

Plain white paper (1 sheet/student)

Crayons or coloring pencils

Making Connections

Students may recall personal experiences when they have visited Hawaii's sandy shores. These experiences will be represented in their ability to recall and provide personal perspectives on different aspects of the sandy shore.

Teacher Prep for Activity

Make a list of six or more words (or use the list provided on the following pages) associated with the sandy shore environment. Cut out the words and place them in a beach bucket for students to draw from during the activity. Copy one each of both the K-W-L chart and “I think of” worksheets per student in your class.

Background

No background materials are necessary for the students at this point. The introduction to this unit is designed to acquire information about what the students already know and want to learn about the sandy shore. Provide a brief description of the unit topic and the types of things they will be exploring and learning about throughout the unit.



Procedure

1. Start a sandy shores vocabulary list that you will add to at the beginning of each lesson and hang it in front of the classroom while they work. Read, define, and write the new vocabulary words from this lesson on your list.
2. Work with the students to complete the K & W portions of their sandy shore K-W-L chart. (HINT: It helps to make a master chart on the board in front of the class to provide a visual example of what they should do.) (~ 5 minutes)
3. Collect the K-W-L charts and pass out an “I Think Of” worksheet to each student. (HINT: Keep the K-W-L charts together in a safe place. You will need to get them out again at the end of the unit to have the students fill in the L portion).
4. Read the directions for “I Think Of” aloud as a class. Explain that one student will pick a word out of the beach bucket. They need to write that word in the left column of their worksheet. Then, they will have ~ 4-5 minutes to write down the words or phrases that they first think of when they hear that word in the right column of their worksheet.
5. Walk around and have one student at a time pick a word from the bucket, read it out loud to the class, and facilitate completion of the worksheet for each word.
6. Repeat step four until all the words have been used and the worksheets are complete. (~ 30 minutes)
7. Collect the “I Think Of” worksheets and pass out a blank piece of white paper.
8. Next, explain that they need to think about and make predictions about what things they might see on the sandy shore during their field trip. If a field trip is not an option, simply have them imagine what their sandy shore would look like if they were going on a field trip. Have each student write the name of their beach at the top of the page (e.g. Sylvie’s Sandy Shore). Tell the students to draw a picture of all the living and nonliving (biotic and abiotic) things they think or predict would be found on their sandy shore.
9. To end the session, review the key concepts listed below and close the session by congratulating the students on working hard and on the successful start to their new science unit on “Sandy Shores.”

Key Concepts:

- 1. The sandy shore habitat is made up of abiotic and biotic components.**
- 2. The sandy shore provides a place for many kinds of plants and animals to survive, thrive, and interact with each other.**

Assessments

Worksheets Completed

Prediction drawings completed

Extension Activities

If possible this lesson should/could be followed by a field trip to a sandy shore. While visiting the sandy shore students should examine sand samples from different areas along the sandy shore (e.g. rocky and sandy areas). The teacher and fellow should borrow, with intent to return, very small sand samples (1/2 snack size Ziploc bag) from the beach. (TIP: If collecting sand is not optimal due to cultural practices of the teachers and/or students, conduct the “What is Sand?” lesson during the field trip. This will make the field trip longer, but will avoid the taking of sand). Students should also make field observations of the abiotic and biotic things they see during the field trip. If you have time, during the field trip sit in a circle and have each student tell you



what they see within the sand. Then go around the circle and have each student say “I see _____ and it is abiotic OR biotic.” You will find the worksheet designed to accompany the field trip within the lesson materials. Each student should get a copy of the worksheet. This may also be a good time to do the KNOW portion of the unit K-W-L chart. If so, skip step 1 in today’s procedure and begin with step 2. Step one will be completed at the sandy shore when the class first arrives. Take chart paper, markers, and easel or large surface to write on to the sandy shore. Do only the KNOW portion with the students on the field trip. They can fill out the KNOW and WANT TO KNOW portions of their worksheets once back in the classroom.

Literature Connection

Discover Hawaii’s Sandy Beaches & Tide pools by Katherine Orr

The beginning of the book discusses highly relevant topics such as how waves and currents make the beach, what sand is made of, why sand is different colors, and what life is like for plants and animals on the beach. The remainder of the book moves on to discuss tide pools and provides a good review of information the students may have learned about in first grade. The tide pool organisms in the book are also a good review and introduction to sandy shores. The students may see some of these organisms on Hawaii’s shores that are sandy with some rocky portions.

