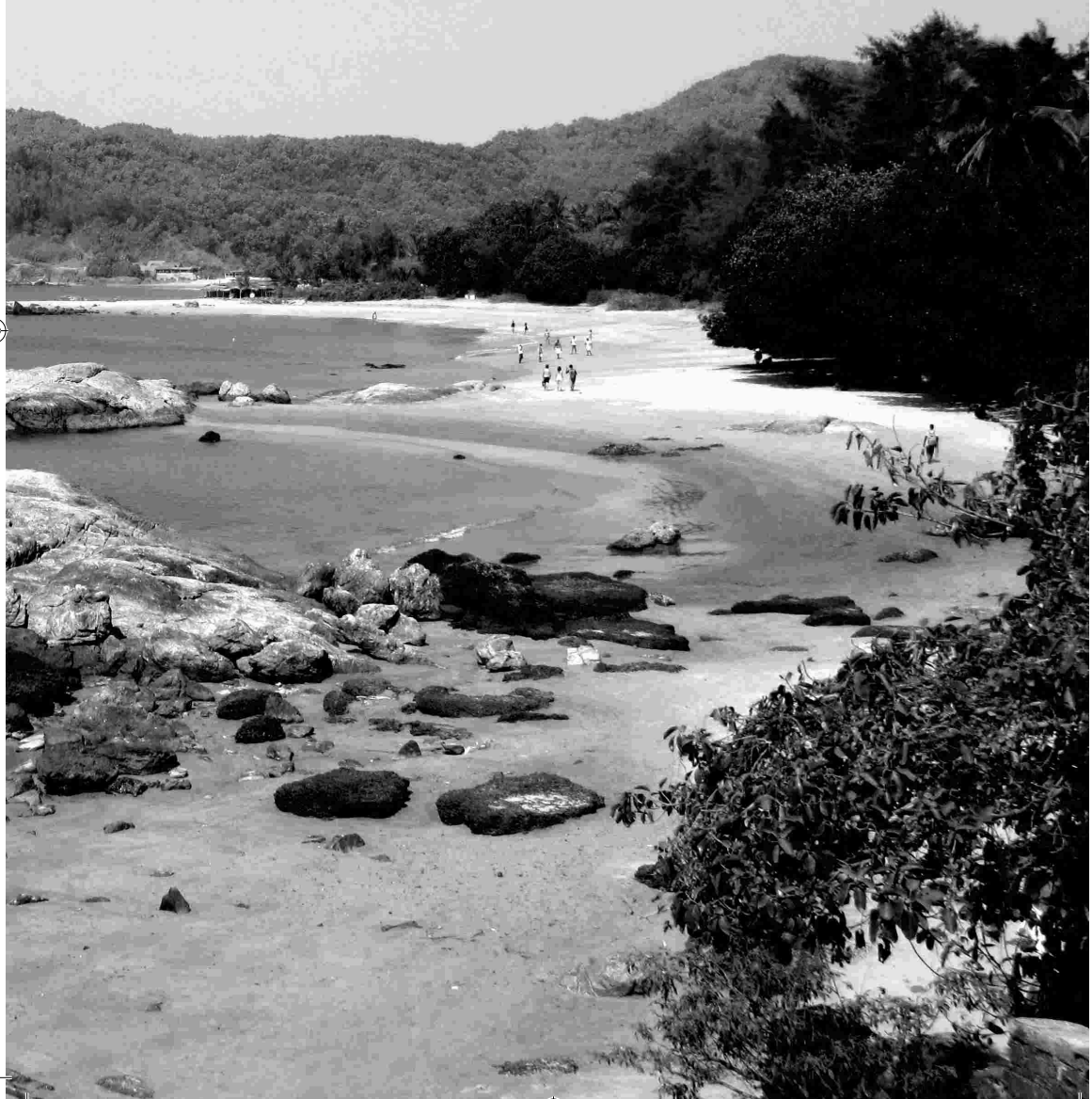
THE HONNAVAR COASTAL ECOSYSTEM: AN INTRODUCTION



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Introduction to Honnavar's Coastal Ecosystem by *Dakshin Foundation*

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dakshin

Karnataka
One state. Many worlds.
Department of Tourism

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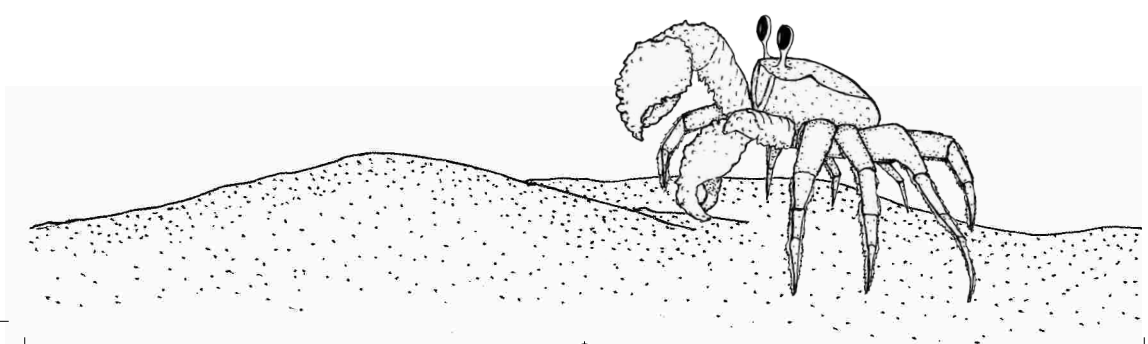
MY NAME IS: _____

