CREER

Comité Regional de Espeleobuceo, Ecología y Regulación

MANUAL FOR

CENOTE DIVE GUIDES

Safe Diving and Conservation Procedures

March 2024

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Introduction

This document was produced in consultation with many active cave instructors in the state of Quintana Roo. It is based upon the cavern diver manual published in 2003 by APSA (Asociación de Prestadores de Servicios Acuáticos de la Riviera Maya, A.C.). This new version, which was updated in 2018, results from a joint collaborative work with members of BUCEMA (Buceo en Cenotes y Mar, A.C.), ICARE (Iniciativa para Cenotes de Actitudes Responsables y Éticas), CEM (Círculo Espeleológico del Mayab) and SBC (Sindicato de Buzos del Caribe). These associations are represented by the elected committee of **CREER ("Comité Regional de Espeleobuceo, Ecología y Regulación")**.

The collaborating Instructors represent the recognized cave diving agencies: ACUC, FMAS-CMAS, IANTD, GUE, NACD, NSS-CDS, PSAI, TDI and RAID.

This material is presented as a reference guide for anyone involved in conducting, promoting or regulating **guided dives** with **open water certified** participants in the initial areas of flooded caves, commonly known as **"caverns"** and referred to in this manual as **"cenote diving."**

As with any activity for which one is not trained, overhead diving carries potential risk; but it is an activity that has been taking place and gaining popularity since the mid-1990s. Rather than condemn or condone the activity outright, this document is intended to serve as a guide to **improve the safety** of all participants and to **promote the conservation** of this unique environment.

Although not all instructors agree on every point made, this document goes beyond what currently exists by encompassing the ideas and opinions of the caving community as a whole. More than 25 local cave instructors and other persons contributed countless hours to the discussion and the organization of this document using their many years of combined experience in cave diving and training in Quintana Roo.

This manual is dedicated to the memory of William "Bil" A. Phillips, whose passion for cave diving and dedication to safety and conservation has motivated the efforts of all involved in these unified objectives.

William "Bil" A. Phillips
An explorer, a teacher and a friend!

ACKNOWLEDGEMENTS

Sincere appreciation is extended to all those cave instructors and others who have collaborated in the production of this manual and those manuals that served as its basis.

A special thanks to William "Bil" A. Phillips for his tireless teaching and concern for the conservation and safety of those involved in the development of this activity.

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Chapter 1

ACADEMIC DEVELOPMENT

THEORY TOPICS

ENVIRONMENT

It is important that cenote guides possess an acceptable level of knowledge and understanding of the cenote environment and associated science. This chapter provides a base of information that all guides should know.

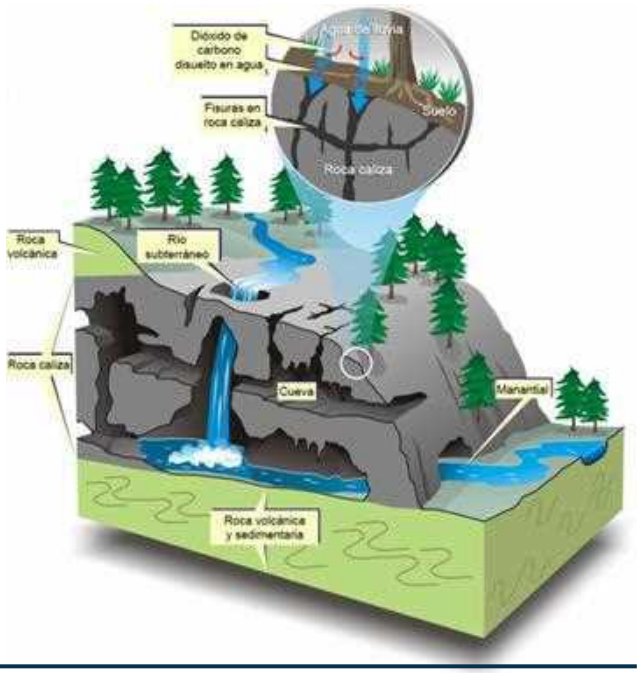
GEOLOGY

Geology is the study of rocks, which guides our understanding of the formation and history of the Earth. The geological history of the Yucatan peninsula is a complex mixture of events.

Originally completely submerged underwater, the peninsula was composed of thriving coral reefs. Over millions of years these reefs were transformed into a 2.5 km (1.6 mile) thick limestone platform. This accounts for all of the marine fossils found above and below the ground today.

Varying ocean levels, due to the earth's different glacial periods resulted in the whole peninsula being above water, and at other periods to be completely submerged.

It was during the periods of lower sea levels that the caves originally formed. Rainwater, combined with atmospheric carbon dioxide forms a weak carbonic acid. Since limestone is very porous, this acidic solution percolates into the ground and is able to dissolve the weaker limestone, forming cave passages.

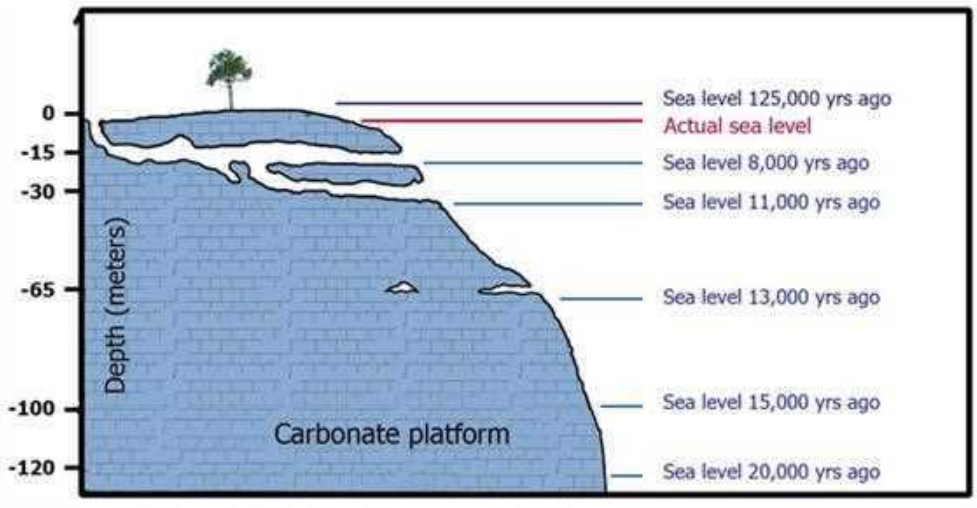


The dissolved limestone forms a calcium carbonate solution in water. This “liquid stone” drips into the dry passages and solidifies, creating a vast array of decorations or “speleothems” (stalactites, stalagmites, columns, flow stones etc.).

While passages continued to grow, thinning ceiling rock, unable to support its’ own weight collapsed inwards, creating openings into the then essentially dry cave environment.

Approximately 18,000 years ago ocean levels were more than 100 meters (330 feet) lower than today. It was at this time that the last global ice sheets began to retreat and the sea and fresh water table began a slow rise to their present level. The once dry inland caves were filled with both fresh and salt water.

Many important dry caves remain in the Yucatan peninsula, however, the majority of known caves are completely submerged. Their underwater speleothems are unable to grow and they represent a snapshot of an "environment frozen in time" from thousands of years ago.



The ancient collapsed ceilings form openings called karst windows. The local name is **cenote**, derived from the Mayan “Dz’onot” or “cavern with water”. Today, they provide modern diving explorers with appropriate training and safety considerations a unique opportunity to venture into a truly unique environment.

HYDROLOGY

Hydrology is the study of water, its nature, behavior and effects on the surrounding environment. The caves of the Yucatan peninsula are for the most part water-filled providing an opportunity to study water in a totally unique environment unlike anywhere else on earth.

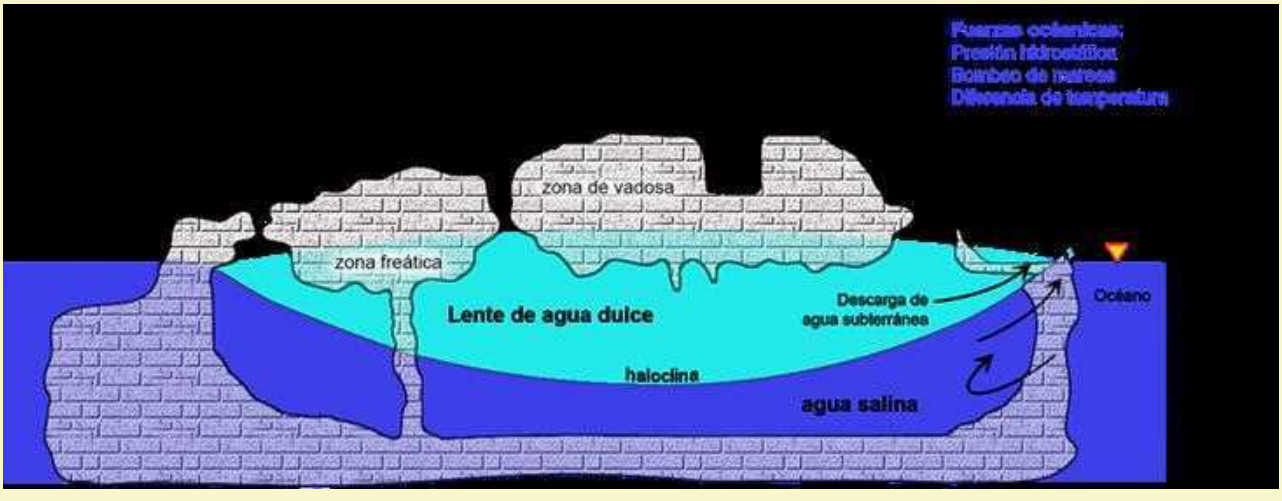
Ninety-nine percent of the water that flows here does so through subterranean drainage systems that we call **flooded caves or subterranean rivers**. The fresh water flows to the coast at 0.5 to 2.0 kilometers (0.3-1.2 miles) per day.

The numerous springs, caletas and estuaries along the Caribbean coast are proof of the ability of the caves to effectively drain 1.5 meters (5 feet) of annual rainfall from the entire Yucatan peninsula.

The underground water system or **aquifer**, is a river with water layers separated by differences in density. Seawater is absorbed into the ground penetrating inland throughout the Yucatan Peninsula. At the same time, a distinct layer of cooler, less dense freshwater floats on top. This interface between fresh and salt water is called a **halocline**, and creates a magnificent visual effect that can be observed by cave and cavern divers.

Many external forces including tides, currents, the amount of rainfall and wind can affect the aquifer and its behavior. Water levels, the thickness of the freshwater layer, the average flow and even the depth, position and thickness of the halocline may vary from one time to another. Dramatic and infrequent events such as storms and hurricanes can also have notable effects, causing water levels in some cenotes to rise by more than one meter (three feet) in a matter of hours.

An immense volume of water drains into the aquifer of the Yucatan Peninsula. The 15 kilometers stretch of coastline between Playa del Carmen and Tulum contains many billions of cubic meters of water. Of course, the freshwater resources of the entire Yucatan Peninsula are far greater than this.



WATER CHEMISTRY

Water chemistry studies in the subsoil of the Yucatan Peninsula are somewhat complicated by the presence of both fresh and salt water. When these two types of water mix, another type of layer is produced. Each type of water must be considered separately before studying the relationship between the two, as each type is studied with different questions in mind.

The majority of the cenotes contain almost entirely freshwater. The freshwater layer is the only potable water resource in the region and its quality is of extreme importance.

The mixing layer is studied to measure the erosion and dissolution of the limestone rock. This mixing layer is highly aggressive and corrodes the limestone rock of the cave walls. Understanding the chemistry of these waters can help scientists understand the average rate at which the cave walls are eroded. Incidentally, most cave divers refer to the upper interface between the freshwater and the mixing layer as the "halocline," but in fact more than one of these interfaces may be present and can be observed when descending in the water column. The saline zone is below the other zones and is significant in its impact on the structure of the limestone rock.

BIOLOGY

Surprisingly, the flooded caves of Mexico are not uninhabited. Perceived at first by cave divers as a lifeless environment, they in fact contain an array of troglodytic, cave-adapted crustaceans, microscopic organisms and even some vertebrates. Currently, there are about 40 known species of aquatic troglodyte species inhabiting the caves of the Yucatan peninsula.

Crustaceans are by far the most common cave animals and in most cases are so small that they can be easily missed. Amphipods, isopods, thermobaenacens, ostracods, shrimps and remipedes are found in the Yucatan cave systems. Most of them lack pigmentation and are white or almost transparent. The caves are also home to many microscopic organisms and bacteria.

The famous blind cavefish is relatively abundant in the caves of the region and can be seen navigating the passages by feel. Closer to the cenotes and dimly lit “cavern zones” other semi troglodyte life forms can be found. Some types of fish, shrimp and

microscopic organisms have adapted to live in these areas.

Finally, the cenotes themselves are home to a variety of fish and other life forms. Local species are commonly seen in fish tanks around the world including tetras, cichlids, catfish, guppies, turtles and eels. Many other creatures also visit the cenote environment in search of food and water.

In addition to what is known about the biology of flooded caves, new organisms are constantly being discovered. Learning to recognize and identify these species is critical to understanding the environment and the growing threats to underwater caves.

ARCHEOLOGY AND PALEONTOLOGY

Ancient Mayan ruins and communities are located in the regions of several cenotes. There is no doubt of the utility of these "windows to subterranean rivers" in sustaining life throughout the relatively dry landscape of the Yucatan peninsula. However, the Maya considered cenotes to be much more than a water resource to meet their daily needs.

Cenotes (from the Mayan “Dz’onot”) and flooded caves were considered especially sacred to the ancient Maya and continue to play an important role in their religious tradition. These portals were associated with concepts of fertility and the obscure underworld of Xibalba.

The cenotes are the home of Chaac, the rain god, and the pure water collected from these subterranean rivers was used in rituals to ensure the coming of the rains.

Ceremonies and in some cases even human sacrifices were conducted in the cenotes. There is even surprising evidence of the presence of visitors in what were once dry caves and these discoveries provide important insight into this period of history.

Every fragment of human bone or piece of pottery that some fortunate diver finds is part of the cultural history of the cenote. Mexican law strictly prohibits the removal or even alteration of archaeological material. It is important to emphasize the fact that the value of the artifact transcends the object itself.

CONSERVATION

Each cenote is a fragile ecosystem on its own. These "oases in the jungle" are not only great for snorkeling and scuba diving, but, more importantly, they create an environment suitable for life to flourish. Cenotes support numerous life forms including mammals, birds, reptiles, insects and various plants.

Freshwater, being the world's largest non-renewable resource, is constantly at risk. The knowledge and understanding of the hydrology of coastal flooded caves remains limited. What we do know is that human presence and increased commercial development is affecting water quality in cave systems in a significant way. Indiscriminate development threatens the water quality of the aquifer and the subterranean ecology that depends on it.

Freshwater drains directly into the Caribbean Sea and its health has direct implications for the well-being of the world's second largest coral reef system.

Cave formations, unlike reef coral formations, are not self-rejuvenating. Once damaged or broken, they are lost forever.

The beautiful dunes and sediment beds have taken hundreds if not thousands of years to form. If damaged, they may not recover.

As mentioned before, the Maya civilization gave spiritual importance to the cenotes and their passages. Archaeological evidence can still be seen in some cavern areas and the impact of divers must be assessed.

Having identified these facts, it is our duty as guides in cenotes to help protect and preserve this unique environment. How we can help is by minimizing our impact, discouraging irresponsible behavior, educating those under our supervision and encouraging others to do the same.

Do not use mosquito repellent, sun creams or oils of any kind. Do not bring disposable plastic and do not leave trash in these beautiful places. Our responsibility is to become strict guardians of these unique places and maintain a true commitment to water conservation.

CAVE EXPLORACTION

The first serious exploration efforts in Quintana Roo began in the early 1980's. Since then hundreds of kilometers of cave passages have been explored and mapped.

The average depth of the caves is 12 meters (40 feet) with a maximum of 119.1 meters (391 feet).

Explorers have also found diveable passages connecting several cave systems to the Caribbean Sea.

The first caves to be explored were those that were easily accessible. Now much of what remains undiscovered requires further penetration into the thick jungle where remote cenotes present greater logistical difficulties.

