

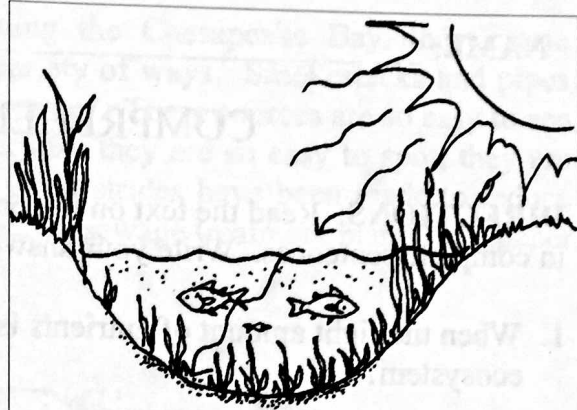


# Nutrients: Too Much of a Good Thing



Imagine that your favorite food is pizza. If you sat down at a restaurant and ate two or three slices, you would have had a nice meal. If you ate two or three whole pizzas, you might get sick. If you ate pizza non-stop for two or three days, the overload of food in your stomach could kill you. Eating too much pizza is an example of having too much of a good thing.

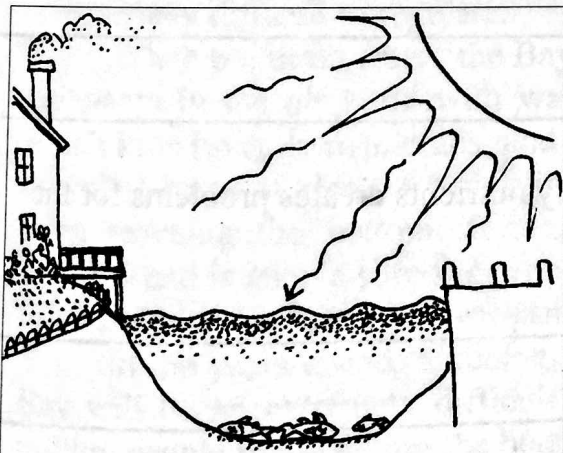
The Chesapeake Bay has a similar problem with the amount of **nutrients** in its waters. Nutrients enter the Bay with soil and help plants grow. In the right quantities, the presence of nutrients creates a healthy ecosystem by promoting the growth of small microscopic plants called phytoplankton. Phytoplankton form the base of the Chesapeake Bay's food chain. Prior to the 1600's, the Bay received just the right amount of nutrients from its watershed when soils naturally eroded from hills, fields, and shorelines.



*In a well balanced ecosystem, the amount of phytoplankton provides a solid base for the food chain while allowing sunlight to reach the bottom.*

In today's Chesapeake Bay, however, human activities on land greatly increase the amount of nutrients entering the water. **Nitrogen** and **phosphorous**, the two main nutrients found in the Bay, wash into the water from fertilized farm fields, gardens, and lawns. Chemical fertilizers from factories and automobile exhaust bond with water droplets in clouds and fall back to land with rain showers. Human sewage containing nutrients enters the Bay from sewage treatment plants.

When too many nutrients are present in the water, phytoplankton grow in such large quantities that they form a thick green layer near the surface of the water,



*When too many nutrients are present, algae prevents sunlight from reaching the bottom. Rooted Bay grasses cannot survive, lowering the oxygen content of the water and removing valuable habitat for fish and crabs.*

preventing sunlight from reaching the bottom and coating the stems and leaves of submerged aquatic vegetation. Rooted underwater plants cannot survive, removing a valuable source of oxygen and habitat for animals. When the **algae** die, bacteria work overtime to eat the decaying plant matter, using up even more oxygen. Low oxygen levels created during "algae blooms" are often fatal to fish and other marine organisms.

While nutrients are essential for sustaining plant life at the base of the food chain, having too many nutrients creates an environment that is beneficial to algae but harmful to rooted bay grasses and animals which need high levels of oxygen to survive.