Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS

WHERE RIVERS MEET THE SEA

The amazing coast of Bangladesh




WHERE RIVERS MEET THE SEA

The amazing coast of Bangladesh

Remeen Firoz

Editors
Enamul Mazid Khan Siddique
Dr. Istiak Sobhan
Dr. Anwara Begum Shelly
A.B.M. Sarowar Alam
Muhammad Mizanur Rahman

Language Editor
Sadia Rahman

Layout and Design
Sheikh Asaduzzaman

Illustration: Kaniz Rumi, Shazia Ahmed Farah, Enamul Mazid Khan Siddique
Cover design: Progressive Printers Pvt. Ltd.
Printed by: Progressive Printers Pvt. Ltd.

Google earth is being acknowledged for the sattelite imageries.
ISBN: 978-984-33-7729-6

This book is produced for non commercial purposes

Produced by: Mangroves for the Future (MFF) Bangladesh with financial support of Norad, Sida and DANIDA

CONTENTS

FROM HIMALAYAS TO THE SUNDARBANS

Melting glaciers and rain in the eastern Himalayas flow from north to south and from east to west taking the form of numerous streams and rivers. Finally they all meet in the Bay of Bengal, taking the shape of a beautiful country called Bangladesh. Its a country rich in diversity of life, nature and culture.

There are mangroves, swamps forests, semi-ever green and deciduous tropical forests, large wetlands, lakes, large and small rivers, hills and plains in Bangladesh.

Bangladesh hosts more than 160 million people within its area of 1,44,570 square kilometers. It has the 8th largest population in the world. Most of its people speak in Bangla, but there are people belonging to more than 29 ethnicities all speaking different languages. Life in Bangladesh is full of color and diversity.

Life of communities is closely linked to their natural surroundings. They depend on forests, hills, rivers, lakes, wetlands, grasslands, beaches, the sea and so on for the services and goods necessary for survival.

This unique diversity of nature and people is also found in the coastal zone of Bangladesh where the land meets the Bay of Bengal. The country's coast stretches out up to 200 nautical miles from the shoreline and is about 710 kilometers long. It reaches all the way around the Bay of Bengal between Bangladesh's south-western border with India and the country's south-eastern border, with Myanmar.

This amazing coast hosts the Sundarbans-worlds largest mangrove forest in its western part; a dynamic delta in the middle where islands and taking new shape every day; Cox's Bazar-the longest sea beach in the world in its southern part and Saint Martin's-a coral reef bearing island at its southern most tip; the meeting point of South and South East Asia.

COASTAL ECOSYSTEM CASCADES

Ecosystem means all the living things like plants and animals and microbes interacting with their non-living environments like weather, earth, sun, soil, and atmosphere. It can be as small as the space underneath a rock, a pond or as big as an ocean or the earth itself.

Ecosystems can be seen as cascades; boxes inside a large box and smaller boxes inside those boxes.

Coastal ecosystems are the ecosystems found in the zone where the land meets the sea.

Some of us know of ecosystems like mangroves, beaches, dunes, mudflats, estuaries, tidal rivers, corals, lagoon and sea grasses; Don't we?

Mangroves

Tidal river

TIDAL RIVERS

The river that flow directly into the sea is called tidal river. Interestingly the direction of the rivers water flow changes four times in a day.

Bangladesh is a land of rivers and many of these rivers are tidal rivers. Mighty Meghna is the largest among them. Ganges and Brahmaputra rivers from the upstream fall into Meghna and form the Ganges-Brahmaputra-Meghna (GBM) river system.

Scientists estimate that every year this river system transports a huge amount of sediments from the Himalayas to the Bay of Bengal. This load of sediment is so huge that it would take more than 300 million six tonne trucks to carry it all!

Other well known tidal rivers of the country are Karnaphuli, Matamuhuri, Naf, Baleshwar and other rivers in and around the Sundarbans.

A tidal river in Nijhum Dwip National Park

Can you tell why tides occur?
Because the Sun and the
Moon attracts the water!

A high tide
In a tidal river, when the water flows from the direction of the sea towards the main land twice a day; it is called high tide.

A low tide
In a tidal river, when the water flows towards the direction of the sea twice a day; it is called low tide.

Shushuk - the River Dolphin

ESTUARY

An estuary is a semi-closed body of water where fresh water from rivers meets the sea and mixes with salty sea-water.

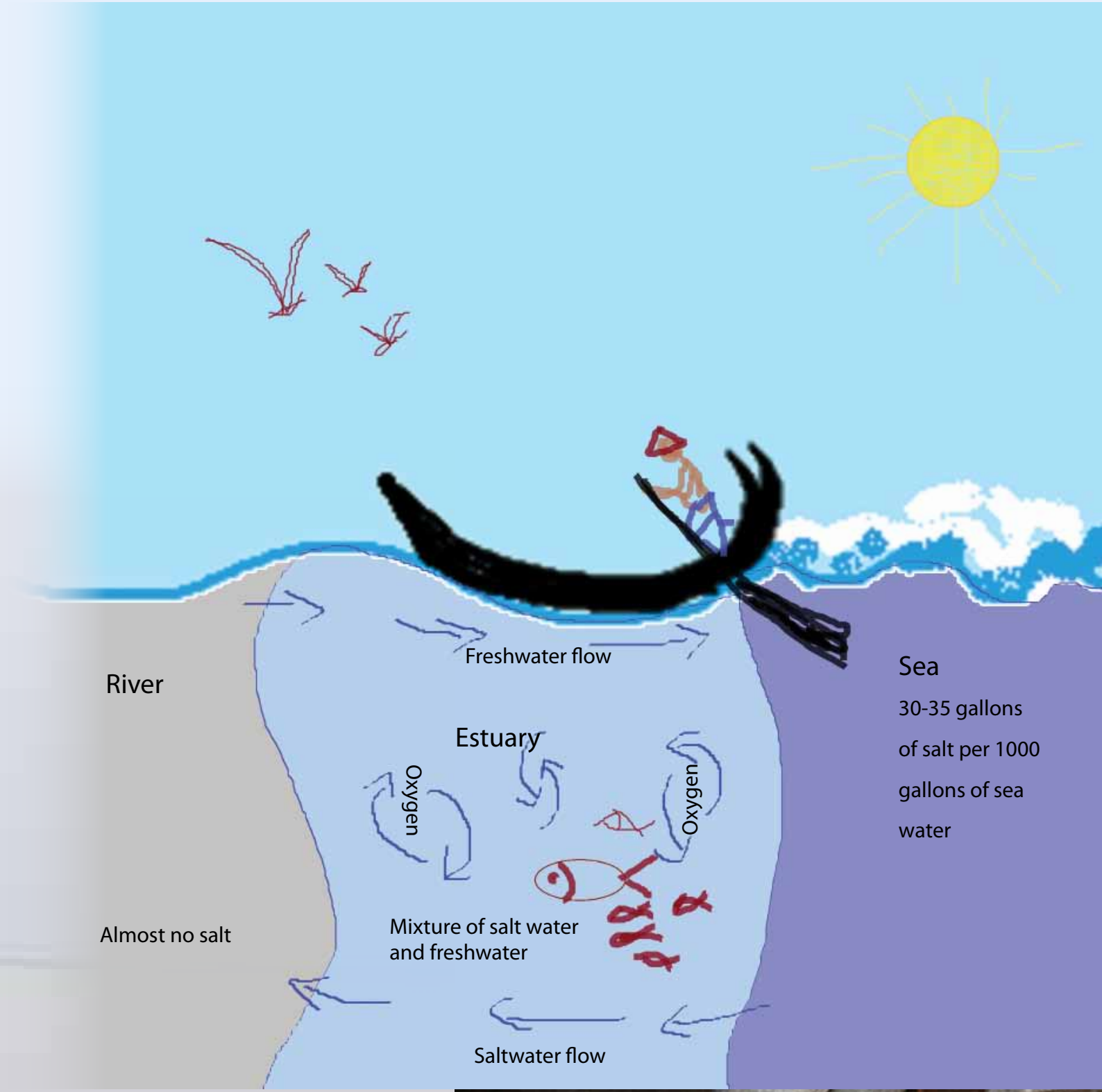
The Breeding Ground!
Estuaries are home and breeding ground to many different types of plant, fish, bird and animals. They act as nurseries for many species. So, this ecosystem plays an important ecological role.

