

WHEN WATER ISN'T CLEAN WE RISE UP AS A COMMUNITY.



1.2 MILLION PEOPLE DIED as a result of unsafe water sources in 2017.



This was 2.2% of global deaths.

(<https://ourworldindata.org/water-access#access-to-safe-drinking-water>)
(<https://www.who.int/news-room/fact-sheets/detail/drinking-water#:~:text=Globally%2C%20at%20least%202%20billion,000%20diarrhoeal%20deaths%20each%20year.>)

→ Diarrhea

→ Polio

→ Cholera

→ cause 485 000 diarrhoeal deaths each year

→ Typhoid



One-in-four people do not have access to safe drinking water.

(<https://ourworldindata.org/water-access#access-to-safe-drinking-water>)

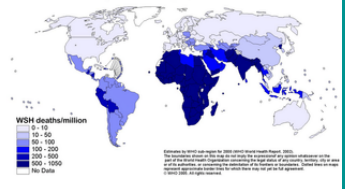


By 2025, half of the world's population will be living in water-stressed areas

(<https://www.who.int/news-room/fact-sheets/detail/drinking-water#:~:text=Globally%2C%20at%20least%202%20billion,000%20diarrhoeal%20deaths%20each%20year.>)



Deaths from unsafe water, sanitation and hygiene



(<https://www.who.int/news/risks/water/water/en/>)

Common Contaminants in Water and Their Health Implications:



Lead

can cause fatigue and bone issues along with a host of other health conditions



Aluminum

may be harmful to human bodies in large quantities



Nickel

may contribute to heart, liver, and skin issues over the course of long-term exposure



Arsenic

a well-known carcinogen



Beryllium

a potential carcinogen



Perchlorate

a hormone disruptor that is present in the drinking water of at least 26 states



Cadmium

can cause cramps, diarrhea, nausea, and vomiting in the short-term and may contribute to kidney, lung, and bone issues



Selenium

can damage the circulatory and nervous systems when consumed in high levels over the long-term



Copper

may irritate the stomach and cause vomiting



Thallium

can provoke gastrointestinal and nerve issues at high levels and may contribute to blood, hair, kidney, liver, and testicular issues when exposure occurs over the long-term



Fertilizers, herbicides, and pesticides

a large category that includes thousands of harmful chemicals that are especially hazardous to human endocrine



Types of Contaminants: (According to EPA)

- **Physical contaminants** primarily impact the physical appearance or other physical properties of water.
- **Chemical contaminants** are elements or compounds. These contaminants may be naturally occurring or man-made.
- **Biological contaminants** are organisms in water. They are also referred to as microbes or microbiological contaminants.
- **Radiological contaminants** are chemical elements with an unbalanced number of protons and neutrons resulting in unstable atoms that can emit ionizing radiation.



Credit and For More See:

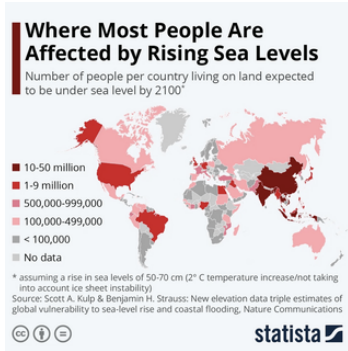
<https://www.epa.gov/ccl/types-drinking-water-contaminants>

<https://www.epa.gov/ccr/ccr-information-consumers>

<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-your-drinking-water>

<https://www.waterlogic.com/en-us/resources-blog/make-sure-you-are-drinking-clean-water/>

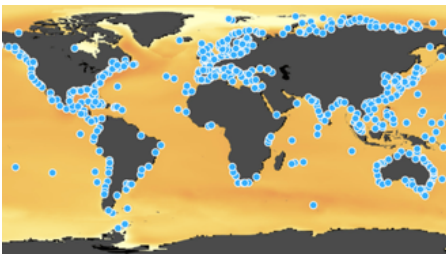
How rising ocean water level affects global population



- New research published by Nature Communications suggest that around 200 million people will live below sea level by 2100.



- According to CNN World, about 50 major coastal cities need to implement adaptation against rising sea level to protect the cities's most populated areas.



- According to NASA, global sea level is rising at the rate of 3.4 mm per year.

West Bank Water Crisis

Joshua



<https://www.science.org/doi/10.1126/science.1126011>

97 percent of Gaza's drinking water is not drinkable according to a joint statement issued by the Euro-Mediterranean Human Rights Monitor and the Global Institute for Water, Environment and Health (GIWEH)

<https://www.trtworld.com/middle-east/slow-poisoning-97-of-gaza-s-water-undrinkable-50500>

About a quarter of the diseases spread in Gaza are caused by water pollution and 12 percent of the deaths of children and infants are linked to intestinal diseases directly related to the drinking water, according to the recent data provided in the joint statement.

