

Pavilion Lake

Site Identification

Nearest Community:

Cache Creek, B.C. (Southeast)
& Clinton, B.C. (Northeast)

Geocache Location:

N 50°50.962'
W 121°42.734'

Altitude:

810m/ 2657ft

Date Established:

1956 adding Pavilion Lake in 2001;
355 hectares

Ownership:

Provincial Park

Accuracy:

2 meters

Overall Difficulty: 2

Overall Terrain: 3.5

Access Information and

Restrictions:

From Highway 97 turn west onto the scenic route Highway 99 South at the Hat Creek Heritage Ranch; follow the road for about 30 kilometers to Marble Canyon Provincial Park at the easternmost wetlands of the lake and continue a few kilometers to Pavilion Lake

Parking Advice:

Park at pull off



Photo: Kurt Evans

The history of Pavilion Lake stretches beyond another world and is a magical treasure.¹ Some 10,000 years ago, beneath the watchful guard of the statuesque Chimney Rock, carbonate structures were developing along the floor of the lake with the help of micro-organisms – and a spectacular underwater garden was slowly being sculpted.² The formations, known as microbialites, were common between 2.5 billion and 540 million years ago, but have seldom formed since that time. Although there are a few world lakes that have these more recent spectacular formations, including nearby Kelly Lake, they remain rare.

First discovered by scuba divers in the 1990's, the magnificence of these ancient microbialites has been a constant source of interest and observation. So unique is the underwater garden in Pavilion Lake, since 2004 the North American Space Agency (NASA), the Canadian Space Agency (CSA), the Vancouver Aquarium, Donnie Reid and Darlene Lim, the principle investigator, have joined together as the Pavilion Lake Research Project to explore, map and study these marvellous freshwater structures.

The microbialites are complex and the diversity of these structures is great, although they fall into basically four morphological characteristics – cauliflower or bulbous, chimney, artichoke and coral. Formed underwater in layers by the trapping of sediment grains by prokaryotic cyanobacteria and simple eukaryotes such as green algae, the microbialites create carpet-like-reefs of varying densities and sizes along the lake bed –somewhat like an underwater garden of beautiful carbonate shrubbery.

What ideal conditions were created in the lake to produce these unusual structures? What were the contributing environmental factors required to established these diverse

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life forms scattered around the lake bottom? There are many questions being asked and a great deal of research being gathered by a number of professionals from a variety of disciplines. Is it possible that these microbialites may provide some answers to help scientists better know what to look for when exploring other planets for life?

Canadian astronaut Chris Hadfield has been working on the team with Reid and Lim voyaging deep into the 65-metre depths and along the lake floor in a small one-person submarine shooting videos, snapping photos and removing small rock samples with a robotic arm. To date over 70,000 photos of the microbialites in the six kilometer lake are being catalogued, and the samples are being studied for ancient and mutated bacteria and other microorganisms.³

What tales these microbialites will tell the experts. Whether exploring deep into outer space or the deep waters of Pavilion Lake; Lim, Reid, Hadfield, NASA and CSA, have been travelling and charting the mysteries and magnificence of magical unknown spaces – whether above or below the earth. What's truly amazing is that one of the greatest voyages and discoveries is right here at Pavilion Lake in the heart of Gold Country. Now that's a treasure!

BIBLIOGRAPHY & SOURCES

¹ The name Pavilion comes from the French word for flag. It is believed the French Canadian fur traders noticed a white flag at the gravesite of Shuswap Chief Te-empt near the foot of the Marble Range near the lake. Pavilion Mountain is at N 50°58.24' W 121°41.05'

² Chimney Rock, a limestone formation in Marble Canyon, was named *K'lpalekw* by the Secwepmec

³ To participate in the *Pavilion Mapper Project* visit www.pavilionlake.com and scroll down to Mapper www.astrobio.net *Astrobiology Magazine*, A NASA sponsored online astrobiology magazine – a study of life in the universe

<http://geobc.gov.bc.ca/index.html> GeoBC – Government of BC
Geographic Services

www.pavilionlake.com Pavilion Lake Research Project

Payton, Bryan. "Lake of Ages," *British Columbia Magazine*, Spring 2012

Letterboxing Clues:

From pullout follow trail to lake. Hang a right before trail ends, about 15 ft in bush, base of shrub tree.