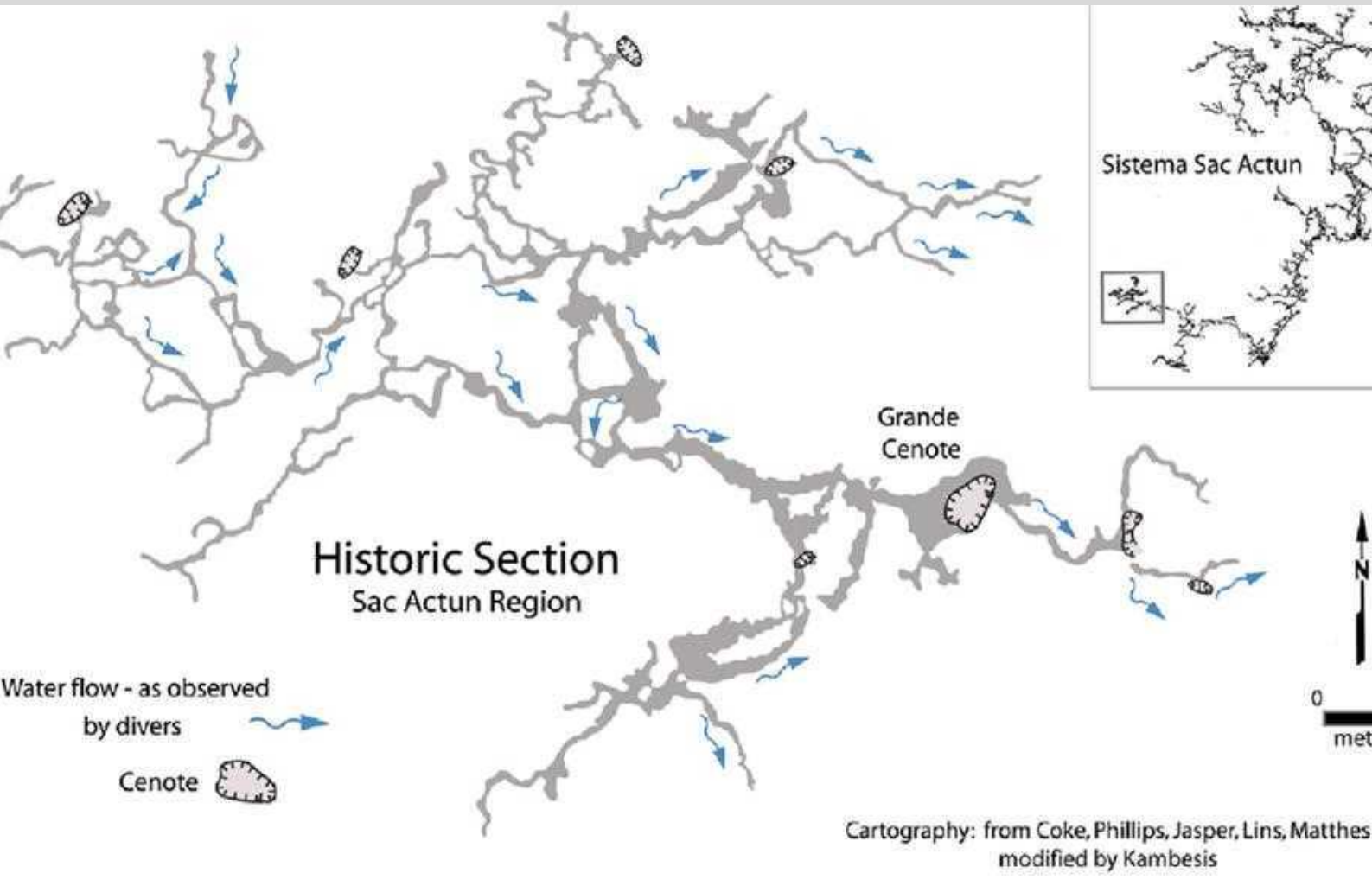
Cenotes were already being dived in the late 80's, but it was a relatively uncommon activity until the mid 90's. By the end of the 20th century, cenote diving had become an activity that continued to gain popularity. Currently thousands of open water divers per year participate in cenote diving experiences.

Most of the information from the mapping done by explorers has been compiled by a group of committed experts known as the Quintana Roo Speleological Survey (QRSS). The entire dynamic history of activities in the area up to the present day can be easily found on the internet.

There is no justification for penetrating a virgin cave (and consequently impacting it), if it is not related to its conservation. If the goal of exploration is not conservation, it should not be done. Interconnecting cave systems will prove, that it is a single, immense system that has to be preserved as healthy as possible. The objectives of exploration should be clear and ethical.

RELATIONSHIPS WITH LANDOWNERS

There are practically no cenotes with free public access. Our responsibility as professionals includes complying with the rules established by the land owners. Paying entrance fees and being honest is only part of this. The cenote guide must be an example of ethical behavior towards those in charge of access to dive sites. The guide is also responsible for the behavior of the divers he/she leads. This behavior also includes respect for local customs and traditions as well as conservation matters. The guide must be the face and voice of the group from the time of access to the time of leaving the property.



Chapter 2

CLASSIFICATION OF CENOTES

CLASSIFICATION OF CENOTES

Below are the characteristics that cenotes must meet for each of the four cenote levels, as well as the prerequisites that participants must meet and the maximum number of participants per level.

CHACRACTERISTICS OF CENOTE LEVEL

01 STARTER CENOTES

The cenotes listed as Level 1 are those appropriate for the participant's first cenote diving experience.

- Shallow and relatively constant depth
- Wide passages
- Constant natural light

02 INTERMEDIATE CENOTES

- Shallow
- Smaller passages
- Limited natural light
- Halocline (if combined with any of the above)

03 ADVANCED CENOTES

- Deep
- Fragile
- Longer distance from entry
- Dark

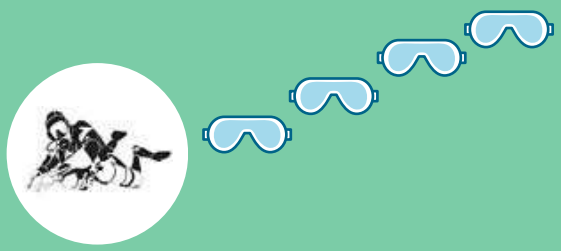
04 EXPERT CENOTES

These are specific cenotes that are beyond Level 3. Divers must meet the requirements of Level 3 and their ratio is reduced to three (3) participants per guide. There have been objections to including Level 4 cenotes and some instructors do not consider them as suitable for conducting guided cenote dives.

OTHER CENOTES

As there are many more potentially accessible cenotes of which some are significantly beyond the scope of the cenote diving experience, caution is advised when choosing sites that are not included in the current list of evaluated sites. These sites are beyond the scope and responsibility of this manual.

Name of Evaluated Dive Sites and Guide to Participant Ratios per Level

Levels	Dive Sites within each Level	Guide to Participant Ratios
1	• Barbie Line (Dos Ojos) • Car Wash • Casa Cenote • Chikin Ha • Eden • Kukulkan (Chac Mool)	
2	• Bat Cave (Dos Ojos) • Calavera • Little Brother (Chac Mool) • Tajma Ha	
3	• Angelita • Kin Ha • Maravillas (Chim Chan Luub) • Nicte Ha • Orquidea • Siete Bocas • The Pit	
4	• Dreamgate • Zapote	

These ratios must not be exceeded under any circumstances. The only exception is in the case of allowing an additional guide or trainee guide who must be equipped the same as a guide as specified in this manual.

Cenotes Taak Bi Ha y Taak Bi Luum are challenging sites that are considered beyond Level 4. Guided cenote dives at these sites are not recommended for single-cylinder divers. If guided dives are conducted at these sites, divers should be highly experienced, should already have dived a Level 4 cenote and there should be a maximum of 3 divers per guide.

PARTICIPANT QUALIFICATIONS REQUIRED FOR EACH LEVEL

01 STARTER CENOTES

- Minimum age 15 years old.
- Minimum Open Water certification or one star.
- Other limitations established by the participant's training agency regarding age, depth, parental consent or supervision must be respected.
- Must have recent dive experience beyond certification.

02 INTERMEDIATE CENOTES

- Same requirements as Level 1 plus at least one previous dive in a Level 1 cenote.

03 ADVANCED CENOTES

- Same requirements as Level 1, plus at least one previous dive in a Level 1 cenote, plus at least one previous dive in a Level 2 cenote.
- Minimum certification: Advanced Open Water or two-star and sufficient experience (with logbook proof), for deeper cenote dives.

04 EXPERT CENOTES

- Same requirements as Level 1, plus at least one previous dive in a Level 1 cenote, plus at least one previous dive in a Level 3 cenote.
- Minimum Advanced Open Water or two-star certification and sufficient experience (with logbook proof) for deeper cenote dives.

Summary of Characteristics of Cenote Level

1

Characteristics

The cenotes listed as Level 1 are those appropriate for the participant's first cenote diving experience.

- Shallow and relatively constant depth
- Wide passages
- Constant natural light

Qualifying Cenotes

- Barbie Line (Dos Ojos)
- Car Wash
- Casa Cenote
- Chikin Ha
- Eden
- Kukulkan (Chac Mool)

Ratio of Participants per Guide

Maximum four (4) divers per guide.

Requirements

- Minimum age 15 years old.
- Minimum Open Water certification or one star.
- Other limitations established by the participant's training agency regarding age, depth, parental consent or supervision must be respected.
- Must have recent dive experience beyond certification.

2

Characteristics

- Shallow
- Smaller passages
- Limited natural light
- Halocline (if combined with any of the above)

Qualifying Cenotes

- Calavera
- Bat Cave (Dos Ojos)
- Little Brother (Chac Mool)
- Tajma Ha

Ratio of Participants per Guide

Maximum four (4) divers per guide.

Requirements

- Same requirements as Level 1 plus at least one previous dive in a Level 1 cenote.

3

Characteristics

- Deep
- Fragile
- Longer distance from entry
- Dark

Qualifying Cenotes

- Angelita
- Kin Ha
- Maravillas-Chim Chan Luub
- Nicte Ha
- Orquidea
- Siete Bocas
- The Pit

Ratio of Participants per Guide

Maximum four (4) divers per guide.

Requirements

- Same requirements as Level 1, plus at least one previous dive in a Level 1 cenote, plus at least one previous dive in a Level 2 cenote.
- Minimum certification: Advanced Open Water or two-star and sufficient experience (with logbook proof), for deeper cenote dives.

4

Characteristics

These are specific cenotes that are beyond Level 3. Divers must meet the requirements of Level 3 and their ratio is reduced to 3 participants per guide. There are several objections regarding Level 4 and some instructors do not consider them as suitable for conducting guided cenote dives.

Qualifying Cenotes

- Dreamgate
- Zapote

Ratio of Participants per Guide

Maximum three (3) divers per guide.

Requirements

- Same requirements as Level 1, plus at least one previous dive in a Level 1 cenote, plus at least one previous dive in a Level 3 cenote.
- Minimum Advanced Open Water or two-star certification and sufficient experience (with logbook proof) for deeper cenote dives.

Cenotes Taak Bi Ha y Taak Bi Luum are challenging sites that are considered beyond Level 4. Guided cenote dives at these sites are not recommended for single-cylinder divers. If guided dives are conducted at these sites, divers should be highly experienced, should already have dived a Level 4 cenote and there should be a maximum of 3 divers per guide.

Chapter 3

THE GUIDE

THE GUIDE

PREREQUIREMENTS

- Minimum certification required to guide certified recreational open water divers (Divemaster) in active status.
- Six months minimum experience as a Divemaster guide or equivalent.
- Cave diving certification with a recognized cave diving association.
- Sidemount certification required if guiding using this configuration.
- Minimum of 20 cave dives after completion of cave training.
- Letter of endorsement from a cave instructor.
- Letter of endorsement from a dive business or a copy of the RFC (Registro Federal de Contribuyentes) in case of Independents.
- Current first aid and CPR certification.
- Current oxygen supplier certification.
- Six months of legal residence in the state of Quintana Roo.
- Copy of current proof of domicile in the state of Quintana Roo.
- Statement of acceptance of responsibility for diving in overhead environments.
- Acceptance of the rules and code of ethics for diving in cenotes, as well as the subjection to disciplinary procedure and the recognition of the jurisdiction of CREER (Comité Regional de Espeleobuceo Ecología y Regulación).
- Medical Questionnaire.
- Confirmation of understanding of the contents of the manual.
- Diving medical insurance (DAN or similar).
- One (1) recent headshot photo (no more than 6 months old).

Successful candidates must sign the "Statement of Understanding", acknowledging all recommendations established by this program, cenote information requirements, cenote diving safety limits, as well as adhere to the disciplinary procedures established by CREER (Comité Regional de Espeleobuceo Ecología y Regulación).

Upon completion of this program, successful candidates will receive a digital recognition card with a registration number that distinguishes the participant's status as a qualified Cenote Dive Guide. This is to be displayed at cenote sites and during surface briefings when diving in cenotes.

Candidates who receive a status of PROVISIONAL may be required to complete additional training sessions or assist another guide for a certain number of dives.

In order to gain familiarity with dive sites, qualified cenote dive guides are required to have dived each site the full route at least twice (one of which can be done during the guide training program) prior to conducting a guided cenote dive. In addition, it is recommended that the newly qualified cenotes dive guide assist with an experienced guide on cenote dives to improve familiarity with the site, as well as participate in actual "guided cenote dives" prior to conducting this activity independently.

The Cenote Dive Guide credential is renewable annually.

Violation of the rules and/or non-responsible conduct on a cenote dive by a cenote dive guide must be reported in writing to the Comité Regional de Espeleobuceo, Ecología y Regulación (CREER).

It is the personal responsibility of the cenote dive guide to ensure that all requirements of their dive agency, safety, work permit, immigration status, tax requirements, hyperbaric chamber affiliation, oxygen training, first aid, as well as keeping up to date with their professional diver and cenote dive guide credentials are met.

The success of this program lies in the attitude of the Cenote Dive Guides and in the responsible application of the rules established in this document.

QUALIFICATION REQUIREMENTS

- **Pass** the theoretical evaluation with a minimum of **80%**.
- **Pass** the practical evaluation with a minimum of **80%**.
- Use and have available the **Manual for Cenote Dive Guides**.
- ·To be familiar with the lines and have access to **maps** where appropriate.
- ·Present dive log of cenote diving experience as an apprentice guide.
- To submit the “Cenote Dive Guide” application or renewal forms.

REQUIREMENTS FOR EXISTING GUIDES

Active cenote diving guides who have at least six months of experience as guides may request the recognition of their previous experience, to obtain their credential as qualified cenote dive guides. Existing guides do not need to carry out the evaluation of new guides, but must comply with the requirements for the renewal of their status as active cenote dive guides.

RENEWAL REQUIREMENTS

All recognized cenote dive guides must renew their "active" status annually through the following requirements:

- Must perform at least 12 "experience dives" in caves per year.
- Sign the statement of acceptance of responsibility for diving in overhead environments.
- Sign the acceptance of the rules and code of ethics for diving in cenotes.

PRESENTATION

Cenote guides must:

- Present themselves in a professional manner.
- Have their equipment well configured, organized and properly maintained.
- Avoid wearing sunglasses or smoking while performing briefings or explanations of cenote diving.
- Show guide identification to cenote managers, owners or participants if requested.
- Use appropriate information outlines, briefing slates and maps.
- The guides must make sure that the participants read and sign the liability release and understanding document and medical questionnaire.

PROFESSIONAL CONDUCT

On Land

- Respect the wishes of the cenote owners.
- Maintain the role of a responsible cenote guide and expert cave diver.
- Avoid car stereo noise.
- Be polite to other visitors.
- Maintain a cordial and professional relationship with the cave and cavern guide community, as well as with cenote owners and workers.
- Avoid derogatory comments towards other guides or divers.
- Be willing to provide assistance.
- Do not leave trash at the cenote site. Take all trash and recyclables to a proper disposal site.
- Do not leave vehicle engines running.
- Differences of opinion between guides must be discussed in private and not in front of clients.
- Avoid obstructing cenote entrances with cylinders and equipment for the convenience of other divers.

Underwater

- The guide must be in the water and paying attention when their divers enter or exit the water.
- Look underwater before descending and look up before ascending to avoid making contact with other divers.
- Do not shine lights in the eyes of other guides or divers.
- Exiting divers have right of way.
- Do not pass through another group of divers causing them to lose contact with each other.
- When encountering a group moving in the opposite direction, move your group to the right side of the line if possible.
- Use correct cave diving procedures when installing and removing line.
- Do not remove sidemount cylinders until all your divers are on the surface.

EQUIPMENT AND CONFIGURATION

The following is the minimum required equipment. It must be fully functional and configured in an accessible manner that avoids potential entanglement.

Back Mount Configuration

The guide must have two tanks joined by rigid bands, connected by a manifold and isolation valve. Independent back-mounted tanks are not allowed.

The minimum size for double tanks is 80 cubic feet or 11 liters. Tanks must have a minimum of 80 cubic feet / 2310 liters of total gas available before starting any dive (105 bar or 1500 psi in a set of aluminum 80 cubic feet tanks).

