

## TEACHER SHEET

### Trash- It's an International Issue

#### Did You Know?

The Great Pacific Gyre is a floating island of garbage formed by ocean currents and found between Hawaii and California. Some reports have estimated it to be twice the size of the continental United States, but no one can accurately measure the boundaries of trash gyres because they are vast, remote and always shifting with ocean conditions. In any case, plastic marine debris is now found on the surface of every ocean on Earth. In addition to the harmful impact of debris on marine life, gyres can act as floating transportation, allowing non-native species to hitchhike to unfamiliar parts of the world, threatening biodiversity.

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Read the attached article "Great Pacific Garbage Patch" and answer the following questions. Answer questions 1-3 on your own then discuss your answers and answer question 4 as a group. (Use full sentences in your answers.)

#### Article

<http://nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/>

#### Video

<https://www.youtube.com/watch?v=Co43TXJXryI>

1. What is the Great Pacific Garbage Patch and how did it form?

The Great Pacific Garbage Patch is a collection of marine debris, or litter, in the North Pacific Ocean. It was formed by the North Pacific Subtropical Gyre and covers about 7.7 square miles. A Gyre is a system of circular ocean currents formed by wind patterns and the rotation of the planet. Currents act as highways that transport trash to the center of a gyre that tends to be very calm and stable.

2. Why does plastic make up the majority of debris in the Great Pacific Garbage Patch?

(1) Plastic's durability, low cost, and malleability means that it is increasingly used in both consumer and industrial products.

(2) Plastic goods do not biodegrade but instead break up into smaller and smaller pieces. Some microplastics are so small that they cannot be detected by satellites or even the naked human eye.

3. What impact does the Great Pacific Garbage Patch have on marine life?

Marine mammals can get entangled in abandoned plastic fishing nets where they can drown in a phenomenon called 'ghost fishing.' Trash can also block sunlight thus threatening the entire marine food web because algae and plankton, an important food source for fish and turtles, is unable to grow. Additionally trash leaches out harmful chemicals and pollutants that impact the health of marine animals.

4. Pretend you are in charge of an international commission tasked with cleaning up the Great Pacific Garbage Patch. Create a proposal for shrinking the size of the garbage patch. Explain your thinking.

This is a critical thinking question. Break students into groups of 4-6 and have them brainstorm ideas. After they have developed a plan have students share their plans with the class and have a discussion about why they chose to do things and what the advantages and disadvantages of their plan might be. (Economic Cost, Damage to Marine Life, International Collaboration Issues, etc.)