



What happens when oil and water collide?



In the NEWS...

On April 20, there was an explosion on the Deepwater Horizon oil rig located 50 miles off the coast of Louisiana. Since then, hundreds of thousands of barrels of oil have been spilling into the Gulf of Mexico from an undersea well that is located approximately 5,000 feet below the surface. The gooey mess is threatening miles of coastline in four states.

Experts are concerned about how the huge oil spill will impact the sea life in the area and the fragile wetlands onshore. So far, crews have been unsuccessful in stopping the underwater leak or in collecting much of the oil on the surface of the water. Experts warn that the cost of cleanup could add up into the billions of dollars.



Here is an experiment that you can do at home to see for yourself if oil and water mix!

What you'll need:

- ◆ Small jar with lid
- ◆ Water
- ◆ Food coloring
- ◆ 2 tablespoons of cooking oil
- ◆ Dish washing liquid or detergent

Instructions:

1. Add a few drops of food coloring to the water.
2. Pour about 2 tablespoons of the colored water along with the 2 tablespoons of cooking oil into the container.
3. Screw the lid on tight and shake the jar as hard as you can.
4. Put the container down and have a look. It may have seemed as though the liquids were mixing together...but you can watch the oil float back to the top.

What's happening?

While water often mixes with other liquids to form **solutions**, oil and water do not mix. Water molecules are strongly attracted to each other. This is the same for oil and, because they are more attracted to their own molecules, they just don't mix together. Even though they are in the same container -- and they are vigorously shaken together -- they will separate and the oil will float above the water because it has a lower density.

Next, try adding some dish washing liquid or detergent to the jar. Detergent is attracted to both water and oil and joins them all together to form something called an **emulsion**. This is a good thing when it comes to washing those greasy dishes -- and it is why a gentle detergent is being used to wash the oil off the feathers of sea birds that have been in the oil spill.