Two regulators with DIN first stages and one second stage each. Clamp regulators are not permitted.

The first stage regulator on the right post should be configured with a 2.1 meter (7 foot) hose for the primary second stage and an inflation hose for the wing.

The first stage regulator on the left post should be configured with a high pressure hose for the pressure gauge, with a short hose for the secondary second stage secured around the neck and with a dry suit inflation hose if applicable.

Back Mount Configuration (continued)

A rigid backplate and harness, firmly secured to the tanks.
·A wing type buoyancy compensator (horseshoe or donut), mounted between the backplate/harness and tanks. The wing must be equipped with a low pressure inflator and dump valve. Open water style BCDs are not allowed.
A primary light that must be 750 lumens or equivalent and have a burn time of at least 1.5 times the duration of the dive. It must be a cave diving light suitable for communication, not a wide angle video light.
A minimum of two backup lights with a minimum of 450 lumens and a duration of at least 1 hour. They must be suitable for communication.
Low volume mask and a spare mask.
Appropriate cave diving fins. No free diving fins or split fins.
Primary reel if the permanent line does not reach open water.
A safety spool with at least 30 meters of line.
A dive computer or depth gauge, timer and dive tables.
Two small knives or line-cutting devices easily accessible to the guide.
Slate and pencil, or wet notes.
3 directional and 3 non-directional line markers.

Sidemount Configuration

To guide in sidemount configuration, the guide must be certified as a full Cave Diver and Sidemount Diver or equivalent.

The guide must have two independent tanks (minimum aluminum 80 cubic feet/11 liters per tank) with a minimum of 40 cubic feet/ 1,155 liters of gas (105 bar or 1500 psi in an Al 80) available in each tank prior to the start of any dive. The tanks must be the same size and configured for sidemount.

Each tank must have a DIN regulator with a second stage and a pressure gauge.

On the right tank the first stage should be configured with a 2.1 meter (7 foot) long second stage hose that is easily deployed and stored with a minimum of two hose retainers. The second stage should be shareable at all times.

On the left tank the first stage should be configured with a short hose, with second stage secured around the neck with elastic, plus an inflation hose.

Gas usage must be divided equally between the two tanks.

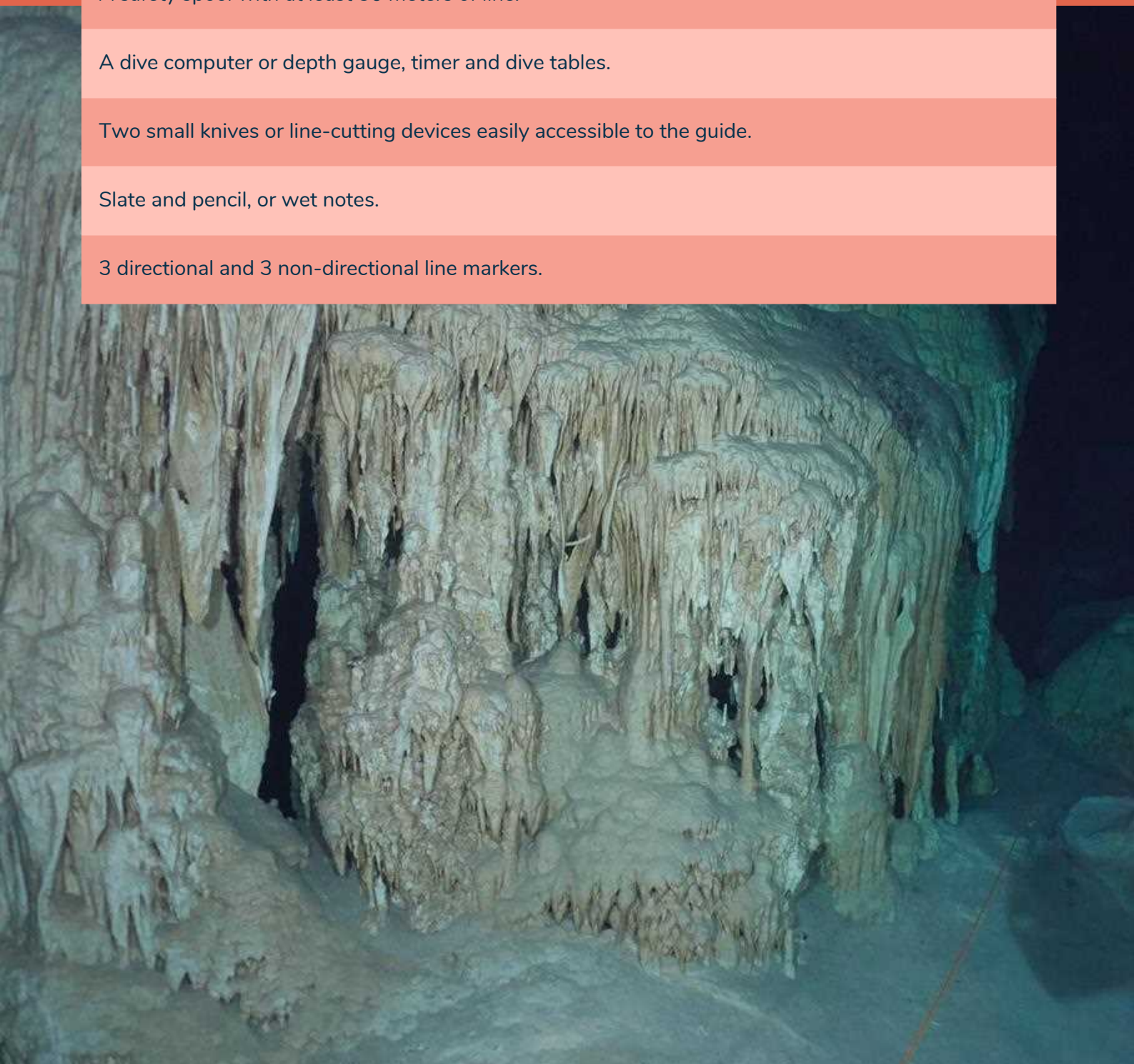
The harness and bladder must be specifically designed for sidemount diving, with a minimum 15 litres/30 pounds of lift. It is not acceptable to use modified recreational diving equipment.

The bladder must have a power inflator and sufficient lift capacity to support the guide plus one participant with compromised buoyancy.

A primary light that must be 750 lumens or equivalent and have a burn time of at least 1.5 times the duration of the dive. It must be a cave diving light suitable for communication, not a wide angle video light.

Sidemount Configuration (continued)

A minimum of two functional backup lights with a minimum of 450 lumens and a duration of at least 1 hour. They must be suitable for communication.
Low volume mask and a spare mask.
Appropriate cave diving fins. No free diving fins or split fins.
Primary reel if the permanent line does not reach open water.
A safety spool with at least 30 meters of line.
A dive computer or depth gauge, timer and dive tables.
Two small knives or line-cutting devices easily accessible to the guide.
Slate and pencil, or wet notes.
3 directional and 3 non-directional line markers.

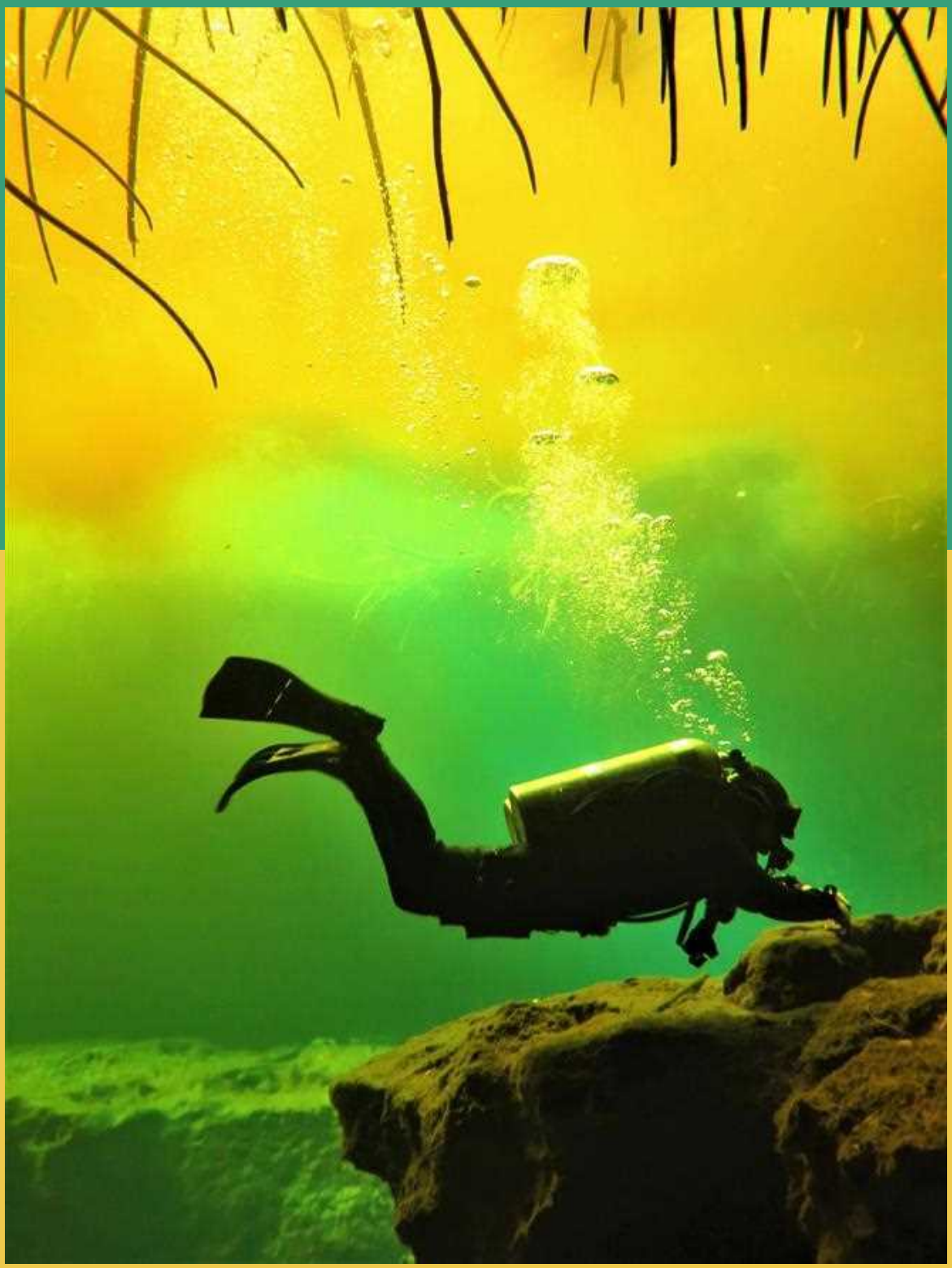


USE OF REBREATHERS

This manual does not specifically cover the use of rebreathers in guided cenote diving. Guided dives involving rebreathers should comply with these regulations where possible.

FIRST AID / OXYGEN EQUIPMENT REQUIRED

- A basic first aid kit.
- Emergency oxygen breathing equipment.
- Accident management chart (see appendix).



Chapter 4

GUIDE ASSESSMENT

GUIDE ASSESSMENT

Cenote Dive Guide Skills Evaluation

A minimum of 1 hour in open water should be used to determine if the candidate possesses the level of skill and competency necessary to qualify as a Cenote Dive Guide. This would include but not be limited to an evaluation of:

- Proper equipment as outlined in Equipment and Configuration
- Safe entry and exit
- Pre-dive safety checks
- Buoyancy / Trim
- Propulsion techniques, including frog kick, modified frog kick, reverse kick and helicopter turns.
- Hovering
- Equipment adjustment
- Gas/valve shut downs
- Gas sharing techniques
- Use of spools / guideline
- Skills circuit including but not limited to:
  - No mask swim
  - No visibility swim
  - Gas sharing
  - Gas sharing / no visibility / touch contact on guideline

RESCUE SCENARIO

This open water training session is intended to teach rescue skills not normally practiced during a cave course. This will include, but is not limited to a demonstration and practice of:

- Swimming underwater with an unconscious diver.
- Ascending to the surface with the victim.

GUIDED CENOTE DIVE ORIENTATION

A minimum of 2 different cenote diving sites must be visited and dived under the direct supervision of a cenote dive guide instructor. These sessions will include, among others, a review and demonstration of:

- General briefing;
- Site briefing;
- Review of equipment and procedures prior to diving;
- Simulated cenote dive; and
- Reel handling in a cenote that does not have a permanent line, or a line installed parallel to a permanent line.

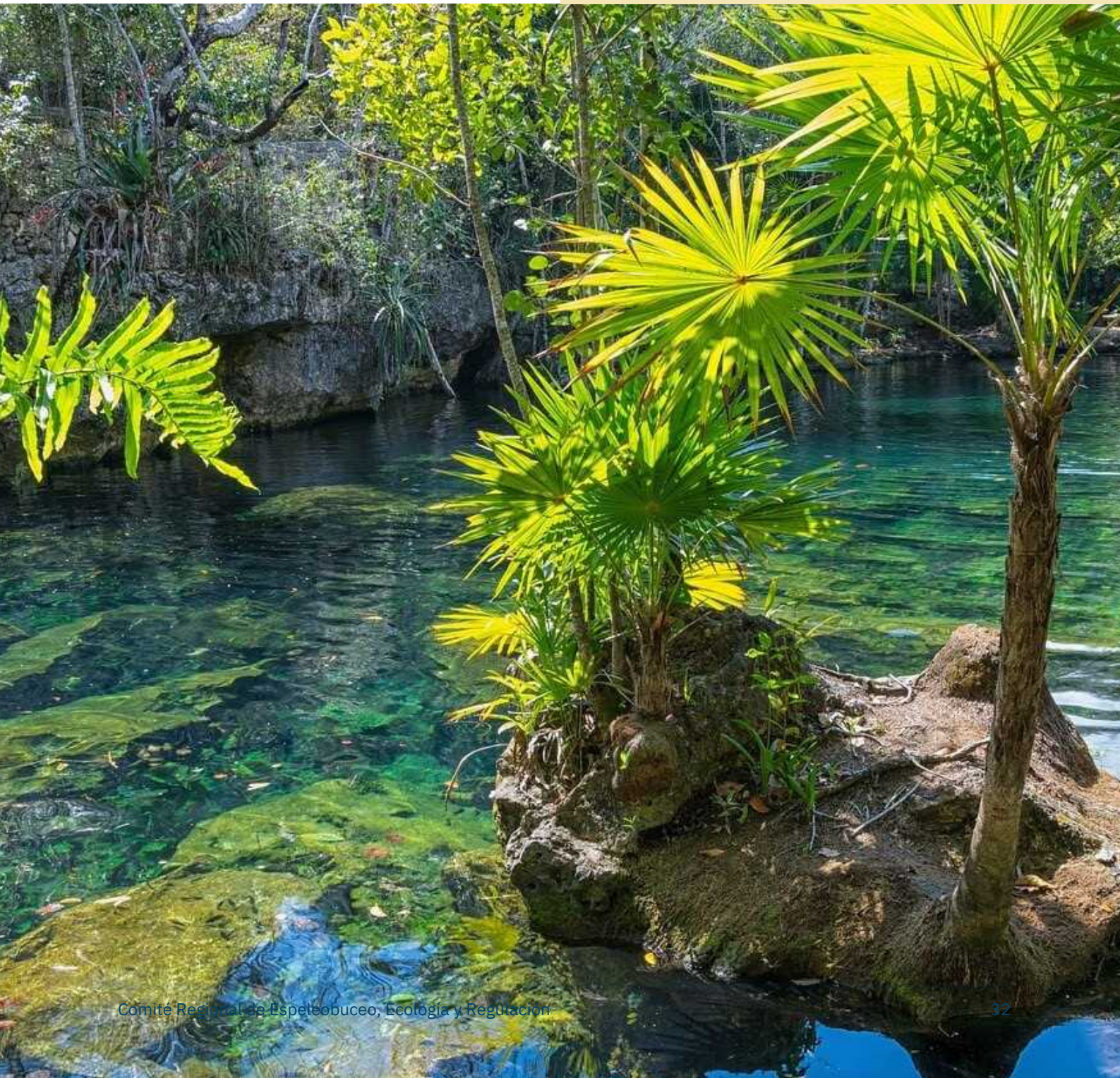
GUIDED CENOTE DIVE EVALUATION

In addition, each cenote dive guide candidate will be assigned and evaluated on their ability to perform various aspects of a simulated cenote dive. This will include:

- General briefing;
- Site briefing;
- Pre-dive equipment review and procedures;
- Simulated cenote dive;
- Participant control; and
- Emergency procedures.