In Bangladesh, the riverbanks in estuarine mudflats are covered in dense growths of 'uri ghash', a grass that stabilizes the soil and prevents it from erosion. In addition to this, they provide a habitat for a number of fish species that are commercially important. It is home to the national fish of Bangladesh - the Hilsha!

Black-tailed Godwit is a migratory shore bird, found in estuaries and coastal regions. Much larger than Dunlins, these birds are almost the size of domestic hens.

Estuaries also play an important part in supporting people's livelihoods.

Black-tailed godwit © Sayam U. Chowdhury


Freshwater flow
River
Estuary
Oxygen
Oxygen
Sea
30-35 gallons of salt per 1000 gallons of sea water
Almost no salt
Mixture of salt water and freshwater
Saltwater flow


© IUCN / Abdul Quayyum

© Samiul Mohsanin

MUDFLAT

Large areas of tidal flat lands known as 'mudflats' are found in estuaries - in Bengali, these are called 'char'. In the previous section, we read that the grass that grows on mudflats protects soil from erosion. These are found along the banks of rivers, inside mangrove forests and in the newly formed land. The silt carried by the tidal rivers enrich them with nutrients.

Mudskippers are an amphibious fish – meaning that they can breathe under water and in the air. So, these remarkable animals are well adapted to the varying tide levels of the Sundarbans. Mudskippers and can cope with complete exposure to air almost as well as with complete submersion in water.

Many birds find food in mudflats © Sayam U. Chowdhury

Home for Our Guests

Sitting in the salty-sweet estuarine waters, these muddy islands also work like a sticky sieve and catch nutrients that would otherwise be washed out into the sea by strong tides. The nutrient-rich mud provides feeding areas for fish when the tide is high and for birds when the tide is low. For this reason, these areas are very important roosting and winter-home areas for many kinds of migratory water-birds - especially shore-birds – that travel to the warm tropics to avoid harsh winters at home in places like Siberia.

Blue crab in a mudflat in Sundarbans

EVER-CHANGING ISLANDS

At the top of the Bay of Bengal, the Ganges-Brahmaputra-Meghna river system has created a large number of islands by depositing sediments for many, many years. In fact, most of the land of Bangladesh is formed by the sediments carried by these rivers for thousands of years. That is why it is called the Ganges Delta. It is also known as the Bangal Delta.

The islands of Bhola, Hatiya, Sandweep, Kutubdia, Moheshkhali, Char Kukri Mukri, Nijhum Dweep, Sonadia, and several others have been formed in this way.