I LIVE IN: _____

I AM IN CLASS: _____

I GO TO SCHOOL: _____



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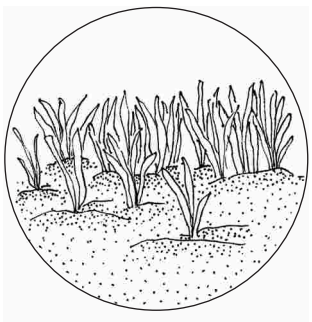
HOW TO USE THIS BOOK

This book is to help children, teachers and visitors to the Sharavati learning centre explore Honnavar's coastal system. It is a mixture of information, activities, fun and learning. It has been designed for individuals to work together and to learn from the field and the community.

This book is only a general introduction to Honnavar but choose from several supplementary books to learn about Honnavar's coastal ecosystems in greater detail. Look for the sticker on the cover!

The activities in these books require you to go out into the field and explore your surroundings through observations, investigations and simple interviews. Remember, always be gentle while exploring spaces and always be courteous when asking people for their time. But above all, always remember to have fun and be as creative as possible!

Reefs



Seagrass

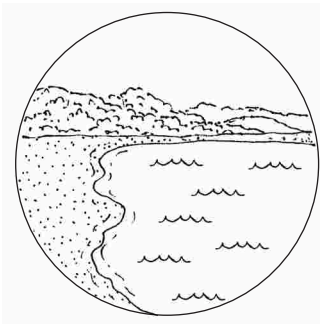
Mangroves

YOUR COAST

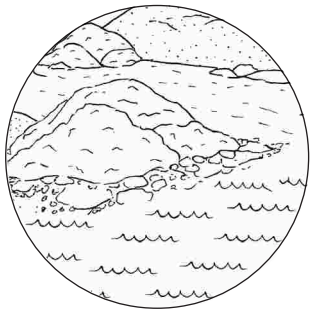
India's coasts are special. All along its length of about 7,500 km, people live in large numbers. It is estimated that nearly 250 million people live within 50 km from the coast. The coastal area is an amazing neighbourhood with very interesting inhabitants. Found here are underwater building colonies (coral reefs), grassy meadows growing underwater (seagrasses), trees with strange and visible roots (mangroves), shores of rocks, sandy stretches (sandy beaches) and hillocks of sand (sand dunes).

Each of these neighbourhoods is called an ecosystem. These coastal ecosystems support a host of life forms and together they form a sort of protective shield against any harm that waves, storms or cyclones may bring.

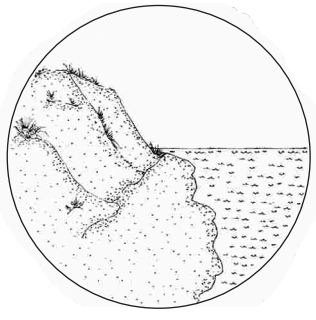
In many parts of the country people know and respect these ecosystems. But, in other places, coastal ecosystems are being destroyed, exposing people who live by the coast to the destructive forces of the oceans. Through this book series we will explore and learn more about these ecosystems and the people and livelihoods that they support.