Art Connection

Who Lives on the Sandy Shore Classroom Door

Using the plant and animal coloring/riddle sheets that come with this lesson design and make your own sandy shore on the door of your classroom. Cut out the riddles for each of the coloring pages and give each student a riddle without the animal or object’s name on it. Have the students bring the riddle sheet to you and guess the animal or object that the riddle is describing. Then, give them the coloring page that goes with it. Explain that they will each be responsible for coloring and cutting out the plant or animal that matches their riddle. (HINT: it is fun to play the riddle game after the art activity to see what they learned and shared with one another while coloring and cutting SO mention it while they are working and encourage them to pay attention to the information on their riddle card). After all the students have finished coloring and cutting out their picture, have each student come up to the door one at a time and place it in the area of the sandy shore where they would most likely be found. (HINT: the students like to write their name next to their animal or plant on the door and claim their work)

Door Prep: First, cover the bottom of the door with blue paper to symbolize the ocean (it helps to draw a few waves), cover the middle of the door with brown paper and sand paper scraps to symbolize the sandy shore, and finally cover the top of the door with blue to symbolize the sky (it helps to draw a sun and maybe a cloud or two). Then, think of a title for the door that pertains to the sandy shore and overall unit and place it at the top of the door or along the side. Finally, draw additional landscape features (mountains, trees, etc.) on the door where there is open space to fill in the gaps. If there is no room on the door for this backdrop, it can simply be made in landscape form, and be a poster on the wall in the classroom.

* Coloring Pictures originated from multiple sources including google images, MARE sandy shorelines, and Hawaiian coloring books.



STUDENT NAME _____

1. Write the word that was picked from the beach bucket in the left side or column of the chart.
2. Write down the first thing that you think of when you hear the word on the right side.

When I Hear The Word...	I Think Of...

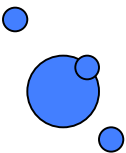


STUDENT NAME: _____

Sandy Shore K-W-L Chart



What I KNOW About The Sandy Shore	What I WANT TO KNOW About The Sandy Shore	What I LEARNED About The Sandy Shore





SAND

CRAB

TURTLE

PALM

TREE



SAND CASTLE BEACH WAVES



STUDENT NAME _____

Sandy Shore Field Trip Datasheet



We visited:

I saw these things on the sandy shore:

BIOTIC	ABIOTIC



How were your observations today different than what you predicted you would see at the sandy shore?



Above the Sand

Hermit Crabs (Left Handed & Seurat's)

I hide in my shell home when I am scared.

I am a decapod which means I have 10 legs.

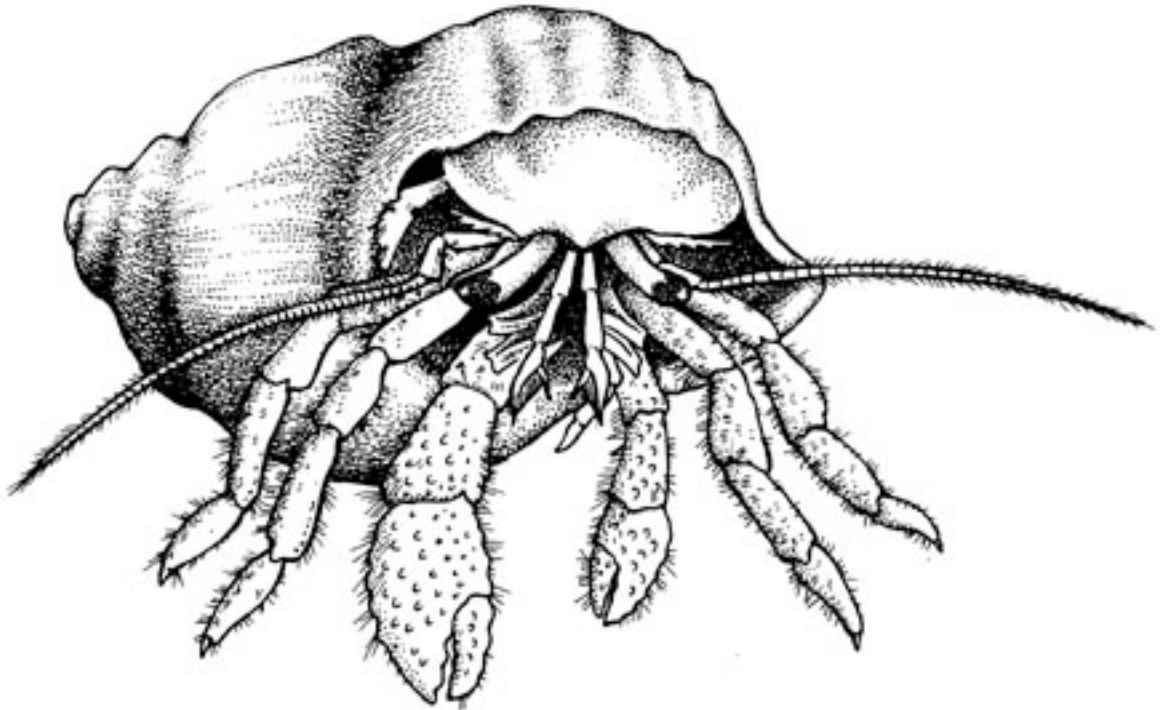
When I get too big for my home, I move into a new one.