Islands are home to Shore Birds

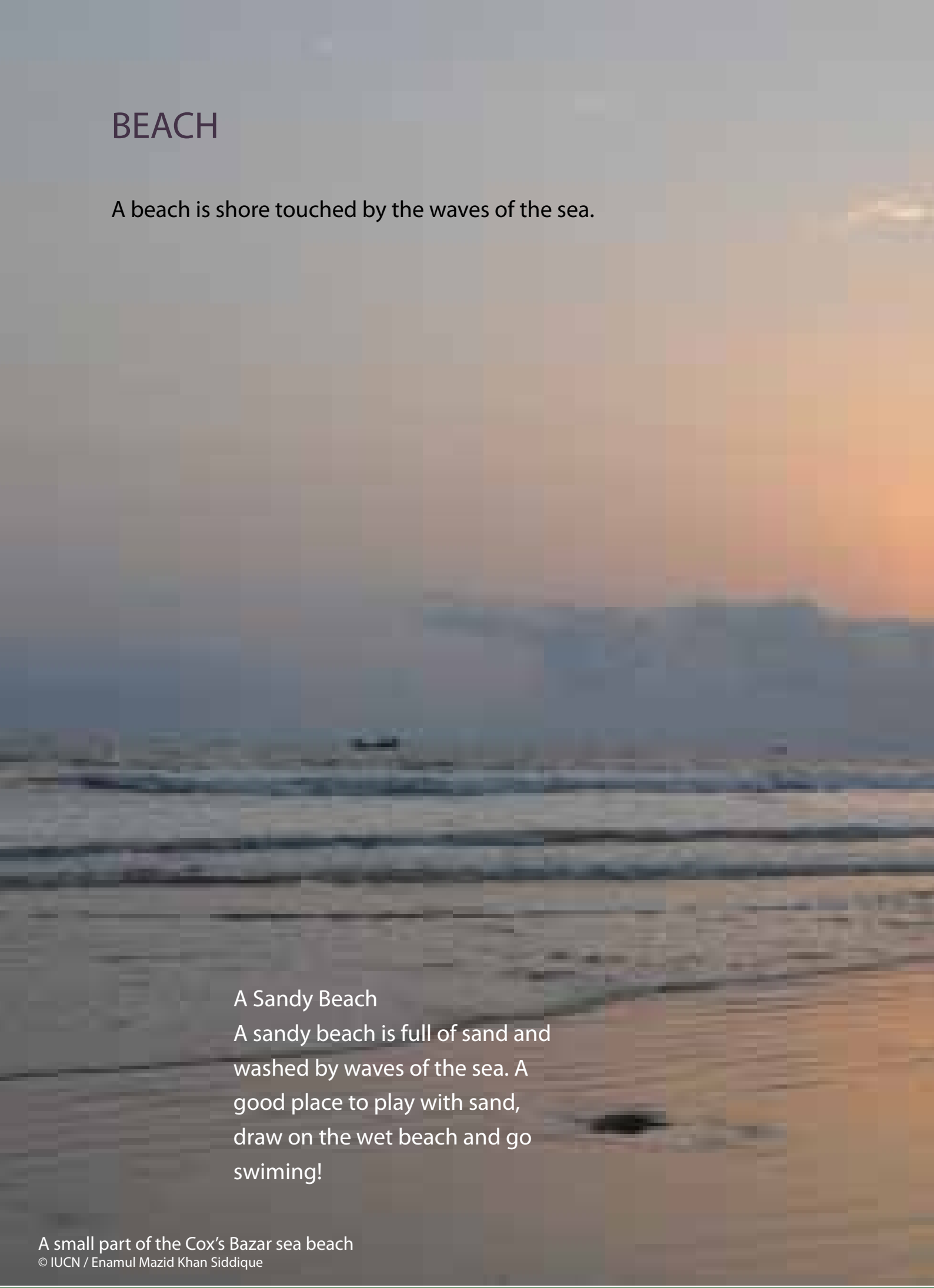
These islands are continuously changing because of erosion and tidal action. Interestingly, most of the vegetation on these offshore islands is not natural, but man-made. People have settled in the newly raised land; large areas have been planted with mangroves. In some places, palm species - like coconut - and large fruit-bearing trees have also been introduced.

Spoon-billed Sandpiper
- a rare bird found in Sonadia Island
© Sayam U. Chowdhury

Kaniz Rumi

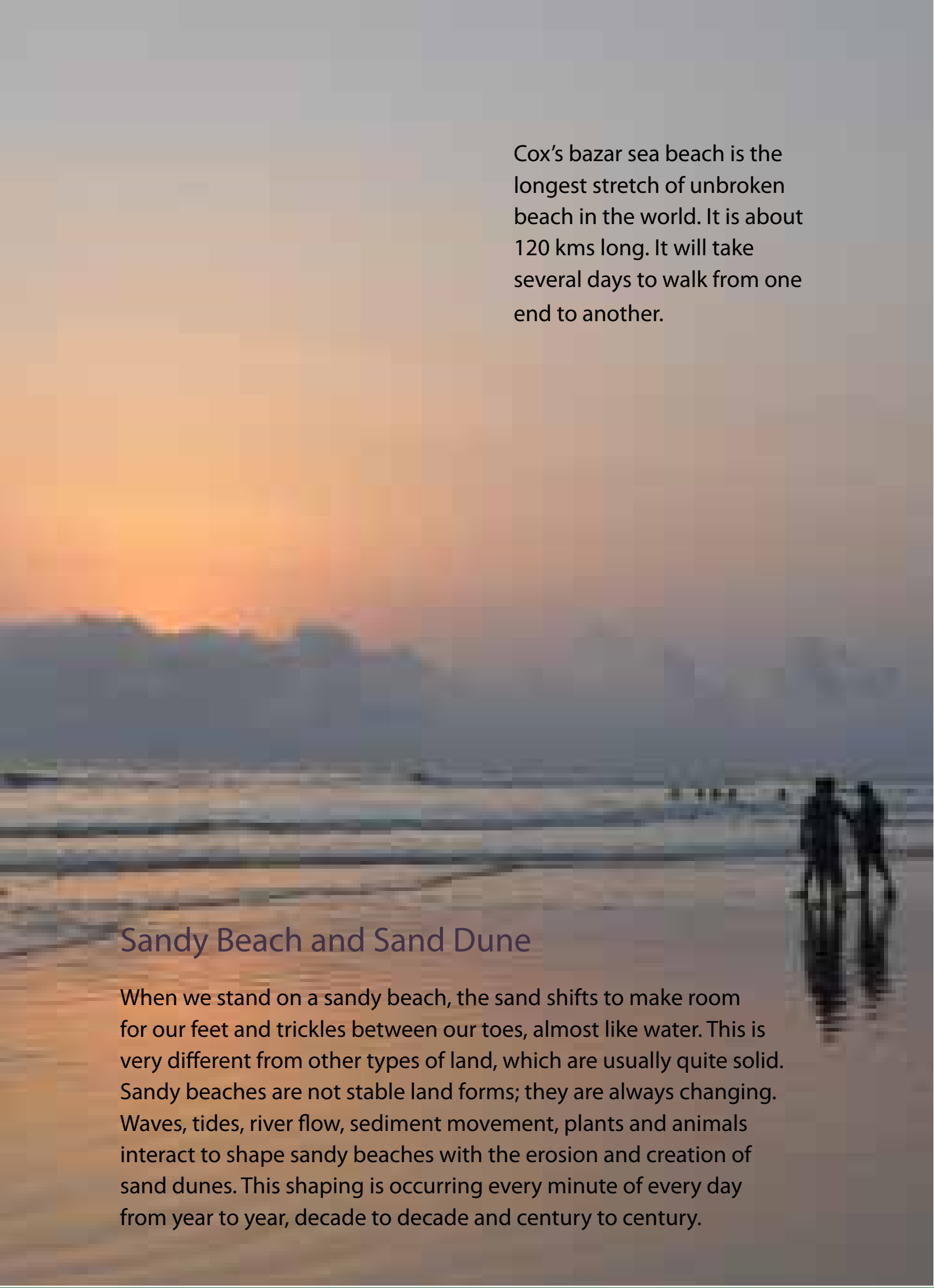
BEACH

A beach is shore touched by the waves of the sea.



A Sandy Beach
A sandy beach is full of sand and washed by waves of the sea. A good place to play with sand, draw on the wet beach and go swiming!

A small part of the Cox's Bazar sea beach



Cox's bazar sea beach is the longest stretch of unbroken beach in the world. It is about 120 kms long. It will take several days to walk from one end to another.

