Anomalous Properties of Water

Property	Comparison with other substances	Importance in physical-biological environment
Heat capacity	Highest of all solids and liquids (except NH_3)	Prevents extreme temperature fluctuations Maintains uniform body temperatures.
Latent heat of fusion	Highest (except NH_3)	Thermostatic effect at freezing point owing to absorption or release of latent heat.
Latent heat of evaporation	Highest of all substances	Large latent heat of evaporation extremely important in heat and water transfer of atmosphere.
Thermal expansion	Temperature of maximum density decreases with increasing salinity. For pure water density max. 4^oC	Freshwater and dilute seawater have their maximum density at temperatures above freezing point. This plays an important role in controlling temperature distribution and vertical circulation in lakes.
Surface tension	Highest of all liquids	Important in physiology of cell. Controls certain surface phenomena and drop formation.
Dissolving power	In general, dissolves more substances and in greater quantity than any other liquid.	Implications in both biological and physical systems.
Dielectric constant	Highest of all liquids	Important in the behaviour of inorganic dissolved substances due to high degree of dissociation.
Electrolytic dissociation	Very small	Stable liquid over relatively large range of redox conditions.
Transparency	Relatively great in the visible and UV-a region.	Important for biological and photochemical processes. Absorption strong in the IR and short UV regions.