I am the most active at night.

I come in many shapes and sizes.

My shape and size may change often.

My left hand is a lot bigger than my right.





Above the Sand

Hawaii Green Sea Turtle

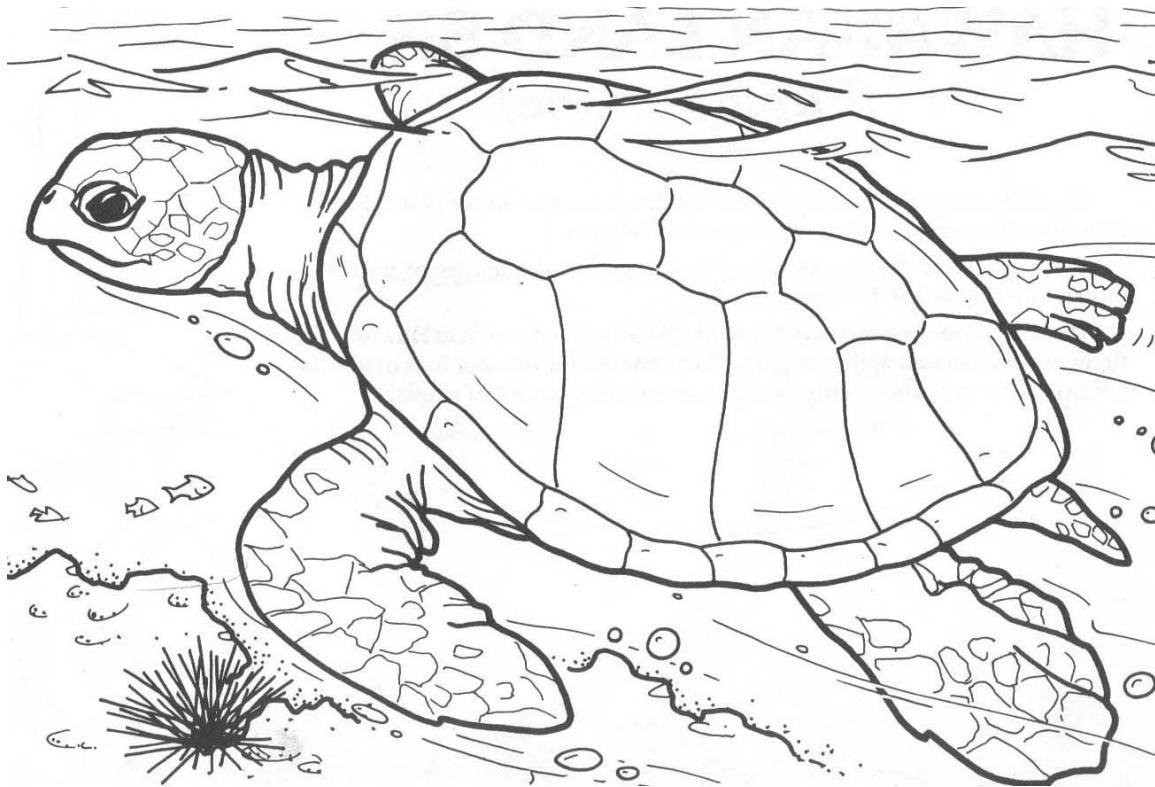
My name in Hawaiian is “Honu”.

