

12:44A ESTUARIES

Estuaries are semi-enclosed, transition areas where fresh water mixes with salt water (called brackish).

U.S. has nearly 900 estuaries, most of which were formed at the end of the last glacial period by rising sea level.

Seawater flooded the land and was trapped by barrier island bays, river deltas and earthquakes.

Productivity and biomass are extremely high. Specie diversity is directly related to fluctuations in the characteristics of estuaries:

1. salinity - more euryhaline (0 -30% salinity) than stenohaline (30 - 32 %) organisms . Infauna have a more stable environment than the epifauna because mud traps salt.

Salt wedges of seawater form under river runoff when the tide comes in. This layers the salinity.

2. temperature - higher in summer; productive is increased

3. light/silt - primary producers are sea grasses who need good light and low sediment

4. oxygen - depletion can occur in the mud or in the water column and limits growth

5. nutrients - come from river runoff and provides for a detritus based food chain, inverted energy pyramid increases productivity



12:44B

6. elevation - zones are determined by the tides, shallow water restricts large predators

7. tides and currents - tidal ebb with river runoff cause net flushing. Tides transport larvae and nutrients into the ocean.

The three most common estuarine environments are:

1. Salt marshes - also called wetlands, swamps or mangrove communities.



Producers are Spartina (marsh hay and cord grass) found mostly in intertidal water.

During the summer, grasses die and provide nutrients for crabs, isopods, snails, and worms.

Salt excreting leaves provide food and habitat. Air tubes from the leaves to the roots help oxygenate plants living in anaerobic mud.

2. Mud Flats - or oyster reefs found in lower intertidal and subtidal zones.

Primarily composed of bacteria and fungi that carry out anaerobic metabolism.



12:44C

3. Sea Grass Communities -

are primarily subtidal zones where sea grasses can stabilize the substrate.



Leaves of grass slow currents, provide a place of attachment to prevent smothering in sediments, hiding places, and food.

Estuaries are usually the first dumping site for pollution and have been severely damaged by dredge and fill operations.

Estuaries are important because they support a large commercial seafood industry, prevent coastal erosion, provide recreation .

Estuaries are the sea's nursery.

