The Discovery of Belize's Biggest Underwater Cave System

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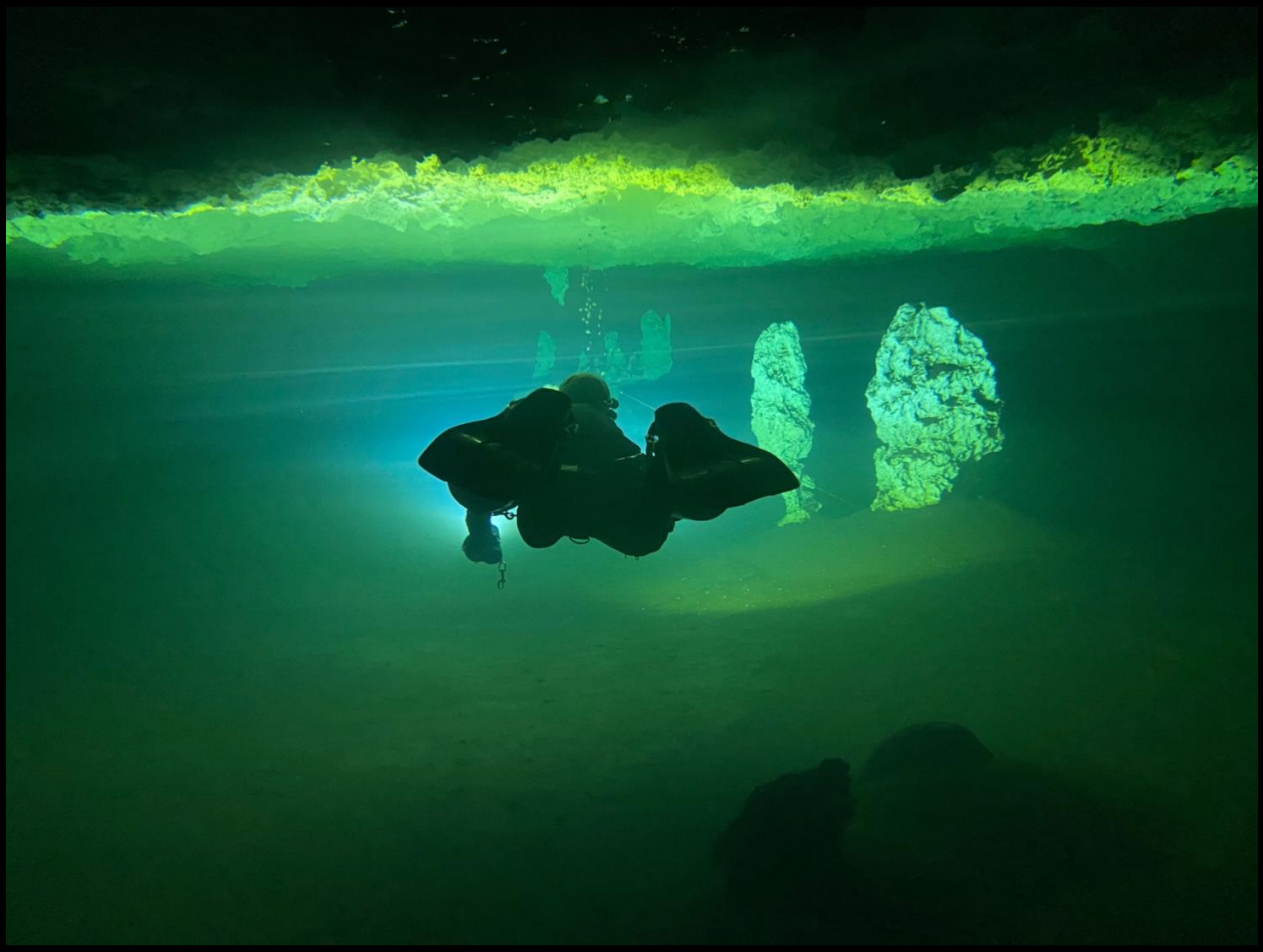
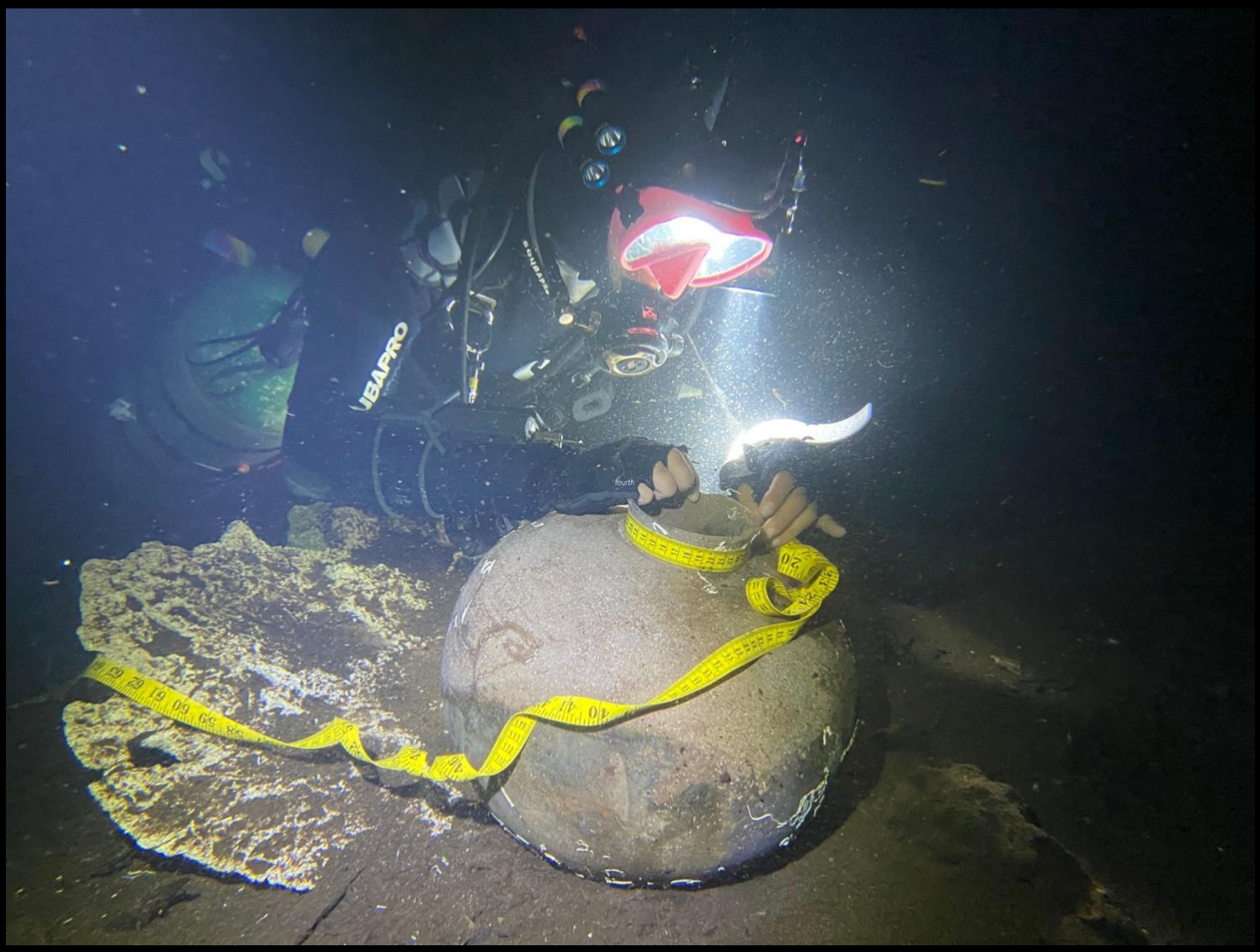
The underwater cave systems of Northern Belize have been a focus of exploration and research since the 1970s. Located in Ambergris Caye, the recently discovered Sistema Paloma is the longest known underwater cave system in Belize. To this day, it remains a largely unexplored area of significant importance for understanding the history and ecology of the region.



