



Cave Diving In Mexico

Safety, Marking and Conservation

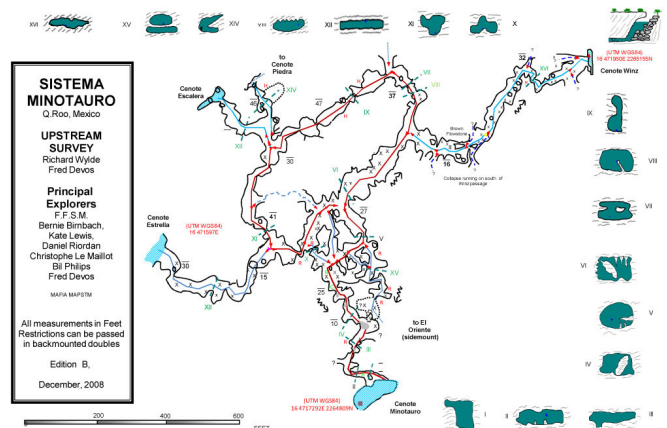


We have prepared the following advice on safety and conservation in Mexican caves.

Although standard line-marking protocols are applicable in Mexico, divers trained elsewhere should make themselves aware of some of the differences here in the Riviera Maya. These are the important aspects of cave diving in Mexico that everyone diving here should take into account:

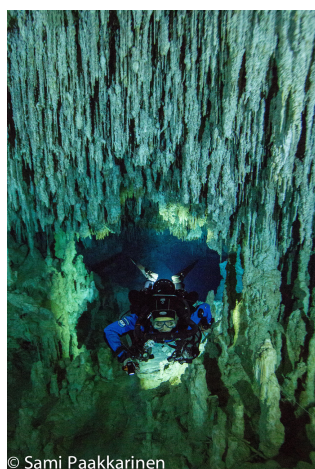
Complexity

The caves in Mexico are generally more complex than in Florida or France. Many popular cave systems have a large number of connected passages and multiple entrances. For example, System Sac Actun has in excess of 300km of passage and several hundred cenote entrances. Many entrances will (correctly) have system arrows pointing to them, so it is possible that the direction of system arrows will change several times during the course of a dive. This means that the permanent system arrows do not necessarily point to your exit. Blindly following system arrows has caused several fatalities and it is especially important to reference the cave and mark your own line in the complex Mexican cave systems.



Permanent Lines and Markers

There is no single protocol for line colour and marking in Mexico. Many of the cavern lines and popular training caves do have a thicker kernmantle gold line, however this is not always the case. Some sites have a line that starts in open water, but the cave line at sites popular with open water divers and cavern tours will usually be cut back between 10 and 100m (30-300ft) from the open water. Most, but not all, system arrows are larger Red Arrows. Jumps are usually marked with a single arrow, with "significant" jumps, such as those to complete a circuit, being marked with double arrows. There are only a handful of caves that have arrows every 200ft/60m with the distance to the exit marked.



Fragility

The caves in Mexico tend to be highly decorated, so it is especially important to be aware of your position in relation to the cave floor and ceiling, as well as the line. Speleotherms only form in dry caves, so once a formation in a flooded cave is damaged, it is gone for ever. Because of the presence of numerous fragile stalactites on the ceiling, the line tends to be laid nearer the floor, and many Mexican cave divers will tend to dive relatively close to the line.

Flow

With a few exceptions, Mexican caves are generally low to no flow. This is both an advantage and disadvantage, and divers used to exiting with the assistance of flow should adjust gas calculations to take into account that they will be swimming out.

Shallow Depth

The cave systems in Mexico are relatively shallow, often between 5-20m (15-60ft). This means that even new cave divers can achieve quite significant linear distances, and this must be taken into account during dive planning. Practicing progressive penetration is always a good idea, and especially so in shallow, complex caves.

Halocline

The fresh water in the caves of the Riviera Maya sits on a layer of salt water that extends under the whole Yucatan peninsular. The boundary between the fresh and salt water layers (halocline) varies in depth, occurring deeper as distance from the ocean increases. Mixing of fresh and salt water as a diver passes through the halocline causes a significant reduction in visibility and it is advisable to stagger positions on the line to mitigate this. The halocline also has an impact on buoyancy. Counter-intuitively, it is necessary to dump gas as you descend into the salt water layer and inflate your wing as you ascend back into fresh water.

Considerate Line Laying



The more popular caves in Mexico, especially those used for training, can get quite busy. In order to ensure that other cave diving teams are not inconvenienced, your primary line from open water to the cave line should be laid considerately, leaving as much space as possible for other teams. Pick a route to the mainline that goes down the middle of the cave or follows either one wall or the other. Zig-zagging from one wall to the other “steals” a lot of the cave from following teams and is not acceptable behaviour. It is important to back-reference your own line to ensure it is laid well. If it is badly laid, exit to the last good tie-off and try again.

Cookies, Arrows and REMs



The line marking protocols that are taught worldwide are applicable in Mexico and should be understood by other cave divers in the area. A lot of people will use cookies and arrows, but Referencing Exit Markers (REMs) are also common in Mexico. A REM is a personal marker that resembles a rectangular cookie. It can be used to indicate direction, with the longer part of the marker indicating the exit. Because it indicates direction, a REM can have a jump spool tied into it directly. It is also less likely than an arrow to be confusing to other teams, if laid in opposition to the general direction of navigation in a cave. Because REMs can act as either cookies or arrows, they can reduce the number of markers that have to be carried.

Environmental Impact

Cave divers should avoid littering and minimise their impact on the environment wherever in the world they dive. In Mexico, it is especially important to avoid any contact with the fragile Speleotherms in the caves, and “caving softly” is excellent advice. Many of the cave entrances are in remote locations without access to regular refuse collection or recycling, so it is helpful to take any rubbish back to the main population centres for disposal.

Sunscreen can pollute the water in the cenotes and should be avoided when possible, in fact some popular sites do not allow sunscreen. Insect repellent should, where possible, be biodegradable.

Advice compiled by Lanny Vogel. Please don't hesitate to get in contact if you would like any advice or clarification about Mexican cave diving protocols.

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