

Understanding Pollution: Irreversible Changes Global Warming, Oil Spills and Eutrophication Have on Our Water Supply

In the ever-changing world in which we live, there is only one constant: Water. Throughout the history of the earth continents have shifted, land masses have risen up, and sunk, but through it all there has been water. As mankind has advanced we have done so through water. The earliest human settlements were near water sources, and as civilization expanded it did so by following along the rivers, lakes, and oceans of the world. Why? Because without water there is no life. Despite the fact that water is so essential to life, humanity's actions are having a negative impact on the water sources that are so vital to us all. Actions such as the release of greenhouse gases which are increasing global warming, the spilling of oil into oceans, rivers, and lakes, and the release of chemicals into water sources causing eutrophication.



Many people argue the existence of global warming. Yet, a recent report published by the United Nations has claimed that if something is not done to, at the very least, reduce the emissions of greenhouse gases then the world will be locked into an irreversible course of climate change.ⁱ The report has caused UN secretary General Ban Ki-Moon to urge world leaders to act, and to quote the a UN press release concerning the report “if left unchecked, climate change will increase the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.”ⁱⁱ, The impact of global warming on water supplies is Threefold. Firstly, as global warming causes the

temperature of the water to rise it can devastate plant and aquatic animal life as they are unable to adapt to the increased temperature.ⁱⁱⁱ That may not seem like a big deal, until you consider the fact that 70-80% of the world's oxygen comes from marine plant life.^{iv} Secondly, as the temperatures rise the polar ice caps are melting at a rate of 4% a decade, and Antarctica and Greenland are losing land mass^v. Finally, as temperatures rise, and population continues to expand, there is an increased risk of desertification, which is the turning of land into desert^{vi}. Let me break down desertification a bit. No water equals no fertile land which equals no agriculture! There goes our food supply. Global warming is not something that can be ignored. It is having an impact on every aspect of the world's ecosystems, from desert to ocean, and rainforest to urban cities. As the UN report reveals that they are 95% certain that global warming is the results of man's actions, are we really going to argue over the remaining 5%? Or are we going to take action to ensure that future generations actually have a world to call home?



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Anyone who has even seen images from an oil spill will agree the damage that oil can cause is tremendous. One of the greatest dangers of oil is that even though water is known as the universal solvent, oil does not dissolve in water.^{vii} Instead of dissolving, oil simply gathers into a thick sludge on the water. This sludge causes fish to suffocate, gathers on the feathers of birds weighing them down and denying them flight, and blocks light from reaching aquatic plant which leads to their demise.^{viii} Obviously, all of this devastates marine ecosystems. The truly worrying thought is that as disastrous as oil spills are they account for only 12 percent of oil that enters the oceans.

The other 88% comes from shipping travel, drains and dumping.^{ix} It is estimated that 29 million gallons of oil enter the waters around North America alone.^x Think of the damage that is being done to the marine ecosystems around the world. Then think about the long term damage that is being done to the waters of the world, which are essential for human life.



Eutrophication. A word that most people have probably never heard before. However, the effect that this word has on the waters of the world cannot be ignored. Eutrophication is “The process by which a body of water acquires a high concentration of nutrients, especially phosphates and nitrates. These typically promote excessive growth of algae. As the algae die and decompose, high levels of organic matter and the decomposing organisms deplete the water of available oxygen, causing the death of other organisms, such as fish. Eutrophication is a natural, slow-aging process for a water body, but human activity greatly speeds up the process.”^{xi} Phosphates and nitrates can come from such varied sources as fertilizer, sewage, or other artificial sources of nutrients.^{xii} Eutrophication is one of the most common dangers that face inland water supplies worldwide. The problem with eutrophication is that there are so many different types of algae that can form. Some algae can release toxins into the waters, while others can inhibit the ability of those who drink the water to take in oxygen.^{xiii} The only way to truly deal with eutrophication is to ensure that chemicals are not added into our water supplies. While this process will naturally occur in older lakes, we should not exacerbate the issue by further polluting inland water.