Sandy beaches

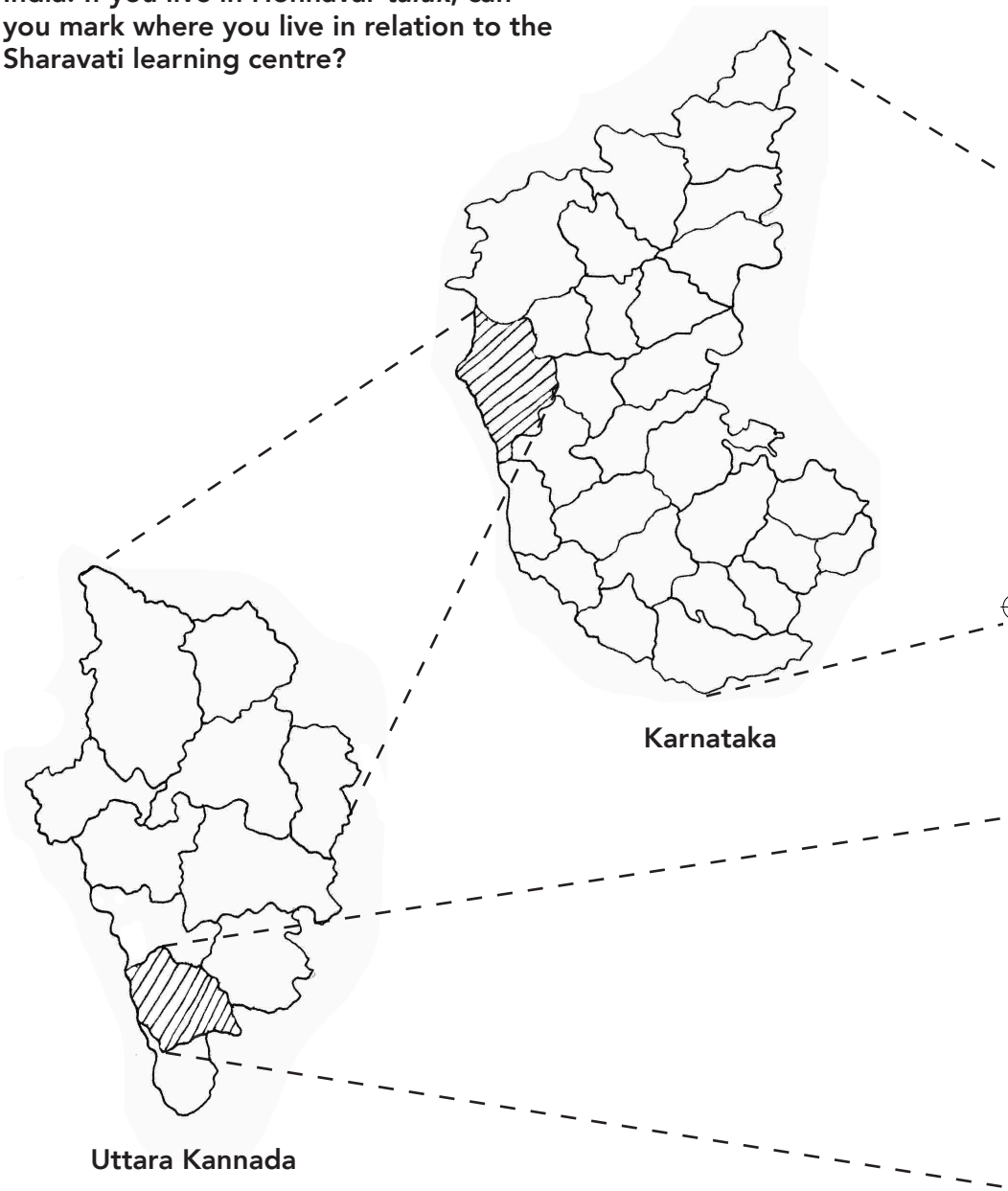


Rocky beaches



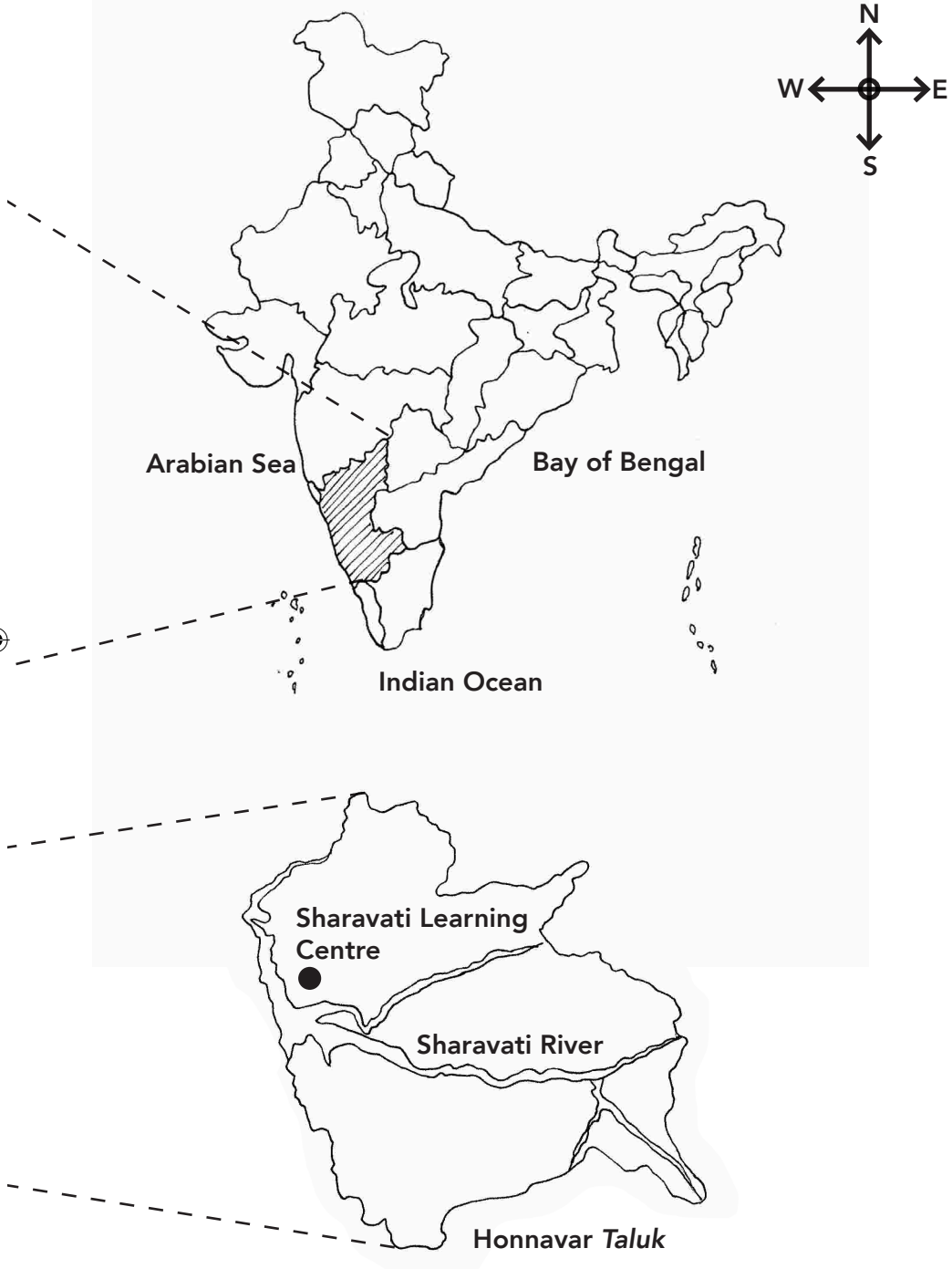
Sand dunes

Mark out where you live on the map of India. If you live in Honnavar *taluk*, can you mark where you live in relation to the Sharavati learning centre?



Karnataka

Uttara Kannada

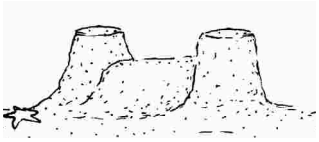

N
W
E
S
Arabian Sea
Bay of Bengal
Indian Ocean
Sharavati Learning Centre
Sharavati River
Honnavar *Taluk*

ACTIVITY 1

VISIT TO THE SHORE

Have you visited the coast by your home before? What was it like?

Describe your experience in the space below. Remember to think about the some or all of the following: Why did you go? Had you been there before? What did you do when you went there? Who did you go with? What did you see? What did you hear? How did you feel? Is there anything that you see you at the learning centre that reminds you of your time at the coast? Is there anything else that you would like to add?



Draw one thing that you remember most about your visit to the coast. It could be an animal, a bird, or anything else that comes to mind!

MAPS

A map is a representation on paper of the things that you see around you. A map can be drawn about anything you want. You must have seen lots of maps in your geography textbook. In general, a good map includes a:

- Title: This tells you what the map represents.
- Date: This tells the person reading the map when the map was drawn.
- Legend: This is a key that communicates the meaning of the symbols that the map-maker (cartographer) has used to represent different things on the map.
- Orientation: This marks the directions on the map - north, south, east and west.

Reading a map

Look at the map on the neighbouring page, and use its legend to find everything that is represented on it.

Once you examine the map closely, decide whether this village is on the east or west coast of India. How can you tell?

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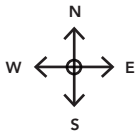
Title: A small town

Date: 1st June 2016

Orientation:



Legend:

