

## How are microplastics affecting food chains in the Pacific Ocean?

During the 1990's the science community was made aware of large areas called gyres made up of tiny bits of plastic gathering together to create what is called the Great Pacific Garbage Patch. You may wonder, "how did the trash even get into the ocean?" The answer is from sea voyaging vessels and offshore waste. A study published in the [journal "Environmental Research" in 2008](#) stated that 44 percent of all seabirds have eaten plastic and 270 other marine animals are negatively impacted. This plastic can impair the digestive tract and pass on toxins such as PBC and DDT absorbed from seawater to the animal that consumes it, this includes humans as we consume marine life. The toxins stay within the body cells of the consumer (biomagnification) and can eventually pass through food chains cause birth defects and cancer in the consumers.

The food web illustrated below is a simplified version of one found within the Great Pacific Garbage Patch.

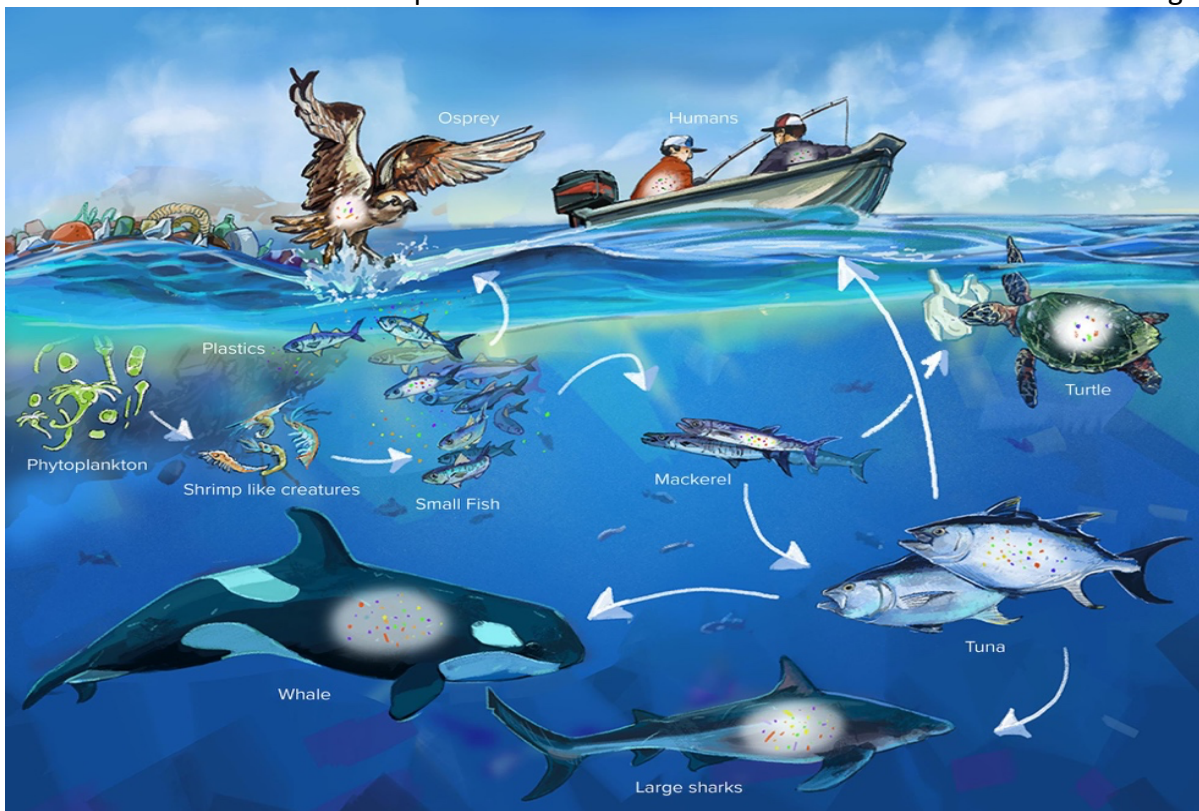


Illustration by Jay Rasgorskek for Science Friday

Use the food web to answer questions 1-4.

1. A small fish consumes zooplankton which has consumed microplastics. How will the small fish be impacted?

*Continued from the previous page. Remember to use the food web for reference.*

2. What will happen to the whale and turtle population if the fish population begins to die out from the plastics ingested?

3. Biomagnification is more significant in the whale and human population than in the fish or plankton population. How will this potentially have a more significant impact on these populations?

4. Describe an example where a person who lives in California could be impacted by the microplastics in the Great Pacific Garbage Patch and biomagnification.