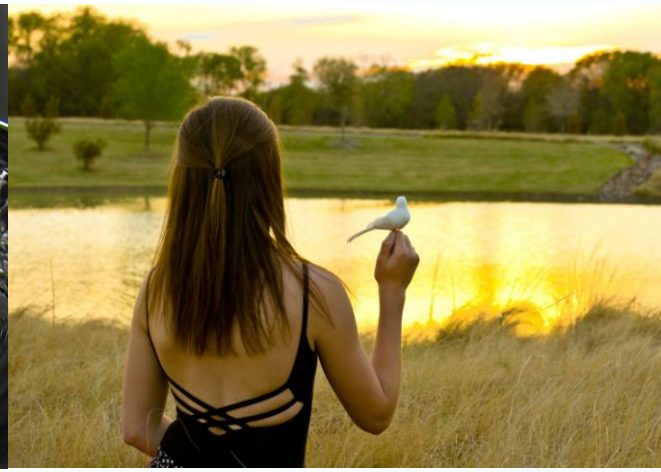
Drinking Water and Your Health



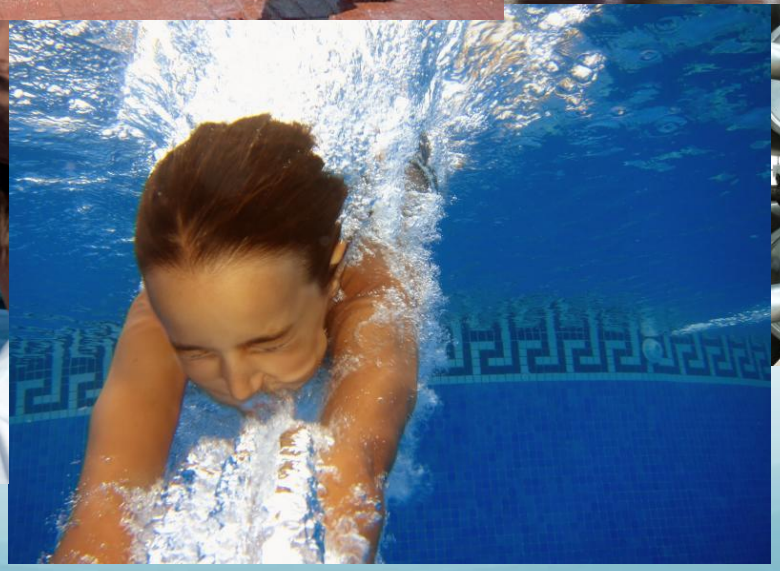


Environmental

Public Health

Photos: Steve Wall, Magda Wojtrya

Water, Water Everywhere



Photos: Matt Hintsa, Joseph Novak, Joel Mann, Garret Croakley, Jose Maria Cuellar

Water is Essential to Life

- All living organisms depend on water to survive.
- Water comprises up to 60% of the human body.
- 70% of Earth is covered by water.