Sea

Sandy beach

Rocky intertidal

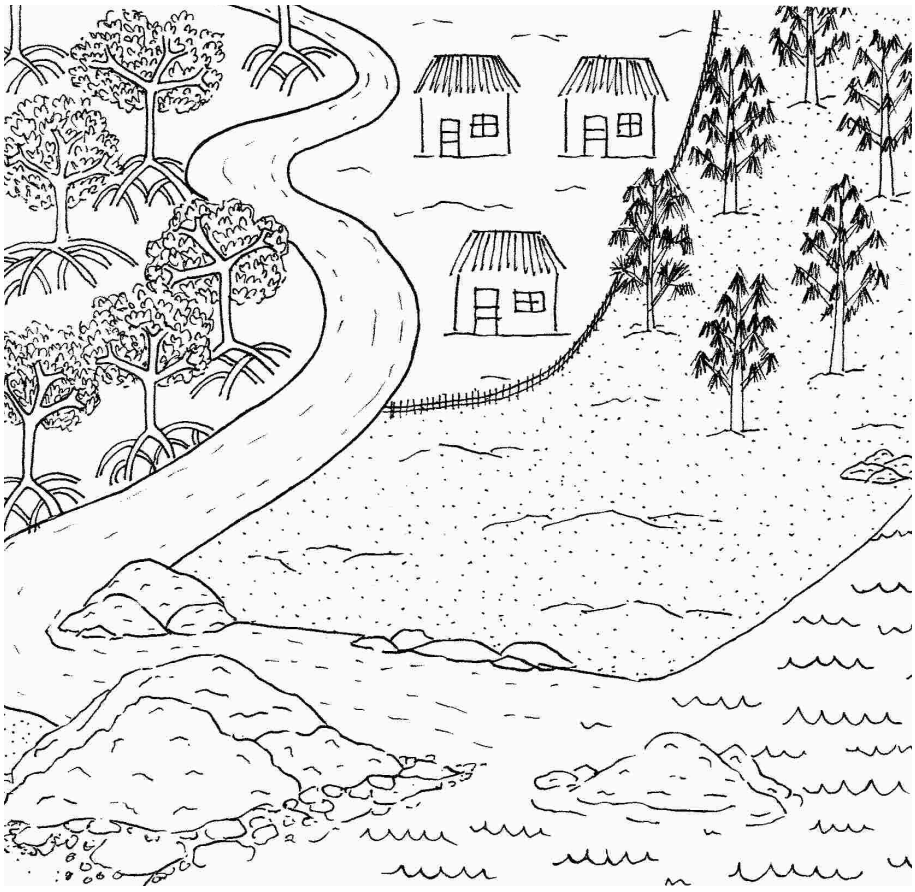
Casuarina plantation

Village

River

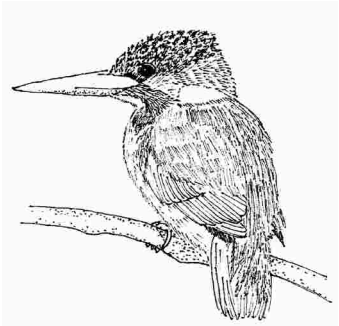
Mangroves

Fence



ACTIVITY 2

GETTING TO THE COAST



Draw a map of the path that you would take from your home to the beach. Use the help of your teacher, parent or friend as needed.

Much like the map you just read, make sure your map has a Title, a Date, a Legend (marking all the things that you would see along the way) and an Orientation marked.

Time: 20 mins

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Title: _____ **Orientation:**

Date: _____

Legend:

THE ELEMENTS THAT SHAPE OUR SHORES

Winds

Caused by the uneven heating of the Earth's surface, winds are one of the most powerful of nature's wonders. Sailors use them to sail, you use them to fly kites and they are used to generate electricity through wind turbines. Interestingly, winds are also one of the main causes of waves.

Waves

Wind blowing over the sea surface transfers its energy to the water below causing waves to form. A wave's size depends on how fast, how long, and the area over which the wind is blowing.

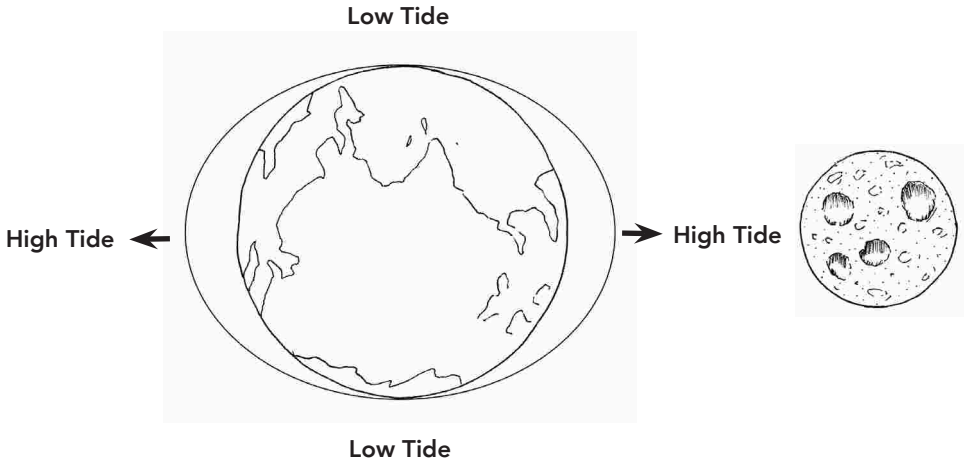
Some winds make waves hit the shore at an angle. These winds deposit sand, seashells and sometimes garbage on to the shore. Or they take away sand from the coast to deposit it elsewhere. As a result, each passing wave changes the shape of the beach.

During storms and cyclones, when winds get very strong, waves smash on the coast and can wear down rocks to rubble, wash away soil from around tree roots causing them to topple or tear away a large amount of sand from a beach. Never underestimate the power of a wave!

Tides

Tides are actually waves, the largest waves on the planet. They are the repeated rise and fall of large bodies of water like the sea and are caused by the gravitational pull, or the pulling force of the moon and the sun.

The moon, being much closer, has greater gravitational pull and therefore is the stronger force creating the tides. Tides can be larger or smaller depending on where the moon and the sun are in relation to the Earth as the Earth rotates on its axis. The moon and sun's pull cause two bulges called high tides on opposite sides of the earth. When the moon moves away, the water slowly goes down and this is called low tide. Tides are highly predictable. In India, there are two high tides and two low tides every 24 hours, each roughly 6 hours apart.



