The U.S. EPA estimates there are approximately 1,200 existing power plants and industrial facilities that use nearly 300 billion gallons of water a day from rivers, lakes, and estuaries for industrial cooling.

Fish and shellfish withdrawn into the cooling water intake structures (CWIS) are either impinged on screens designed to keep out debris or entrained into the cooling systems.

**Impingement** - When organisms are trapped against intake screens by the force of water passing through the screens and injured or killed

**Entrainment** - Organisms small enough to pass through intake screens are injured or killed as they pass through the cooling system.

**Once-through cooling water** - Water is withdrawn from a river, lake, or bay and passed through the cooling system one time before returned to the environment.

**Closed-cycle cooling** - Water is withdrawn from a river, lake or bay and passed through the cooling system several times before returned to the environment. Much less water is withdrawn at the CWIS.

Clean Water Act Section 316(b) regulates impingement and entrainment at facilities using waters of the U.S., for cooling purposes.

- **2002** - Rules for any new facility took effect. Regulates facilities that withdraw >2 million gallons per day (mgd) in which >25% of the water is used for cooling purposes. New facilities must use closed-cycle cooling or an alternative that would achieve the same level of protection.

- **2014** - Rules for existing power plants and other industrial facilities that withdraw more than 2 mgd and use >25% of the water withdrawn for cooling purposes took effect. The rule provides some flexibility for minimizing impingement and entrainment.