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Popular Article

## Water Pollution - An Indirect Invitation to Disaster

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### *Abstract*

” water”, the essence of life, is facing a threat “. Alarming rise of pollution is a stark reminder of fragility of our planet’s most precious resources. From the depths of the oceans to the taps in our homes water pollution is a pervasive threat that demands attention and action. The major sources of pollution include marine dumping, industrial waste, sewage and waste water, oil leaks and spills, etc. The statistics are staggering: millions of tonnes of plastic waste, chemical runoff and industrial effluent pour into our oceans and rivers every year. If these are not controlled, we may face severe consequences in further.

This page explores one of the significant contributors to water pollution: Oil spills. We’ll delve into the definition of water pollution, how oil spills lead to contamination, and their impact on aquatic life. A case study on oil spills will be examined, followed by an overview of prevention measures to mitigate their harmful effects.

### **INTRODUCTION**

Major Oil pollution can occur from any crude oil or refined product spill. The most damaging events typically involve: Tanker or drill platform spills at sea, Barge or ship spills on inland water ways, Well blowouts or pipeline breaks on land. Oil spills can contaminate: waterways (oceans, rivers, lakes), soil and groundwater, coastal areas and wetlands. Effects of oil spills: Environmental damage (harm to wildlife, ecosystems, and habitats), Economic impact (loses to fisheries, tourism, and local businesses), health risks (exposure to toxic chemicals).

3.2 million tonnes of oil are released annually into the environment, mainly from shipping and industrial effects. Notable oil spills include:

**Iran-Iraq War (1980 -1988):** - 2 million barrels into the Arabian gulf.

**Gulf War (1991):** 4-8million barrels into the Gulf and Kuwaiti Desert, the largest oil spill at the time.

Bp Deepwater Horizon (2010): - 2.6 million gallons into the Gulf of Mexico over 3 months, the second largest oil spill in history.

Despite some large spills, the number of major oil spills (above 700 tonnes) has decreased significantly over the last 30 years.

The total volume of oil lost to the environment from tanker spills in 2022 was approximately 15,000 tonnes;  
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more than 14,000 tonnes of which was lost in the 3 large incidents.

### A CASE STUDY OF THE 1989 EXXON VALDEZ OIL SPILL (24th march, 1989)

The Exxon Valdez oil tanker ran aground on Bligh Reef in Prince William Sound, Alaska, causing one of the most devastating environmental disasters in history. Exxon Valdez was carrying 1.26 million barrels of oil at the time of this collision. The accident released an estimated 11 million gallons of crude oil into the Gulf of Alaska, at 12:04 AM, which spread across 1,300 miles of coastline and adjacent waters due to strong winds and delayed containment effects. Thus, the disaster had a catastrophic impact on native wildlife, including the extinction of salmon, herring, sea otters, bald eagles and killer whales. In response, thousands of workers and volunteers participated in the cleanup, funded by Exxon's 21 billion dollars contribution. The incident also prompted Alaska Senator Ted Stevens to advocate for federal funding to support the recovery efforts. It is the second largest oil spill in U.S. waters.

The National Transportation Safety Board (NTSB) ultimately held Exxon primarily responsible for the oil spill, attributing it to the company's inadequately trained and over worked crew. Additionally, the NTSB criticized the U.S. Coast Guard for its ineffective traffic management system. Following revelations that



Captain Joseph J. Hazelwood had consumed alcohol prior to the accident, Exxon terminated his employment. In response to the disaster, the U.S. Congress enacted the Oil Pollution Act in 1990, which established protocols for responding to future oil spills, defined the legal responsibilities of parties involved, and mandated the phase – out of single – hulled tankers from U.S. waters by 2015.

In the cleanup process chemical dispersant, a surfactant and solvent mixture, was applied to the slick by a private company on the same day with a helicopter, but the helicopter missed the target area. According to a report by David Kirby for TakePart, the main component of the Corexit formulation used during cleanup, 2-butoxyethanol, was identified as “one of the agents that caused Liver, Kidney, Lung, Nervous system, and Blood disorders among cleanup crews in Alaska following the 1989 Exxon Valdez spill”.

Mechanical cleanup was started afterward using booms and skimmers, but the skimmers were not readily available during the first 24 hours following the spill and thick oil and kelp tended to clog the equipment. Despite civilian insistence for a complete cleanup, only 10% of total oil was actually completely cleaned. Exxon was widely criticized for its slow response to clean up the disaster. More than 11,000 Alaskan residents, along with some Exxon employees, worked throughout the region to try to restore the environment. Over four summers were spent on the cleanup effort, which cost more than \$2 Billion on Exxon's account, before the



cleanup effort was abandoned. Some of the beaches still remained oil till date.