Sandy Beach and Sand Dune

When we stand on a sandy beach, the sand shifts to make room for our feet and trickles between our toes, almost like water. This is very different from other types of land, which are usually quite solid. Sandy beaches are not stable land forms; they are always changing. Waves, tides, river flow, sediment movement, plants and animals interact to shape sandy beaches with the erosion and creation of sand dunes. This shaping is occurring every minute of every day from year to year, decade to decade and century to century.

Ipomoea flowers in the sand dunes

© Junaid Kabir Choudhury

Dune vegetation in the sandy beaches of Bangladesh mostly consists of Ipomoea – known locally as 'sagar lata', or 'gaang lata') - and another plant called 'jhau' in Bengali. Many important birds, reptiles and other animals feed, rest, nest and breed in the sparsely-covered sand. In spring and summer, sea turtles come ashore to lay their eggs on the 'dry beach' above the water line.

Red crab

Red crabs play hide and seek in Sonadia Island

© IUCN / Enamul Mazid Khan Siddique

The shallow waters near the shore of the beach provide a habitat for shellfish and forage species, which, in turn, attract feeding fish and birds.

Muddy beach

Muddy beach is coverd in mud. Usually it keeps growing with sediments, but you will also find sand mixed with clay in such a beach. It is fun to play in the mud!

Muddy beach is found in the Sundarbans, Chittagong, Nijhum Dweep National Park and also in most of the new islands of Noakhali and Barisal region.

A muddy beach and planted Mangroves in Nijhum Dweep National Park

Rocky Beach

Rocky beach is dominated by rocks and stones, a habitat for many species.

Bangladesh has rocky beaches in Saint Martin's island, Inani National Park and Maheshkhali.

Rocky Beaches of Saint Martin's Island are full of life

A coral in St. Martin's Island

CORAL REEF

Coral reefs occur in warm, shallow and clean marine waters. It is unusual to find a coral reef in a delta because, to survive, coral needs clear water where there is no suspended sediment.

Reef ecosystems support many different kinds of marine and aquatic life and are considered to be one of the most productive types of ecosystem in the world.

A Coral Reef
Corals are beautiful living things found underneath the sea water surface. They look like plants but they are actually animals!
Corals live in colonies beneath the sea water, these are called coral reefs.

Corals are very fragile. They need a very particular balance of light, temperature and water quality to survive and coral grows at a very slow rate - between 1mm per year and 10cm per year. So, if it is damaged, coral takes a long time to repair itself.

A colorful underwater garden

With bright colorful fishes, plants, seaweeds, sea urchins, mollusks, starfish, octopus and jellyfishes, coral reefs are like colorful gardens!

The largest coral reef in the world - the Great Barrier Reef near north-east Australia – is so large that it can be seen from the moon!

Types of Coral

Corals can be soft or hard. They are found in many different colors, shapes and forms. Depending on the shapes that they resemble they are given amusing names for example table coral, star coral, brain coral, mushroom coral, zebra coral, cauliflower coral, horn coral etc.

© Sumana Tumpa

© IUCN / Enamul Mazid Khan Siddique

Sea Turtles and Corals: One for the other

Did you know that the sea turtles and corals are each others friends? Sea turtles keep the water clean which is a must for the corals to live. The corals host the algae, sea-grass, jellyfish, crabs and other living things which are food for the sea turtles.

Saint Martin's Island

There is only one area of living coral in Bangladesh, this is located at Saint Martin's Island, at the southern tip of Bangladesh. This tiny, dumb-bell-shaped island is only 8 km^2. It is possible to walk around the island in less than 12 hours!

It is also known as 'Narikel Jinjira' a name inherited from the Arab traders who came to the island thousand years ago. It is separated from the mainland by a narrow channel named the Naaf estuary. It is the meeting point of South Asia and South East Asia.

This tiny island hosts a human population of about five thousand.

Pacific Reef Egreat

The island is also an important wintering ground for migratory birds, especially Waders (gulls and terns). Saint Martin's is habitat to Pacific Reef Egret; a rare bird!

Coconut and betel palm are grown extensively by the inhabitants of the island. The island's sand-dunes support the growth of some local plants such as 'dopai lata', 'nishinda' and 'keya'.