Belize is nestled in the southeastern section of the Yucatan Peninsula of Central America, bordered to the north by Mexico and to the south and west by Guatemala. The caves of Belize are deeply intertwined with its history and that of the Maya people. For the Maya, the caves held profound religious significance. Evidence of their presence, mainly in the form of pottery, is frequently found within these caves.

Modern underwater cave exploration in Belize began with Jacques Cousteau’s 1967 investigation of the famous Blue Hole at Lighthouse Reef. Here, he extensively observed the shaft of the sinkhole and retrieved a broken stalagmite formation. Closer to the mainland, the exploration of Giant Cave in 1982 by Mary Ellen Eckhoff, Sheck Exley, and others, established it as the longest underwater marine cave in the world. Subsequent years saw the exploration of other caves, such as Winter Wonderland (Double Hole Cave) off the coast of Caye Chapel and caves beneath Caye Chapel and Columbus Caye, among other sites on the Belize mainland. On Ambergris Caye, several caves including Nemesis and Secret Beach Cave were identified. (The history of dry caving in Belize is beyond the scope of this article.)

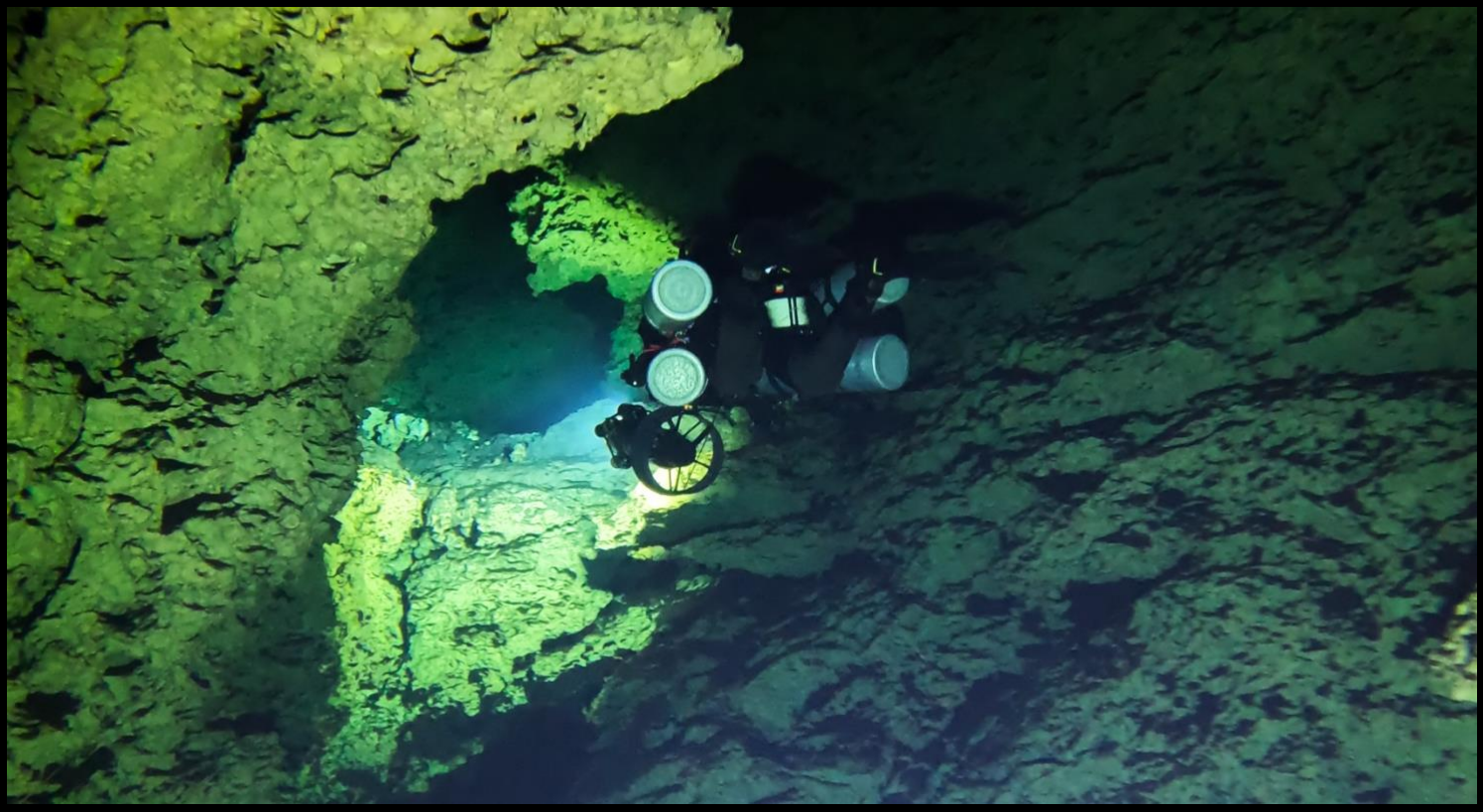


As of 2016, the caves on Ambergris Caye displayed specific environmental and geological traits. They predominantly had entrances on the island's leeward side, were small and silty, lacked decorations, and were highly sulfuric. However, as one of our principal explorers aptly put it, "time makes fools of us all." In 2019, the exploration of Sistema Paloma shifted our understanding of the caves on Ambergris Caye.

Our team's endeavors have produced exceptional findings. Ben Popik and Shannon ‘Mick’ McCallef first discovered the Sistema Paloma entrance in late 2019. They began the exploration but had to pause due

to the pandemic and Mick’s return to Australia. In early 2020, I teamed up with Ben in San Pedro, initiating what has become a near 4-year exploration project. Sistema Paloma now spans roughly 14 kilometers, making it the largest documented underwater cave system in Belize. This cave boasts an average depth of 18 meters, with a halocline typically around 15 meters. The freshwater layer, tinged blood red due to the dense mangrove jungle overhead, offers limited visibility. As a result, our efforts have centered on the saltwater layer, which provides better clarity. Unlike other caves on Ambergris, Sistema Paloma is expansive, with vast chambers and towering limestone formations, embodying what I regard as "Real Cave."

However, our exploration isn't without hurdles. The caves, situated 20 miles north of San Pedro town, demand a meticulous journey: transporting our gear on golf carts and then trekking through the jungle to reach the cave entrances. Some suspected entry points remain unverified due to crocodiles inhabiting those areas. While the region is a recreational diver’s haven, technical diving support is absent. Until our recent push in April 2023, sourcing the right gases and tanks was challenging. Moreover, any cave exploration in Belize requires official permission. We operate under the guidance of the Belize Cave Diving Society.



Despite these obstacles, our passion for discovery remains undiminished. With numerous leads yet to be explored, our current knowledge is merely the tip of the iceberg concerning what lies beneath Ambergris Caye. Our aim is to amplify existing understanding of the region's distinctive hydrogeology and underscore the importance of conserving and preserving its precious aquifers. In the vast, silent world beneath Ambergris Caye, every dive deepens our understanding, reminding us of the importance of conservation and the endless potential for discovery.