

# Sandy Coasts

- Very unstable and harsh: sands constantly shift and move.
- The surf zone is constantly moving up and down with the tide
  - attracts a large number of fish and diving birds.
- Creatures burrow in the sand for protection (*ex. mole crabs*).
- Millions of microorganisms live in the sand.





# Rocky Coasts

- Divided into tidal zones:
  1. Upper Intertidal (splash zone)
  2. Mid-Intertidal (covered/uncovered by tides)
  3. Lower Intertidal (tide pools form at low tide)
  4. Subtidal (underwater)
- Low tide exposes creatures and puts them at risk of drying out.
  - Shellfish close their shells to keep from drying out and will open up once the tide comes in.
- In summer they act as nesting/breeding grounds for many marine birds.
- Tide pools provide safe areas for animals that suffer from exposure to the air and drying sun.

# Rocky Coasts



# Rocky Coasts





# Summary

- Sandy Coasts are less stable, have less organisms living there, and are older than rocky coasts.
- Rocky coasts are more stable, and are a home to more diverse organisms because of the protection they provide.



# Estuaries

- These are coastal regions where the freshwater from rivers, meets and mixes with, the salt water from the ocean.
  - Semi-enclosed areas
  - Represent a close interaction between the land and the sea.
  - Water is neither fresh or salt, it is called “Brackish”.
- Estuaries are highly productive.
- They have muddy bottoms, which is made up of the sediments that are carried down from the rivers and settle to the bottom.

# Estuary Communities: Salt Marsh

- Marsh grasses
- Controlled by tides
- Have nutrient rich waters
- Are considered the “nurseries” of the estuary.



# Estuary Communities:

## The Mud Flat

- Has dark muddy sand, no grass.
- Little or no aeration in the sand.
- Considered the “graveyards” of the estuary.
- Mud Flats are caused by decomposing bacteria turning the wastes in the sand into a dark mud.
- Decomposers cause decaying organisms to produce  $H_2S$  (smelly odor).





# Estuary Communities:

## Mangroves

- Found in warmer, tropical areas.
- Inlets and bays are covered by mangrove trees.
- Mangrove swamps protect the shore from erosion.
  - Mangrove swamps act like giant sponges and absorb the impact of storms and high waters.





# The Coral Reef

- Has the most biodiversity of all the marine environments.
- Found in tropical and sub-tropical zones.
- Reefs are built from the sea floor by coral polyps.
- Reefs will grow up to the surface, but will not grow out of the water.
- Australia's **Great Barrier Reef** is the world's largest natural made structure (2000km), and contains over 1500 species of fish.



# The Coral Reef

- Each coral is unique in its shape and color.
- Coral Reefs are extremely productive.
- Coral Reefs are extremely fragile and pieces of coral break off easily.
  - Many reefs are now in danger of being destroyed because of over fishing, diving, pollution, and poor handling of educating the public on the importance of maintaining the vitality of coral reef populations.

# Coral Reefs

