

A History of the Pavilion Lake Research Project

The presence of strange structures in Pavilion Lake had been known for years by the British Columbia diving community and the local Pavilion residents. However, it was during the mid-1990s that the scientific discovery of Pavilion Lake's unusual microbialites occurred. It was immediately apparent that these microbialites and the lake itself was a scientific goldmine and that many analogous comparisons could be drawn between the lake's microbialites and those that existed on Earth millions of years ago. Drs. Bernard Laval (UBC), Chris McKay (NASA ARC) and others published their findings in the journal *Nature* in 2000.

In early 2004, Dr. Darlene Lim (NASA ARC/SETI Institute) joined NASA ARC as an NRC post-doctoral fellow, and began to take a closer scientific look at the lake's limnology, and the geochemistry of the microbialites. After her first successful field season at Pavilion Lake in 2004, she established the Pavilion Lake Research Project (PLRP) in partnership with Dr. Laval at UBC, in order to address the growing interest from her research colleagues in further exploring this fascinating lake. In 2005, the PLRP acquired support from the Canadian Space Agency's (CSA) Canadian Analog Research Network (CARN) program, which has allowed the research program to flourish and evolve. The project also successfully acquired a National Geographic Research and Exploration Grant in 2005, and NASA continues to provide logistics, and education and public outreach (E/PO) support to the PLRP efforts.

Donnie Reid from the Vancouver Aquarium joined the PLRP in 2004 and established a formal science diver program at Pavilion Lake. He continues to act as the project's Dive Safety Officer (DSO), and Acting Program Manager. Dr. Greg Slater joined the PLRP in 2005 as a Deputy PI of the project, and has helped to grow the scope and depth of the PLRP's geochemical investigations. Since 2004, the project has grown to include over 40 research and support staff participants, and has always maintained a strong graduate student population, most of whom are completing Master's and Doctoral programs through their research with the PLRP.

Today, the PLRP continues to produce conference and peer-reviewed publications, and is driving ahead with their comprehensive, multi-disciplinary research into microbialite morphogenesis in the Pavilion Lake region. The 2008 summer field season for the PLRP will be an exciting one, as the project will be piloting a research effort in partnership with Nuytco Research to use one-person DeepWorker submersibles to explore, map, and sample Pavilion Lake to its deepest depths (65 m). In concert with these science efforts, the project will also be piloting an Analog Missions Program to train astronauts in field science activities, and to help develop exploration success metrics and protocols for future human operations on the Moon and Mars.

The PLRP is focused on Safety, Environmental Stewardship, Advancement of Science and Advancement of Exploration. With these principles in mind, the PLRP is looking forward to more exciting science and exploration in Pavilion Lake, and to making a real impact on how humans will conduct science and explorations on the Moon and Mars.