

A Model Environment For Early Earth Planetary History, Harbors Several New Deeply Divergent Microbial Divisions

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Anderson Lake, located at Warner Valley, Oregon, was chosen as a model system that naturally mimics potential hydrogeological conditions during early life on Earth. Warner Valley has an alluvial system containing numerous geothermal springs and evaporative alkaline lakes, hosted by saltic flows and sedimentary deposits from Pleistocene Lake Warner.

Anderson Lake is an alkaline (pH 8.3-10.5), Na-Cl dominated system (brackish/saline), enriched in arsenic (0.4-16.6µm). Despite the extreme environmental conditions, a 16S rDNA approach was able to show an unusually high microbial diversity. Phylogenetic studies highlighted some of these organisms as brand new Candidate Division members. Current efforts have already detected these organisms in several other locations in Warner Valley using specific primers.

FISH analysis and isolation/culturing attempts are on going work.