B. Estuary: An estuary is a special place where fresh water from the drainage basins mixes with salt water from the ocean's tides. It can include bays, marshes and tidal flats. These delicate areas produce great amounts of plant and animal life which consistently deal with changes in tide, temperature, salinity and ocean levels. Along New Jersey's coast exist 400 thousand estuarine waters and an additional 280 thousand acres of near coastal waters, most of which is suitable shell fish habitat.

The water flowing through New Jersey's drainage basins comes into contact with a variety of land uses in rural, suburban and urban areas before emptying into an estuary. While a portion of the materials that collect in the water settles in such areas as ponds and lakes, the rest empties into the estuaries, earning them the nickname of "sink holes". These materials may leave an estuary quickly to mix with ocean waters, or they can remain in estuarine waters for a long time, depending on the shape of the estuary and the rates in which waters entering and exiting it can flush them out. The process of water meeting land must be fully understood before exploring non-point source pollution and pollution control.

C. Water's action to change the surface of the earth: Water shapes the land by washing away (eroding) rock and soil. Erosion created the Grand Canyon. Erosion also carries valuable soil from farms. Floods can destroy homes, farms, buildings, bridges and highways. Too little water is called a drought. During severe droughts plants and wildlife die. The dried soils blow away.

D. Water's ability to clean itself: Surface water in its natural state has the ability to clean itself. Surface water is an ecosystem and every member of this system has a job to do to keep the water clean. Some members of the ecosystem include bacteria; protists like algae; and plants and animals. Bacteria break down waste products in the water into **nutrients** for algae and aquatic plants. In turn these primary producers are eaten by aquatic animals.

Aquatic plants and algae manufacture oxygen for animals to breathe. Wastes produced by all the organisms fuel the cycle. In a healthy aquatic environment there is just enough food and oxygen for the plants and animals that live there. When wastes from outside the ecosystem are added, the ecosystem becomes overloaded and water pollution results.

III WHAT IS WATER POLLUTION?

Water pollution occurs when the water becomes overloaded with too much of one thing and the aquatic organisms cannot keep up with their cleaning responsibilities. Some organisms die and others grow too fast. If the overload of a particular substance causes aquatic life to die this is called a **"toxic affect"**.