Effect of the moon's gravitational pull on the ocean.

Currents

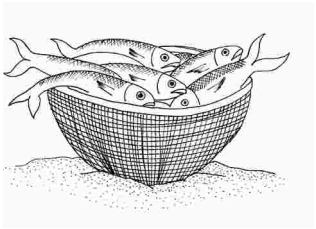
An ocean current is a continuous movement of seawater in a particular direction. Currents close to the shore which affect fishermen are mostly caused by breaking waves, winds and tides. There also exist deep currents and many other sources of current formation but those are more complicated and we won't talk about them now.

ACTIVITY 3

THE ELEMENTS AND FISHER FOLK!

The elements that shape our shores have special importance for fisher folk since their lives and livelihood depend on it.

Interview a fisherman from a nearby village to understand how winds, waves, tides and currents affect their lives.



If you are conducting this interview as a class, set-up a meeting with only one person so all of you can ask questions together. Make sure you maintain order while asking your questions as a group. Ask questions in turn and pay attention while others are speaking. Don't forget to introduce yourself before the interview and thank the person for giving you their time!

Winds

1. What direction do the winds blow in?
2. What are the patterns in wind flow in your region?
3. What all can you understand from how the wind blows?
4. How do winds affect fishing?

Add more questions that you have related to winds below:

_____

_____

_____

_____

Waves

1. What are waves like far away from shore?
2. How do boats stay afloat in spite of strong waves?
3. Why are waves sometimes strong and sometimes gentle?
4. Do waves affect fishing activity? How?

Add more questions that you have related to waves below:

_____

_____

_____

_____

Tides

1. When are tides the strongest and when are they weak?
2. Do you know any stories/myths related to tides?
3. Why are tides cyclical?
4. What relevance do tides have for fishing?

Add more questions that you have related to tides below:

_____

_____

_____

_____

Currents

1. Do you know about local currents?
2. How are currents formed?
3. What direction do the currents move in?
4. How do currents impact when and where you go fishing?

Add more questions that you have related to currents below:

_____

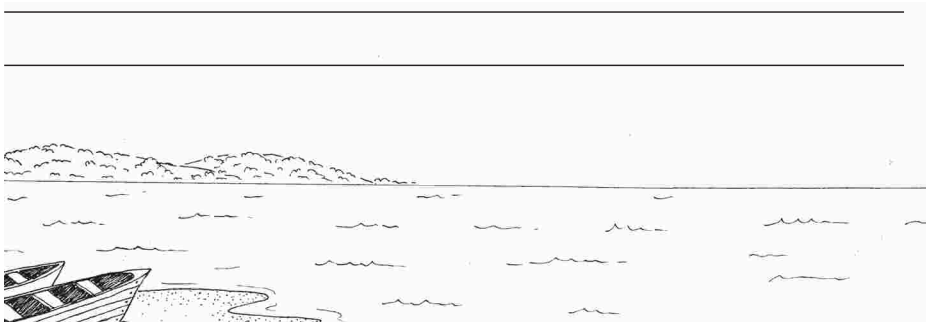
_____

_____

_____

Write your answers on the following two pages.

Answers:



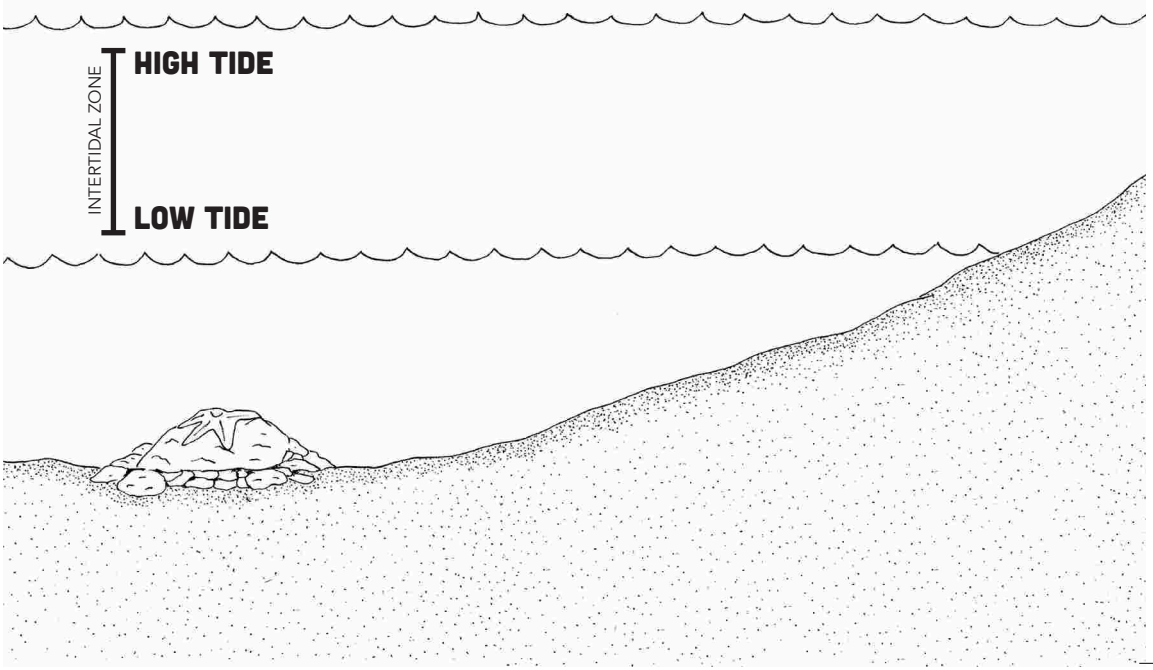
After the activity, spend 10 minutes to share and discuss your findings with your classmates, friends or family.

