Viruses could help cycle carbon in world's largest freshwater lake

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Video Byte

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Abstract

Lake Baikal in Russia is the largest body of liquid freshwater on earth, containing more water than all the North American Great Lakes combined. While various studies have explored the microorganisms in this vast freshwater ecosystem, few have characterized Lake Baikal's equally important viral communities. For the first time, researchers examined the viral diversity that exists across the lake. Metagenomic analyses revealed 19,475 viral sequences derived from viruses predicted to infect organisms that reside in Lake Baikal. The makeup of viral communities showed clear variations across lake depth and season. Genes inserted into the host organism by the viruses included auxiliary metabolic genes that might manipulate dark carbon fixation from the environment or enhance the oxidation of methanol. These findings demonstrate new ways by which viruses could influence the carbon cycle in freshwater ecosystems and other ecologically important biogeochemical processes.