Homestead of fishers
© IUCN / Enamul Mazid Khan Siddique

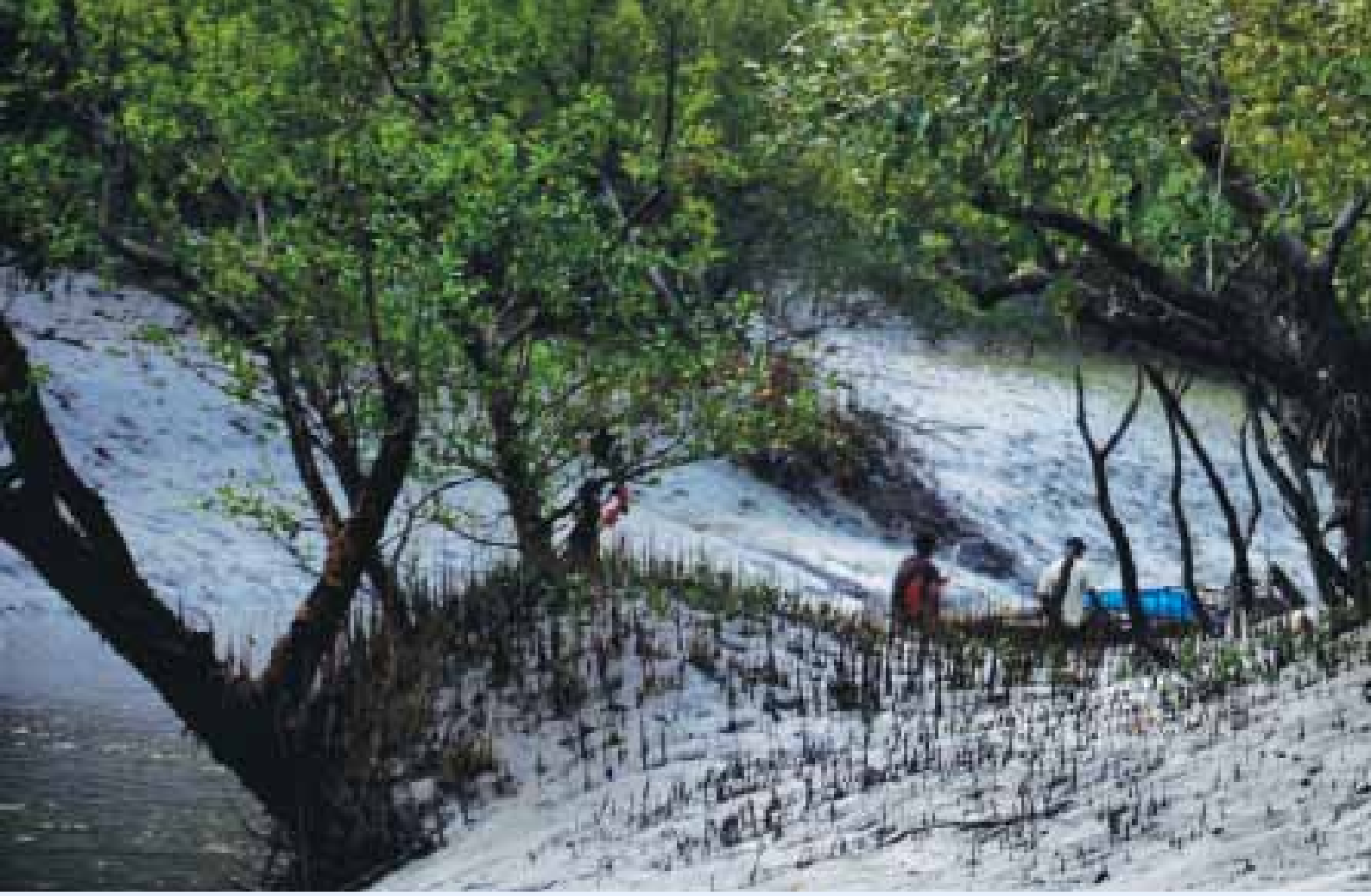
Breeding ground for Marine Turtles

Five (5) species of marine turtle are known to occur in Bangladesh: the Loggerheaded turtle, Green turtle, Hawksbill turtle, Olive Ridley turtle and Leatherbacked turtle. All of these visit the St. Martin's Island area, which is an important nesting and hatching ground. From October to February, these marine turtles come ashore to lay their eggs on the beach. Turtle eggs look like tennis balls and marine turtles come back to the same spot to lay their eggs every year!

Olive Ridley Turtle
© Sayam U. Chowdhury

Newly hatched baby turtles
© NACOM

The tip of Saint Martin's Island
© IUCN / Enamul Mazid Khan Siddique



MANGROVE FOREST - The Sundarbans

Bangladesh is home to two-thirds of the largest mangrove forest in the world - the Sundarbans. This great tropical forest straddles both sides of Bangladesh's western border with India. The part of the forest that is inside Bangladesh covers an area of more than 6,00,000 hectares. Over 30% of this area is under-water - in canals, creeks and rivers.

425 species of wildlife and 324 species of plant have so far been recorded in the Sundarbans. The forest has been declared a World Heritage Site by UNESCO and it has three Wildlife Sanctuaries and a large Reserved Forest declared by the Government of Bangladesh. It is also a Ramsar site; a wetland of international significance.

The Sundarbans

The Sundarbans is well-known for the Sundri tree. Gewa trees grow in moderate salt water zone and Goran trees are found in the saltwater zone. Other important plant species from this zone are: Passur, Dhundal, Baen, Kankra, Keora and Golpata.

What is a Mangrove?

A mangrove is a woody plant community of trees and shrubs that grow in muddy coastal swamps. They are flooded by semi-diurnal tides - between the sea and the land. Mangrove ecosystems provide a valuable habitat for a variety of important coastal species of crustaceans, fish and molluscs.

A young Kakra tree in the Sundarbans

As they are uniquely adapted to regular movements of the tides, mangroves can withstand the stronger winds and waves that occur during extreme weather. So, in addition to providing a valuable habitat for animals, these plant communities also act as a barrier against tidal surges by absorbing the force of storms that would otherwise do more damage to low-lying coastlands.

Mangrove Soldiers

Sticking thickly out of the surrounding mud, the masses of mangrove roots work like a filter to sift out pollutants that are flushed towards the sea from inland waters. The roots also trap sediment from the rivers and, during floods, absorb flood-water – like a sponge.

An interesting feature of mangroves plants is that they have developed supportive 'stilt roots'. These roots do not go into the soil but grow sideways and support to the plant's stem. In another adaptation to the environment, mangrove plants cope with changes in salinity by growing waxy leaves that reduce water loss from the plant. Even more amazingly, in some mangrove species, the roots can eject heavy salt loads through a process of ultra-filtration!

Very often, the mangrove soils are 'anaerobic', meaning that they contain no oxygen, therefore the plants have developed in special ways to cope with this absence. The most noticeable of these special developments is the 'pneumatophore', or 'breathing root'. Sticking out above the surface of the oxygen-poor soil, these roots have numerous small holes which allow oxygen to be transferred to the root system below the ground. The roots are filled with a spongy tissue that helps with this process.

There are four types of breathing roots and they can be classified according to their shape: Stilt type, Pencil type, Knee type and Ribbon type. The pencil type of root is most common, as you can see in the photos.

Keora trees are most visible in the Sundarbans

Monkey - friend of the spotted deer. calls out when Tiger approaches.

© M A A Diyan

Amazing Adaptation Skills

Mangrove trees are not the only species in the Sundarbans to have amazing adaptation skills. A number of other plants and animals have also evolved to cope with low oxygen, varying tides and high salinity.

Mudskippers are amphibious fish – meaning that they can breathe under water and in the air. So, these remarkable fishes are well adapted to the varying tide levels of the Sundarbans. Mudskippers and can cope with complete exposure to air almost as well as with complete submersion in water.

Most organisms need some sodium (salt) to survive. Either too much, or too little can be damaging. In crab species, how much salt

King Cobra swims really fast!

© Sayam U. Chowdhury

Horse Shoe Crab © M A A Diyan

they absorb changes depending on how much salt there is in the water they are in. When crabs are immersed in sea, they take up less salt – when the salinity drops, they absorb more.

Unlike crabs, mangrove lizards cannot control how much salt they absorb from their environment. To help them cope with high salinity, the lizards have a nasal gland that secretes excess salt into a cavity in their nose from where it is sneezed out!

All plant embryos need enough oxygen to grow – usually, they get this from the soil they are planted in. When there is a lack of oxygen in the soil, some trees do not drop fertilized seeds to the soil. Instead, the seeds are allowed to develop directly into seedlings while still on the 'parent' tree. This is called 'vivipary'. After the seedlings have developed enough to sustain themselves and be dispersed (the 'propagule' stage) they drop into the water and float until they reach a place where they root and grow.

