

Humans use a lot of oil. Because of that, oil spills happen.

Oil consists of over 10,000 different chemical substances, which behave differently when oil is spilled into seawater.

Some compounds evaporate and go into the atmosphere.

Some compounds dissolve in seawater.

But many oil compounds do not mix with water. These form a surface slick because oil is lighter than seawater.

If there is lots of wind or turbulence, they get mixed into the seawater and form droplets, that are dispersed.

These droplets are suspended in the water below the surface.

When water calms down, the oil droplets join together again, and rise back to the surface and the slick on the surface reforms.

But if droplets are really small, they don't rise and are moved laterally with currents. If they get diluted no visible surface slick forms.

For large open ocean spills, less than 10% of the oil that is spilled can be retrieved, for other type of spills more can that be collected.

What happens to what is left behind varies, as the composition of the spilled oil changes in a process called "weathering."





Oil that remains at the surface can have its chemical composition changed by sunlight.

This can be moved by currents may affect beaches and wetlands, although with decreased toxicity.

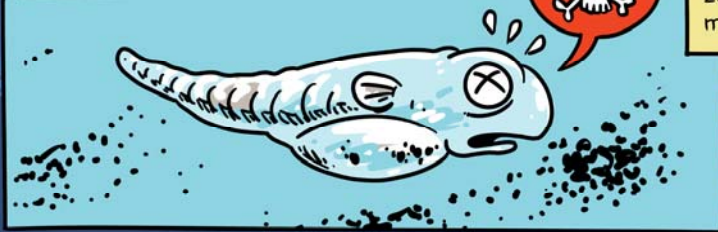


Some compounds of oil can be eaten by bacteria. Others are not eaten at all.



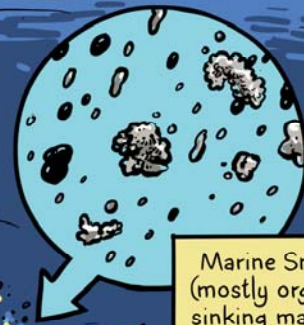
But since most bacteria need oxygen and nutrients, they can only work at the edges of oil slicks, or on dispersed droplets.

Very high concentrations of oil kills organisms, but those concentrations usually disperse rapidly due to currents.



Still, even dispersed at low levels, it has effects. It can be eaten or taken up by zooplankton and fish larvae. Fish larvae may develop heart damage.

Oil droplets can be caught up in sinking marine snow, and transported to the seafloor.



Marine Snow
(mostly organic
sinking matter)

Once there, it can also affect bottom-dwelling organisms.

There is no one standard solution to an oil spill. And after one occurs, the fate of oil in the ocean is a big complex, changing thing with longlasting effects.

Understanding how it unfolds is key for figuring out a reponse plan once a disaster has taken place.