I have the largest shell in my family.

My favorite food is green algae called limu.

I am hunted for my shell and meat for jewelry, money, and food.

Human related disturbances like hunting, marine debris, and coastal development have made me an endangered species.





Above the Sand

Hawaiian Monk Seal

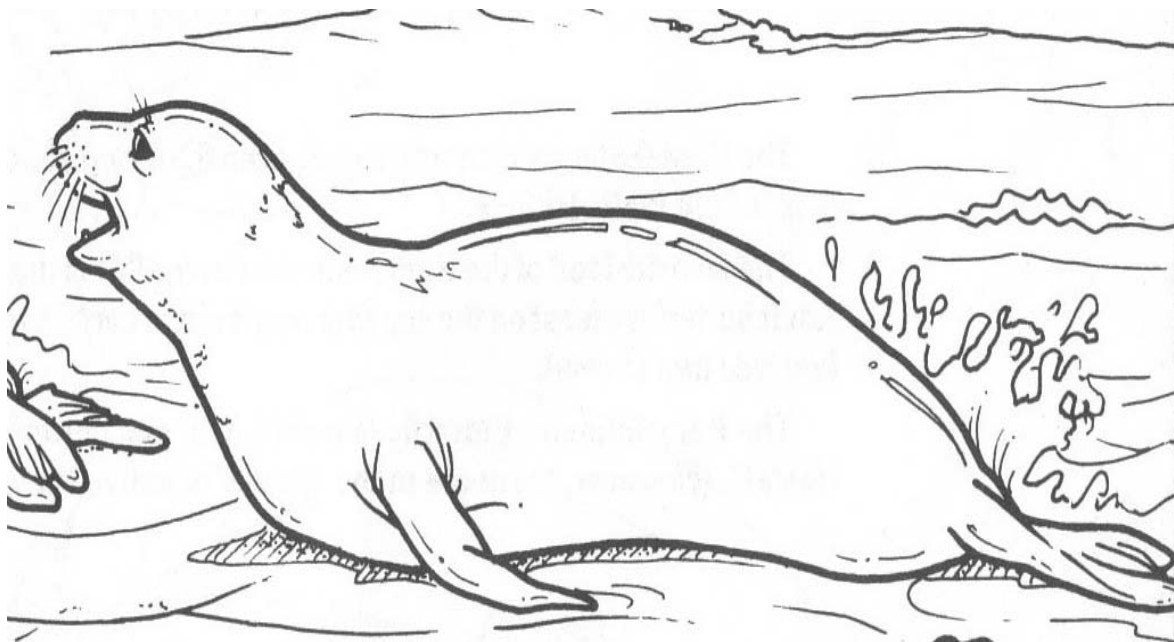
I live mostly in the Northwestern Hawaiian Islands.

I like to eat fish, spiny lobsters, octopus, eels.

I am an endangered species.

I come to shore to rest and have babies.

I can dive up to 600 feet and hold my breath for 20 minutes.





Above The Sand

Limu (Seaweed)

I am usually greenish in color.

I like to live on coral reefs.

I am a favorite food of vegetarians like the honu.

Sometimes you can find me washed up on the sandy shore.



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Above The Sand

Cowry (Reticulated)

I am one of the most commonly collected shells.

