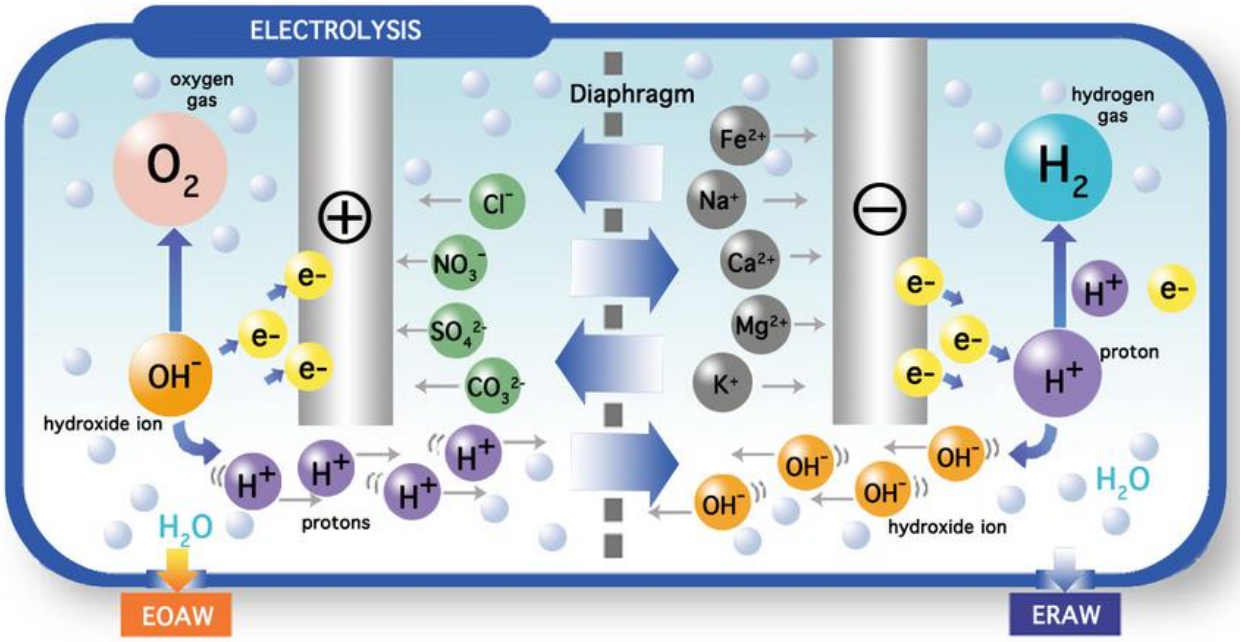


Source: ResearchGate

"Explicitly stated, there is evidence that electrolyzed water, rendered "reduced" via exposure to an electric current, and containing comparatively more hydroxide anions and, consequently more "basic" in biochemical parlance, prolongs lifespan in a certain species—specifically C. elegans, a nematode worm.

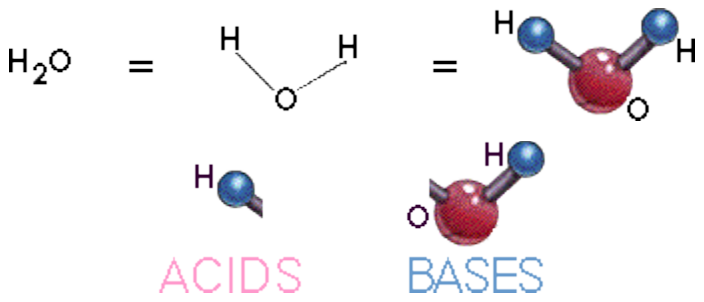
It is important to point out that "pure water" actually exists in equilibrium with a portion of protonated, positively charged hydronium ions (H3O+) and negatively charged hydroxide ions (OH-). The discharge of electricity through water causes the constituent cations (H3O+) to accumulate at the anode and the anions (OH-) to accumulate at the cathode of the circuit. This solution can be separated such that one is enriched with hydronium ions and thuswise rendered acidic while the other is enriched with hydroxide ions and thereby made basic. It is basic (or alternatively "reduced") water that has been shown to suppress senescence in C. elegans relative to distilled water. As importantly, it has been determined that such attenuation of aging is attributable to heightened antioxidant defense conferred by the "reducing" effect of the ions (i.e. hydroxide)."

- Nun Amen-Ra

“The word pH is short for "Pondus Hydrogenium". This literally means the weight of hydrogen. The pH is an indication for the number of hydrogen ions. It consisted when we discovered that water consists of hydrogen ions (H+) and hydroxide ions (OH-).

The pH does not have a unit; it is merely expressed as a number. When a solution is neutral, the number of hydrogen ions equals the number of hydroxide ions. When the number of hydroxide ions is higher, the solution is basic. When the number of hydrogen ions is higher, the solution is acid.

