

## Awareness: Recipe For Successful Cave Navigation Aufmerksamkeit \*): Rezept zur erfolgreichen Höhlen-Navigation

By Daniel Riordan \*)

Imagine yourself driving down a one-way street, when suddenly you come to an intersection. Knowing that you will have to retrace your steps to get home, would you turn the street signs around, so that the arrows point in the direction of your way home, thus offering you an orientation marker for when you return to this intersection? Of course not, you would pick up bits & pieces of information that would help you remember this area, so that when you returned to it you would be able to recognize it and know how to proceed.

The same thing holds true for cave diving. Whenever you come to an intersection or choose to change direction, you should not alter the cave's permanent navigational markers; instead, you should orient yourself and your team to them. To navigate successfully several things should be taken into consideration: **team work, proper use of line markers (directional and non directional), correct line following techniques, and diligent information gathering**. In the end, when these items are reviewed, you will see that it all boils down to having proper awareness in an environment that allows little, if any, room for mistake.

The most important piece of equipment you have as a cave diver is located inside your hood. That's right; your brain.

As a result, your buddy provides you with the most important redundancy there is, a second brain, and an entire different perspective with which to address the challenges of the cave environment. Nonetheless, the concept of teamwork has been misunderstood, as some divers cannot visualize how a cave diver can be both self sufficient and a working member of a team with his/her own responsibilities. However, I fail to see the problem. **In a well-conceived team, team members do not burden each other, rather, they compliment and assist each other**. In the case of cave navigation, all team members should be aware of the direction of travel as well as of each others position. If any team member should notice anything strange or unplanned, they should immediately communicate it to the rest of the team and decide on the appropriate action.

In the case of cave systems with only one opening, line arrows will always take you back to the place you entered. However, in cases of cave systems with multiple openings, like in Mexico, line arrows may not be pointing to your entry point, instead they will be pointing to the nearest air source. Sometimes this may not even be an exit, as in the case of domes with breathable air. As you swim along a tunnel, you may feel uncomfortable not seeing any permanent line markers that will assist you in getting out of the cave system. At that point you may decide to place one on the line. Any time a marker is placed, you should be able to answer two questions:

- 1) Will this marker help me establish the direction I am coming from?
- 2) Is this marker altering the general navigation of the system? Obviously, the answers should be yes for 1) and no for 2), respectively.

Too often, cave divers venture into cave systems without proper line markers. A correct complement of line markers should include at **least three directional markers** (arrows) and **three non-directional markers** (cookies, clothespins). As permanent

line arrows always point to the closest air source, any time you place one you should be very careful, since it may be altering the general navigation of a system. In contrast, a non-directional marker simply indicates your team's presence in the system and is a marker useful for you and your team only. Very often we see situations in which teams add a line arrow to a permanent intersection (T or Y) that is already marked by permanent line arrows. This creates confusion not only for that team, but also for other teams diving concurrently in that area. To avoid this kind of confusion, non-directional markers should be used at intersections or in areas where the direction of the arrows have changed. **Furthermore, it is important to remember to remove all personal markers placed during the dive as the team exits the cave.** Not doing so can create confusion for future dives because the cave system will end up with too many markers. If used properly, line markers will leave no room for confusion even during complex navigation dives, making cave diving safer even with multiple teams diving the same location.

Let us return for a moment to our earlier driving analogy and imagine that we are driving on a four-lane road, when suddenly we find ourselves on a two-lane road. Such a change might indicate that somewhere along the way you accidentally made a wrong turn. This can also be the case in cave diving. If you are swimming along a passage marked by yellow kermantle line and suddenly you realize that you are following a #21 twisted white line, this might indicate that you have made a mistake and have wandered off your original passage and onto another line. Hopefully, you will catch this mistake in time and fix it accordingly.

Permanent lines in a cave provide divers with much more than simply a means of swimming through it. Lines indicate the general area where the cave goes, laid as it is by experienced cave divers. Whenever following a line, you should be looking ahead, trying to figure out where the passage is taking you, so you can anticipate what is coming ahead and adjust your buoyancy and propulsion techniques accordingly. Proper distance should be kept between your body and the line for two important reasons:

- 1) In case of silt getting disturbed from the cave floor (or ceiling) visibility will drop rapidly,
- 2) By staying close to the line you are enforcing good cave conservation techniques, since the area being visited (and damaged) will be limited to only specific areas.

As you navigate through a cave, you should be picking up as much information as possible. Remember that caves will always be "giving" you information and it is your responsibility to pick it up as you are swimming. The way you gather this information can be either in written form, recorded in your UW notes or in the form of a memory. If you are wondering what type of information the cave is giving you, **you need to increase your level of awareness, as this information is vital for a safe navigation.**

Such information would include: **depth (maximum, current & average), gas used to a certain point, markers on the line, distinctive cave features, line being followed (type, color & size), time to get to a certain area,** etc.

You must also remember that visual references may not always be available upon your exit; a drop in visibility or limited light may render them valueless. Another reason for gathering information is for mental comfort. It is very reassuring to see known features upon your exit. You must remember that the more information you gather

during your entrance, the better decisions you will be able to make, if necessary later, with the result that your experience in the overhead environment will be a safer one.

As you gain more experience in the overhead environment, your level of awareness will increase. **This is one of the reasons that penetrations into new systems should be done gradually, giving divers the opportunity to get familiar with the cave.** Being lost inside a water-filled cave will be highly stressful, but it is a situation that is easy to prevent. By expanding your awareness you make your dives safer, giving you more time to enjoy the environment you are visiting.

©DirQuest Vol. 3, No. 2 - Summer 2002

*\*) Awareness (wörtl. übersetzt: mentales Bewusstsein) bezeichnet im Englischen eine auf einen bestimmten Zweck ausgerichteten Aufmerksamkeit, zum Teil auch mit Lernbereitschaft, mentaler Aufnahmebereitschaft gleichgesetzt.*

*Man meint damit das bewusste, nicht zufällige Aufnehmen von Informationen zum Zweck der gezielten Wiederverwendung.*

*\*\*\*) Daniel Riordan ist ein bekannter Höhlentauch-Instructor und -Guide an der Riviera Maya in Mexico und auch aktiv an diversen Erforschungsprojekten beteiligt.*