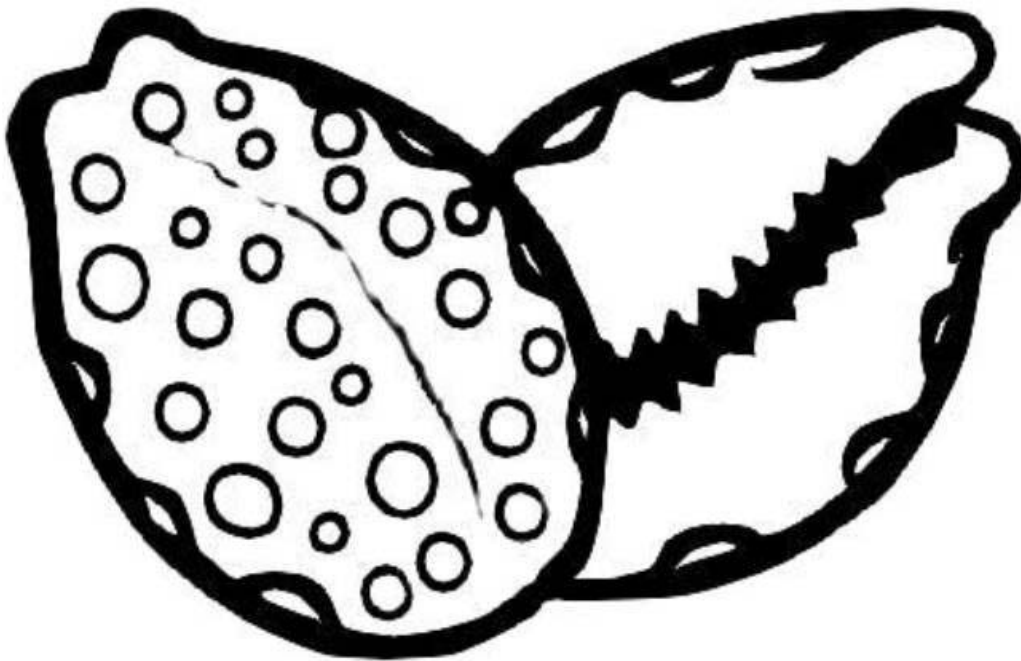
I make nice jewelry like earrings and necklaces.

I have a hard shell and soft body inside the shell.

In water you can find me attached to rocks and under ledges during the day.

I am nocturnal and only like to come out and move around at night.

You can find my shells washed up on the shore but sometimes it may be broken.





Above The Sand

Broken Coral Fragments (Cauliflower Coral)

I am usually found in warm, tropical waters.

I am made up of millions of tiny organisms called polyps.

I can be many different colors.

I look like white rocks when found on the shore.

I provide a home for all types of animals like fish, octopus, shells, and others.





Above The Sand

Hawaiian Stilt

I am an endangered bird species found in Hawaii.

I have long, bright pink legs that look like stilts.

I like to live in wetland areas like marshes, ponds, and near the shoreline.

I have a long bill, am white on my underside, and dark black on top.

I like to wade in the shallow water of my habitat.





Above The Sand

Pacific Golden Plover (Kolea)

