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Date: 04/26/2025

Class: Interface Design

Assignment: Semester Project – Responsive Site

* Section #1 – Let’s Talk About The Great Pacific Garbage Patch
  + Site - The Ocean Cleanup: <https://theoceancleanup.com/great-pacific-garbage-patch/>
  + Site – National Oceanic and Atmospheric Administration: <https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution>
  + Site – National Geographic Article: <https://education.nationalgeographic.org/resource/marine-pollution/>
  + <h3> Title: What, Where, and How?
    - Largest pollution mass in the world. National Geographic estimates the size to reach 1.6 million square kilometers.
    - Located in the pacific between Hawaii and California.
    - There are five large accumulations of plastic in the world that are built through the converging of currents around the world. (known as a gyre)
    - Large amounts of plastic enter the ocean each year and some are less dense than water, so they float in the water instead of sinking to the bottom.
    - While it may seem like it floats in one giant mass, the “patch” isn’t necessarily a complete island of trash, but a very large gathering of plastics spread throughout a large area.
    - This mass is so large that researchers had to set up a multiple ship research project where several boats lined the area with large nets to collect data samples of the patch known as the Multi-Level-Trawl Expedition conducted by the non-profit organization The Ocean Cleanup.
    - According to The Ocean Cleanup project, this consisted of 30 boats and 652 surface nets.
  + <h4> Title: Humans May Be Already Be Eating Microplastics…
    - The conclusion of the plastics downgrading into microplastics does not mean the pollution goes away. The microplastics are eventually eaten and the chemicals are absorbed into the animal which can travel through the food chain. This eventually can end up in human food supply.
      * Known as bioaccumulation.
  + <h5> Title: Ocean Pollution
    - According to the National Oceanic and Atmospheric Association (NOAA), humans are the largest contribution to the pollution of plastics into the ocean and other bodies of water.
    - NOAA coins the biggest source we commit is the concept of “nonpoint source pollution” (link to site) like runoff of certain modern-day machinery and sewage containers.
    - It’s important to note, most of the plastics we make are non-biodegradable. They exist in nature without truly fully decaying like natural materials can.
    - Polluted items can consist of many different sized plastic materials ranging from microplastics to larger plastic bodies.
    - Items and activities that pollute our oceans are a result of mishandling of plastics, littering, and waste management.
  + <h6> Title: How can we fix things?
    - The only way the plastics can diminish is by degrading into microplastics, but this still stays in the oceans affecting the ecosystem and can be confused with food by marine life.
* Section #2: Pollution Facts
  + Site – Conservation International: <https://www.conservation.org/stories/ocean-pollution-facts>
  + Site - The Ocean Cleanup: <https://theoceancleanup.com/great-pacific-garbage-patch/>
  + Site – National Oceanic and Atmospheric Administration: <https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution>
    - Approximately, 26 billion pounds of trash are dumped into the ocean every year. – Conservation International
    - There are 5 large garbage patches in the world right now, the Great Pacific Garbage Patch is the largest one. - The Ocean Cleanup
    - Plastic waste decomposes very slowly, sometimes it can take hundreds of years. – National Geographic
    - Scientist estimates almost 14 million metric tons of plastic and garbage pollution at the bottom of the ocean floor. – Conservation International
    - In the world, the leading areas of plastic and pollution come from middle-income countries to high-income countries. – The Ocean Cleanup/OECD (Organization for Economic Co-operation and Development)
    - Studies on the pollution in the Great Pacific Garbage Patch revealed that 84% of the samples had toxic chemicals. – The Ocean Cleanup
* Section #3: What is the Ocean Cleanup Project
  + Intro: For 10 years and counting this organization has been researching and developing ways to save our oceans from the onslaught of pollution in the ocean around the world.   
      
    As stated on their website, their mission is to clean up 90% of the pollution by 2040.

The company was founded by a former student, Boyan Slat, in 2013 after wanting to dedicate his career to saving the oceans.

Since its founding, the Ocean Cleanup has conducted several research projects and is currently, as of 2025, conducting its new System 03 cleanup project. (link to site) <https://theoceancleanup.com/oceans/>

* 2.2 kilometer barrier that skims the ocean’s surface for floating plastics.
* Towed through the ocean in two vessels in low speed
* Located in several hotspots to clean the area in the densest areas
* Once the net barrier’s funnel point is full, they empty the contents on the rig and sort the plastics for recycling

This ongoing project is a large-scale solution to the immense problem that is ocean pollution. The Ocean Cleanup estimates that if they focus on targeting the “hotspots” of the patch, they can clean it within approximately 5 years and with less funds.

While the Ocean Cleanup organization is a large-scale solution to a never-ending problem like pollution. There are many ways we as a society can help in our own ways such as:

* + - Reducing Use of Single-Use Plastics
    - Recycle Following Proper Guidelines
    - And … Use Your Voice!

Timeline Site

* Plastic grows into the food industry in the 1950s to 1970s, moving from reusable utensils and plates into single-use plastic items including plastic bags that were invented by engineer Sten Gustaf Thulin. The growth in popularity is the start of plastics pollution.
* In the 1970s – 1980s, large supermarkets start to take onto the growing trend of plastic bags for its customers from the paper bag norm. Towards the end of this decade, the plastic bag was the most used brining the rise in plastic waste.
* Other than plastics, there are other areas of pollution that begin to catch the attention of local and federal government’s concerns. In the1960s-1970s, Runoff and oil discharge is noticed to be a large contribution to fires occurring in the rivers of Ohio due to the large amounts of oil.
* After many fires in the Ohio river due to the oil pollution, the government responds by passing the Federal Water Pollution Control Act in 1972. This act and the Oil Pollution Act of 1990 regulates oil waste to rivers and funds better sewage plants.
* In 1972, research and scientific reports began studying plastic pollution and debris in the ocean of the Sargasso Sea.
* In 1997, Charles J. Moore is coined to discover the Great Pacific Garbage Patch on a return from a yacht competition. The Great Pacific Garbage Patch was an accumulation of plastic waste in the ocean in a large area.
* Richard Thompson, a Marine Biologist, founded the name “microplastics” to be plastic particles that are less than 5millimeters in size that are discovered in sediment and the surface of the ocean.
* In 2006, the rise in public attention of the Great Pacific Garbage Patch is due to an article by Ken Weiss. More research and scientific studies are now conducted due to this rise in attention.
* A Rolling Stone article, cited below, states that in 2011 Americans use approximately 102 billion plastic bags each year.
* Many solutions and advocations arise in protest to the rise of the pollution in the oceans. One of which is the Ocean Cleanup Project founded in 2013 by a former aerospace engineering student, Boyan Slat, funded and created to combat the Great Pacific Garbage Patch. And in two years, raises $2 million to start researching and testing.
* From 2018 – 2021, multiple global agencies and governments have started to enact legislation to reduce pollution and regulate improper waste management practices to combat the pollution.