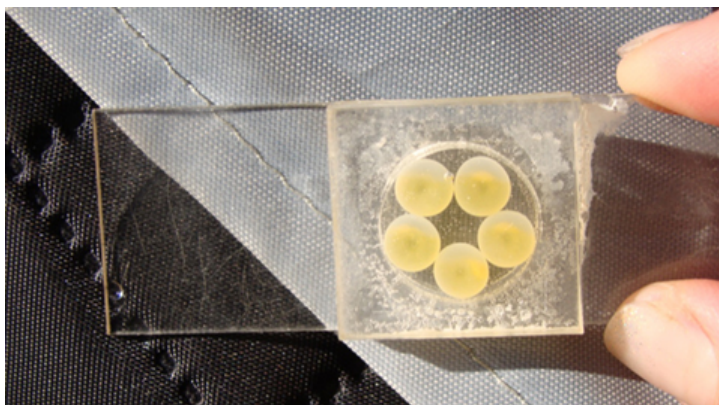


Scientists of Siberian Federal University have started growing the most useful fish

When, in 2018, researchers from Siberian Federal University and their colleagues from the Institute of Biophysics of the Federal Research Centre SB RAS, published an article in an international journal about the Boganid char (*Salvelinus boganidae*) which lives in the lakes of the Taimyr, and proved that it holds the record among all known wild fish species in terms of content of omega-3, it became a world discovery. Until then, sea fish was considered the most useful.



Their own results set a number of new tasks for the Krasnoyarsk scientists, with the main ones: studying the possibility of growing wild fish in intensive aquaculture and, as a result, providing consumers with quality products. After all, fish with a high content of polyunsaturated fatty acids is the most important mean of preventing cardiovascular diseases.

At the moment, these tasks are being successfully solved by a team that includes employees of the Institute of Biophysics, Siberian Federal University, Krasnoyarsk State Agricultural University and a number of fish farms. The project is led by Corresponding Member of the Russian Academy of Sciences Mikhail Gladyshev, head of the Laboratory of Experimental Hydroecology at the Institute of Biophysics and head of the Department of Aquatic and Terrestrial Ecosystems at Siberian Federal University.

“For us, fish and seafood are the main source of polyunsaturated fatty acids of the omega-3 family: eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids known as protectors against cardiovascular diseases. The World Health Organization recommends consuming at least a gram of these biologically active substances daily to reduce the risk of developing circulatory diseases. In addition, omega-3 improves brain activity, normalizes memory and increases the ability to learn,” says **Mikhail Gladyshev**.



For more than 20 years, scientists have been giving the palm for omega-3 content to marine fish. For example, the total amount of EPA and DHA reaches 26 milligrams per gram of biomass in muscle tissue of sardine (*Sardinops sagax*). It turned out that this is not the limit.

“In the course of the latest research, comparing residential and migratory populations of some fish, in particular, Kamchatka sockeye salmon, we have not identified significant factors that make marine fish more useful than the freshwater. Focusing on the biota of the lakes of the Arctic zone of Siberia, in particular Lake Sobachye, we found that the level of omega-3 acids reaches a record 33 milligrams per gram in the Boganid char, which makes this type of fish an absolute champion in usefulness for everyone who cares about their health,” continues the scientist.

“We have already carried out twice our operation on extracting caviar, delivering it through Norilsk to Krasnoyarsk to the Maltat LLC, this is the leading fishery enterprise in Krasnoyarsk Territory,” says **Alexander Kolomeytsev**, vice-rector for Science of KrasSAU. *“Now the char*

is growing in cages, and the company's employees are already studying the economic efficiency of our scientific research in practice."

Krasnoyarsk State Agricultural University is responsible for the technological part of the work: intensive aquaculture, adaptation of diets, use of local raw materials in feeding. As for expeditions and studying the bioresource potential of the North, this is the part of scientists from Siberian Federal University and the Institute of Biophysics.

Member of the expedition for char caviar **Larisa Glushchenko**, Assistant Professor of the Department of Aquatic and Terrestrial Ecosystems at Siberian Federal University: *"It is required to ensure the annual delivery of caviar to form a broodstock in order to study the valuable biochemical characteristics of char. This autumn, during the spawning period, we are going to the expedition for the third time. How is caviar harvesting done? Mature spawning females and males are caught in a water body. They are transplanted into cages, and already at the fishing point, caviar is taken in vivo: the fish are made to sleep with clove oil, the eggs are milked, fertilized with sperm, and the fish are released back into the reservoir. Then fertilized eggs are exported to fish farms. Delivery should not exceed two weeks under temperatures from 0 to +2."*

Alexander Kolomeytsev notes: *"We have already proved that it is possible to establish a cycle of creation and reproduction of the broodstock of char, their adaptation to the conditions of the water basin in the vicinity of Krasnoyarsk. We will reach the aquaculture stage in 2-3 years. This is already a task on a national scale: food safety and ensuring the nutrition of our population with high quality products. I consider this task no less important than the rise of mechanical engineering or our own production of computer chips. So now we are preparing a major project and we hope to include it in the federal agenda. In general, the topic of studying the bioresources of the North is inexhaustible, so the work will last for several generations."*

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