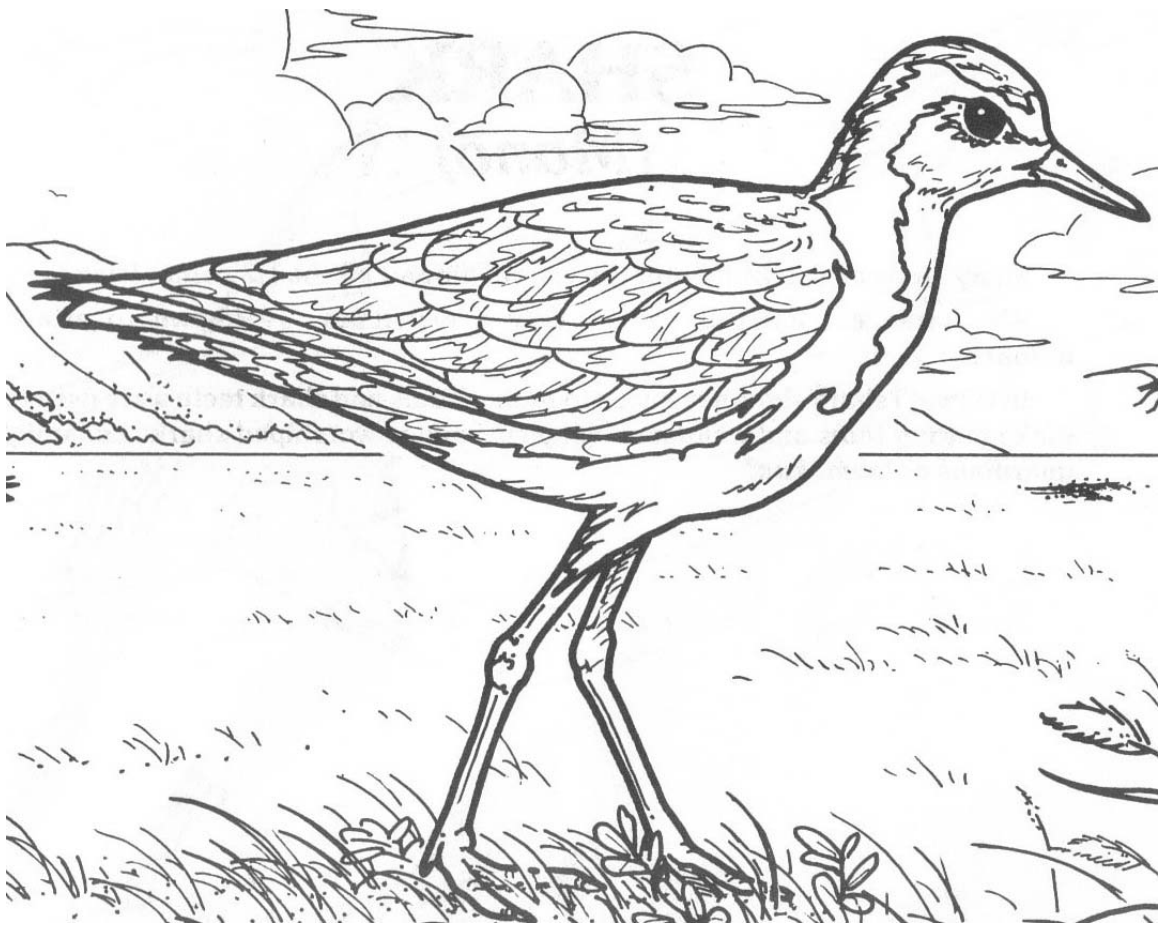
I fly to Alaska from Hawaii every summer to nest and have babies.

I fly 3,000 miles in 2 days at a speed of 60 miles per hour.

I can be seen in many different places like grasses, rooftops, trees, and along the shore.

I am mottled color when I arrive in Hawaii in the winter.

I have a black spot on my chest when I leave Hawaii in the summer.





Above The Sand

Hawaiian Mussel

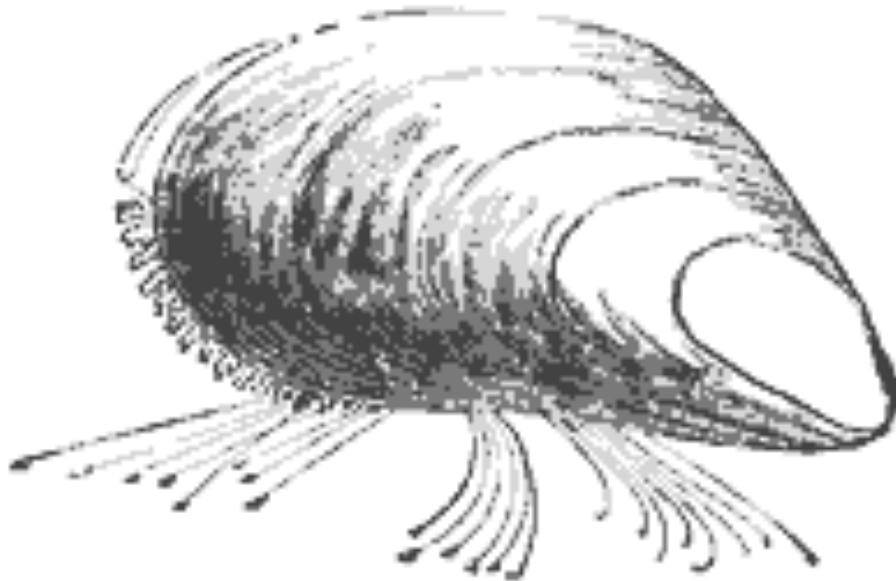
I usually am half buried in the sand on the shore.

I like rocky, intertidal or high wave action shorelines.

I attached myself to my home with strong byssal threads.

I live in large groups with lots of other Hawaiian mussels around me.

