Separation techniques to the rescue!

Scientists are thinking of new ways to separate oil from water after oil spills

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An oil spill. Image source: Pixabay

Oil is a fossil fuel which we use to heat our homes, generate electricity and power large factories and public transport. But, when oil accidentally spills into the ocean, it can cause big problems.

Oil spills are considered to be one of the most serious environmental issues. They can do great harm to the **marine** environment and any local wildlife. When oil **contaminates** water, it releases harmful substances which harm the health of local vegetation and habitats. These effects can sometimes last for years after the oil spill occurs. When an Exxon Valdez oil tanker spilled 11 million gallons of oil in Alaska in 1989, it killed an estimated:

- 250,000 seabirds
- 2,800 sea otters
- 300 seals
- 250 bald eagles
- 22 killer whales
- Billions of salmon and herring eggs

Oil spills actually happen quite often. Most oil spills are quite small. When there is a large oil spill, this is considered an environmental disaster. Large spills happen when large pipelines that are carrying oil break, big oil tankers sink, or something goes wrong when oil companies are drilling for oil under the sea.

One of the jobs of marine scientists is to think of ways to clean up the oil, measure the impacts of pollution, and help the ocean and its **wildlife** to recover.

One highly effective technique to solve oil-water separation is 'uni-directional **membranes'**, known as Janus membranes.

These are surfaces which allow liquids to flow in only one single direction, separating the oil and water in the process.

The materials used are environmentally friendly and long lasting, and they are also easy to recycle.

In addition to oil-spill clean-up, the technology could be used in wastewater management, oil purification, and in the cosmetics industry.

A typical oil spill takes a few weeks to clean up, but it depends on the **severity** and the volume of oil spilled. Some spills can take years to clean up.

Answer the following questions in full sentences:

1. What is this news story about?

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2. What is oil used for?

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3. Why are oil spills considered an environmental disaster?

4. Suggest why scientists are interested in measuring the impact of oil spills on the environment.

5. Write down the meanings of any words **in bold** in the article.