<https://www.euromedmonitor.org/en/article/4644/Euro-Med-Monitor-at-HRC:-Gazans-are-slowly-poisoned-as-97%25-of-Gaza%E2%80%99s-water-is-undrinkable>

Israel directly controls 85 percent of water resources in the West Bank and has a say in how the rest is distributed, Palestinian officials told Al Jazeera

<https://www.aljazeera.com/news/2021/7/15/water-war-palestinians-demand-more-water-access-from-israel>



<https://al-shabaka.org/briefs/apolitical-approach-palestines-water-crisis/>



<https://www.palestinechronicle.com/annexing-the-aquifers-israel-and-the-water-crisis-in-occupied-palestine/>

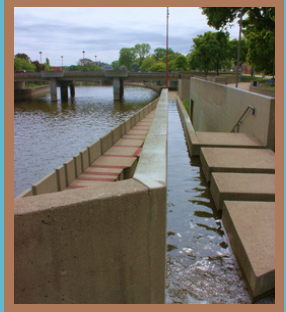


Water Contamination in Flint Michigan

Oliver

2.1 percent of children age 5 and under had elevated blood lead levels prior to the switch to Flint River water, compared to **4.0 percent** after the switch (Hurley Medical Center)

<https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis>



Flint River

https://commons.wikimedia.org/wiki/File:Flint_River.jpg



Flint Water Plant

Some **8,000 children** are believed to have some level of lead poisoning in the city, while **150 people** died from Legionnaires Disease

<https://abcnews.go.com/US/michigan-reaches-600-million-settlement-victims-flint-water/story?id=72492683>



In Flint alone, the city has spent nearly **\$100 million** to dig up close to **28,000 service lines** and replace more than **10,000** that were made of lead or galvanized steel.

<https://www.wsj.com/articles/a-crisis-of-confidence-in-americas-tap-water-11633699487>



Lead from water accounts for an estimated **10 to 20 percent** of elevated lead levels in children. (Sharon Swindell, M.D., a pediatrician and childhood lead poisoning expert at C.S. Mott Children's Hospital)

<https://healthblog.uofmhealth.org/childrens-health/pediatrician-lead-exposure-risks-go-beyond-flints-water>

Lack of WATER



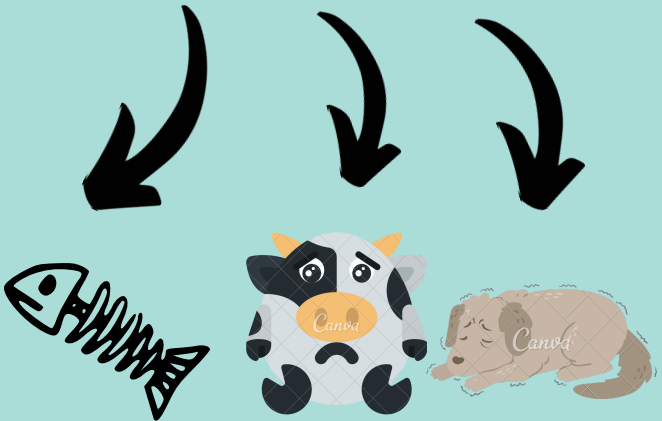
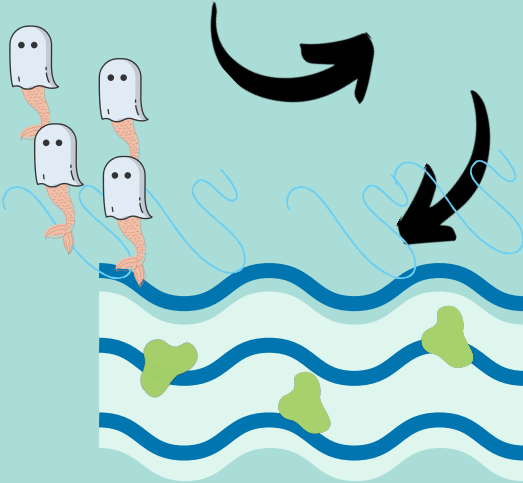
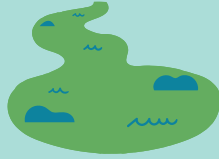
Four billion people — almost two thirds of the world's population — experience severe water scarcity for at least one month each year. Over two billion people live in countries where water supply is inadequate. Half of the world's population could be living in areas facing water scarcity by as early as 2025.