Salt water Crocodile © M A A Diyan

Kaniz Rumi

The Bengal Tiger

The Bengal Tiger is one of the largest, terrestrial carnivore mammals known to man. A big 'cat' that has evolved a striped coat for camouflage, the tiger is nocturnal and often leads a solitary life over a large territory. A territorial animal, the tiger communicates the border of its range in a number of ways, like marking with scat and urine.

Spotted Deer drinking water in the Sundarbans

In the Sundarbans, the Bengal Tiger depends on large animals like spotted deer for its food. In turn, the deer depend on vegetation that is unique to the Sundarbans to survive. Because of hunting and the encroachment of human habitats, this majestic animal is now critically endangered.

The Bengal Tiger

Top: White Bellied Sea Eagle.
Centre: Masked Finfoot - an endangered bird. In Bangladesh, found only in the Sundarbans.
Bottom left: Lesser Adjutant Stork (Modontak in Bangla).
© Sayam U. Chowdhury

Bottom right: A water monitor lizard; camouflaged against a tree.
© IUCN / M.A. Quayyum

Top: Mangrove Pita; You can hear it singing all around Sundarbans; but very hard to see. © Enam Ul Haque

Centre left: Indian Crow Butterfly in the Sundarbans. © M A A Diyan

Centre right: Ruddy Kingfisher; the cunning hunter! © Sayam U. Chowdhury

Bottom: Irawaddy dolphin diving in the Sundarbans. © Zahangir Alom

NEIGHBOURS IN THE MARINE WATERS

Closest neighbors of the coastal ecosystem live beneath the seas and oceans. This large under water ecosystem is called the marine ecosystem. Marine ecosystem covers about 90% of the earth's habitable surface and it is full of wonders!

Numerous species of snakes, turtles, corals, migratory water-birds, marine fish (such as skates and rays), and echinoderms (like starfish and molluscs) can be found in the marine zones of Bangladesh.

Dolphins at play at the SoNG

The Swatch of No Ground

At the head of the Bay of Bengal, there is a remarkable under-water canyon named the 'Swatch of No Ground', or SoNG for short. It is about 25 kilometers south of the Bangladesh Sundarbans. In its deepest parts, the SoNG dives to depths of more than 1,300 meters. This is part of the largest deep sea fan of the world- the Bengal fan. Do you know what a deep sea fan is? It is a canyon that acts like an under-water funnel that transports sediments carried by the rivers. The SoNG transports the huge load of sediments carried by the rivers of Bangladesh. On its eastern edge is a spectacular submarine mountain range that is named the Ninety East Ridge.

Bryde's Whale in the SoNG
© Zahangir Alom

The Cetaceans

Many species of whales, dolphins and porpoises are found in marine waters; these are known as 'cetaceans'.

Although cetaceans spend all of their lives under water and have fins and tails like fish, they are not fish.

The cetaceans are mammals, which means that their mothers feed their babies with milk. Baby cetaceans are called calves. Unlike most mammals, Cetaceans give birth under water, so dolphin calves can swim as soon as they are born. These playful and highly intelligent marine mammals tend to travel in large groups, like a family.

They communicate with each other by touching and also by sound - using a technique that scientists call 'echolocation' (which means they can actually speak!)- just like human beings!

They breathe air and, just like people, need oxygen to live. So, cetaceans need to come to the surface of the water to breathe. They do not have nostrils on their noses but instead, breathe air in through a blowhole on top of their head.

Because they need to breathe from time-to-time, cetaceans never completely go to sleep. Instead, they switch off one half of their brain at a time to let it rest!

Threre are two species of whales, six species of dolphin and one species of porpoise found in Bangladesh.

Bottle nose Dolphin in the SoNG

A Sambar
© Sayam U. Chowdhury

NEIGHBOURS IN THE HILL FORESTS

You will find green hill forests in the east coast of Bangladesh bordering with Myanmar. It is another neighbour of the coastal ecosystems.

The Teknaf peninsula is located here and surrounded by the waters of the Bay of Bengal to the west and the Naaf River to the east. Although small, the peninsula is home to a varied landscape - a long, sandy coast, a narrow coastal plain and hills of up to 300 metres in height that are covered in tropical semi-evergreen forests. These tropical semi ever green forests look beautiful for the tall trees and their large canopies.

Wild Asian elephants live in herds that travel along north-south routes in the hill forests. Elephants move from place to place in search of food sources or to reunite with their herds, using 'infrasonic calls' to communicate. They maintain territories and specific travel routes. Usually the eldest female guides a group during travel. These plant-eating animals are 'mega herbivores' and can drink over 100 litres of water a day. They like eating salts and banana plants.

Maheshkhali is an unique island in Cox's Bazar which hosts both mangroves and hill forests!

Asian Elephant
© Monirul H. Khan

REALITIES OF COASTAL LIFE

Life in the coast is very difficult. Harsh weather and natural calamities is a part of life in the coast. Coastal communities are constantly fighting to survive in this environment.

Wind, rain and storms

The Bay of Bengal is sometimes called the 'breeding ground' for tropical depressions and cyclones. Bangladesh experiences a major portion of the world's cyclones. These usually occur in the Bay of Bengal immediately before and after the tropical 'monsoon' season that starts in March/April and ends in October/November. The word 'monsoon' describes intense, seasonal winds that sweep into Bangladesh from the Bay and from the Arab Sea to the south-west, causing very heavy rainfall.