ADMINISTRATION

All dives and in-water training sessions must be documented and signed by the instructor conducting the evaluation.



Chapter 5

THE PARTICIPANT

TOUR PARTICIPANT

PREREQUISITES

- Minimum age of 15 years old.
- Participants under the age of 18 must have a signed authorization from a parent or guardian.
- Participants must show proof of minimum Open Water Diver certification or its equivalent issued by a recognized training agency.
- Additional limitations established by the training agency regarding age, depth allowance, disabilities, and parental consent and/or supervision must be respected.
- Participants must have recent non-training dives (within the last 6 months) since certification.
- If they have not dived for more than six months, participants must make an open water dive before diving in the overhead part of a cenote.
- If a participant has not dived for more than one year, the diver must first make a formal refresher dive.
- Participants must complete the medical questionnaire and assumption of responsibility document (or similar) prior to their cenote dive.
- Participant must not be under the influence of drugs or alcohol.

PARTICIPANT EVALUATION

- A diver evaluation is required in the open water area of the site prior to beginning the cenote tour.
- The diver may be asked to show evidence in a logbook that proves sufficient experience to participate in the cenote dive without having to perform an evaluation in open water.
- The site must be appropriate for the skill level and comfort of the entire group.
- Participants should be closely monitored for signs of stress before and during the dive.

CRITERIA FOR EVALUATION

- Assemble the equipment without the help of the guide.
- Correct and appropriate attitude.
- Appropriate buoyancy control.
- Proper body posture during the dive.
- Demonstrate correct diving techniques as required for the cenote diving experience.

It is the responsibility of the cenote dive guide to accept or deny the individual's participation in the cenote dive according to the above evaluation criteria. If there is any doubt on the part of the guide regarding safety or conservation issues, a diver or divers, MUST NOT be taken into the overhead.

EQUIPMENT AND CONFIGURATION

- Cylinder: minimum 11 liters (80 cubic feet) or equivalent.
- Regulator with primary second stage, alternate second stage, low pressure inflation hose and submersible pressure gauge.
- Buoyancy compensator with power inflator.
- Mask.
- No snorkels: the use of snorkels is considered inappropriate for cavern diving.
- Fins (no free diving fins are allowed).
- Lights: at a minimum one underwater light suitable for underwater communication (video lights do not count) that will be kept on during the entire dive and that has a minimum output of 400 lumens and a minimum illumination time of 1.5 times the planned bottom time.
- The use of dive tables with a bottom timer or a dive computer is recommended.
- Appropriate weights.
- Adequate protection against cold.
- No danglies that can become entangled with the line, i.e., submersible pressure gauges, alternate second stages and other accessories should be stowed to the diver's body in an appropriate manner.
- Cameras and other accessories must be secured in an accessible manner that does not allow them to hang freely.
- No knife allowed: in the unlikely event that a diver becomes entangled in the line, the cavern guide is equipped with the necessary tools and training to assist the participant, ensuring the safety of the group at all times.
- No gloves: not wearing gloves discourages participants from touching the cave and increases dexterity. They may be accepted under special circumstances or for medical reasons.

- No pony cylinders or emergency ascent cylinders are allowed.
- Participants using doubles, sidemount, or closed circuit equipment must show proof of certification in order to use this equipment during the cenote diving experience. They must also comply with the minimum requirements for recent experience with this particular equipment.
- Divers using closed circuit must have their open circuit emergency gas accessible and sufficient to share if necessary (minimum 1,400 liters / 50 cubic feet).
- Tanks smaller than 11 liters / 80 cubic feet are not recommended, but may be acceptable under special circumstances or for medical reasons. These should have a minimum initial volume of 2,000 liters / 70 cubic feet. In these cases, the guide must calculate the turn gas pressure using the rule of dissimilar volumes.

Chapter 6

CENOTE EXPERIENCE

CENOTE EXPERIENCE

Safety, conservation and enjoyment of a cenote dive depend completely on the aspects defined in depth in this chapter

A. General Aspects of the Cenote Dive Experience

The following is a brief summary and sequence of key steps that the guide should include when conducting a guided cenote dive experience.

General Briefing
Use onsite charts for a general briefing describing the minimum information to be covered.

Site Briefing
Describe the site-specific features above and below water.

Preparation and checking of equipment
Participants are reminded to check all their equipment after assembling it under the supervision of the guide.

Entry
Participants are guided through the process of entering the water to avoid injury.

Bubble check
Tank valves and other possible areas of gas leakage are checked in the water. Gas leaks must be repaired before the dive begins.

In-water equipment check
General inspection of the participants' equipment ensures proper assembly, functionality and configuration. Secure any danglies and verify that tank valves are open.

Buoyancy check
With an empty BCD, a diver should sink slowly when exhaling. Adjustment of the participants' weights may be necessary prior to the start of the dive.

Calculate turn limits
Once tanks have cooled, calculate the gas limits and make sure the participants understand their "turn pressure."

Review signal
Perform a review of the most important hand signals as well as light signals.

Review gas sharing procedures
Demonstrate how participants would receive gas from their guide.

Establish team sequence
Assign an appropriate order to the participants.

Pre-dive underwater evaluation
Prior to entering overhead participants must demonstrate to the guide proper diving techniques and buoyancy control before proceeding with the cenote tour.

Cenote Dive Experience
Properly conduct the guided cenote dive following the rules and information presented in this text.

Rest period after diving
Allow participants a rest period before expending effort exiting the water.

Exit
To avoid injury, participants will be guided through the process of exiting the water.

B. Specific Aspects of Guided Cenote Diving

Below is a detailed view of all elements affecting a guided cenote dive experience.

GENERAL LIMITS OF DIVING IN CENOTES:

- Always within the daylight zone.
- 60 meters / 200 feet maximum distance from the nearest surface point.
- 30 meters / 100 feet maximum depth (and not exceeding an individual's certification limits).
- 15 meters / 50 feet minimum visibility.
- No passing through restrictions smaller than where 2 backmount divers can comfortably pass.
- No decompression diving.
- Within "arm's reach" distance from the guideline.
- Never beyond warning signs.
- Greater conservatism should be implemented when specific situations or conditions demand it. Examples: heavy rain, extreme currents.
- In addition to these general limitations, the levels of the cenotes established in Chapter 2 must be respected, and their maximum ratio as follows:

Maximum number of participants per guide:

Level 1 - 1: 4
Level 2 - 1: 4
Level 3 - 1: 4
Level 4 - 1: 3

- The guide must not make more than 2 dives with the same set of tanks.
- The guide must have a minimum of 80 cubic feet / 2310 liters of gas available before starting any dive.
- All dives will be NO decompression dives.
- Limited to within the area of the cenote dive experience.
- Stay within "arm's reach" distance of the guideline (+/- 1.5 meters or 5 feet).
- Never dive 2 groups between 2 guides (one guide in front and the other guide at the end of the two groups).
- Do not start a cenote dive after 3 pm.
- Be courteous and maintain a good attitude towards other guides, clients, landowners, and cenote staff.

IMPORTANT:
This guided cenote dive is **for the participant.** It is common for a guide to get bored of the same route, but remember that this dive is focused on following the guideline and sometimes the first experience for participants in a cenote.

CONSERVATION

Following safety, conservation is the most critical aspect of cenote diving.

General considerations when visiting cenotes:

- Do not leave garbage on site. Remove everything you brought, and even clean up after others (the end result of trash in cenote trash containers is questionable).
- Avoid using repellents and sunscreens, even "biodegradable" ones.
- Dispose of batteries at a recycling center.

Diving considerations:

- Avoid divers resting on the bottom, picking up formations or stirring up bottom sediment with fins.
- Do not leave handprints, writing or graffiti in the sediment.
- Stay close to the line; enjoy the cavern from a distance. This will limit the area of negative impact caused by divers.
- Regarding control and conservation, slow and steady progress is preferable to moving forward and stopping.
- Touch nothing but water, leave nothing but bubbles, kill nothing but time.

IMPORTANT:
Staying close to the guideline is the way to preserve the environment in this activity.ad.

GENERAL BRIEFING

An indispensable part of conducting a briefing on the cenote dive experience is to explain to the participants the differences between an open water dive and the cenote dive experience in which they are about to participate. This briefing must be presented to every participant prior to the initial cenote dive experience.

Approximately 15 to 20 minutes should be enough and the on site charts should be used as teaching material.

Driving and doing a briefing at the same time is not the best option, a comfortable place in the cenote facilities should be chosen for this purpose and questions should be asked to the participants to make sure they understand the information.

The general briefing sheet provided describes the minimum information to be covered.

SITE BRIEFING

Prior to each cenote dive, a separate briefing should be conducted explaining the specific characteristics of each dive site, both above and below the water.

Upon arrival at the dive site, participants will need a clear orientation of the cenote, areas to avoid, available facilities such as restrooms/changing rooms (or lack thereof) and setup areas.

Discuss your plans with other guides and try not to disturb others using the site. Do your best to keep your group organized and occupy as limited a space as possible. This will not only benefit other groups, but will also avoid misplacing belongings.

USE OF MAPS

The maps contain vital information about each cenote commonly used for the purpose of a guided cenote dive experience and clearly illustrate the limitations of the cenote: depth, distance, haloclines, warning sign locations, areas of interest, restrictions, areas to avoid, specific hazards and cavern characteristics.

The guide's familiarity with these "cavern zones" and the surrounding "cave zones" is essential to ensure a safe and enjoyable experience for your participants.

CENOTES ENTRY AND EXIT PROCEDURES

One of the most overlooked aspects of a cenote dive experience is entering and exiting the water. Often, the divers you are guiding may not be accustomed to carrying their equipment on their backs for some distance. What seems like an easy task for most of us could result in serious injury if someone simply falls with the weight of the entire dive unit on their back.

A simple solution to this is to have divers walk the access route during site orientation while you observe their capabilities. It may be necessary to offer assistance to less able people.

The actual method of entering the water will also need clear explanation. The best technique for most will be a smooth entry into the water via steps or if you choose a backward entry, it is essential to verify that the area is clear of other divers and that the water is deep enough. Your personal choice of entry will often be imitated. Remember that you are setting an example that less capable divers will follow, so make sure it is appropriate with minimal chance of injury.

Likewise, participants must be guided through the process of ascending and exiting the water safely:

- Make sure the entire group is in open water.
- Be sure to keep the water entry area clear.
- Make a controlled team ascent while maintaining eye contact with participants.
- Do not remove any part of your equipment before all participants are at the surface and have achieved positive buoyancy.

- Exiting groups have the right of way before entering groups.
- Make sure that no participant is under a ladder while another is climbing it.

NOTE: The guide must be the first one in the water and the last one out of the water.

GAS MANAGEMENT

All problems during a cenote dive can be managed if there is sufficient breathing gas available.

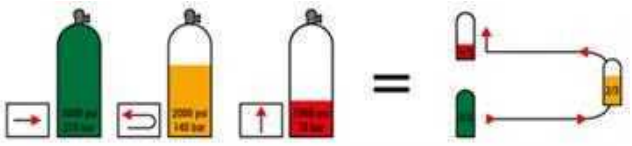
The guide and participants should always have enough reserve of gas to deal with any problems that may arise.

The rule of "thirds" should be used as a minimum gas reserve rule, that is, one-third in, one-third out, and one-third reserve to share or use in case of emergency.

For deep cenotes the same rule applies: one third to descend, one third to ascend and one third reserve.

Likewise, participants must be guided through the process of ascending and exiting the water safely.

Participants must have exited the overhead environment and be in open water with no less than 60 bar / 900 psi of gas in an 11 liter / 80 cubic foot cylinder, or equivalent, and guides must have at least twice the volume of gas.



In the case of using a sidemount configuration, tanks must be balanced and contain a minimum of 60 bar / 900 psi in each tank.

Participants should be restricted from using pony tanks or emergency ascent cylinders. In the event of a gas problem they may be tempted to use these tanks and attempt to surface on their own and the gas volume would not be sufficient to reach the exit.

GUIDELINE

- The importance of the guideline should be explained to participants, as well as the potential danger of entanglement.
- Participants should be reminded that the guideline should not be pulled and never crossed under it.
- Equipment and accessories should be stowed close to the body to avoid entanglement.
- When conducting a cenote dive, the guide and participants must remain within "arm's reach" of the guide line.
- In addition, as described in the "conservation" section, staying close to the guide will play an important role in minimizing the area of negative impact caused by divers.

REEL INSTALLATION AND REMOVAL

Many guided cenote dives do not require the use of a primary reel, although others do, or in some cases even require the guide to temporarily install the continuous guide line during the dive and remove it upon exit.

1. Cenote with a permanent guide line that allows a direct ascent to the surface:

The primary consideration here is for the guide to be the first to enter the cenote and maintain control by directing participants. It is also good practice for the guide to be the last to ascend after the dive. This way, he/she is absolutely sure that all divers are out of the cenote zone and safe on the surface.

2. Cenote with a permanent guide line that does not allow direct ascent to the surface:

No matter how small the distance to reach the permanent guideline, a primary reel should be used. This not only provides a clear exit to the surface, but also sets an example for the untrained participant and allows the guide to exert a controlling influence on the group.

It is mandatory that the guide be the last of the returning group when retrieving the line.

3. A cenote that does not have a permanent guide line:

This situation presents the most complicated scenario of guiding divers in a cenote. The guide is required not only to provide a previously non-established route to follow, but also to monitor the divers while doing so.

A high level of familiarity with the cenote is essential before attempting an activity of this magnitude.

Factors to consider:

- Ensure that the guideline is within the limitations and definition listed in the General Limits of Cenote Diving chapter:
- Ensure that the guideline is properly set up for others to follow.
- Skill is required to set up the guideline while simultaneously monitoring the group.
- Be prepared to abandon the reel and assist an out-of-control diver.
- Remember that you and the guideline are always the last to leave the cenote dive site.

COURSE TO FOLLOW

The course to be followed should be clearly described to participants. Participants should be aware of the nearest available exit at all times. In addition to providing a high level of control, this practice will increase the participants' awareness and ability to safely exit the cenote independently should the guide become incapacitated.

Guides should realize that cenotes are often used by certified cave divers and cave instructors conducting training. Everyone should make an effort not to disrupt the dive plan of others, either before, during, or after a dive.

Guides should try to distance their group from other divers in the cenote. When passing close to other groups, special care should be taken to prevent a participant from accidentally following another guide.

DIVE PROFILE / SAFETY STOPS

While all cenote dives remain within the no-decompression limits of the most conservative dive table or computer being used, the nature of cenote dives often involves "sawtooth" dive profiles. For this reason, conservative measures should be taken.

Slow descents will allow divers to equalize appropriately. Slow ascents and safety stops will help prevent dive-related injuries. It is recommended that the safety stop be incorporated into the dive profile.

A short surface rest period is also recommended in preparation for the level of exertion required for exiting the water. This time can be well spent reflecting on the dive with the participants.

SEQUENCE OF PARTICIPANTS

The preferred order for the group to proceed with the dive will be decided by the guide and will be based on several considerations. Ability, experience, who may be most likely to require assistance, participants with underwater cameras, etc.

Having reviewed the participants' certification, level of experience, number of dives and time since their most recent dive (obtained from a registration form) will provide valuable information. Also, by observing divers as they set up their equipment and interacting with them directly, different levels of apprehension and anticipation can be determined.

Based on this background knowledge, the guide can make some critical decisions about the preferred divers' sequence. By placing the least experienced diver (the one most likely to require assistance) directly behind the guide and the most experienced diver (the least likely to require assistance) last will allow the guide to be nearest any anticipated problems. Most minor problems can be determined quickly and handled without affecting the flow of the dive.