Although the volume of oil has declined considerably, with oil remaining only about 0.14 – 0.28% of the original spilled volume, studies suggest that the area of oiled beach has changed little since 1992. A study



by National Marine Fisheries Service, NOAA in Juneau, determined that by 2001 approximately 90 tonnes of oil remained on beaches in Prince William Sound in the sandy soil of the contaminated shoreline, with annual loss rates declining from 68% per year prior to 1992, to 4% per year after 2001.

ExxonMobil denied concerns over the remaining oil, stating that they anticipated the remaining fraction would not cause long-term ecological impacts.

On March 24, 2014, the 25<sup>th</sup> Anniversary spill, NOAA scientists reported that some species seemed to have recovered, with the sea otter the latest creature to return to pre-spill numbers.

#### **ANOTHER CASE STUDY ON DEEPWATER HORIZON OIL SPILL (20TH APRIL, 2010)**

The Deepwater Horizon oil spill is also referred to as “BP oil spill”. It is the largest marine oil spill in the history of U.S. waters. It is estimated to be 8 to 31 percent larger in volume than the previous largest, the Ixtoc I oil spill also in the Gulf of Mexico. It was a devastating blowout occurred in the Gulf of Mexico off the coast of Louisiana.

The explosion claimed the lives of 11 crew members and dislodged the rig from its mooring, leaving the underwater well unsecured. As a result, oil flowed unchecked into the ocean for 87 days, releasing the estimated 3.19 million barrels of crude - more than double the amount spill by the Exxon Valdez 20 years prior, The prolonged leak contaminated over 1000 miles of Gulf coast line making it one of the most catastrophic environmental disaster in history.

After several failed efforts to contain the flow, the well was declared sealed on 19 September 2010. Reports in early 201 indicated that the well site was still leaking. Hence Deepwater horizon oil spill is regarded as one of the largest environmental disasters in world history.

A massive response ensued to protect beaches, wet lands and estuaries from the spreading oil using skimmer ships, floating booms, controlled burns and 1,840,000 U.S gal (7000 cubic metre)of oil depressant. Due to months – long spill, along with adverse effect from the response and cleanup activities, extensive damage to marine and wild life habitats and fishing and tourism industries was reported. In April 2013, is was reported that Dolphins and other marine life continued to die in record numbers in infant dolphins dying at 6 times the



normal rate. One study released in 2014 reported that Tuna and Amberjack exposed to oil spill developed deformities of the heart and other organs which would be expected to be fatal or atleast life shortening; another study found that cardiotoxicity might have been wide spread in animal life expose to spill.

In Louisiana, oil cleanup crews worked four days a week on 55 miles (89 km) of Louisiana shoreline throughout 2013. 4,900,000 lb (2,200 t ) of oily material was removed from beaches in 2013, over double the amount collected in 2012.

In November 2012, BP and United States Department of Justice settled federal criminal charges, with BP pleading guilty to 11 counts of manslaughter, two misdemeanors, and a felony count of lying to the United State Congress. BP also agreed to four years of government monitoring of its safety practices and ethics, and Enivnmental Protection Agency announced that BP would be temporarily banned from new contracts with the United States



government. BP and the Department of Justice agreed to a record- setting \$4.525 billion in fines and other payments. As of 2018, cleanup costs, charges and penalties had cost the company more than \$65 billion.

## CONCLUSION

In conclusion, oil pollution poses a significant threat to our planets delicate ecosystem, causing irreparable harm to marine life contaminating water sources , and jeopardizing human health. The devastating impact of oil spills and chronic pollution demands immediate attention and collective action. By adopting sustainable practices, investing in renewable energy, and enforcing stringent regulations, we can mitigate the effects of oil pollution and create a cleaner, healthier future for generations to come.

## REFERENCES

- <https://web.archive.org/web/20070630224835/www>
- <https://u.osu.edu/waterpollution2367/water-pollution-crises/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7121614/>
- [https://en.m.wikipedia.org/wiki/Exxon\\_Valdez\\_oil\\_spill](https://en.m.wikipedia.org/wiki/Exxon_Valdez_oil_spill)
- [https://en.m.wikipedia.org/wiki/Deepwater\\_Horizon\\_oil\\_spill](https://en.m.wikipedia.org/wiki/Deepwater_Horizon_oil_spill)

