



Reading Handout: The Great Pacific Garbage Patch

The world's oceans are connected by a complex network of water and wind currents, which combine to form **gyres**. The movement of wind and water in a gyre form large, slowly rotating whirlpools. The North Pacific Gyre is an area of the ocean between the continents of Asia and North America, and its whirlpool-like effect has pulled in pollution from around the world, forming the **Great Pacific Garbage Patch**.

The Great Pacific Garbage Patch is a massive accumulation of trash, large and small, in the North Pacific Gyre. {It is like a giant landfill floating in the ocean.} It is a combination of the Western Pacific Garbage Patch, located east of Japan and west of Hawaii, and the Eastern Pacific Garbage Patch, which floats between Hawaii and California. The two are connected by a thin 6,000-mile long current called the Subtropical Convergence Zone, which is also home to a large amount of pollution.

The Patch is huge! However it cannot be seen from space, or even an airplane, because it is mostly made up of **microplastics** floating in the water column. Microplastics are pieces of plastic trash that are smaller than 5mm. Microplastics form when larger plastics break down, or come directly from a manufacturer in the form of **nurdles** (small plastic pellets used to make other plastic products). Nurdles absorb a lot of toxins as they float in the ocean, and those toxins become concentrated. Researchers estimate that for every 6 pounds (2.72 kilograms) of plastic, there is 1 pound (0.45 kilograms) of plankton. That means that there is more trash than marine life in the Garbage Patch!

Removing the debris would take too much vital plankton with it, which makes cleaning up the patch complicated. Large or small, any trash or pollution is potentially harmful to any marine life that may ingest or become entangled in it. How can YOU help clean up our ocean?

Where does all that trash come from? Most of the trash (about 80%) that ends up in the ocean comes from people on land! Only 20% comes from people working on boats at sea. Trash from land works its way down rivers and storm drains through the **watershed**, or gets carried by the wind, out to the ocean. Some of the trash sinks, causing damage to life on the ocean floor. Some floats, creating the Garbage Patches. A small amount washes back up on to beaches/the shore. Notice that 100% comes from *people*, and none from animals. We make the trash so it is our responsibility to clean it up. The most important thing we can do to help is to reduce the amount of plastics we use every day. We can also reuse many things made of plastic. If you can't reduce or reuse, then recycle!