

# Estuaries – Where Rivers Meet the Sea

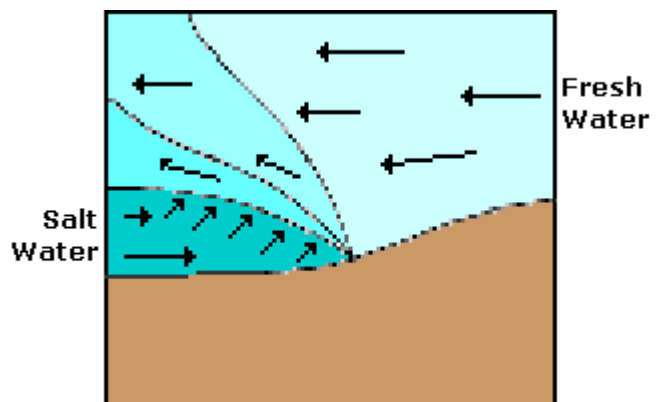
An estuary is a partially enclosed body of water along the coast where freshwater from rivers and streams meet and mix with salt water from the ocean. Estuaries and the lands surrounding them are places of transition from land to sea, and although influenced by the tides, they are protected from the full force of ocean waves, winds, and storms by such landforms as barrier islands or peninsulas. The lower extent of the North and South Rivers are estuaries.

Estuarine environments are among the most productive on earth, creating more organic matter each year than comparably sized areas of forest, grassland, or agricultural land (1). The tidal, sheltered waters of estuaries also support unique communities of plants and animals, specially adapted for life at the margin of the sea. Many different habitat types are found in and around estuaries, including shallow open waters, freshwater and salt marshes, swamps, sandy beaches, mud and sand flats, rocky shores, oyster reefs, mangrove forests, river deltas, tidal pools, and sea grasses.

The increased human population along the coasts is upsetting the natural balance of estuarine ecosystems and threatening their integrity. Channels have been dredged, waters polluted, and marshes and tidal flats filled and shorelines reconstructed to accommodate human housing, transportation, and agriculture needs. Stresses caused by overuse of resources and unchecked land use practices have resulted in unsafe drinking water, beach and shellfish bed closings, harmful algal blooms, unproductive fisheries, loss of habitat, fish kills, and a host of other human health and natural resource problems.

Salt wedge estuaries occur when the mouth of a river flows directly into salt water. The circulation is controlled by the river that pushes back the seawater. This creates a sharp boundary that separates an upper less salty layer from an intruding wedge-shaped salty bottom layer. The mouths of the Mississippi, Columbia and Hudson rivers and the North and South Rivers are examples of salt wedge estuaries.

In the North River the salt water extends at high tide to approximately the Old Washington Street Bridge. The salt water stays underneath the fresh water because salt water is heavier than fresh water.



Can you see the tidal current moving up river on an incoming tide?  
Put your finger in the water and taste it is it salty or fresh?