

Miyabe Char

This is Lake Shikaribetsu, one of the treasures of Tokachi Shikaoi Geopark.

The lake is home to the Miyabe char, a fish that is found only in these waters.

A subspecies of the Dolly Varden trout, it is a type of char and is closely related to salmon and trout. Miyabe char can grow to approximately 40 centimeters in length.

Both Dolly Varden trout and Miyabe char have gill rakers that allow them to filter plankton as they breathe through their gills, but the Miyabe char has evolved to have more of them.

Its unique evolution has been a response to changes in its environment, and the formation of Lake Shikaribetsu played an important part in the process.

Lake Shikaribetsu is the byproduct of millions of years of volcanic activity and repeated eruptions.

Volcanic activity began between 65 and 1.8 million years ago, during the Tertiary period, in an area northeast of where the lake is located.

Subsequent volcanic events occurred west of the lake around the volcanoes Kita-Petoutoru and Minami-Petoutoru. These volcanoes are part of the Shikaribetsu volcanic group and have been active for around 300,000 years ago.

The most recent volcanic events occurred to the south and southeast of the lake between 60,000 and 10,000 years ago. Several lava domes formed during this period. These are also part of the Shikaribetsu volcanic group and can be seen easily from the town of Shikaoi.

Over the course of this long history of volcanic activity, mountains came to partially surround the Shikaribetsu area. The river running through the area gradually became dammed, and Lake Shikaribetsu was born.

As more time passed, a large valley took shape southwest of the lake. Water from the

lake began to flow through this valley, and a waterfall with a drop of around 10 meters formed near the outlet.

The process of Lake Shikaribetsu's formation had an immense impact on the Dolly Varden trout that had been living in the river.

The fish became trapped in the lake and were unable to travel downstream because of the waterfall. This meant they had to adapt to a harsh new environment at a high elevation and with limited food sources.

Plankton was one of the few available food sources, and the fish had to rely much more heavily on it than ever before.

Over tens of thousands of years, the species developed additional gill rakers in order to more effectively feed on the lake's plankton.

Dolly Varden trout in Hokkaido typically have between 21 and 22 gill rakers, but the Miyabe char subspecies that has evolved in Lake Shikaribetsu has 26.

In contrast to the long, gradual evolution of the Miyabe char, dramatic changes have occurred in the last 100 years. These coincide with the development and settlement of Hokkaido by ethnic Japanese from mainland Japan.

The townspeople of Shikaoi fished Lake Shikaribetsu, and as the population of the town increased, the population of Miyabe char declined.

Settlers also introduced non-native species to the lake, such as rainbow trout and cherry salmon. This caused competition for already limited food sources, resulting in changes in the size of the Miyabe char. The species went from a length of 70 centimeters to around 40 centimeters within a span of around 100 years.

As fishing remains a threat to the species, conservation efforts such as fish hatchery projects are in place to protect the population.

The most recent threat, however, is from the signal crayfish, an invasive species that is becoming more widespread across Japan.

The Miyabe char is a testament to the sustained volcanic activity of the Shikaribetsu volcanic group. Conservation activities and careful monitoring are key to ensuring its survival.