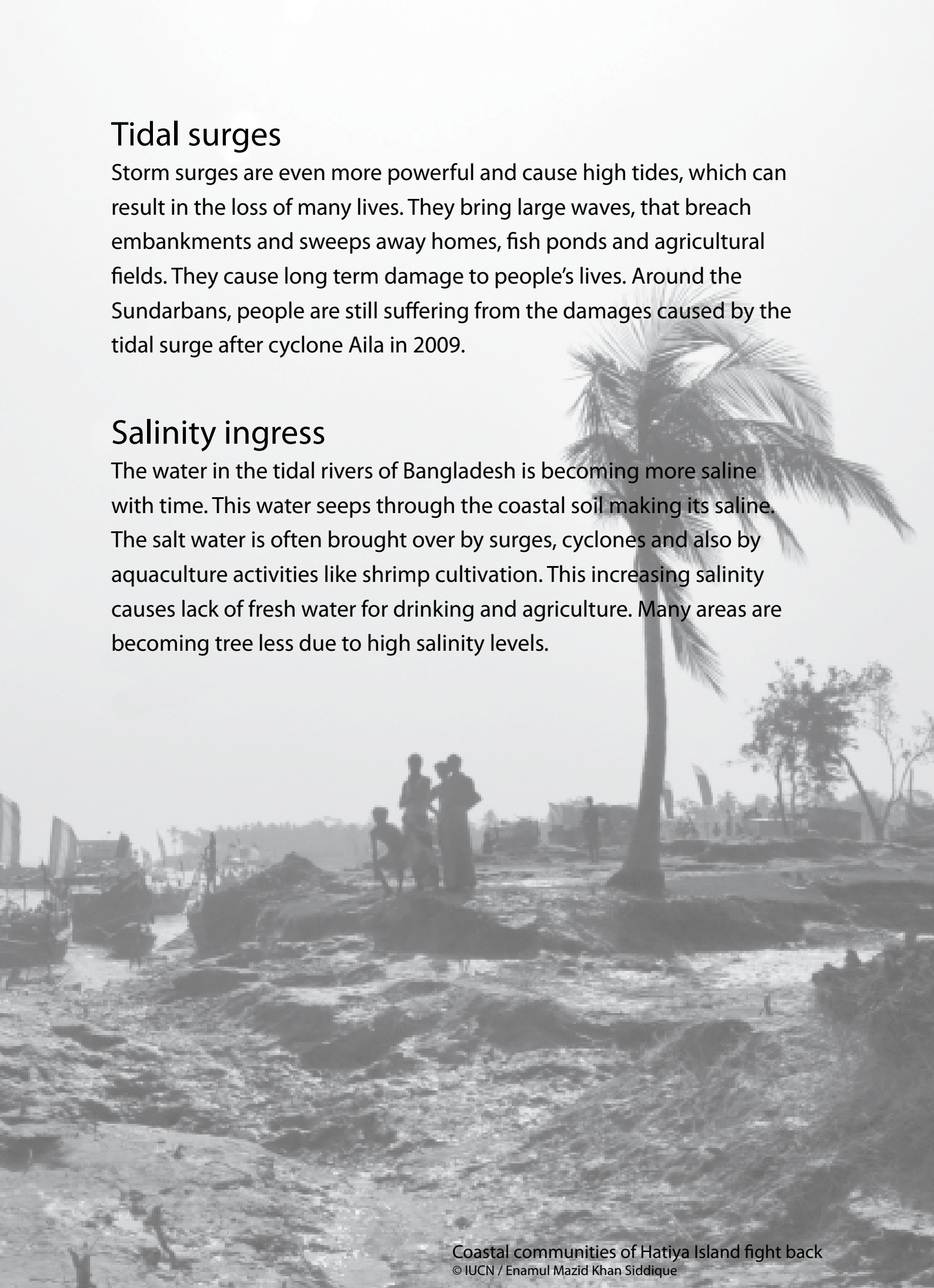
These storms and cyclones kills many people and also damage people's livelihoods by destroying trees, farm animals, crops, homes, schools, hospitals, and roads.

Tidal surges

Storm surges are even more powerful and cause high tides, which can result in the loss of many lives. They bring large waves, that breach embankments and sweeps away homes, fish ponds and agricultural fields. They cause long term damage to people's lives. Around the Sundarbans, people are still suffering from the damages caused by the tidal surge after cyclone Aila in 2009.

Salinity ingress

The water in the tidal rivers of Bangladesh is becoming more saline with time. This water seeps through the coastal soil making its saline. The salt water is often brought over by surges, cyclones and also by aquaculture activities like shrimp cultivation. This increasing salinity causes lack of fresh water for drinking and agriculture. Many areas are becoming tree less due to high salinity levels.



Coastal communities of Hatiya Island fight back

LIVELIHOODS

Winning over all the hardship, coastal communities make their living through diverse ways of livelihood activities.

Agriculture

Agricultural activities in the coast are becoming difficult, due to rising salinity levels. Still about half of coastal communities make their living through agriculture. With the help of the Bangladeshi scientists, farmers have developed adaptive agricultural practices - such as salt tolerant paddy cultivation.

Cattle rearing

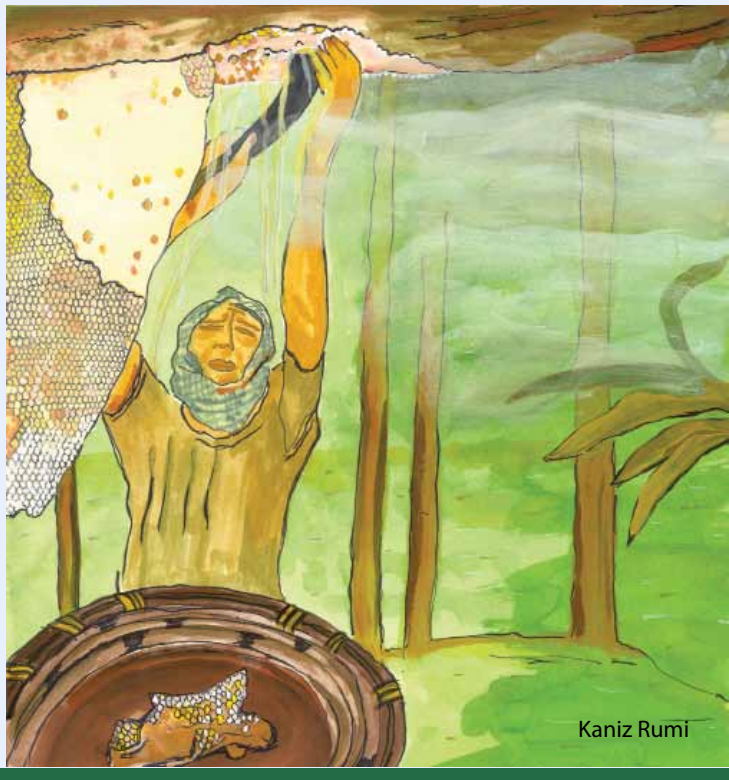
Many people in the Chars and islands rear herds of cattle, buffaloes and sheep and produce milk and meat to earn a living. Most of the coastal women are involved in poultry rearing, like ducks.

