**COASTS**

The coast is the land or the boundary between sea and land. It is important for commercial purposes. The most important threat to coasts are sea level rising due to global warming. According to a study, it is rising 3mm a year approximately.

The consequences will be disastrous. The causes are rise in temperature of the earth, greenhouse gases being trapped, pollution which is causing melting of ice caps, glaciers and ice caps.

However, scientists argue that different types of coastlines react differently to sea level rising. This is called Coastal Resilience.

The factors for coastal resilience are:

1. *Ecological buffers* such as coral reefs, salt marshes, mangroves.
2. *Morphological buffers* such as sand barriers, gravels and beaches.
3. *Sedimentation*

**NEAR SHORE CURRENTS:**

When waves approach the shore, they’ve a lot of energy. This force is slowed down when it touches the land near the shore. The trough of the wave decreases and crust increases.

The wave disintegrates into foam and bubbles. This region is where the wave breaks is called Surf Zone.

Energy which is released when the waves hit the shore or break, creates near shore currents, useful for transporting sediments.

**UNDERTOW:**

When the wave washes on the shore, the energy of the wave moves under it in a cyclic motion, creating an undertow or pull, out towards the sea.

**NEAR SHORE CURRENTS:**

When the waves enter the surf zone at an angle, the current moves parallel to the shore. Factors that influence longshore currents are shape of the shore and strong winds. These currents are important for transportation of sediments along the shore.

**RIP CURRENT:**

When the wave energy encounters obstacles in the form of sand bars or rocks, the energy is channeled through a narrow passage. It is funneled towards the shore in a strong current.

It moves back at great speed and a very strong pull. It is the greatest hazard for swimmers.

**TSUNAMI:**

It’s a series of massive waves that wash on to the land, sometimes reaching over 100 feet. Undersea shifting of tectonic plates. When a tectonic plate shifts, rises or falls suddenly, it displaces massive amount of water, which turn into the rolling waves, we call Tsunamis.

The most number of tsunamis has occurred in the Pacific Ocean because the pacific rim of volcanoes is very activity and quakes are frequent.

Landslides, eruption and meteorites are also factors.

Tsunamis move at a speed of more than 500 miles per hour. they cross the entire Pacific Ocean is less than a day.

As they approach the shoreline and enter shallower water, they slow down and the height increases and trough decreases. The trough of the wave causes a situation effect that causes the waves to retrieve from the shore, a very important warning sign.

The wave will hit the shore 5 minutes later. Tsunamis comprise of something called wave train (series of wave) that hit the shore in a series.

**COASTAL LANDFORMS:**

Coasts are classified depending on the dominant factor that help

1. Wave Dominant Coastal Landforms:

The actions of waves erode or deposits, creating landforms like beach berms, barriers like lagoons, sand bars and dunes.

1. Tide Dominated Coastal Landforms:

Coasts where strong tidal action causes distribution of sediment. The high and low tide bring and remove sediment, creating landforms like estuary, salt marsh and mangrove.

1. Fluvial Dominated Coastal Landforms (Geological term for ‘flowing water’):

Rivers and streams interact with coastal tides to produce landforms like delta, plains and flats.

**BARRIERS**:

* Berms:

It is formed by swash. It’s the deposition of sediments/small stones. As the waves wash out from the shore, their strength is weakened. Hence, they leave behind sediments.