Photo: Elyce Felize

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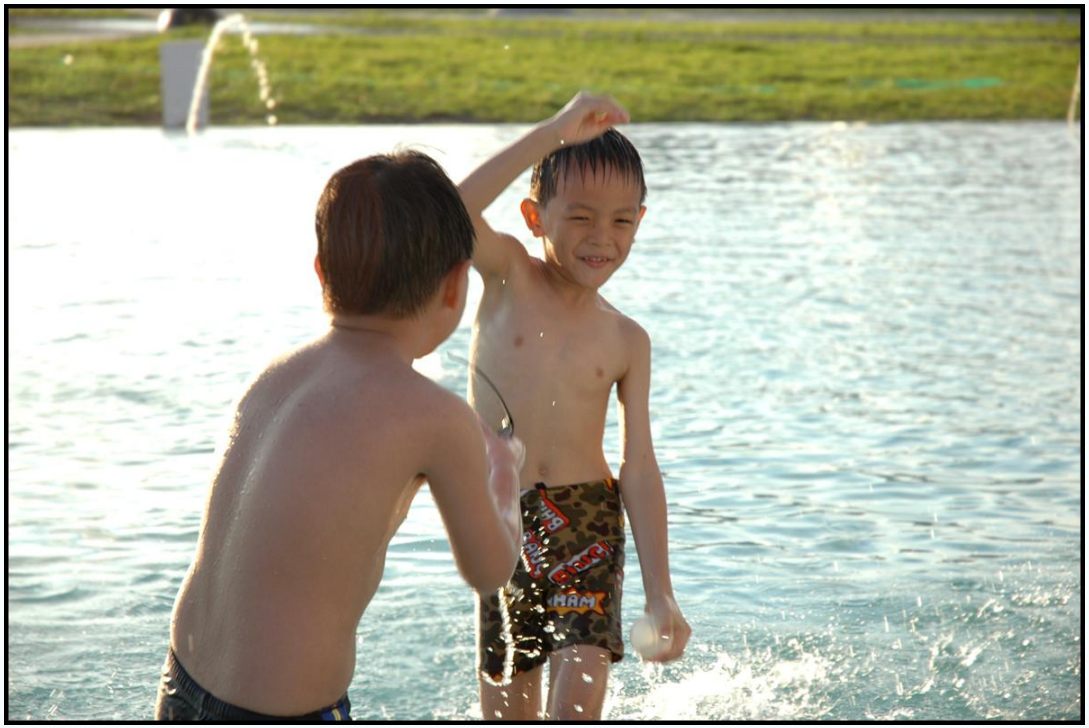
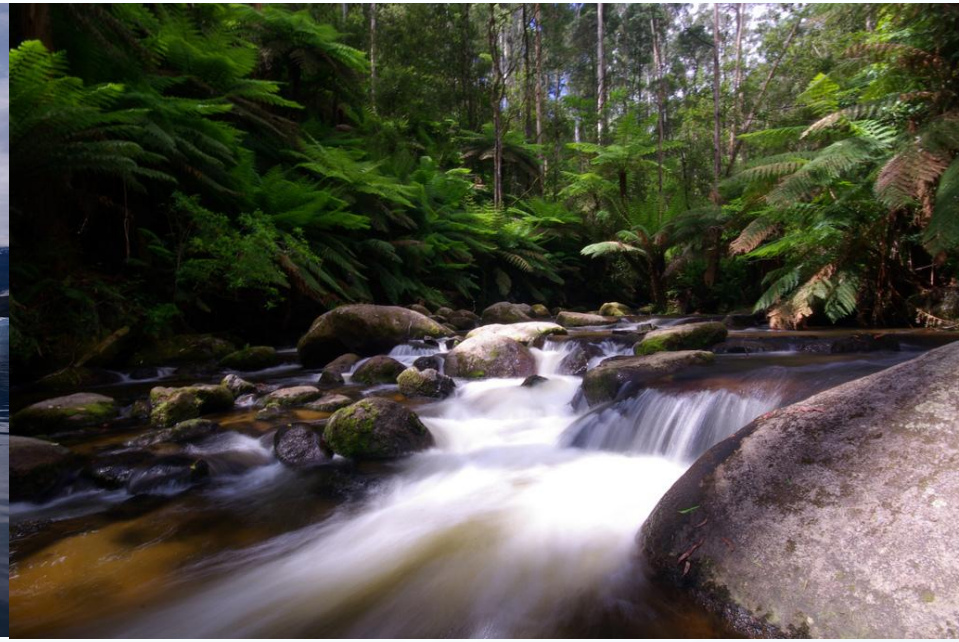


- We have the same amount of water on Earth as when it was first formed. While water is recycled over and over by nature, we cannot get any more water.
- In the U.S., we use almost 70 gallons of water per person per day.

Sources of Water

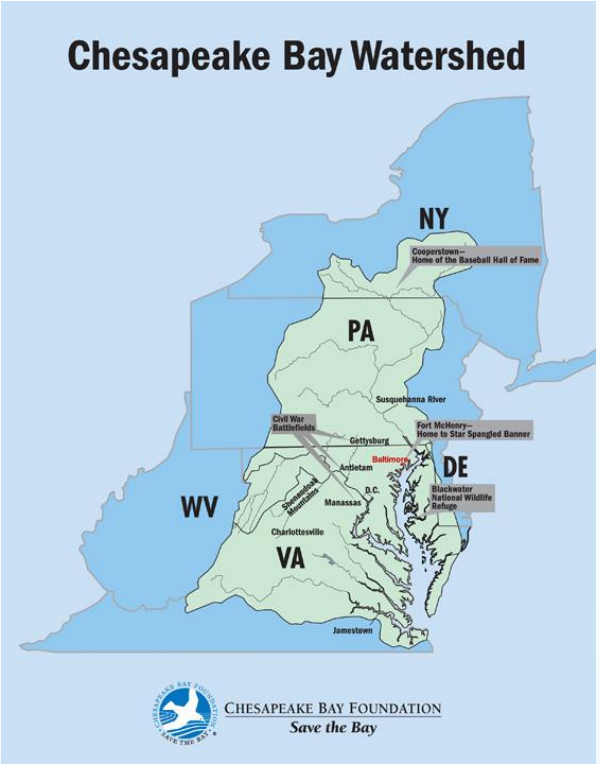


- Drinkable freshwater water accounts for only about 1% of all water in the world. 97% is salt water, and the remaining 2% is frozen in glaciers and ice caps.