Contaminated water can transmit diseases such as diarrhoea, cholera, dysentery, typhoid, and polio. Contaminated drinking water is estimated to cause 485 000 diarrhoeal deaths each year. By 2025, half of the world's population will be living in water-stressed areas.



Algal Blooms



Marine organisms are not the only things that algal blooms harm:

"Toxins associated with cyanobacteria, the major harmful algal group in freshwater environments, have been implicated as the cause of **mass mortalities** of **fish and birds** and have also been tied to the death of **pets** and **livestock** that may be exposed through drinking contaminated water or licking themselves after bodily exposure." -" Wildlife – Harmful Algal Blooms." Whoi.edu, 2017, hab.who.edu/impacts/impacts-wildlife/. Accessed 10 Oct. 2021.



Oil Spills



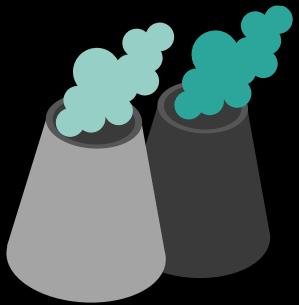
Cleaning up a medium to large oil spill may cost between **2.5 and 9.5 billion dollars**



Oil spills can harm the environment by damaging ecosystems and **killing wildlife**



Oil spills expose local communities to **harmful toxins**



These events not only pollute the water, but they also **harm the air**



Effects of Water Pollution

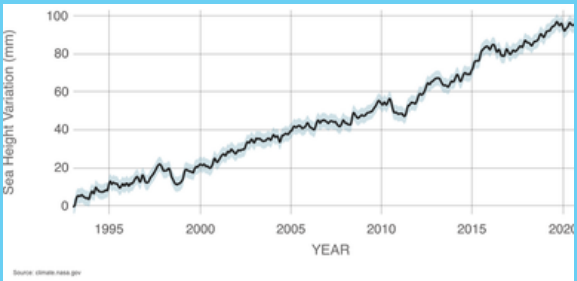
On Marine Life:

Types of marine pollution + effects:

- **plastic**
 - larger pieces of plastic can damage coral reefs, and ensare fish and other animals
 - some break into smaller pieces, called microplastics, which are more dangerous since they're more likely to be ingested by the marine organisms, and would then harm the internal organs and weaken their immune systems
- **light**
 - lighting from human habitation near coastal areas could infiltrate underwater, especially during nighttime, can upset the natural circadian rhythms of fish and other marine animals, disrupting their daily routines
- **noise**
 - because sounds travel further and longer underwater than in air, noise pollution caused by humans everyday is a great threat to marine animals
 - this confuse animals which depend on wave signals to do their daily activities, and can also shorten their lifespans
- **chemical**
 - pesticides, fertilizers, and so on commonly used by people to protect against pests can be swept into gutters by rainfall, where they would eventually be transferred into marine environments
 - this leads to an nutritional imbalance in the water, promoting the growth of algal blooms, which is also described in this infographic, and deprives other animals of sunlight and nutrients needed -> destroying the natural balance of ecosystems



Sea Level Rise



-Sea levels have **risen 21-24 cm** since 1880

-The **rate** of **sea level rise** is accelerating, going from **1.4 mm per year** throughout the 20th century to **3.6 mm per year** in the 21st century

-Flooding is **900% more frequent** than it was 50 years ago

-Predictions for the worst case scenario project that sea levels could be another **2.5 meters higher** than it is today, covering places like **New York, Shanghai, Mumbai**, and many other major cities

GLOBAL WARMING



**2.7 PEOPLE
BILLION**

Living in water scarcity for at least a month every year.



Global warming has led to higher global temperatures, which leads to greater evaporation that will worsen the water scarcity crisis.

Greater evaporation will lead to larger storms that will harm people living in impoverished areas.



As the ice caps melt, sea levels rise

higher and higher.



You can help fight global warming by

-Making eco-friendly decisions

-Spreading awareness

-Fight for action!

INFORMATION SOURCE

[HTTPS://WWW.NATIONALGEOGRAPHIC.ORG/ARTICLE/HOW-CLIMATE-CHANGE-IMPACTS-WATER-ACCESS/](https://www.nationalgeographic.org/article/how-climate-change-impacts-water-access/)

[HTTPS://WWW.CLIMATE.GOV/NEWS-FEATURES/UNDERSTANDING-CLIMATE-CLIMATE-CHANGE-GLOBAL-SEA-LEVEL](https://www.climate.gov/news-features/understanding-climate-climate-change-global-sea-level)