THE INTERTIDAL ZONE

When you go to the shore, you may observe that the level of water has gone much further down than what it was a few hours before. Rocks and mangrove roots that you hadn't seen before may now be entirely visible.

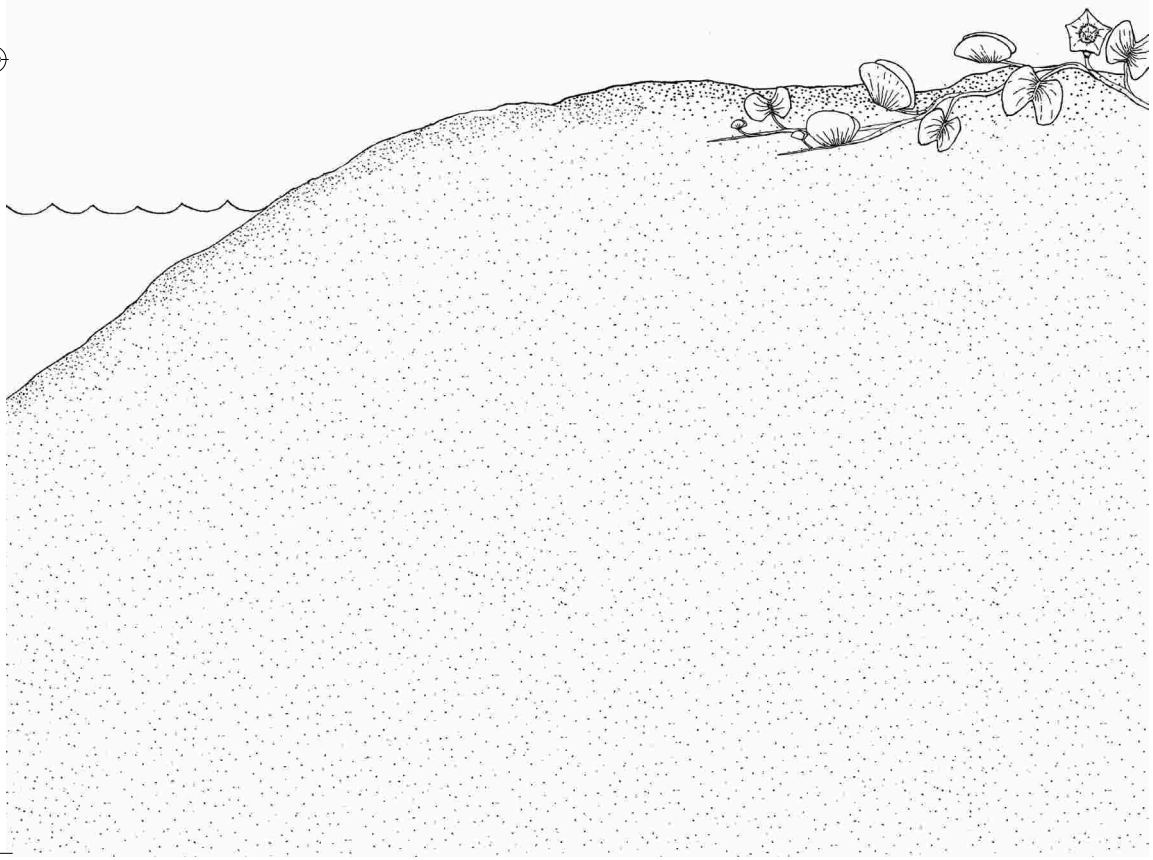
You may even notice that there is a line running along on the coast, above which the sand, rocks and trees are dry and below which they are moist. This line, where you often find a collection of natural and man-made objects is called the drift line. The drift line or the high tide line marks the highest point to which the water rises.

The strip of land that alternately gets submerged and exposed with the rise and fall of the tide, or the area between the high tide line and low tide line is called the intertidal zone.



The intertidal zone comprises of any ecosystem that is found along the coast and in the Honnavar region this includes sandy beaches, rocky shores and mangrove forests.

The intertidal zone is shallow and constantly disturbed by waves. The region also gets exposed to the sun during low tide. In spite of these difficult conditions, many organisms live here and are aptly called intertidal organisms. Many creatures such as fish and shore birds move in and out of intertidal areas but other organisms are permanent residents and have to cope with these constantly changing conditions.



