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OIL SPILLS AND THEIR CONSEQUENCES



Pelican covered in oil. Photo credit: Louisiana GOHSEP

April 20, 2010 – Gulf of Mexico. The oil rig named 'Deepwater-Horizon' explodes and as a result, is heavily damaged. An oil rig is something that is built with special equipment for drilling and storing oil. During the attempts to put out the fire, the rig starts to sink. However, because the damage to the rig was extremely bad, oil starts to flow into the sea. The flowing oil is unstoppable for three months until the rig is finally covered to stop oil from spilling out on July 15, 2010. By then a total of 4.9 million barrels worth of oil (780,000 m³) has leaked into the ocean, causing harm to the wildlife and nature within its reach (Deepwater Report, 2011). Birds, turtles, and dolphins amongst other animals were covered in oil. The chemicals within the oil destroyed the coral within the sea and made it impossible for fishermen to catch fish that humans like to eat.



Deepwater Horizon prior to explosion

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Oil rig – An oil rig is something that is built with special equipment for drilling and storing oil.

Oil spill – An oil spill is the release of oil into the environment.

Spill some oil in the kitchen

If you want to experience the effect of oil in water, you can experiment a little in your kitchen at home. Take a bowl of water and add some oil (olive or vegetable). You will notice that the oil floats on top of the water and stays separated from the water no matter how hard you shake or stir it. This is because oil does not dissolve in water - it is called 'hydrophobic' or water hating. You can compare this with adding salt to a glass of hot water. The salt does dissolve in water and is therefore called 'hydrophilic' or water loving. But let's get back to the oil. If you put your hand in and out of the bowl, you will see that the oil sticks to your hand. This is exactly what happens with the animals that get in contact with the oil in the sea.



Oil in all sorts and sizes

A lot of people believe that damaged tankers, ships, and rigs largely cause oil spills. However, there are other things that can be blamed including automobiles, boats, industrial plants and machinery (Dujs, 2012).

Different types of oils can have different damaging effects on the environment where the oil spill takes place. The chart below lists the types of oil and the damages they cause.

Category	Oil type	Damaging effect	Clean-up
Very light oils	Gasoline, Kerosene	Extremely toxic to marine organisms	Evaporates very quick so there is no time for clean-up
Light oils	Diesel	Less toxic but the consequences are more long-term	Can be cleaned effectively
Medium oils	Petroleum	Threatens mostly birds and mammals because the oil adheres to their outside	Can be cleaned effectively, but only direct after the spill
Heavy oils	Raw oil, dense and heavy	Detrimental to almost all life in the ocean	Decontaminating is very hard but possible
Very heavy oils	'Group V oils'	It is heavy and diffuses into water, so it threatens life at the bottom of the ocean	Very difficult to find and capture this type of oil because the ocean floor is so irregular

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Hydrophobic means something that doesn't mix with water.

Hydrophilic means something that does mix with water.

Very heavy oil may immediately cause a large number of deaths among the sea, air, and land animals that live in the area where the spill occurs. Some animals may die instantly, while others are affected in a way that damages the way their bodies function, which also causes them animals to die. The fishing industry also becomes damaged, causing the companies and fishermen that operate in these areas to lose money.

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Cleaning up the mess

So what happens when oil devastates the environment? The oil has to be cleaned up. There are a few methods of cleaning up oil that are frequently used (Dujs, 2012; Emback, 2007).

1. **Booms:** floating devices that form a barrier in the ocean to collect and absorb the oil in the area. It is very effective at keeping the spilled oil within a particular area.

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2. **Skimmers:** self-propelled devices that are able to attract and suck up the oil from the surface of the water. It is often used in combination with booms.
3. **Chemicals:** the release of different chemicals that can break down the oil into water and carbon dioxide.



C-130 Hercules drops an oil-dispersing chemical into the Gulf of Mexico
May 5, 2010, as part of the Deepwater Horizon Response.

4. **Controlled burning:** the oil at the surface is set on fire. Although this is an effective method, it is often avoided because the fire produces unwanted air pollutants.



Reading Comprehension Questions

1. Explain
2. Where
3. According to the article, about how many tons of oil end up in the environment each year?
4. Explain
5. Give three causes of oil spills on land and water.
6. Describe
7. List two methods used to clean up oil spills and explain how each clean up method works.
8. Why is
9. Use the table
10. Use the table with the five different types of oils. Choose a type of oil that you think is the most harmful for the environment, and give at least two reasons for your choice.

Extension Questions

11. Use the table with the five different types of oils. Which type of oil has probably harmed the birds described in the first paragraph of this article? Explain.
12. Use the
13. Using a computer and the website Canva.com, you will create a

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