Watersheds

- We all live in a watershed, a geographic area that drains to a common waterway such as a stream, lake, wetland, estuary, aquifer or ocean. Maryland is part of the Chesapeake Bay watershed.

Chesapeake Bay Watershed



- The Chesapeake Bay watershed, highlighted in gray, includes 64,000 square miles and parts of 6 states: New York, Pennsylvania, Delaware, Maryland, Virginia and West Virginia as well as the entire District of Columbia. 1,000 streams and rivers flow into the Chesapeake Bay.

Image: Chesapeake Bay Foundation

Drinking Water Sources

- Drinking water comes from underground reservoirs and surface waters (rivers, lakes, etc).
- About 85% of Americans get their water from public water systems, the remaining 15% use private drinking water (wells).

Threats to our Water: Contaminants

- Sometimes you can tell that water is contaminated just by looking at it or smelling it. More often, you cannot tell if water is safe unless it is tested. Drinking water is tested to make sure that it does not include harmful levels of contaminants that could impact your health.

Threats to our Water: Contaminants

- Water Contaminants
  - Man-made
    - Examples: contaminants from agriculture or industry, such as pesticides, chemicals and other toxic substances.
  - Naturally-occurring
    - Examples: bacteria, viruses, and microscopic parasites

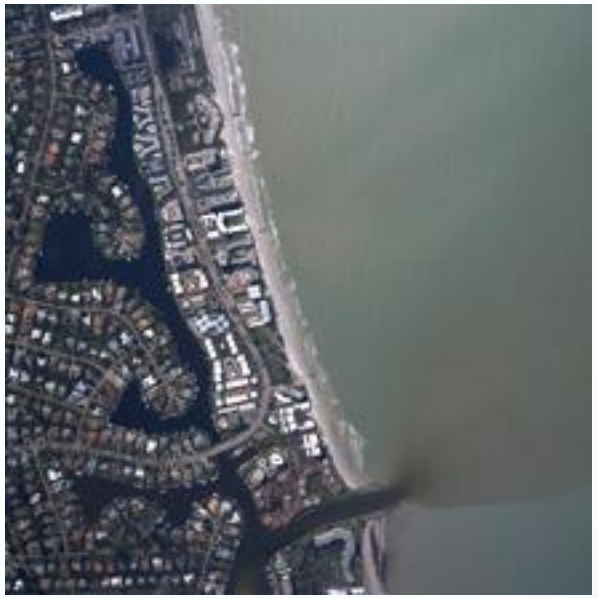
Photo: Bert van Dijk

Point Source Pollution

- Point source pollution is something you can point to, such as a pipe that releases pollution from a factory or sewage treatment plant.

Photo: Bay Smart Program

Nonpoint Source Pollution



- Non-point source pollution comes from many different sources that are more difficult to regulate by the government. It comes in part from agricultural, industrial and urban runoff and is the leading cause of water quality problems.

Photo: NOAA

How is our water protected?

- The United States has laws and regulations to help keep contaminants out of our water, namely the Clean Water Act and the Safe Drinking Water Act.
- The U.S. Environmental Protection Agency and state and local environmental agencies are responsible for testing the water from public systems and making sure the laws and regulations are followed.