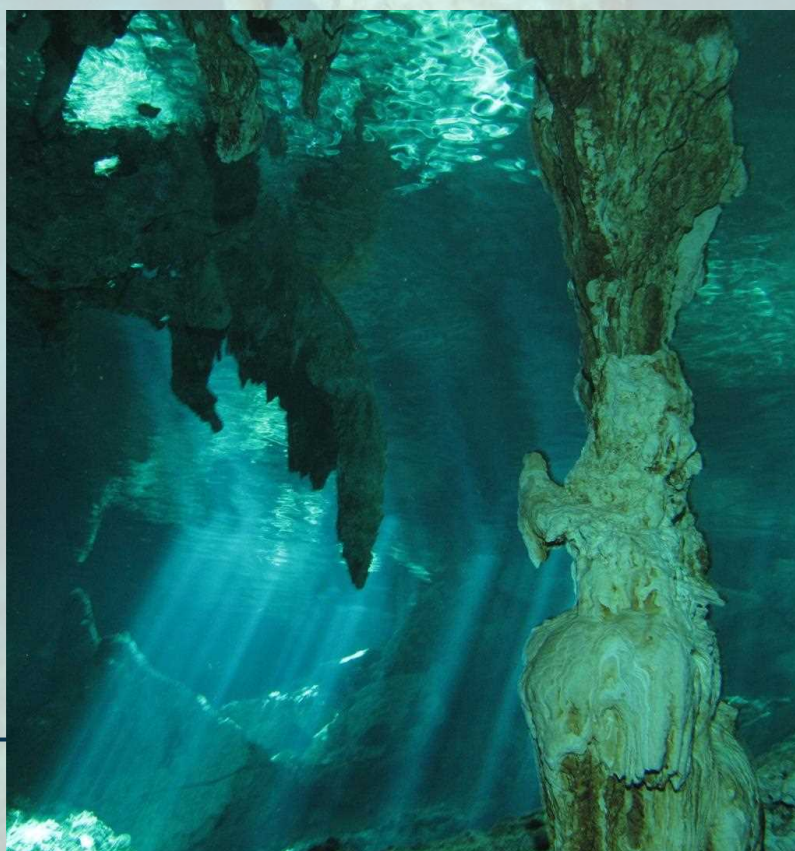
Guides should remember that any diver in the chain may require help at any time.

BUOYANCY

The importance of buoyancy control is vital and quickly becomes apparent during a cenote dive. Proper weighting is critical. Aluminum cylinders become lighter during the dive, so it may be prudent for the guide to carry additional weight.

Although it is outside the scope of a cenote dive experience to teach buoyancy control to participants, reminders can be provided that can greatly assist in controlling the dive and conserving the environment.

Participants should be made aware that the profile of most cenotes require more frequent adjustments to their BC. Anticipation is the key.



TRIM

By virtue of having a floor below and a ceiling above, it must be understood that underwater the "horizontal trim" becomes necessary from both a safety and conservation perspective. An overweighted diver will generally have greater difficulty maintaining this profile and, as noted above, participants should use the minimum weight necessary for the dive.

This posture will be easier for the whole group to maintain if the group keeps moving and does not stop unnecessarily. Remember that divers will often imitate the example set by the guide. By remaining in the classic "horizontal profile" of cave divers at all times, not only does the guide demonstrate the preferred posture by example, but they are also in the most convenient position to quickly address an emergency situation.

FINING TECHNIQUES

Participants cannot be expected to learn a new fining technique during a cenote dive experience, but they should be informed that by keeping their knees bent and minimizing the power of their kick, they can avoid stirring up the sediment. Again, guides should set a good example in this regard and demonstrate proper propulsion techniques.

COMMUNICATION

A mutual understanding and the ability to communicate clearly underwater between divers is a vital aspect of a safe and enjoyable diving experience.

Hand Signals

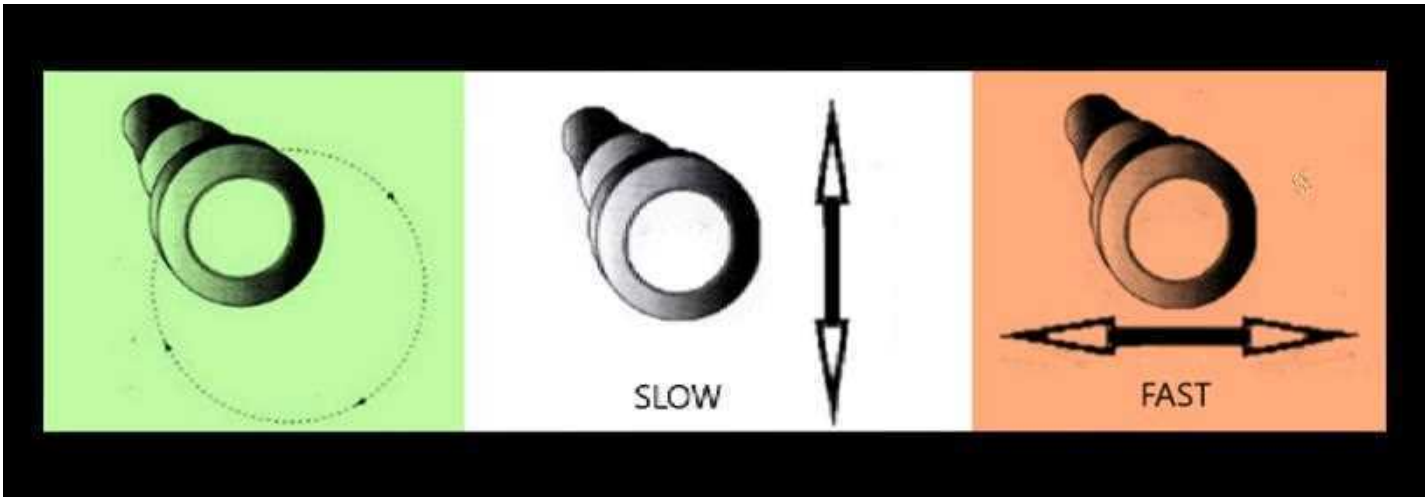
1.Command signals:
- Okay
- Hold
- Exit (call the dive)

These signals require the same response and must be repeated; otherwise, a problem is assumed to exist. Most importantly, during a cenote dive, an **"unquestionable agreement"** exists within the group that **any diver, at any time, for any reason, may "call the dive" and all divers must exit.** It should also be noted that the exit and stop command signals are unique to the cenote dive and should not be confused with those used within open water diving.

2. . Common open water signals:
- Problem
- Low on gas
- Out of gas
- Turn around
- Cold
- Look

Open water hand signals common to all divers form the basis of many exchanges, however, even these signals should be clarified, as they may vary with divers coming from different backgrounds.

Other signals relevant to cenote diving.



Signals with flashlight

- **Ok**: circular movement with the light.
- **Attention**: slow, uniform, repeated up and down movements.
- **Emergency**: rapid, repeated back and forth movements.

Consider that participants in a cenote dive experience may not have night diving experience and may not be familiar with these signals. The need to avoid pointing lights directly into the eyes of other divers should be made clear.

If not using the light for signaling, the diver should keep the light in hand, without rapid movements, pointing it forward to allow the guide to see the light throughout the dive.

Underwater slate

In case there is a breakdown in communication and something more complex needs to be communicated, a slate and pencil could be used.

SURFACE REFERENCE

It is imperative that all divers are aware of the nearest surface/open water available at all times. During a site briefing, a map will show potential exits, but the guide is also required to "reference the surface" during the tour, either by pointing with their light (and/or hand) or by covering their light to make known a safe exit from the cavern.

HALOCLINE

While haloclines provide a pleasing visual effect to the diver, they can also cause a blurring and reduction of water visibility when passing through them. Any decline in visibility can affect the participant's comfort level and will affect the guide's level of control. An explanation of this "visual phenomenon" to the participants is necessary for their understanding and expectations prior to the dive. Anticipation on the part of the guide while leading the group into an area containing a halocline will help avoid surprises.

Guides should explain alternative formations of travel effectively through the halocline while maintaining proximity to the guide.

Other interesting aspects of the halocline that will affect the diver is that the water is slightly warmer in the saltwater layer. Also, due to the change in water density, divers will be more positively buoyant as they descend into the saltwater from the freshwater and more negatively buoyant as they ascend from the saltwater into the freshwater.

An end result is that the halocline will act as a "buoyancy magnet" and divers will find it easy to float in the halocline unless they make a concerted effort to ascend or descend from it. The consequence will be a very blurred out area, especially for the trailing divers.

UNDERWATER PHOTOGRAPHY

Participants wishing to take still or video photography are an additional concern of the guide. Not only from a conservation point of view, but also because of a photographer's reduced awareness while capturing images. They can affect the guide's ability to handle divers underwater, as well as the enjoyment and safety of the entire group. This should be explained to photographers. Perhaps their first cenote dive should be used as an evaluation of their diving skills before allowing a camera. In any case, the guide should make an agreement with the photographers that, in the event they are unable or unwilling to conduct themselves in a competent manner, the guide will take the camera and/or terminate the dive.

The guide in charge of the cenote dive tour cannot take pictures or videos.

C. Emergency Procedures

This section will address the "what ifs" and options available to the cenote dive guide to prevent, anticipate, recognize, control, and safely address any number of potentially dangerous situations that could arise during a cenote dive experience.

PREVENTION

The best way to deal with a potential emergency is to prevent it from developing in the first place. Good judgment is something that comes with experience, acute awareness, and thinking ahead. The cenote dive guide can often predict and avoid potential emergencies. And it is always worth taking the extra time to prevent problems from occurring.

Before the dive, the guide should ensure that all of your personal equipment is in proper working order. In addition, to checking the participants' equipment, any problems encountered should be fixed. A check for bubbles in the water can determine possible gas loss problems. It is recommended that the guide have tools and spare parts available.

ANTICIPACIÓN

Determining the best sequence for the group will place the divers most likely to have a problem closer to the guide (see sequence). As the guide is positioned nearest to where problems are most likely to occur, he or she will be able to monitor the group more efficiently. Any buoyancy and equalization difficulties will most commonly present on the initial descent.

Getting divers relaxed before the descent and then allowing them a moment to adjust to the new surroundings in the open water will be time well spent.

Once just inside the overhead, perform a quick equipment check, giving an OK signal with the light will confirm the level of alertness that each diver possesses. Those divers placed farthest away should be able to respond in reasonable time, otherwise the order may require reevaluation. Once the group is in motion, their swimming techniques will be a good measure of what to expect.

It is good practice to check the divers' gas supplies early in the dive by asking them. This will remind them to be aware of their pressure gauges and will also help you determine their individual gas consumption rates. As the dive progresses, the guide should check the participants' gas supplies frequently.

The ascents and descents that occur during the dive, the entering of an area with a halocline or any transitional sections where the passage changes are times to be alert for potential problems.

RECOGNIZING PROBLEMS

Participants should be encouraged to notify the guide if any problems arise. The guide should assess the situation and decide how to control the rest of the group (i.e., hold the line or hold position). Divers are more likely to signal with their light if they need support, but often they may be more concerned with dealing with whatever is troubling them at the time. The following are some clues that your help may be needed:

- poor performance in the water;
- loss of buoyancy control;
- stirred up sediment;

- jerky movements of the lights;
- constant cleaning of the mask, a fogged-up mask;
- repeated attempts to equalize;
- perceptual narrowing;
- constant checking of the pressure gauge; and
- lack of awareness/no response to signals.

CONTROL

Before even entering the water, it is necessary to establish a firm level of control. If the guide's role has been clearly established prior to the dive, participants will be more aware and accepting of the guide's function. The level of acceptance of the conditions set by the guide prior to the dive will be a direct reflection of what to expect during the dive.

While underwater, awareness of the guide's presence will help prevent participants from deviating from or exceeding agreed-upon limits. In the event that assistance is needed, the location of the guide will be important.

RESPONSE / ACTION

While the guide provides prevention, anticipation, recognition, and control, the need to respond and act quickly is essential. It is always better to be more attentive than not attentive enough. Once it is determined that a situation is occurring that may require attention, the guide must move to that location and take appropriate action.

While doing so, it is also important to simultaneously monitor the other divers.

If a problem cannot be fully resolved, the guide MUST move the entire group to the open water. Depending on the location and seriousness of the situation, it may be necessary for the group to either exit to the nearest surface or return to the starting point.

In rare situations, the use of the guideline may be considered irrelevant, as the more direct ascent to surface air may not be by following the guideline.

If it is ever necessary to leave participants alone at the surface, the guide must be certain that divers will not attempt to descend on their own. To ensure this, the guide may choose to remove lights and/or weights from participants.

ANXIETY

Determining level of anxiety is the first step. Often, all that is needed is show attention

and reassure the diver that you are there and prepared to help if necessary. If the diver's anxiety is not reduced to an acceptable level, or if the guide feels it is not safe to continue, it will be necessary to exit with all divers to the open water.

BUOYANCY PROBLEMS

Establish contact by holding the arm, BCD or tank valve while encouraging the troubled diver to inflate or deflate their BCD. If this does not work, make the correct adjustments for the diver and determine if the participant can continue.

EQUALIZATION PROBLEMS

If necessary, establish physical contact and allow the diver to further attempt equalization. Demonstration of equalization techniques and the opening of wetsuit hoods to allow trapped air to escape may correct the problem. If the difficulty persists, slowly ascend to shallower water where equalization is easier. Even a full ascent to the surface may be required, in which case all divers must exit the cavern area to either an open water area or to the surface.

If divers in the group do not obey the guide's instructions and continue to violate safe cenote diving practices as explained, a serious and dangerous situation may arise. The dive must be aborted!

LINE ENTANGLEMENT

Although a very rare occurrence, a diver can become entangled in the line. The greatest danger is that this can quickly lead to panic so every effort should be made to avoid it.

Keep the diver calm while helping to free the entanglement. If the line requires cutting, be sure to have all participants on the exit side of the line. The line should be repaired as soon as possible.

EQUIPMENT FAILURES

If any of the diver's personal equipment fails, and there is no solution to the problem then the dive must be aborted.

Light failure can be resolved without interruption by simply handing the affected diver an extra light carried by the guide.

Low pressure inflator failures in the open position will require a quick response and physical contact by the guide. To prevent cavern damage, uncontrolled ascent or personal injury, disconnect the low-pressure hose and vent excess air from the BCD. Repair may be possible by repeatedly pressing the inflator button and reconnecting the inflator hose. If not, then the dive should be aborted and oral inflation of the BCD may be necessary.

Submersible pressure gauge failures usually result in a slow but steady loss of air. Another possible failure is that the gauge may "stick" and give a false reading. These failures will not be repairable and require aborting the dive.

Failure of the tank valve, O-rings, burst disk, first or second stage regulators or hoses can result in catastrophic air loss! In this situation, quick action on the part of the guide is critical.

The guide must first provide an alternate air source to the affected diver and ensure that the diver is breathing comfortably, while maintaining touch contact at all times. Once this is accomplished, the guide may choose to close the affected diver's tank valve depending on the intensity of the air escape, in order to control the situation, and reduce stress on the divers. A side-by-side physical contact exit while sharing gas is to be performed. At this point, all divers should exit the cavern area to the nearest available surface air.

RESCUING AN UNCONSCIOUS/UNRESPONSIVE DIVER

In the event that a diver is unwilling or unable to swim to the surface, the guide must take physical control and initiate an exit. There are two techniques to accomplish this task.

The first method is for the guide to cradle the diver's left arm with the right arm and bring the diver to the nearest surface air. This positioning allows the guide to easily access the unresponsive diver's BCD inflator and, if necessary, control the buoyancy during the ascent.

The second method is for the guide to assume the "tank cradle position." This position places the guide behind the unconscious unresponsive diver, where s/he wraps his/her right arm around the torso while holding the unresponsive diver's second stage in his/her mouth. Meanwhile, the guide's left hand can move freely between the tank valve for stabilization and the BCD inflators on both himself/herself and the victim to control buoyancy.

A slow ascent is important to ensure that the expanding air escapes from the diver's lungs. Once at the surface the rescuer may also be required to perform mouth-to-mouth resuscitation (CPR) as well as administering oxygen.

LOST DIVER

A high level of awareness and control should prevent this situation from occurring, but if it does, certain procedures must be followed.

First, securing the remaining divers is essential. This is accomplished by having each diver physically hold the guide line.

Then conduct a visual search using lights. All divers are then instructed to cover their lights to search. If the missing diver can be located, attention signals are directed toward the diver. If the missing diver does not respond and the distance is too great for the guide to swim safely, an arrow will be placed on the cavern guideline pointing toward the nearest air source. The group should remain holding the line while the guide connects to the arrow making use of a safety reel to recover the missing diver.

If the missing diver is still not located once the air supply from another diver is reaching the agreed upon turn pressure, then the guide must surface with the remaining group.

Once at the surface, all divers are instructed to exit the water and an announcement should be made that a diver is missing from the cavern.

The guide should seek the assistance of another cave diver to accompany him/her on an additional search. If it has been determined that the diver is still missing, an emergency recovery team should be notified and called to the site (see accident management protocols).

NOTE: At no time should the guide risk the safety of him/herself or any other participant while searching for a lost diver.

Chapter 7

ACCIDENT MANAGEMENT AND ANALYSIS

ACCIDENT MANAGEMENT AND ANALYSIS

Accident Management

Most non-fatal accidents can be considered minor or called incidents since they can be corrected or handled on site by the guide leading the dive. Guides should have a first aid kit, sufficient oxygen, and an emergency protocol chart.

CENOTE ACCIDENT ANALYSIS

As cave divers we are all well aware of the 5 basic rules of Accident Analysis that were originally developed by cave diving pioneers Sheck Exley and Wesley Skiles in the 1970s.

