

MODULE 2: Water Pollution

In the previous module, we were introduced to what pollution is and gave particular emphasis on land pollution. We discussed how land pollution occurs, how big industries cause environmental destruction, and saw the state of plastic waste around the world. In this module, we continue the discussion by examining water pollution. Water is what makes life possible on Earth. Without it, life on earth ceases as well.

2.1 What is water pollution?:

https://wwf.panda.org/discover/knowledge_hub/teacher_resources/webfieldtrips/water_pollution/

<https://www.hsph.harvard.edu/ehep/82-2/>

<https://www.youtube.com/watch?v=4Q8dL8RtQM0>

Simply stated, water pollution is the contamination of water sources by the entrance or dissolution of toxic substances. These pollutants damage aquatic life and may negatively affect daily activities such as drinking.

2.2 Causes of Water Pollution: <https://www.britannica.com/science/water-pollution>

There are several ways in which water can become polluted. Below are some of the primary causes of water pollution.

2.2.1. Domestic Sewage:

<https://www.sciencedirect.com/topics/engineering/domestic-sewage>

https://cgi.tu-harburg.de/~awwwweb/wbt/emwater/lessons/lesson_a1/lm_pg_1066.html

**In exploring this link, focus on Figure 1. and the table describing the color of wastewater*

2.2.2. Improper Disposal of Solid and Toxic Wastes on Bodies of Water:

<https://www.intechopen.com/chapters/64364>

2.2.3. Oil Spills:

<https://www.noaa.gov/education/resource-collections/ocean-coasts/oil-spills>

<https://ourworldindata.org/oil-spills>

<https://www.unep.org/news-and-stories/story/how-manage-damage-oil-spills>

2.2.4. Ocean Mining:

<https://www.marinebio.org/conservation/ocean-mining/>

2.2.5. Urbanization and Industrialization:

<https://pib.gov.in/newsite/PrintRelease.aspx?relid=75536>

https://www.deswater.com/DWT_articles/vol_235_papers/235_2021_333.pdf

https://www.researchgate.net/publication/225137540_Impact_of_urbanization_and_industrialization_upon_surface_water_quality_A_pilot_study_of_Panzhuhua_mining_town

2.2.5. Unsustainable Agricultural and Fishery Practices (e.g. use of fertilizers and pesticides, dynamite fishing, etc.):

<https://oursharedseas.com/threats/threats-unsustainable-fishing-and-farming/>

<https://enveurope.springeropen.com/articles/10.1186/s12302-021-00551-6>

Seeing the multitude of ways in which our natural water sources may be degraded, we can now explore the effects this pollution causes on the ecosystem, human health, and water quality.

2.3 Effects of Water Pollution: <https://news.un.org/en/story/2019/08/1044551>

2.3.1. Depletion of Oxygen Levels on Bodies of Water

<https://oceanservice.noaa.gov/hazards/hypoxia/#:~:text=In%20ocean%20and%20freshwater%20environments,to%20the%20bottom%2C%20and%20decompose.>

2.3.2. Food Contamination and Scarcity

<https://www.frontiersin.org/journals/water/articles/10.3389/frwa.2021.736760/full>

<https://www.ifpri.org/blog/food-security-depends-water-security-%E2%80%93-and-we-need-act-now>

<https://pubmed.ncbi.nlm.nih.gov/25603422/>

2.3.3. Threats on Marine and Aquatic Species and Ecosystems

<https://www.nationalgeographic.com/environment/article/ocean-threats>

<https://oceanliteracy.unesco.org/threats-to-the-ocean/>

2.3.4. Threats on Human Health

<https://www.medicalnewstoday.com/articles/water-pollution-and-human-health#water-pollution-and-human-health>

<https://www.frontiersin.org/articles/10.3389/fenvs.2022.880246/full>

With the negative effects caused by water pollution clearly shown, it is only logical that we take steps towards bettering the situation.

2.4. Global Responses and Preventive Measures on Alleviating Water Pollution:

<https://www.unep.org/beatpollution/global-response-pollution>

<https://www.youtube.com/watch?v=i5jGxO28Kw8>

Climate action cannot be done alone. The following are global responses and specific recommendations on how to alleviate water pollution.

2.4.1. Regulation of Chemical Fertilizer Use in Agricultural Industries

[https://ap.fftc.org.tw/article/520#:~:text=The%20law%20prohibits%3A%20\(1\),not%20FP A%20registered%20or%20which](https://ap.fftc.org.tw/article/520#:~:text=The%20law%20prohibits%3A%20(1),not%20FP A%20registered%20or%20which)

<https://www.epa.gov/nutrientpollution/sources-and-solutions-agriculture>

<https://www.fao.org/3/i7754e/i7754e.pdf>

2.4.2. The Three R's

https://www.canr.msu.edu/news/reduce_recycle_and_reuse_to_decrease_climate_change

<https://www.sustainablesanantonio.com/practices-technology/reduce-reuse-recycle/>

[https://www.uncrd.or.jp/content/documents/2655Plenary%20Session%20\(6\)%20Backgro und%20Presentation%20\(1\)-%20Prof.%20Visvanathan-FINAL.pdf](https://www.uncrd.or.jp/content/documents/2655Plenary%20Session%20(6)%20Backgro und%20Presentation%20(1)-%20Prof.%20Visvanathan-FINAL.pdf)

2.4.3. Restriction of Single-Use Plastics

<https://www.seasidesustainability.org/post/the-u-s-progress-with-single-use-plastic-bans#:~:text=Looking%20to%20the%20future%2C%20the,be%20under%20this%20new%20l egislation.>

<https://www.nrdc.org/stories/single-use-plastics-101>

https://publicinterestnetwork.org/wp-content/uploads/2020/02/US-Single-Use-Plastics-Co astal_1_0.pdf

2.4.4. Sustainable Fishing

<https://education.nationalgeographic.org/resource/sustainable-fishing/>

<https://www.fao.org/responsible-fishing/en/>

To sum it all up, we have determined the different facets of water pollution as a major contributor to climate change and environmental degradation in general. From having identified its causes and effects on the biophysical environment, mankind, and most importantly, the marine and aquatic species and ecosystems, we are able to understand how essential it is to address these taking inspiration from the global responses and preventive measures proposed by various institutions, environmentalists, and scholars in the field. With that, let us join the movement to protect our precious water resources! Take action now to fix water pollution and ensure a cleaner, healthier planet. Together, we can make a meaningful impact and work towards a cleaner, healthier, and more sustainable future for all. Take action today to fix water pollution and be a part of the solution!

<https://solarimpulse.com/water-pollution-solutions>