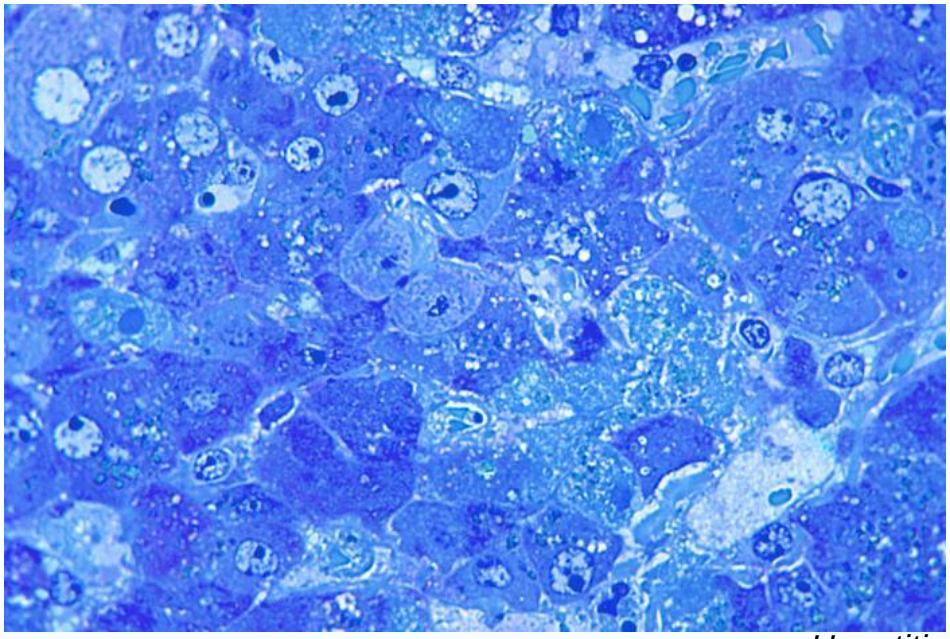
How is our water protected?

- Some examples of regulated contaminants are:
  - Nitrates - Used as fertilizers in agriculture. Nitrates diminish the ability of the blood to transport oxygen.
  - Lead - This highly toxic metal can be found in old pipes, contaminating drinking water.

How does water impact our health?

- Drinking, cooking with or swimming in contaminated water can make people sick. Some illnesses that can be caused by contaminated water are:
  - Acute
    - Gastro-enteritis: an infection of the gastro-intestinal tract causing vomiting and diarrhea
    - Infected cuts or rashes

How does water impact our health?



Hepatitis

- Other illnesses that can be caused by contaminated water are:
  - Chronic
    - Chronic Hepatitis: an infection of the liver
    - Lead poisoning: brain and kidney damage
    - Cancer

Photo: CDC

How do we clean our water?

- Wastewater treatment plants clean water that has been used by individuals (sinks, toilets, showers) and industry (factories, agriculture). This is sometimes called “sanitary sewage.”
- Rainfall that goes in the sewer, sometimes called “storm sewage” is also cleaned at wastewater treatment plants.

Photo: Pam Broviak

How do we clean our water?

- Here's how water treatment plants work:
  - First, dirt and particles are separated from the water.
  - Then, the water is passed through filters to remove even smaller particles.
  - Next, a small amount of chlorine or another disinfectant is added to kill microorganisms.
  - Finally, water is stored in a reservoir or tank and circulated back through the community, flowing through our taps, showers and hoses.

Photo: PeacePlusOne

Global Health and Water

- More people in the world die from unsafe water each year than from all forms of violence, including war.
- Each year, unsafe or inadequate water cause 2.2 million deaths worldwide, mostly of children under 5.
- Every day, 2 million tons of sewage and industrial and agricultural waste are discharged into the world's water sources.

Photos: Jon Gos, Trey Ratcliffe, Harini Calumal

What can we do to protect our water?

- Some things we can all do to help protect our water:
  - Reduce or eliminate fertilizer use
  - Reduce waste generated and properly dispose of all types of waste (motor oil, batteries, electronics, etc.)
  - Use public transportation when possible

Photo: US Army Corps of Engineers, LA

What can we do to protect our water?

- More things we can do to help protect our water:
  - Plant a rain garden with native vegetation to reduce storm water runoff
  - Try to buy food and other products from eco-conscious companies
  - Volunteer to protect your watershed
  - Tell your elected officials to support water protection and preservation

