

Why Water is Important to Life

We know how important water is to human life and also, because of agriculture, how important it is to plant life, but what about the earth in general? How important is water to the ecological balance of the earth? What role does it play and what would happen if we were to lose it or it didn't exist?

There are already parts of the world where we can see how life would change, if there were no water. We can also see it somewhat from satellite photos of Mars, the moon, and other "dead" space bodies. And we can extrapolate from the properties of water, itself, and what we know of its effect on life.

Earth Without Water

Imagine earth without water. The soil, with no water in it and nothing growing on it, would be lifeless, dead, collapsed into dust, sand, clay or rock. In California's Central Valley where agriculture predominates and pulls water from the ground, this process is already beginning to happen. The earth used to be like a sponge, but where the groundwater has been sucked almost dry, like the Central Valley, the earth has collapsed and hardened. This is the process we call "subsidence."

Earth Would Look Like This:

Now imagine the air without water. Clouds provide a buffer from the heating power of the sun. Without them it would pour down with no mercy. Dry air would suck out whatever moisture it could find, wherever it could find it, and the noses and soft tissues of any being that lived would shrivel. There would be no sweet scents, since moisture is what conveys smells.

The composition of the air would change too. All the methane currently stored in ice, bogs, and the ocean, would be released, thereby increasing the heating effect of the sun. The dust in the air would be blown hither and yon, with nothing to wash it down. Temperatures would swing from extreme to extreme, getting hotter as time went on.

The ground, because it would be rock, sand, or dry earth would have nothing in or on it to blunt the heat. The sun, pouring down without mitigation, would beat on the earth and heat it up. Any carbon-based thing would burn up during the day. At night it would freeze.

There would be nothing to soften the effect of volcanoes or to put out fires. There would be no cushioning effect against earthquakes. Any rubbing of tectonic plates against each other would be magnified far beyond what it is now - the trembling would create massive rock slides and crumbling both at the site and in remote areas affected. The surface of the earth would burn and grind itself into dust. Am I exaggerating? Most likely not. The article below talks about earthquakes and the softening effect of water underground.

The Hydrologic Cycle

Water is a life giver - even a life creator. It lies at the basis of our understanding of how life works. It also lies at the basis of how we understand our own personal lives. Of the four (or five) basic building blocks of life, water is the only one with a visible cycle, which we call the hydrologic cycle. Fire has no cycle that we can see, neither do earth or air. And we don't understand spirit (the ether) enough to know if it does or not. Water is a constant reminder that life repeats.

The hydrologic cycle works as follows: From its most usable state, water evaporates and joins the air as water vapor. When the air cools, the vapor condenses and creates clouds, which help block heat from the sun. Colonies of the ice-nucleating bacterium, *P. syringae*, blown into the clouds by wind, help them to precipitate and fall as rain, snow, or hail. Much of the precipitation is stored on land as groundwater and lakes, snow and ice. From there water flows to the sea, where it joins the "primordial soup" again as ocean, ready to start the cycle anew.

Enables Transportation

Throughout the earth and the bodies of living things, water is used to transport both nutrients and wastes. On land, water transports nutrients and rich soils from the mountains to lower altitudes on the way to the sea. In the ocean, water currents disperse nutrients throughout the world. Humans use waterways to transport goods via boats and barges. Water in plant sap and blood transports nutrients and wastes to and from cells. In the human and animal brain water transports electrical charges, which allow us to think clearly. Without water there would be no dispersal of nutrients, electrical messages, or mass transit of goods and services that help life prosper.

Cleanses and Breaks Down Wastes

Rain cleans whatever it passes through (air, the earth's surface, soil), which is why everything smells fresh after a rain. It also plays a cleansing role in our own bodies, as it passes through the kidneys. It carries down dirt, debris, minerals, and toxins, washing all into the sea. Once in the ocean, algae and other microbes break the debris down (except plastic) into basic food components that can be used to support life. The ocean thereby becomes a primordial soup, filled with nutrients of all kinds. From the ocean life was born.

Enables Reproduction

Water is a key component of birth - the reproductive cycle of all animals mimicking the life-spawning ocean. In mammals, sperm are carried by water to impregnate the egg. Once impregnated, all nutrients in a female's body that a baby will need are carried by water (amniotic fluid) to the womb, before leftovers are distributed to the mother. Babies are born with a gush of water and are immediately fed with water that is nutrient rich. Birds produce eggs that are mostly water mixed with nutrients for the growing life inside. Without water there would be no reproduction, hence continuation of life as we know it. Babies of mammals grow inside a bubble filled with nutritious water called the amniotic sac. The water cushions them and helps propel them out of the womb at birth.

Provides a Home

In addition to being the soup from which life emerged, the ocean and other water bodies act as home for more life than what lives on land. Mammals, fish, birds, insects, trees, plants, algae, krill, and many other forms of life either live directly in water or are wholly dependent upon it for survival. This includes the tiny iceworms, copepods, and diatoms that inhabit trillions of minuscule tunnels in icebergs and their undersides, providing food for whales and fish that migrate to the poles to eat. Without water life would lose its primary food source.

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