
Breaking the secret safe of Lake Baikal

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It was a historic event.

On July 29, humans reached the bottom of Lake Baikal, the world's deepest and cleanest fresh water lake, for the first time ever. (VIDEO)

Even if it had not reached the lake floor, the dive would deserve an entry in the Guinness Book of Records - no one has ever made a 1700m freshwater dive.

This is only the beginning of the expedition, and the scientists are planning to make up to 150 dives in two years. Professor Anatoly Sagalevich, chief of the scientific team, says the event is of global importance. It's no coincidence that the Russian team will soon be joined by European and American scientists.

The primary task is to examine the condition of the lake. The mission offers great discovery opportunities: we could find an even deeper part of the lake, subsoil assets, underwater thermal springs or unknown life forms. Commercial diving for tourists could help increase funding of the research programs on the lake.

The idea of the Baikal mission emerged a year ago, after a Russian expedition returned from the North Pole. The project's cost is estimated at \$7.5 million and is funded by a public-private partnership. The project was partly undertaken by the Metropol company, an underground assets developer and founder of the fund for the protection of Lake Baikal.

Baikal lies between the Republic of Buryatia, Irkutsk and Chita Regions in Russia's far east. A giant Ruslan cargo aircraft brought the Russian-made Mir-1 and Mir-2 mini submarines from Kaliningrad, Russia's western exclave, to Ulan-Ude and then by special vehicles to the village of Turka, where the mission is based.

On July 23 and 26, two preliminary dives were made with a depth restriction of 435 meters. The two submersibles were previously used only in sea water, and they had to be specially adapted for less dense freshwater.

Baikal is the world's most important reserve of clean fresh water. The lake holds 20% of global fresh water reserves (23 billion tons). Thanks to the endemic epischura crustacean, which constantly filters and oxygenates the upper layers, Baikal's water is particularly pure. The lake's unique ecosystem, beauty and magic make it an exceptional phenomenon. People called it "The Sacred Sea".

Indeed, the evolutionary record suggests that Baikal is not just a sea, but an ocean in its infancy. The lake emerged in a tectonic fault between 25 and 30 million years ago. Usually lakes exist for no more than 10 or 15 thousand years, gradually disappearing due to sediments. Though the rivers flowing into the lake have brought some eight kilometers of sedimentation mass to Baikal, there are no signs of ageing, as the lake's shores expand by two centimeters a year.

"Baikal is a model of an ocean, the continent is splitting along the lake," Arnold Tulokhonov, Director of the Baikal Institute of Nature Management of the Russian Academy of Sciences said. "We face interesting research in biology, microbiology, hydro-physics, geochemistry. We need to explore oil

wells and hydrothermal and gas-thermal vents at the lake bottom. People call them "Black Smokers", as they look like black smoke rising to the surface, but in fact it is gas."

The scientists also want to establish how the lake's level has fluctuated in interglacial periods. "Finding cobble deposits will enable us to determine the lake's water level in those times and draw palaeoclimatic conclusions, which is of great interest in the light of the climate change the world is experiencing nowadays."

Arnold Tulokhonov is convinced that the research could include an archaeological component, as there is still hope of finding Kolchak's Gold, the 1600 tons of gold stolen by General Kolchak of the Russian Imperial Army during the 1918-1920 Civil War. In ancient times, gold was also transported across the ice, and therefore often sank. At the lake bottom there lie many ancient vessels that could unveil many secrets of times long gone by.

"I have to admit, our institute has forwarded to Gazprom a blueprint of a gas pipeline to be built across Lake Baikal, like the Blue Stream in the Black Sea and the North European Gas Pipeline," Tulokhonov said. "To guarantee environmental safety, we have to explore the lake bottom. Gazprom hasn't responded yet, but this does not influence our mission, as our primary interest lies in fundamental issues," Tulokhonov stressed.

Does all this activity pose a threat to Lake Baikal? Purely scientific tasks are clear and indisputable, but the other, pragmatic aims, raise a lot of questions. Unfortunately, Russia has a poor record of protecting the lake. The Baikal Cellulose Plant is slowly poisoning the lake's waters and the Irkutsk hydropower plant, built in 1959, turned Baikal into an impounded body, dependent on the will of power engineers willing to raise the lake's fluctuation level to two meters, while one meter is the environmentally acceptable maximum.

There's a constant argument between the scientists and the power men. But it would be foolish to try to "argue" with nature, when we know that we should only "cooperate" with it.

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