I have a black, roundish shell with two perfectly matched sides.





Near The Shore

Beach Naupaka

I am a shrub and can be found in the mountain or near the beach.

My flower is look like it is cut in half or missing petals.

If you combine the flowers from my shrub in the mountain and the beach we are a perfect match.

I am one of the most common beach plants found in Hawaii.

My leaves can be used to defog your snorkel mask before you get in the water.





Under & Above The Sand

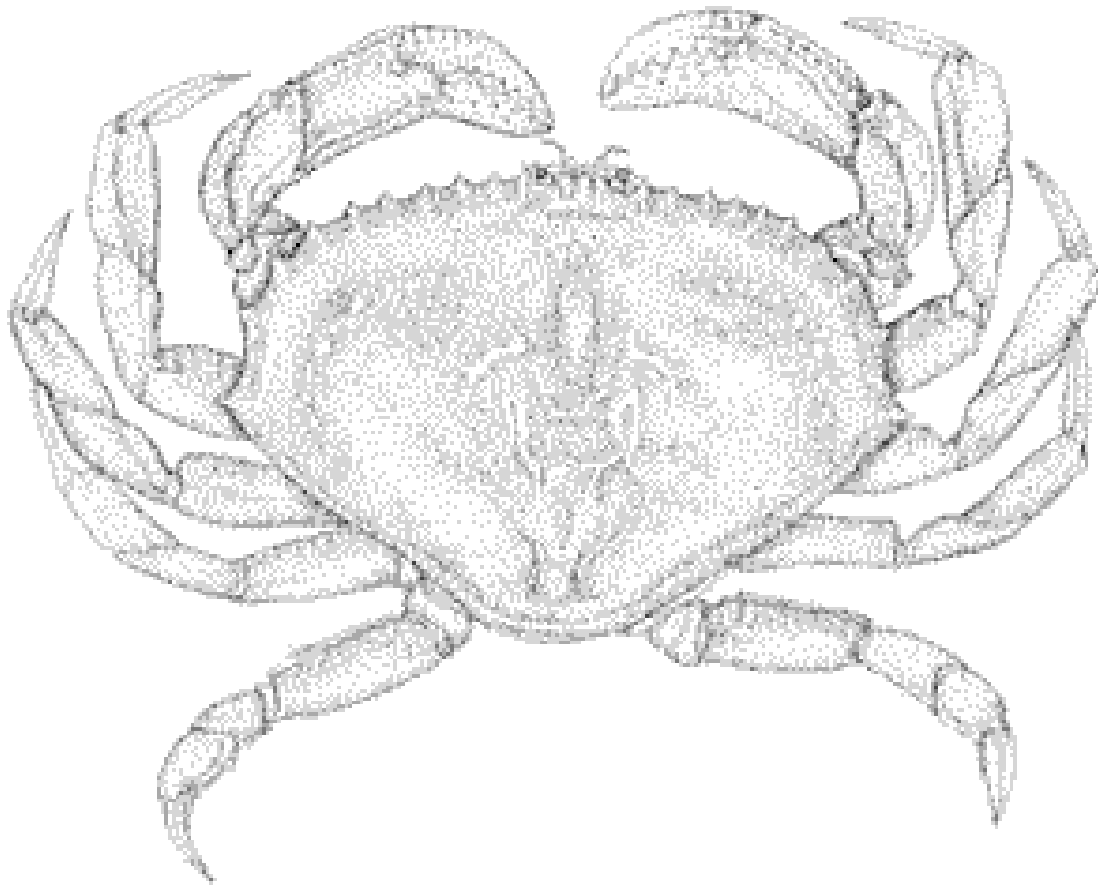
Ghost Crab

I am pale in color and difficult to see.

I live in burrows on the shore near the waterline.

I am mostly nocturnal BUT some kinds of me can be seen at dusk and dawn.

I have ten legs, am very fast, and can move in all directions.





Above The Sand

Wandering Tattler

I live near mud flats, sandy beaches, rocky coastlines, and streams.

I usually live by myself or sometimes travel with one other.

I only live in Hawaii in the summer and fly to Alaska for the winter.

My Hawaiian name is Ulii.

I have a long bill, spotted feathers, and orange or yellow legs.

