

Cave Diving Exploration

Izvor Licanke, Fužine, Croatia

21st June 2019 – 30th June 2019

The objective of the expedition was to explore virgin cave passages both underwater and above, using advanced cave diving and caving techniques.

The cave is called Izvor Licanke and it is in Fužine, Croatia, near Rijeka.

In it's fifth year, the team was organized by expedition leader and exploration diver, Christine Grosart.

The cave had not been explored since 1999 and after a reconnaissance, a team was built to pick up where previous explorers had left.

Three exploration divers were involved along with their underground support team, all of which were required to cave dive to enter the cave system.

Excellent surface support was available this year and will hopefully continue in future projects.

The expedition went to plan with three exploratory dives conducted and 601 metres of new cave passages, both underwater and above, discovered.

This brought the total length of the cave to 1.5 Km, of which 1,125 metres has been discovered by this team.

The exploration was successful with no incidents and a survey of the new cave was conducted with numerical results as well as video imagery of the new discoveries.

The new discoveries yielded two new sumps and to the team's excitement, the end of sump 2.

History of exploration of Izvor Licanke.

1992

The first sump was first dived by Tihomir KOVACEVIC, Zeljko PSENICA and Boris WATZ (D.I.S.K.F. Zagreb) for 40metres distance and maximum depth 6 metres.

1998

Frank Vasseur (FR), with the support of local cavers and divers, explored the second sump to a depth of 36 metres, at 140m distance underwater.

Project Background

May 2015

Krnica Dive Centre, well known to Richard Walker (GB) and Christine Grosart (GB), was able to obtain government permits to access cave diving sites across Croatia.

Many divers passing through the popular wreck diving centre were also cave diving trained and so a reconnaissance cave diving week was put together under the project name 'Project Morpheus'.

Christine Grosart joined the trip and among other sites, was able to dive a site called Izvor Licanke.

Very little was known about the site but it had a man made entrance which facilitated a pumping/potable water filtration station for the local town of Fužine. Christine made a dive through the first sump with dive partner Anton Van Rosmalen (NL) and found it to be only 5 metres deep and about 40 metres long. They surfaced in a large cave passage with underground lakes to be passed. The divers were inappropriately kitted out for caving in drysuits and twinsets, so they retreated to try and find out more about the cave system.

On surfacing the divers were met by the local workers at the pumping station who produced an old Corel Draw survey of the cave, which detailed a second sump after some 400 metres of 'dry' caving. Coupled with the dive line in sump 1 which had orange tags, a telltale sign of a French cave diver called Frank Vasseur, Christine located an online report of his exploration in the cave in 1998 and 1999.

Frank explained that government permissions had been lost and nobody had dived the cave since. Owing to customary politeness, Christine asked Frank if he would mind if she continued exploring the cave, as he had not been there for about 20 years. Frank was very happy for her to do this and explained as best his memory would allow how the underwater line ended 'wide open'.

The expectation was that there was a significant opportunity to map completely uncharted territory, film it and as a by-product, highlight an expedition run by a woman who was also a lead explorer.

July 2015

Christine returned later in the summer with her partner Richard Walker to attempt exploration of the second sump using lightweight sidemount techniques. They ran into difficulty as the second sump seemed elusive and they kept running into dead ends in high-level passages.

It was also deemed that a lightweight approach without support was not appropriate in this cave and help was sought.

June 2016

Christine and Richard returned with support from Rick Van Dijk (NL) and were able to locate sump 2. Using sidemount techniques to facilitate an easier 'carry' to the sump and a decompression gas cylinder each, the divers located the end of Frank Vasseur's exploration line 136 metres distance into sump 2 at 36 metres depth.

Christine dived ahead and laid a further 42 metres of line in distance which coincidentally went to 42 metres depth before their gas reserves forced them to turn the dive.

June 2017

Christine and Richard returned with reinforcements. Rick Van Dijk supported in between sumps, along with Ash Hiscock (GB) and Mark Burkey (GB), a renowned cave photographer.

Using multiple cylinders (6 each) Christine and Richard extended the line a further 99 metres with the maximum depth reaching 50 metres.

The aim was to produce a film about the exploration and document the project in both images and video.

June 2018

The same team returned with the addition of Roberto Varesko (HRK) helping to carry the equipment underground. Ash was invited to join the 'sharp end' of exploration and Christine, Richard and Ash all used rebreathers rather than open circuit which increased logistical efficiency.

Between them over three dives they extended the underwater passage in sump 2 by another 247 metres, with much of the cave passage remaining at an average depth of 45 metres.

Christine produced a short film about the project that was shown at the 2018 Kendal Mountain Festival.

Mark Burkey shot high quality images and video of the project and several articles were published in Descent, Diver and Dutch Speleo magazines.

Christine gave several talks on the project at the Dive Show (UK), Hidden Earth National Caving Conference (UK), Cave and Wreck night (NL), Global Underwater Explorers Conference (USA), Severnside Sub Aqua Club.

Expedition members 2019

Christine Grosart (Great Britain) Expedition leader/Exploration Diver

Richard Walker PhD (Great Britain) Exploration Diver

Rick Van Dijk (Netherlands) Support

Ash Hiscock (Great Britain) Exploration Diver

Mark Burkey (Great Britain) Support/Video/Images

Roberto Varesko (Croatia) Support/Logistics

Rita Mallinson Cookson (Great Britain) Support

Jessica Burkey (Great Britain) Surface Support

The expedition achieved the primary aim that was to extend this cave and exceeded expectations by surfacing and becoming "multi-sump".

A total of 601 metres of new cave passage both underwater and above water was discovered and a centreline survey achieved.

The long, deep sump 2 surfaced and this has made exploration challenging in a different way but in terms of duration and exposure underwater, has reduced the logistical headache at least for now.

Further exploration requires caving beyond sumps with sump 2 presenting a committing challenge to reduce or avoid decompression on the far side of the sump.

Future logistics will need to take into consideration an injured diver beyond a long, cold sump and decompression and recompression considerations.

The level of complexity in sump 2 has decreased while the level of complexity for exploring the two further sumps has increased.

The team has gathered important information about the cave, which is valuable to the local water board and community.

The team plans to return in 2020 to continue exploring sump 4.