ADAPTATIONS

Intertidal zone
All organisms living in the intertidal zone need water to survive and have to adapt to two major conditions:

1. Drying Out: Long periods of exposure to air, heat and lack of water during low tide.

2. Wave Action: Continual disturbance due to the action of waves.

Organisms beyond the intertidal zone
Organisms that live above the high tide line have their own set of challenges to deal with. Conditions of high salt content in the ground is a huge challenge for plants which they have all learned to deal with in their own, magnificent ways.

SUPPLEMENTARY BOOKS

Every ecosystem has different features and different organisms that inhabit them. Pick up a book about any of Honnavar's intertidal ecosystems to learn more about the organisms and their adaptations that help them cope with ever changing conditions. These organisms will include those that are intertidal and those that live above the high tide line or below the low tide line.

Learn more about human dependence on these ecosystems and the ways in which we are using them, causing harm to them and the ways in which we can protect them.

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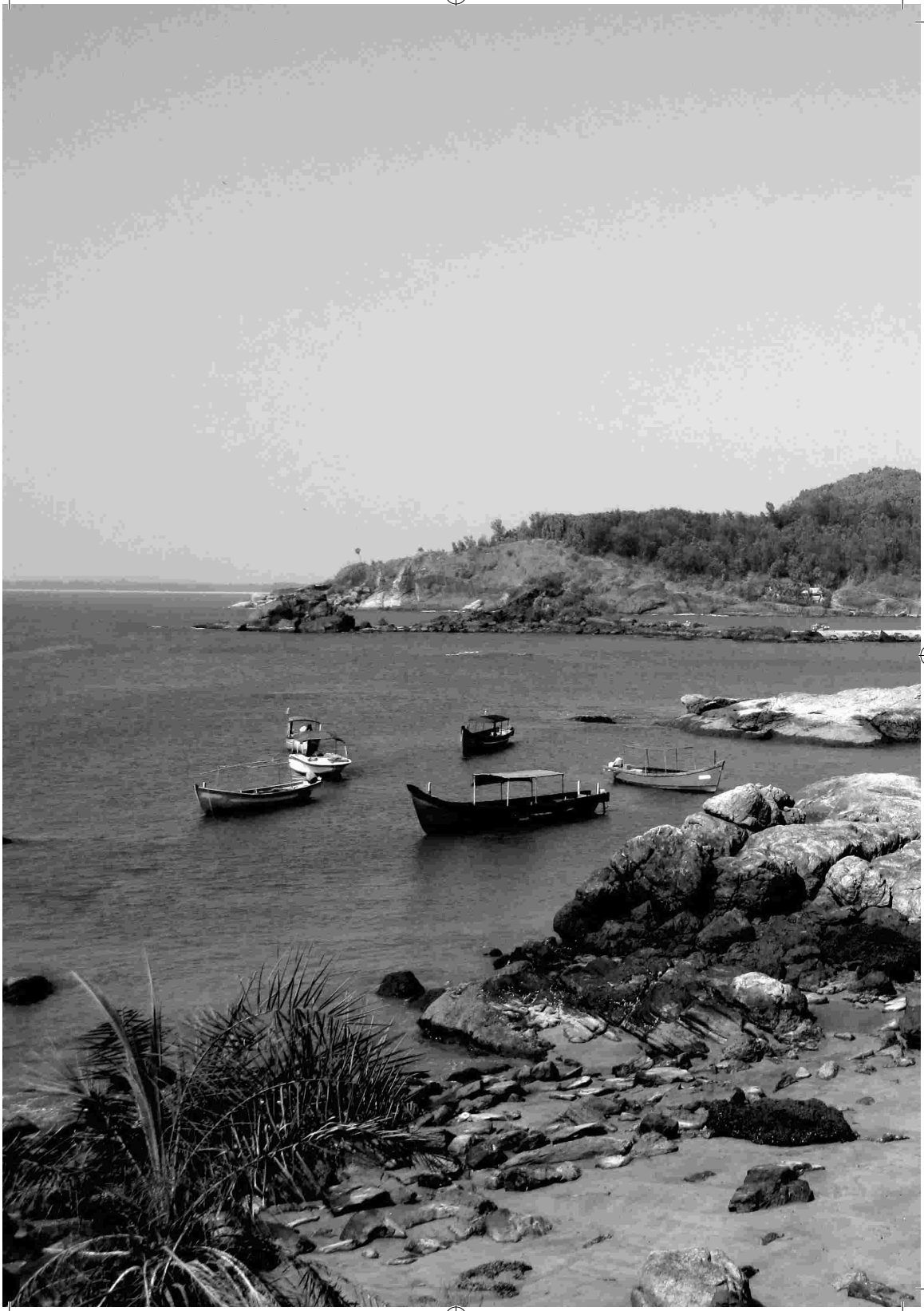
This series currently includes:



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