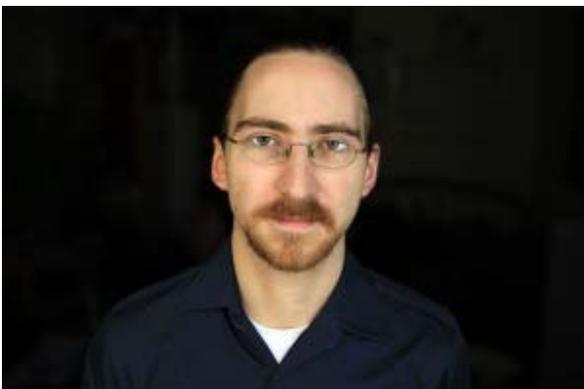


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Pollution can come in many forms and guises, but they all have one effect: to degrade the environment around us. The fact that we as a culture allow some of the most important resources on this planet to be polluted is a mark of our disregard for the future and our own welfare. There are three things that are necessary for human survival: Food, Water, and Oxygen. While we can grow our own food, it requires water and oxygen to do so, and we continue to pollute both.

About the Author



Dominick Principe is a graduate of Rowan University with dual Bachelor Degrees in Elementary Education and Writing Arts. He is a prolific reader who devours any book put before him, and feels that life is one great long book without an end. He fills his hours constantly exploring new information, and seeking to educate himself in the ways of the world. He puts all of that knowledge and his passion for learning to good use teaching English as a second

language to students of all ages. When his nose isn't buried in a book, or in class teaching, then he can generally be found typing away at his computer working on some random piece of writing that he was inspired to do.

ⁱ Warrick, Joby, and Chris Mooney. "Effects of Climate Change 'irreversible,' U.N. Panel Warns in Report." *WashingtonPost.com*. Washington Post, 2 Nov. 2014. Web. 4 Nov. 2014. <Effects of climate change 'irreversible,' U.N. panel warns in report>.

ⁱⁱ "'Leaders Must Act,' Urges Ban, as New UN Report Warns Climate Change May Soon Be 'irreversible'." *Un.org*. United Nations, 2 Nov. 2014. Web. 4 Nov. 2014. <'Leaders must act,' urges Ban, as new UN report warns climate change may soon be 'irreversible'>.

ⁱⁱⁱ "Global Warming « Water Pollution Guide." *Global Warming « Water Pollution Guide*. The Guides Network. Web. 4 Nov. 2014. <<http://www.water-pollution.org.uk/globalwarming.html>>.

^{iv} "The Most Important Organism? | Ecology Global Network." *Ecology Global Network*. Ecology Global Network. Web. 12 Nov. 2014. <<http://www.ecology.com/2011/09/12/important-organism/>>.

^v "Of Warming and Warnings." *The Economist*. The Economist Newspaper, 3 Nov. 2014. Web. 4 Nov. 2014. <<http://www.economist.com/news/science-and-technology/21630639-most-comprehensive-climate-report-yet-issues-its-shots-across-bow-warming-and>>.

^{vi} "EU and FAO Step up Action against Desertification in Africa, Caribbean and Pacific." *Preventionweb.net*. The United Nations Office for Disaster Risk Reduction, 22 Oct. 2014. Web. 3 Nov. 2014. <<http://www.preventionweb.net/english/professional/news/v.php?id=40016>>.

^{vii} "Everyday Chemistry - Why Doesn't Oil Dissolve in Water?" *Everyday Chemistry - Why Doesn't Oil Dissolve in Water?* The Human Touch of Chemistry. Web. 4 Nov. 2014.

<<http://humantouchofchemistry.com/why-doesnt-oil-dissolve-in-water.htm>>.

^{viii} "Oil Pollution « Water Pollution Guide." *Oil Pollution « Water Pollution Guide*. The Guides Network. Web. 4 Nov. 2014. <<http://www.water-pollution.org.uk/oilpollution.html>>.

^{ix} "Oil Pollution « Water Pollution Guide." *Oil Pollution « Water Pollution Guide*. The Guides Network. Web. 4 Nov. 2014. <<http://www.water-pollution.org.uk/oilpollution.html>>.

^x "National-Academies.org | Where the Nation Turns for Independent, Expert Advice." *National-Academies.org | Where the Nation Turns for Independent, Expert Advice*. The National Academies. Web. 4 Nov. 2014.

<<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=10388>>.

^{xi} "Eutrophication." *Definition Page*. United States Geological Survey. Web. 30 Oct. 2014. <<http://toxics.usgs.gov/definitions/eutrophication.html>>.

^{xii} "Eutrophication." *Definition Page*. United States Geological Survey. Web. 12 Nov. 2014. <<http://toxics.usgs.gov/definitions/eutrophication.html>>.

^{xiii} "Why Is Eutrophication Such A Serious Pollution Problem?" *Why Is Eutrophication Such A Serious Pollution Problem?* United Nations Environment Programme. Web. 4 Nov. 2014.

<http://www.unep.or.jp/ietc/publications/short_series/lakereservoirs-3/1.asp>.