1. Lack of adequate **training** or diving beyond the limits of training and/or experience.
2. Failure or improper use of the **guideline** (including entanglement).
3. Failure to **reserve at least 2/3 of starting gas** for the exit.
4. Exceeding the maximum **depth** limits corresponding to the level of training or experience.
5. Have a **minimum of 3 light sources** (this includes the rule of redundancy in all equipment and emergency protocols).

We must also emphasize that there are many other factors that can contribute to an accident and we can add to the list, to name a few: solo diving; photo or videography; diving with unfamiliar equipment or buddies; equipment failures; improper emergency procedure; inadequate or poor communication; task overload; ego; buddy separation; etc.

Since the beginning of cave and cavern diving there have been great advances, especially in the fields of equipment technology and understanding of decompression theory. These two major advances have also resulted in the evolution of diving education and the advancement of diver skills. However, the **5 basic principles** governing accidents remain consistent and unchanged since the early days of cave diving.

The best way to avoid an unfortunate accident, incident or mix-up that results in major problems is to adhere to the standards and protocols, as well as to ensure that none of the basic rules of accident analysis are being violated.

GUIDED CENOTE DIVING ACCIDENTS AND INCIDENTS

The traditional rules of accident analysis have changed dramatically in recent years in the area.

As the short reports presented here show, the causes of cenote diving incidents and dangerous situations are more often related to misconduct or disregard for the rules and/or lack of good judgment on the part of the guides. Unfortunately, nowadays, the main cause of accidents in cenotes is direct action or lack thereof by professionals conducting dives in overhead environments.

Since the specific activity of what we call cenote tours became popular some guides with good knowledge of the dive sites began to make their personal "tours" away from the guide line. This "irregular" practice became commonplace and with the boom of the cavern guiding profession and its popularity, new guides with poor or no knowledge of the dive sites began to do the same. This became accepted as "the exception to the rule" and has resulted in tragedies. Guides began to take their ownroutes for adventure and excitement. Thus, the activity became even more dangerous than it should be by definition.

The idea of sharing this information is not only to learn from the mistakes of others, it is also intended to foster the importance of adherence to the rules and increase pride in following the ethical principles of the activity. The only way to challenge the vices and negative consequences of masses visiting cenote dive sites is to build a solid structure of scruples and ethics. Taking untrained divers into overhead environments should be taken as seriously as it sounds.

Above any rules or principles governing this activity, a simple statute must prevail:

There is no thrill, no challenge and no adventure. JUST FOLLOW THE NYLON GUIDELINE that marks the exit and take good care of those who put their lives in your hands.

Since the beginning of cave diving, there have been several accidents and fatalities in the area over the years, apart from cave diving accidents. The following are the most relevant cases related to cenote dive experiences:

1

Cenote Calavera
August, 1995

A divemaster from the Cozumel area, with no cave diving training, took a group of 7 divers to the cenote for a cavern tour. The divemaster took the divers through a section of the CAVE line known as "El Pasaje de la Madonna," far beyond the limits of natural light and away from the cavern line. The divers became stressed, the group split up and three of them ran out of air before reaching the exit.

2

Cenote Chac Mool
April, 2012

A couple of certified divers were taken on a cenote tour by a local guide with cave diving training who worked for a dive operator in the area. After making two dives in another cenote that same day, the guide took the couple on a third dive to Cenote Chac Mool where, without refilling or changing his own tanks, he took them to one of the cenote lines and got them away from that line to show them another chamber or passage already in the cave zone. The guide and the couple were found drowned next to the cave line, far away from the cavern area. Apparently, they all got disoriented and followed the wrong line in the wrong direction.

3

Cenote Dos Ojos
2015

A certified diver rented tanks from a local store and borrowed equipment from a friend to execute his suicide in the Dos Ojos main diving area. He entered the cenote area very early in the morning, using a single tank, with the simple action of paying his way into the site. This person posted messages and images on social networks of the moments prior to the execution of his plan. Since this incident, the Cenotes Dos Ojos administration has implemented very strict rules for access of divers to the park.

4

Cenote Calavera
March 2016

A second improvised dive, after a long dive at Cenote Dreamgate. A cenote guide from an established local store in Tulum, decided to take her group of 3 certified divers to Cenote Calavera. What we can tell from the video recorded on the victim's camera is that the guide completely ignored the golden line marking the cavern diving area and passed underneath it as did the other three divers following her with single tanks. She led the group directly through passages with no guideline and well beyond the daylight zone. With no guideline reference to indicate the exit and the effect of poor visibility resulting from intense percolation as well as poor propulsion techniques applied by the divers, the group became separated. The guide went out alone. Two divers from the group were found alive by a cave instructor who fortunately happened to be on site at the time. The third diver of the group was found dead in a passage far away from any guideline until the next day, after an extensive search.

It is also important to mention a couple of cases of open water activities and recreational training in cenotes:

1 Cenote Kaan-Lum (lagoon) 2018

An open water instructor conducting the third training dive of the day momentarily lost sight of one of her two students as she reached the surface. Apparently, the diver did not inflate her BCD upon surfacing and suddenly lost consciousness. She sank and drowned. Possibly some unknown or sudden medical condition could have been the factor that caused the unconsciousness, but that does not explain the lack of positive buoyancy at the surface under the instructor's supervision.

2 Cenote Manati (Casa Cenote) 2018

A group of 10 untrained discovery divers were taken to the cenote on a rainy day, after several days of heavy rain. The current was visibly too strong for any diving activity. These conditions were ignored by the instructors and guides in charge of the group. At the time of the return, one of the guides and two of the divers did not surface in time and were sucked by the current into the cave that flows into the sea. With great effort, the guide and one of the divers managed to return against the current and surface. The third diver was not as lucky and died in the attempt. The body was found the next day, after an extensive search, in a hole in the ceiling of the cave, less than 30 meters from the exit to the ocean. Apparently, the victim ascended in search of air in complete darkness.

Some interesting incidents:

1. A local cave instructor encountered a novice guide followed by a group of recreational single tank divers in the cave entrance area of Cenote Tajma-Ha. The guide was looking for the cavern line in the downstream area of the cave and was guided by the instructor to the cave exit. The guide was sent by the dive store with clients to a cenote he did not know.
2. A cenote guide who did not know Cenote The Pit was sent by the dive store, even though it was known that the guide did not know the dive site, with a group of 3 recreational divers. The guide was clearly nervous, very stressed and under a lot of pressure.
3. A local cavern guide took a group of three divers to the Cenote Dreamgate. One of the divers was using double tanks and apparently did not have the proper training for it, plus he was trying to use an underwater propulsion vehicle. A local cave instructor found them in a notoriously unstable condition. He asked them to leave the site and the event ended in a very unpleasant xenophobic racist argument.
4. Some of the local dive operators send their cenote guides to do two cavern dives in cenote Tajma Ha. Generally, due to the bad practices of the guides, one of the dives turns out to be in the cave area with visual line jumps.
5. A local guide from Tulum has been repeatedly accused of sexual assaults during his dives. Unfortunately, the victims have never filed formal complaints. However, that guide has been banned from some cenotes for a while, with the condition of being under observation.

A Final Positive Comment

The number of recreational divers in cenotes is large and growing year after year. Our tourist destination has become a goal for many divers from all over the world to visit for its unique conditions and beauty. Nowadays, serious cases of guide misbehavior are becoming less common and attitudes have also evolved. Guides taking divers away from the lines are now seen as irresponsible and reporting such behavior has become the responsibility of the guides themselves. Guides have spontaneously become their own police and more and more reports of guides applying bad practices are being found. The expectations of this manual go in the direction of encouraging the development of pride in being ethical, responsible, and safe guides.

Cenote dive guides should always be conscientious that the divers they are guiding may be doing this type of dive for the first time, regardless of their level of training or experience. The guides have the privilege of leading them into this unique environment for perhaps, the first time and this bears a great responsibility to provide them with a safe experience. Because of the type of dive and the environment's rarely changing conditions, the guides can get bored of seeing the same site hundreds of times and that is why it is so important for them to remember:
THIS DIVE IS FOR THE SATISFACTION OF THE PARTICIPANT AND NOT FOR THE GUIDE WHO LEADS IT.

As cave divers, we have a responsibility to the entire diving community to prevent accidents and to maintain the credibility and positive perception of the activity by both the authorities and the general public.

RECOVERY PROTOCOLS

In the event where a diver is lost in the cavern and the initial search is unsuccessful, recovery procedures must be implemented. The following is a list of responsibilities that must be addressed at the scene of an accident.

- Close access to the entrance of the cenote.
- Contact officials who may legally be in charge of the scene, as well as the owners of the cenote.
- Contact the nearest rescue divers who have training in conducting a search and recovery dive that follows the protocols for search, body recovery, data collection, as well as preservation and documentation of evidence. It is important to leave all related equipment on site and report the information to the recovery team handling the case.
- Establish a command post and do not allow access until search and rescue divers arrive.
- Limit access only to divers, officers, ambulances, etc.
- Only the officer in charge will speak to the press.
- Locate and identify all persons who may be witnesses or may have information regarding the situation or who may be able to assist in the situation.

DOCUMENTATION

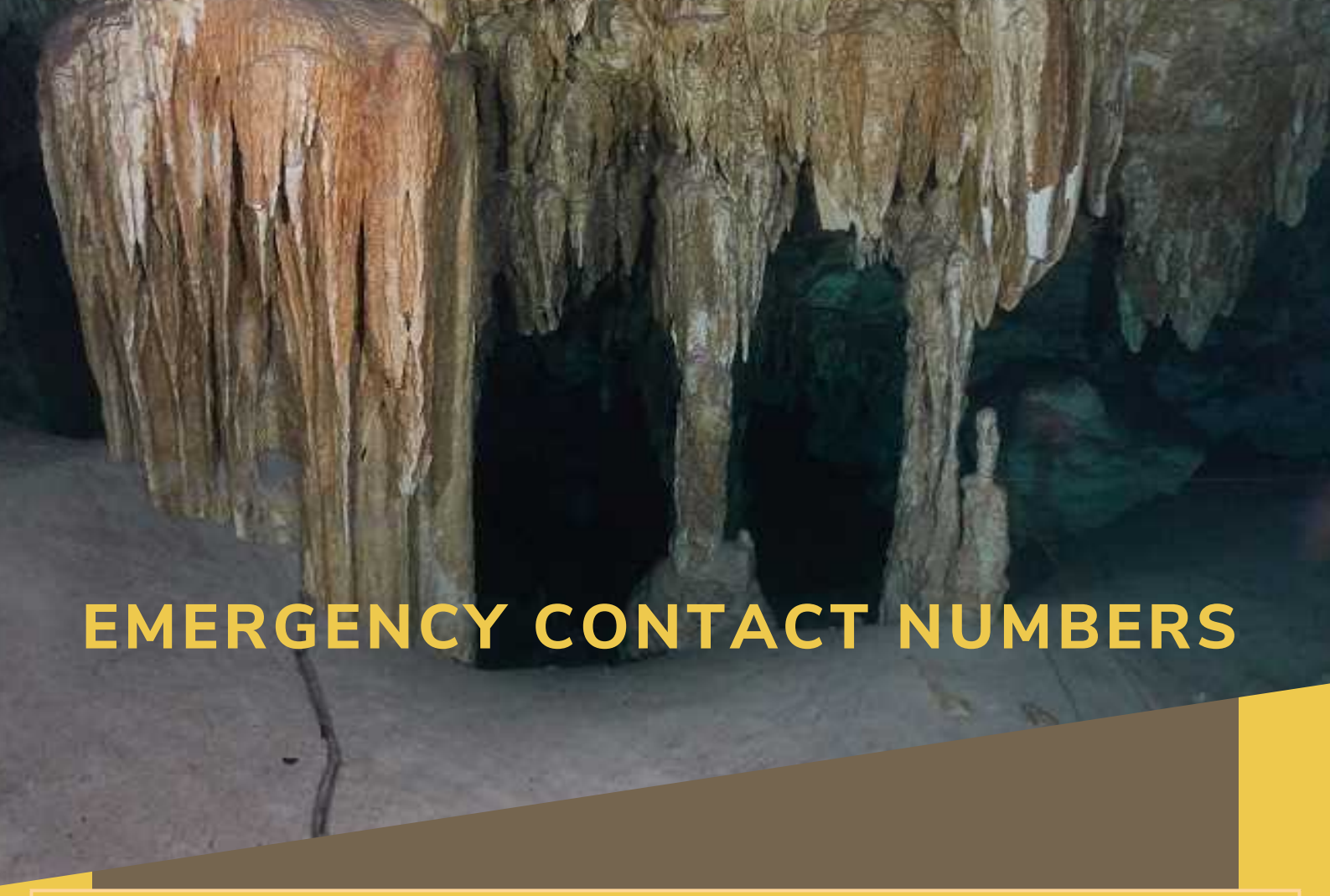
All accidents or incidents should be properly documented and reported. The incident and accident report form is located in the appendix of this workbook. The form is to be completed and submitted to CREER (Comité Regional de Espeleobuceo, Ecología y Regulación) so that incidents can be documented for future accident analysis.

Appendices


GLOVE

LIST OF APPENDICES

- Emergency contact numbers
- Protocol for incident and/or accident emergency
- Protocol for lost diver
- Requirements for certification of active cenote dive guides
- Regional responsibility for diving in overhead environments for the state of Quintana Roo, Mexico. Statement of responsibility (form only available in Spanish)
- Letter of acceptance and commitment to observe the rules for diving in cenotes, principles of ethics and subjection to disciplinary procedure (form only available in Spanish)
- Requirements for the cenote dive guide instructor evaluator
- Letter of responsibility, endorsement, and sufficiency verification for regional cenote dive guides in the State of Quintana Roo (form only available in Spanish)
- Letter of endorsement from a dive business (form only available in Spanish)
- Incident and/or accident report form
- Briefing outline
- Guidelines for skills assessment
- Guide evaluation form (form only available in Spanish)