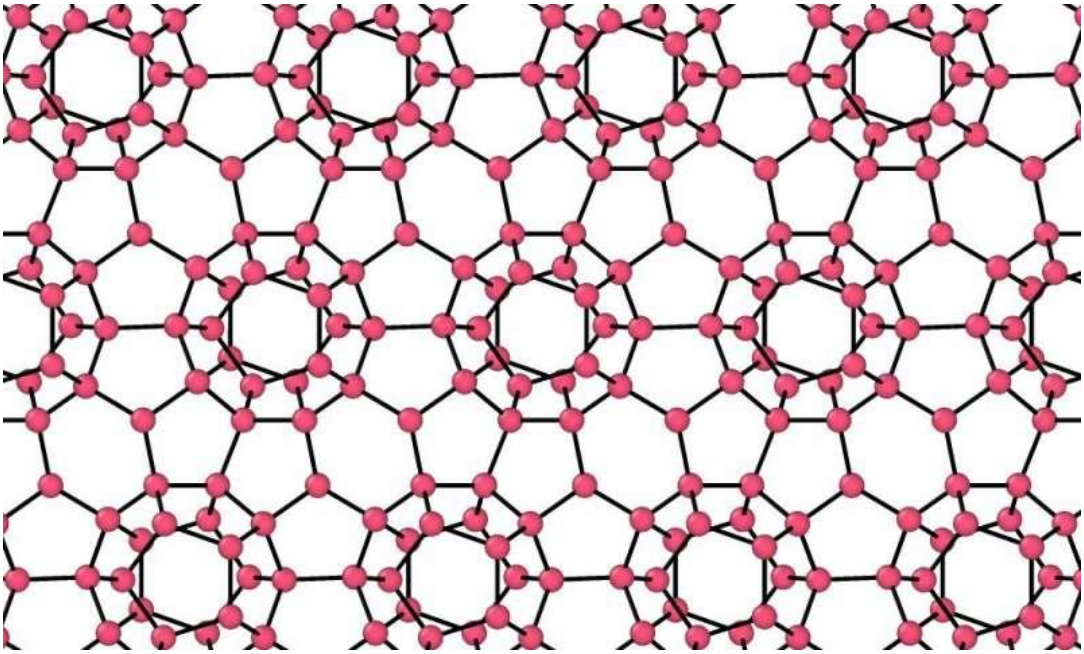
When acids enter the water, the ions will separate. For instance, hydrogen chloride will separate into hydrogen and chlorine ions (HCL à H+ + CL-).
Bases also undergo separation of their ions when enter the water. When sodium hydroxide enters the water it will separate into sodium and hydroxide ions (NaOH à Na+ + OH-).



When an acid substance ends up in water, it will give up a hydrogen ion to the water. The water will then become acid. The number of hydrogen ions that the water will receive determines the pH. When a basic substance enters the water it will take up hydrogen ions. This will raise the pH of the water.

When a substance is strongly acidic it will give up more H+ ions to the water. Strong bases will give up more OH-.”

- LennTech

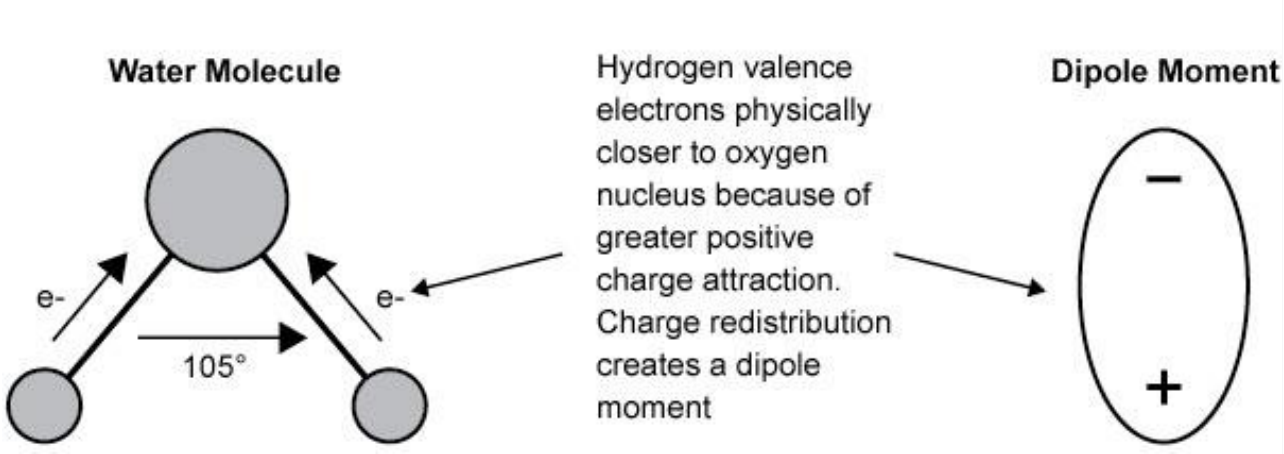


A clathrate ice, with oxygens represented as spheres, and hydrogen-bonds as lines.

The work has shown how complex crystalline structures emerge as a result of water's interactions. Credit: University of Bristol

“What makes water behave anomalously is the presence of a particular arrangement of the water's molecules, such as the tetrahedral arrangement, where a water molecule is hydrogen-bonded to four molecules located on the vertices of a tetrahedron. Four of such tetrahedral arrangements can organise themselves in such a way that they share a common water molecule at the centre without overlapping.”

- Phys



Source: Physics.Louisville.Edu

"The source of many of water's remarkable attributes is due to its molecular geometry -- the partial electric dipole formed by its two hydrogen moieties and one oxygen atom. Such that the oxygen atom is slightly electro-negative at one pole, and the covalently bonded hydrogen atoms are slightly positively charged at the other pole. This causes water to form tetrahedral-oriented weak bonds with adjacent water molecules. It is for this reason that water molecules are strongly attracted to each other, meaning that it takes a good amount of energy to get them to separate, such as in evaporation or the increased distance associated with freezing."

- Resonance