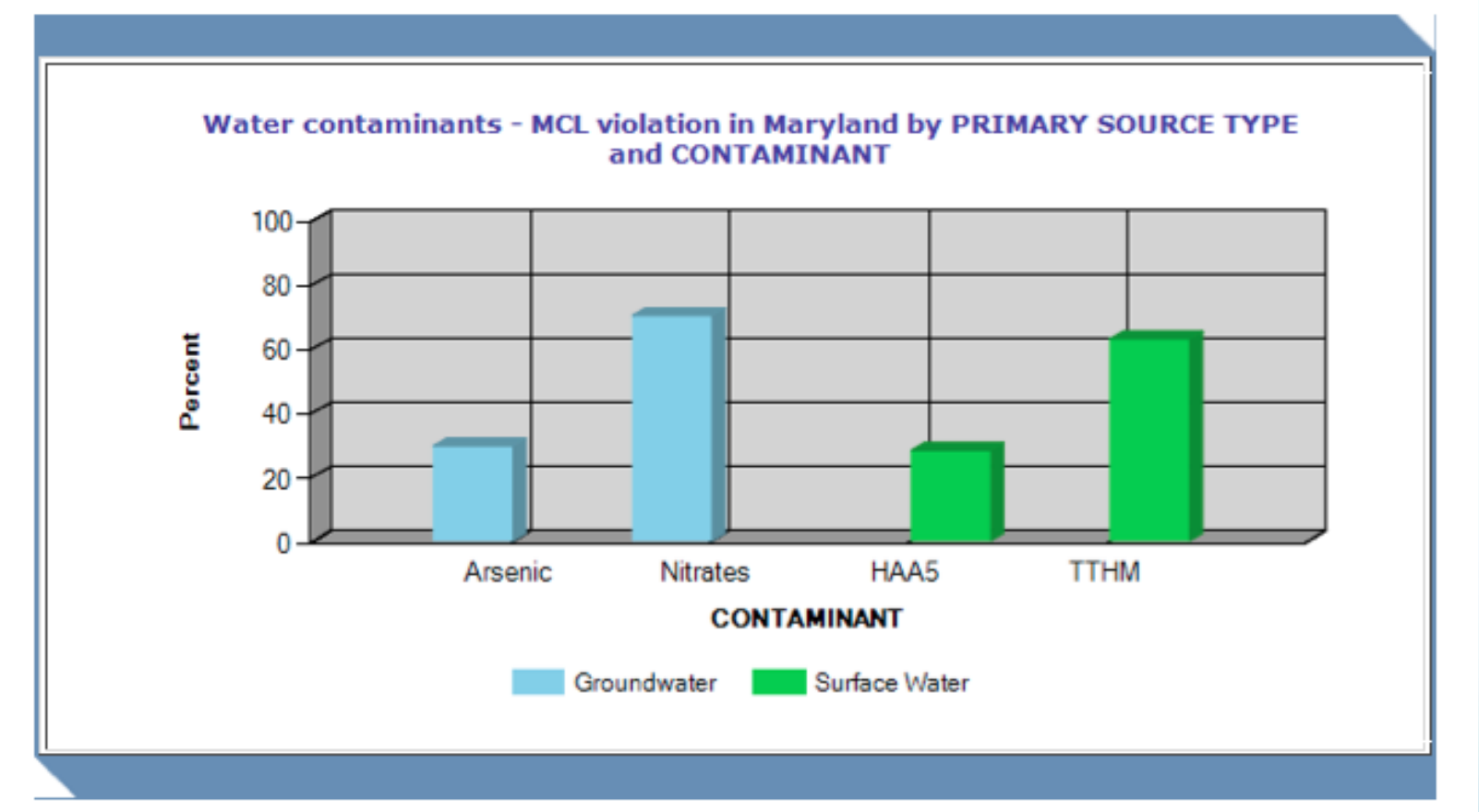
Photo: WaterWatch

Water Data

- Government agencies such as the Environmental Protection Agency (EPA) track water quality and quantity information. Contact your county department of health or environment to found out more about your water supply.

Photo: Joshua Davis

Water Testing in Maryland



Public drinking water in Maryland is considered safe and high quality. It is tested for harmful contaminants such as arsenic and nitrates. Local health departments have more information for people who want to see reports on their drinking water quality.

Image: Maryland EPHT

Other Types of Research Needed

- Methods for reducing water consumption in agriculture and industry
- More efficient water sanitation technology
- Studies to better understand the linkages between water contaminants and health
- Information on aging water infrastructure systems and the cost of keeping our water safe

Water and You

- What are some things you currently do (or could do) to protect and conserve water?
- What are some things your school, community, or businesses can do to help protect and conserve water?
- What policies could be enacted on the state or national level that would help protect our water?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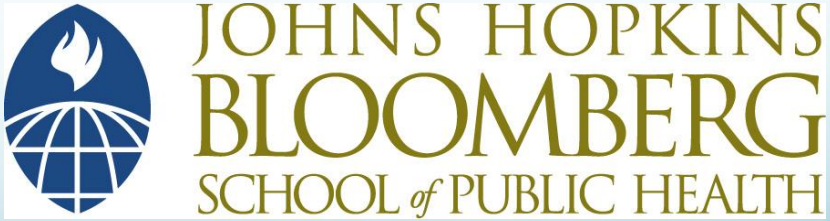
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