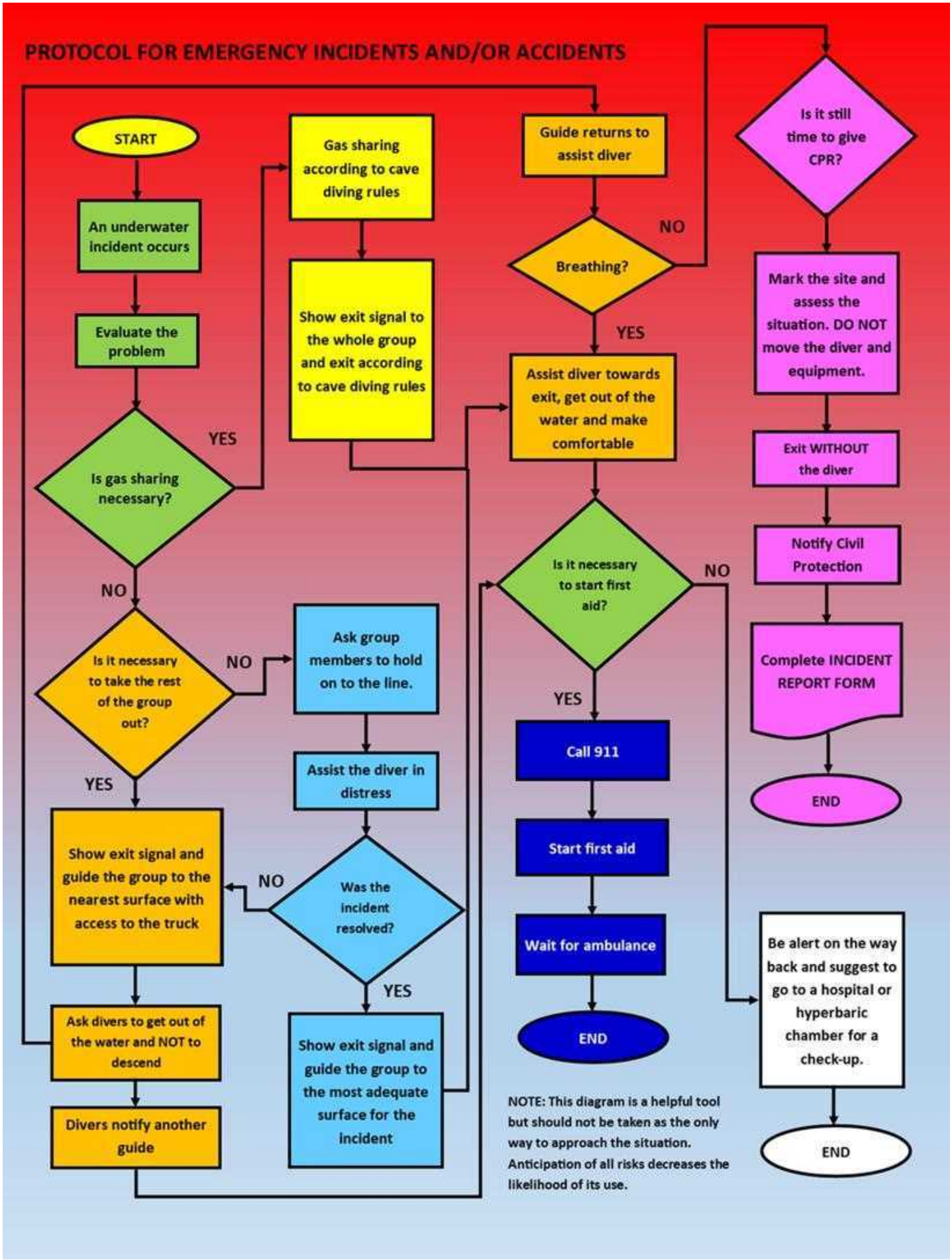


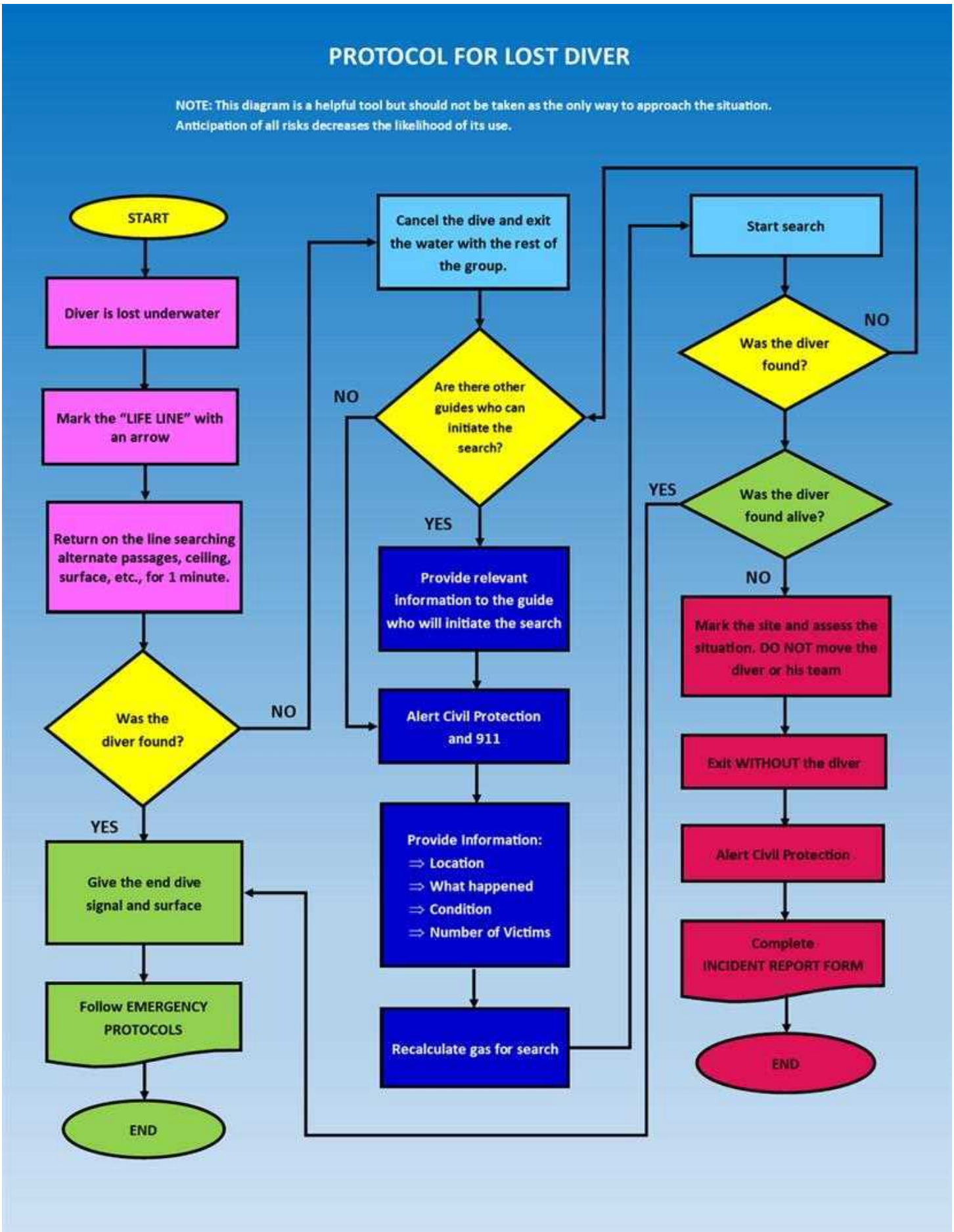
EMERGENCY CONTACT NUMBERS

DIAL 911 IN CASE OF ANY EMERGENCY

Ambulances: (998) 887 2371 / 01 (800) 640 0333
Red Cross Playa del Carmen: (984) 873-1233
Red Cross Tulum: (984) 802-5521
Playa del Carmen - COSTAMED Hospital: (984) 803-7777
Playa del Carmen - General Hospital: (984) 873 0314
Tulum - COSTAMED Hospital: (984) 124-0830
Tulum - General Hospital (984) 871 2271 / (984) 222 2645
Akumal - Medical Center: (984) 138-6565
Akumal - Medical Center - Ambulances: (984) 876-2250
Cozumel - COSTAMED Hospital: (987) 872 9400
Cozumel - General Hospital: (987) 872 5192
Municipal Police: (984) 871 2055
Civil Protection: (984) 871-2688

Hyperbaric Chamber - Playa International Clinic:
(984) 873-1755, (984) 151-7583
Hiperbárica Riviera Maya - Playa del Carmen: (984) 803 4981
COSTAMED Hyperbaric Chamber - Cozumel: (987) 872 5050
Cozumel International Hospital - Hyperbaric Chamber:
(987) 872 1430
DAN World - Divers Alert Network Emergency Assistance
Latin America & Caribbean: (+1) 202-470-0929 (English),
(+52) 55-8421-9866 (Español)
DAN Divers Alert Network Emergency Assistance:
(+1) 919-684-9111
Firefighters: (984) 879 3669 / (984) 879 3670


PROTOCOL FOR EMERGENCY INCIDENTS AND/OR ACCIDENTS
START
An underwater incident occurs
Evaluate the problem
Is gas sharing necessary?
YES
NO
Gas sharing according to cave diving rules
Show exit signal to the whole group and exit according to cave diving rules
Is it necessary to take the rest of the group out?
NO
YES
Ask group members to hold on to the line.
Assist the diver in distress
Was the incident resolved?
NO
YES
Show exit signal and guide the group to the nearest surface with access to the truck
Ask divers to get out of the water and NOT to descend
Divers notify another guide
Show exit signal and guide the group to the most adequate surface for the incident
Guide returns to assist diver
Breathing?
NO
YES
Assist diver towards exit, get out of the water and make comfortable
Is it necessary to start first aid?
NO
YES
Call 911
Start first aid
Wait for ambulance
END
Is it still time to give CPR?
Mark the site and assess the situation. DO NOT move the diver and equipment.
Exit WITHOUT the diver
Notify Civil Protection
Complete INCIDENT REPORT FORM
END
Be alert on the way back and suggest to go to a hospital or hyperbaric chamber for a check-up.
END
NOTE: This diagram is a helpful tool but should not be taken as the only way to approach the situation. Anticipation of all risks decreases the likelihood of its use.


PROTOCOL FOR LOST DIVER
NOTE: This diagram is a helpful tool but should not be taken as the only way to approach the situation.
Anticipation of all risks decreases the likelihood of its use.
START
Diver is lost underwater
Mark the "LIFE LINE" with an arrow
Return on the line searching alternate passages, ceiling, surface, etc., for 1 minute.
Was the diver found?
NO
YES
Give the end dive signal and surface
Follow EMERGENCY PROTOCOLS
END
Cancel the dive and exit the water with the rest of the group.
Are there other guides who can initiate the search?
NO
YES
Provide relevant information to the guide who will initiate the search
Alert Civil Protection and 911
Provide Information:
⇒ Location
⇒ What happened
⇒ Condition
⇒ Number of Victims
Recalculate gas for search
Start search
Was the diver found?
NO
Was the diver found alive?
YES
NO
Mark the site and assess the situation. DO NOT move the diver or his team
Exit WITHOUT the diver
Alert Civil Protection
Complete INCIDENT REPORT FORM
END

Requirements for certification for active cenote dive guides

1. Copy of diving credential with minimum level of Divemaster, Monitor, Three Star or equivalent, or active Instructor. Proof of renewal or upgrade must be added.
2. Copy of Speleodiving credential with minimum level of Cave, Full Cave, Cave II or equivalent.
3. Copy of official identification (voting card or passport) that accredits the guide as Mexican. Foreigners must present copies of the migratory document that allows them to work in the country in diving activities (not immigrants with residence) or in the case of immigrants or immigrants their quality as such.
4. OW Sidemount certification in case of using that configuration.
5. Current first aid and CPR certification.
6. Current oxygen provider certification.
7. Diving medical insurance (DAN or similar).
8. Have at least 6 months experience as a full cave and cavern guide accredited through local cave instructor letter or previous accreditation.
9. Have at least 6 months of legal residence in Quintana Roo.
10. Copy of updated proof of address that accredits them as residents in the state of Quintana Roo. The name of the interested party must appear.
11. Letter of endorsement from a cave instructor belonging to the directory of evaluating instructors of the the Comité Regional de Espeleobuceo Ecología y Regulación (CREER). In this letter the evaluating instructor endorses the requirements established by the Committee and accredits that the guide knows perfectly well the rules of diving in cenotes accepted in the region, as well as the safety procedures, general principles of rescue and emergency care, and the quality standards recognized by the local community of cave instructors.
12. Letter of endorsement from a legally operating dive business. In this letter the dive business provides legal and professional support to the guide in order to be authorized to conduct certified divers in the cenotes of the state of Quintana Roo. This letter must be accompanied by a copy of tax registration (alta de Hacienda).
13. Independents must provide a copy of their RFC (Registro Federal de Contribuyentes).
14. Regional responsibility for diving in overhead environments for the state of Quintana Roo, Mexico (form only available in Spanish). This is the legal release form that is authorized and registered with the corresponding regional civil protection authorities.
15. Letter of acceptance and commitment to observe the rules for diving in cenotes, principles of ethics as well as subjection to disciplinary procedure and the recognition of the jurisdiction of the Comité Regional de Espeleobuceo, Ecología y Regulación (form only available in Spanish).
16. Medical Questionnaire.
17. Confirmation of understanding of the contents of the manual.
18. No negative professional record.
19. A recent head shot photo (no more than 6 months old).

Regional responsibility for diving in overhead environments for the state of Quintana Roo, Mexico. Statement of responsibility (form only available in Spanish)

RESPONSIVA REGIONAL DE BUCEO EN AMBIENTES BAJO TECHO PARA EL ESTADO DE QUINTANA ROO, MEXICO

DECLARACION DE ACEPTACION DE RESPONSABILIDAD

Yo _____, de nacionalidad _____, con residencia legal en el Estado de Quintana Roo y con domicilio en _____, con plena capacidad de goce y en ejercicio de mis derechos, así como debidamente consciente de los alcances de este documento, manifiesto:

Que estoy consciente de que el idioma oficial de la República Mexicana es el español y con base en ello firmo el presente documento con plena comprensión de su contenido, por ser este mi idioma, porque lo conozco lo suficiente o porque me fue traducido por una persona capaz y de mi confianza.

Que soy un profesional en actividades de buceo y estoy calificado para la práctica del Espeleobuceo.

Que conozco las reglas internacionales y locales, los límites para cada nivel de certificación, los fundamentos teóricos, las estructuras generales de enseñanza, los riesgos, los principios de seguridad y toda aquella información que pueda resultar importante para la práctica de actividades de buceo con equipo autónomo (SCUBA) en ambientes bajo techo.

Que conozco las regulaciones locales que permiten conducir en estos ambientes a buzos con certificaciones de buceo recreativo.

Que no conduciré por ningún motivo a personas sin certificación de buceo a realizar actividad alguna de buceo SCUBA bajo techo dentro de los límites del Estado de Quintana Roo.

Que no realizare por ningún motivo actividad de buceo alguna bajo los efectos de alcohol o drogas y que no permitiré que las personas bajo mi responsabilidad realicen actividades de buceo en esas condiciones.

Que seguiré los lineamientos y reglas aceptadas regionalmente para este tipo de actividades y me someteré a las decisiones de las autoridades y representantes del Comité Regional de Espeleobuceo, Ecología y Regulación (CREER) sin discusión alguna.

Que asumo la responsabilidad por mi conducta dentro y fuera del agua, así como la de las personas que me acompañen en calidad de su instructor y/o guía de buceo. Todo ello dentro de los límites territoriales del ESTADO DE QUINTANA ROO, MEXICO.

Esta declaración y deslinde de responsabilidades no contradice ni debe considerarse opuesta a los documentos análogos que los buceadores y guías suscriben ante los operadores de buceo, clubes, organizaciones deportivas y asociaciones profesionales especializadas.

Las responsabilidades inherentes al uso y funcionamiento de equipo de buceo y sus accesorios, calidad de aire de los tanques, características y calidad de entrenamiento, instrucción y explicaciones a los participantes, selección de los mismos con base en su nivel de certificación, edad, condición física, etc., continuaran siendo materia de sus específicos deslindes legales y responsabilidad de quienes participan en dichos procesos.

Los responsables de los accesos a los cuerpos de agua y sus dependientes, así como las autoridades federales, estatales, municipales, los miembros de la comunidad de Quintana Roo, los promotores, vendedores, anunciadores y las dependencias oficiales relacionadas con el turismo, la publicidad, la seguridad, la protección civil, el orden y la organización no serán parte de dichos procesos ni parte de dichas responsabilidades.

El guía/instructor deberá cerciorarse de que los procesos que se mencionan están cubiertos y las responsabilidades deslindadas, ya que ante la comunidad de Quintana Roo, entidades legales y demás personas mencionadas en este parágrafo, tanto el cómo sus acompañantes, están bajo su entero cargo y responsabilidad.

Este documento se firma a los _____ días del mes de _____ del ano _____ y tiene validez indefinida.

Nombre _____ y apellidos _____

Firma _____

Letter of acceptance and commitment to observe the rules for diving in cenotes, principles of ethics and subjection to disciplinary procedure (form only available in Spanish)

CARTA DE ACEPTACION Y COMPROMISO DE OBSERVACION DE LAS REGLAS PARA BUCEO EN CENOTES, PRINCIPIOS DE ETICA Y SUJECION A PROCEDIMIENTO DISCIPLINARIO

Yo, _____, me comprometo a acatar las siguientes reglas y a conducirme bajo los siguientes principios de ética, aceptándolas plenamente y manifestando asimismo que estoy de acuerdo en sujetarme al procedimiento disciplinario correspondiente en caso de incumplirlas o faltar a los mismos.

REGLAS:

Me obligo a seguir los lineamientos y principios aceptados internacionalmente por las asociaciones de buceo autónomo, así como las aceptadas por la comunidad regional de instructores de cuevas y especialmente las contenidas en el Manual para Guías de Buceo en Cenotes.

Me comprometo a conducirme con respeto en todo momento durante el tiempo de contacto con las personas que bucearan bajo mi responsabilidad, así como con otros guías, instructores, responsables de los accesos a cenotes y demás personas relacionadas con la actividad y con quienes exista una interacción.

Me comprometo a ser un vigilante del cumplimiento de las presentes reglas y principios. Me comprometo también a realizar los reportes correspondientes a las autoridades y comités respectivos cuando sea el caso.

Me obligo a sujetarme a los procedimientos disciplinarios que se establezcan para resolver las quejas, denuncias y reportes por violaciones a las reglas y principios que se contienen en este documento y los análogos relacionados con la actividad. Esta sujeción expresa implica la aceptación de las sanciones que me sean impuestas.