Agriculture and livestock in Hatiya

A honey comb being smoked before collection
© Shahzia Mohsin Khan

Collecting honey, wax and forest goods

Honey gathering in the Sundarbans is a traditional, seasonal practice of the local people. The collection season starts on the first day of April every year. The western Sundarbans hosts the most popular spots for bees and honey-hunters – full of nectar-producing flowers such as Khalshi. From March to June, Asian Giant bees collect honey from different flowers in the Sundarbans.



Kaniz Rumi

Nypa leaves produce livelihoods for many
© IUCN / Enamul Mazid Khan Siddique

As the Sundarban's honey collectors depend on the annual honey harvest, it is their practice to remove only a portion of a beehive – leaving the rest behind. In this way, the honey collectors make sure that the bees can return and rebuild the same hive next year. Similarly the Nypa leaf (Golpata in Bangla) collectors collect only the mature leaves and leave the rest to regrow. These are sustainable practices of the local communities, to conserve their source of living.

The Sundarbans alone provides livelihoods to more than 500,000 people employed in fishing, logging and the collection of honey, bee-wax and mollusk shells.





Aquaculture

Aquaculture in the coast is based on saline water mainly. It is a growing sector. Shrimps and white fish produced through aquaculture are exported and serve the country's protein needs and fetch income.

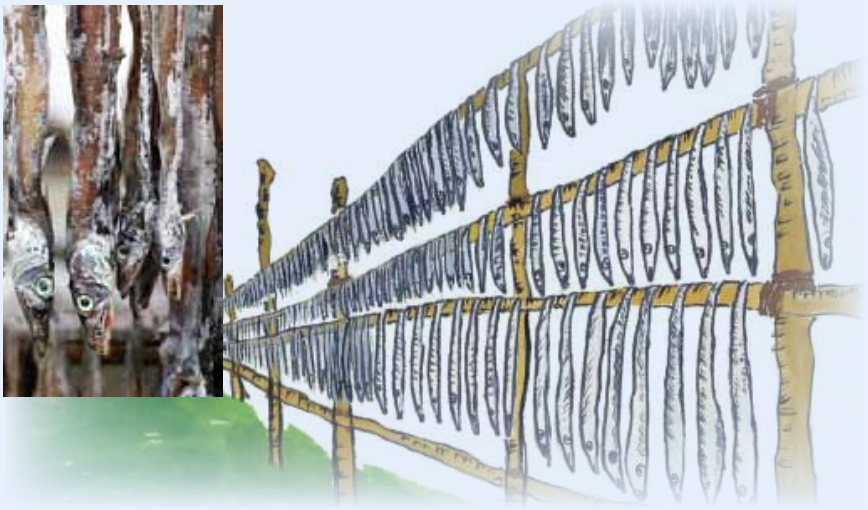
Aquaculture farms grow delicious fishes!

Fishing

© M.A.A. Diyan

The commercially important fish caught by fishermen in the coastal areas are loitta, rupchanda, chhuri, shrimps, crabs and molluscs. In the estuaries, thousands of fishermen fish for Hilsa during the rainy season. On the coast, special fishing techniques are used, which are suited to the local environment. Children and women collect shrimp fry from the water. Women are further involved in the fisheries sector and contribute to the fish processing industry (fish drying or shutki).

© Choton Haque



Kaniz Rumi

Sea Going Vessels

Boats in coastal areas are designed to last in rough seas. Most boats are built locally, in Chittagong, Cox's Bazar and offshore islands such as Hatiya. There are many different types of boats in commercial operation, such as sampan, balam and trawler. Sampans are short, high-sided vessels and easily distinguishable from other boats because of their high flat stern with two horns rising above it and bending gently inwards.

Trawlers are cargo boats that are used extensively in Bangladesh. They are not built as mechanized boats but are produced by fitting a diesel engine to a country boat.

Fishers use these boats to catch fishes from the Bay of Bengal.

© Syed Asif Ahmed

The goddess of the forest, Bonbibi
© Sanjana Islam

FESTIVALS AND CULTURE

The coastal communities celebrate life through various colorful festivals, traditional cultural activities and sports.

In the Sundarbans, forest dependent people pay homage to a number of common gods and goddesses. The most popular of them all is Bonbibi.

Pot songs are a traditional musical story telling technique with rolling pictures, they are popular in the coast and a lot of fun to see and hear!

Ghuri utshob (kite festival) and Beach Clean Day in the Cox's Bazar sea beach are two festivals which have become popular in recent times.

Rakhaine communities celebrate the traditional New Year through a colorful and musical festival known as the 'Pani Khela'.

Rash Mela is the largest festival to take place inside the Sundarbans. Every year thousands of devotees come to Dubla Char to cleanse their souls. Devotees sit in rows with their offerings placed in front of them on the sandy beach. Traditionally each devotee places the offering, which is usually food items, such as dry fish, fruits, food grains placed in a green coconut.

Raash Mela at Dubla Island, the Sundarbans

PLAY YOUR ROLE

Bangladesh's costal ecosystems are a unique part of the world's heritage and something to be proud of. But like all ecosystems, the coast needs to be protected and conserved for future generations. No action or effort is too small - you can make the difference to protect our country's coasts!

Here's a simple list of things you can do to make conserve the coast for the future:

Support coastal ecosystem restoration. Plant a mangrove tree yourself! Its really fun!

Do not buy ornamental products made from dead coastal animals and trees! We should not promote their killing!

Get to know the coast! Read the IUCN Redlist to know about thretened species and care for them. Do not harm anything when you visit the coast. Promote eco-tourism.

When you visit the coastal region, make sure to not leave behind garbage or left-over packaging - especially if it is plastic -they harm fish, turtle and other aquatic species. It also spoils the natural beauty.

Eat wisely! Do not to buy and eat rare species of fish, especially during the egg-laying season and boycott food items such as ducks and migratory waterfowl that are sold in the markets.

KEEP ON CARING FOR THE COASTAL ECOSYSTEMS!

Kaniz Rumi

Shazia Ahmed Farah

Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS

Mangroves for the Future

Mangroves for the Future (MFF) is a unique partnership based regional initiative to promote conservation, restoration and sustainable management of coastal ecosystems. MFF was created after the 2004 Indian Ocean tsunami and currently focuses on nine countries: Bangladesh, India, Indonesia, Maldives, Pakistan, Seychelles, Sri Lanka, Thailand and Vietnam. MFF includes all types of coastal ecosystems, namely mangroves, coral reefs, estuaries, lagoons, sandy beaches, sea grasses and wetlands. MFF's vision is a secure future and well being of all coastal communities.

Learn more at: www.mangrovesforthefurture.org