Acepto expresamente no incurrir en conductas como las que se describen en las siguientes prohibiciones:

- queda prohibido que personas sin certificación realicen actividades de buceo con equipo autónomo (scuba) en zonas sin salidas verticales;
- queda prohibido realizar cualquier tipo de entrenamiento o instrucción de aguas abiertas a nivel básico en zonas sin salidas verticales;
- queda prohibido realizar cualquier tipo de entrenamiento o instrucción que comprometa la conservación del medio ambiente y la seguridad;

- queda prohibido realizar buceo en las zonas bajo techo sin los procedimientos de seguimiento de línea guía;
- queda prohibido asimismo bucear en las zonas bajo techo fuera de las zonas de línea guía;
- queda prohibida cualquier practica de buceo en cenotes, contraria a lo establecido por el presente manual, así como otras que establezca la comunidad local de instructores de cueva (Comité Regional de Espeleobuceo, Ecología y Regulación);
- queda prohibido conducir buceos con personas que no hayan recibido las indicaciones de conducta para el tipo de buceo que van a realizar con claridad y precisión antes de la inmersión;
- queda prohibido que los guías utilicen cámaras fotográficas cuando se estén desempeñando como tales;
- queda prohibido realizar actividad de buceo alguna bajo los efectos de alcohol o drogas;
- queda prohibido conducir personas que se detecta que sean bajo los efectos de alcohol o drogas

Nombre y firma

Lugar y fecha

Requirements for Cenote Dive Guide Instructor Evaluator

- Have had experience as a cavern and cave guide for at least 5 years.
- Have had experience as a full cave instructor or equivalent for at least 5 years in the region in a legal manner (proper migratory status), as well as having given at least five full cave courses or more advanced levels in the last two years.
- Full knowledge of cavern lines and dive sites.
- Active teaching status within one of the recognized agencies.
- Have an acceptable command of Spanish and a second language.
- Proficient in the techniques of back mount and side mount configurations.
- Have "sidemount instructor" level.
- Sign a specific acceptance of responsibility form.

Letter of responsibility, endorsement and sufficiency verification for regional cenote dive guides in the State of Quintana Roo (form only available in Spanish)

CARTA RESPONSIVA, DE RESPALDO Y DE COMPROBACION DE SUFICIENCIA PARA GUÍAS REGIONALES DE BUCEO EN CENOTES EN EL ESTADO DE QUINTANA ROO

Yo, _____, de nacionalidad _____, con domicilio en _____
Por derecho propio y como Instructor Evaluador en el Comité Regional de Espeleobuceo, Ecología y Regulación (CREER), residente en el Estado de Quintana Roo manifiesto:

Por el presente conducto y a nombre propio, otorgo respaldo técnico y profesional a _____ para que realice la conducción de buzos certificados en los cenotes del estado de Quintana Roo. Todo ello de conformidad con su nivel técnico y bajo los limites profesionales del mismo.

Asimismo declaro como miembro activo y experimentado de la comunidad de Espeleobuceo regional, así como conocedor y especialista en esta materia que esta persona se encuentra plenamente calificada para conducir a buceadores certificados a realizar inmersiones en cenotes.

Para lo anterior manifiesto bajo protesta de decir verdad:

- que el candidato haya realizado 20 inmersiones en cuevas después de su formación;
- que he comprobado su forma de conducirse con las personas a su cargo, su actitud ética y los márgenes de seguridad profesional con los que se desempeña;
- que me he cerciorado que dicha persona conoce lo suficiente las líneas guía y zonas de buceo de los sitios a los que llevara buceadores;
- que posee la información necesaria y habilidades de comunicación para proporcionar un discurso preparatorio de buceo (“breviario”) para cada caso específico;
- que conoce perfectamente, acepta, respeta y sigue las reglas del buceo en cenotes reconocidas en la región;
- que conoce acepta, respeta y sigue los procedimientos de seguridad y prevención de accidentes;
- que conoce y acepta el protocolo regional de atención de emergencias en cenotes;
- que conoce, acepta, respeta y sigue los estándares de calidad, código de ética y procedimientos disciplinarios reconocidos por la comunidad local de instructores de cueva;
- que conoce, acepta y ha firmado el deslinde de responsabilidad regional correspondiente.

_____ Nombre y firma

_____ Lugar y fecha

Letter of endorsement from a dive business (form only available in Spanish)

CARTA RESPONSIVA DE RESPALDO DE UN NEGOCIO DE BUCEO

Autoridades y/o representantes del
Comité Regional de Espeleobuceo, Ecología y Regulación.
P R E S E N T E S,

Yo, _____, de nacionalidad _____, con domicilio en _____, en representación del negocio de buceo denominada _____, lo cual acredito con _____, manifiesto:

Por el presente conducto y como representante de este negocio, otorgamos respaldo legal y profesional a _____ para que le sea autorizada la conducción de buzos certificados en los cenotes del estado de Quintana Roo. Todo ello de conformidad con su nivel técnico y bajo los limites profesionales del mismo.

Asimismo, declaro en nombre del negocio que represento que _____ conduce habitualmente a nuestros buceadores certificados a realizar buceos de cenotes (en las zonas de caverna o cueva en su caso), que conocemos su forma de trabajo, su actitud ética y los márgenes de seguridad profesional con los que se desempeña, sobre todo durante las actividades de buceo en ambientes bajo techo.

De la misma manera manifiesto que este negocio acepta ser corresponsable por cualquier evento que pudiera ocurrir dentro y fuera del agua, relacionado con las actividades de buceo en cenotes en las que _____ participe y por quien sean conducidas. Esta corresponsabilidad implica todos los aspectos legales que pudieran devenir por acciones u omisiones del guía durante su desempeño y como persona responsable ante los propietarios de los cenotes participantes, incluyendo lesiones o muerte de guías, buceadores a su cargo o personas que los acompañen. Esta corresponsabilidad se extiende también a posibles daños en las instalaciones o en las zonas que se visiten dentro y fuera del agua.

Este documento libera a todos los cenotes, a sus representantes, a sus miembros y a sus trabajadores, de la responsabilidad por cualquier eventualidad que pueda ocurrir por acciones u omisiones de _____ durante su presencia y la de sus dependientes en cualquiera de los cenotes.

_____ Nombre y firma

_____ Lugar y fecha

INCIDENT AND/OR ACCIDENT REPORT FORM

Please take your time and fill out this form after any incident or accident. The content of this form is confidential and will be used for accident analysis.

Report made by: _____
Witnesses: _____
Persons involved in aid or rescue: _____
_____
Activity: _____
Date: _____ Time: _____
Dive site: _____
Maximum depth: _____
Dive time at the time of the incident and/or accident: _____
Guide: _____
Certification: _____
Contact information: _____
Number of victims: _____
Name(s) of victim(s): _____
_____
_____
_____
_____
Age: _____ Gender: _____
Nationality: _____
Level of Certification: _____
Date of Certification: _____
Amount of dives: _____
Physical condition: _____
Contact information: _____
Medical and/or diving insurance: _____
Own or rental equipment?: _____

Commments:
_____
_____
_____
_____
_____
_____
_____
_____

BRIEFING OUTLINE

DIVE SITE NAME

- Interesting facts or stories behind the name
- Specific characteristics above and below water

DIVE SITE ORIENTATION

- Facilities (bathrooms, dressing rooms or lack of them)
- Set-up areas
- Prohibited areas
- Conservation (no littering, no insect repellents or sunscreens)

ENTRY AND EXIT PROCEDURES

- Recommended techniques and places to enter and exit the water.
- Reasons for recommended procedures

DIVE DESCRIPTION AND PROCEDURES

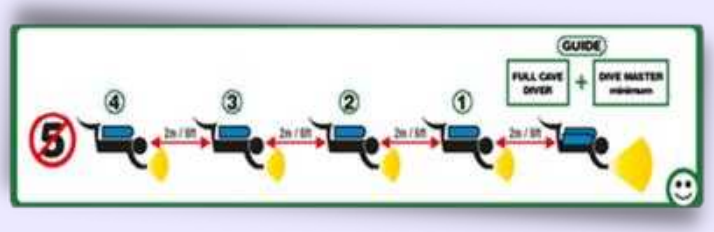
Before entering the water

- Map (if available)
- Layout - topography, depth, natural features, formations
- Conditions (current, visibility, temperature)
- Points of interest
- Maximum depth/time
- Safety stop
- Finning techniques
- Diver sequence
- Inform divers that, as a guide, you are not allowed to take pictures or videos during the cenote dive.

In the water

- Bubble check
- In-water equipment check
- Buoyancy check
- Calculation of return limits

BEHAVIOR AND SEQUENCE OF PARTICIPANTS



- 4 divers per guide maximum (depending on site and conditions)
- Divers form a single line behind the guide keeping close together (2m/6ft).
- Divers stay close to the guideline (no more than one arm's length away).
- No pulling on the guideline
- Establish sequence of divers

COMMUNICATION

Light signals

Each diver must have a light that remains on during the entire dive.

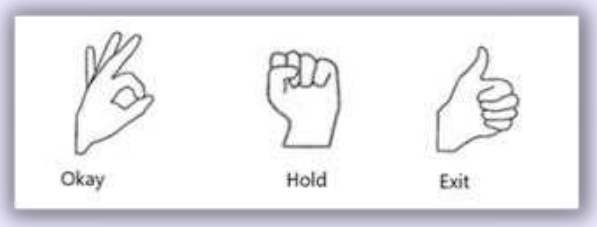
- **OK:** The OK signal is a command signal and MUST be responded to in the same manner as it is received.
- **ATTENTION:** Slow up and down movement (explain how to get your attention).
- **EMERGENCY:** Fast back and forth movement (for emergencies such as an out of air situation).

When not using the light for signaling divers should keep the light in their hand avoiding any rapid movement.

Hand signals

Command signals:

- Okay
- Hold
- Exit (call the dive)

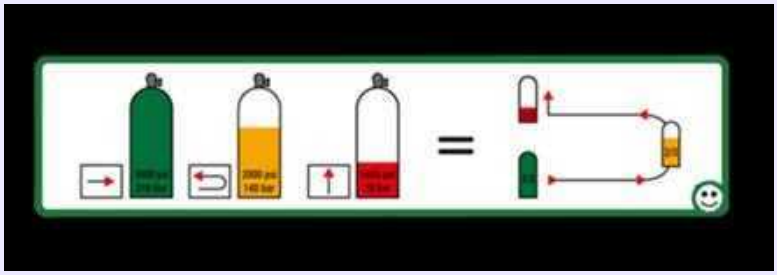


- These signals require the same response and should be repeated.
- Explain to the divers that during a cenote dive an indisputable agreement is established within the group that any diver may call (end) the dive at any time and for any reason and all divers must exit.
- In case a diver calls the dive the guide will confirm the signal and lead the group to the nearest surface/exit. The problem will be discussed/solved at the surface/exit.

Other open water signs to review:

- Problem
- Low on gas
- Out of gas
- Turn around
- Cold
- Look

GAS MANAGEMENT



Cavern diving uses the "rule of thirds."

- 1/3 to enter
- 1/3 to exit
- 1/3 reserve to share or use in case of emergency

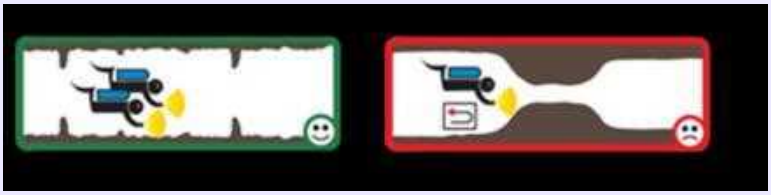
Explain how divers should get your attention to alert you when they have used their first 1/3 (reached 140 bar / 2,000 psi).

Note: Participants must have left the overhead and be in open water with no less than 60 bar / 900 psi of gas in an 11 liter cylinder.

BUOYANCY AND TRIM

- Buoyancy control is the key to good and safe cenote diving
- Divers maintain a horizontal position at all times, preventing legs and fins from dropping and stirring up sediment from the floor
- Divers use frog kicks to push the water to the sides and not to the ceiling or floor

NO RESTRICTIONS



The lines in the caverns are set up so that there are no restrictions on the path and, at all times, there is room for at least two divers to dive side by side.

CAVERN LIMITS

- Stay close to the guideline and maintain a visual reference to it at all times
- STOP - the stop signs mark the boundary of the cave area and should not be passed. Passing these signs takes you into the cave area, which is extremely dangerous without proper cave training and equipment

GENERAL RULES TO BE FOLLOWED

- No knives, gloves or snorkels
- Make sure no equipment is dangling
- Do not grab or pull on speleothems.
- Do not collect speleothems that are on the ground.
- Do not mark on speleothems, other rocks and formations or sediment.

Final note to the participants:

Leave the cenote as you found it. Take only memories with you, kill only time and leave nothing but bubbles!!

GUIDELINES FOR SKILLS ASSESSMENT

ASSESSMENT OF SKILLS IN OPEN WATER

Candidates will spend a minimum of 1 hour in open water to demonstrate that they possess the level of skill and competence necessary to qualify as a Cenote Dive Guide. This session includes an evaluation of:

- Suitable equipment as described in the manual equipment and configuration section
- Safe entry and exit
- Pre-dive safety checks
- Buoyancy/posture
- Propulsion techniques
- Hoovering
- Equipment handling
- Gas/valve management
- Gas sharing techniques
- Use of reels/guideline
- Stress circuit that includes but is not limited to:
  - No mask
  - No visibility
  - Gas sharing
  - Gas sharing/no visibility/touch contact

RESCUE SCENARIO

This session in open water is designed to teach rescue skills that are not normally practiced during a cave course. The session will include

- Swimming underwater with an unconscious diver
- Ascend to the surface with the victim

GUIDED CENOTE DIVE ORIENTATION

Candidates will visit and dive a minimum of 2 different sites in the cenotes diving area under the supervision of an evaluator. Candidates will review and demonstrate:

- General briefing
- Site briefing
- Equipment check and pre-dive procedures
- Cenote dive simulation
- Reel handling in the cenote area that does not have a permanent line (if a line exists, a line should be placed next to it).

EVALUATION OF THE CENOTE DIVE SIMULATION

Candidates will be evaluated on their ability to perform various aspects of a simulated cenote dive. This will include

- General Briefing
- Site Briefing
- Equipment check and pre-dive procedures
- Cenote dive simulation
- Control of participants
- Emergency procedures

DIVE LOG

All dives and in-water training sessions must be documented and signed by the instructor(s) conducting the evaluation.

Guide evaluation form (form only available in Spanish)

FORMULARIO DE EVALUACIÓN DE GUÍA

Nombre: _____ Apellido _____
Fecha de inicio: _____ Fecha de finalización: _____
Nombre del instructor/evaluador: _____

Nota: Para calificar como guía de buceo en cenotes el candidato debe obtener un promedio mínimo del 80% sobre el 100% de la evaluación teórica y de aguas abiertas.
Los candidatos que reciban un estatus PROVISIONAL pueden ser requeridos para completar sesiones de entrenamiento adicionales o asistir a otro guía durante un cierto número de inmersiones.

EVALUACIÓN DE LAS HABILIDADES EN AGUAS ABIERTAS	**PUNTUACIÓN**
Equipo adecuado como se describe en Equipo y Configuración	
Entrada y salida seguras	
Controles de seguridad previos al buceo	
Flotabilidad / Postura	
Técnicas de propulsión	
Flotando estático	
Manipulación de equipos	
Manejo de gas / válvulas Técnicas para compartir gas	
Uso de carretes / línea guía	
Circuito de estrés: (Sin máscara, sin visibilidad, compartir gas, compartir gas sin visibilidad, contacto táctil)	

ESCENARIO DE RESCATE	**PUNTUACIÓN**
Nadar bajo el agua con un buceador inconsciente	
Ascender a superficie con la víctima	

EVALUACIÓN DEL SIMULACRO DEL BUCEO EN CENOTE (PRIMER SITIO DE BUCEO)	**PUNTUACIÓN**
Breviario general	
Breviario del sitio	
Revisión del equipo y procedimientos previos al buceo	
Simulacro de buceo en el cenote	
Manejo del carrete en la zona de experiencia de buceo en el cenote que no tiene una línea permanente (si existe una línea, se debe colocar una línea al lado)	

EVALUACIÓN DEL SIMULACRO DEL BUCEO EN UN CENOTE (SEGUNDO SITIO DE BUCEO)	**PUNTUACIÓN**
Breviario general	
Breviario del sitio	
Revisión del equipo y procedimientos previos al buceo	
Simulacro de buceo en el cenote	
Control de Participantes	
Procedimientos de emergencia	

PUNTUACIÓN TOTAL _____

Cave diving is more than a sport or a simple extreme activity. It is the maximum achievement of precision in underwater navigation. It is the ideal equilibrium of the breathing control and the finest forms of movement. It is the mastering of skills and the discipline of following procedures and protocols. It is also meditation. It is the team work on its highest level. It is telepathy. It is natural choreography. Synchronicity. It is the harmony of light breaking darkness. It is dance. It is poetry... it is perfection.

It is the art of diving flooded caves."

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