

BRIDGING THE EXPERIENCE GAP: TECHNIQUES FOR REDUCING THE STRESS OF ZERO VISIBILITY TRAINING

Steven H. Sellers
Diving Safety Officer I
East Carolina University
Greenville, NC 27858-4353

Zero visibility diving may be the most stressful activity that the vast majority of divers ever experience. When zero visibility conditions are encountered, even seasoned clear water divers may find themselves stressed to the point that they must terminate the dive. Some training techniques useful in preparing divers for the zero visibility environment emphasize composure, others have more emphasis on problem solving abilities while still employing stress. Techniques are available which will aid in the training process while reducing the stress element. Designed to be conducted with supervision in a shallow pool, the Zero Visibility Maze and associated techniques, offer divers an introduction to the sightless diving environment with a minimum of stress. Unlike an obstacle course, there are no entrapments, entanglements, restrictions or time limits (other than air availability). The divers must solve only minor problems of direction and orientation, while completing a series of objectives. This approach allows divers new to the sightless or extremely limited visibility diving environment time to become acclimatized and aids in developing confidence, tactile and orientation skills.

INTRODUCTION

At some point on the experience curve, divers usually become comfortable with their abilities under a variety of diving conditions. As this happens, the diver may lose contact with the fact that certain skills or conditions were difficult and stressful when first experienced.

As divers become more and more comfortable with specific tasks and conditions, the gulf of understanding widens until they can no longer comprehend another persons apprehension of a given situation. This experience gap produces a variety of reactions. From the view of the inexperienced diver, someone with the ability to function, or in some cases thrive, under conditions they find barely tolerable may be looked upon with awe. The diver with a mastery of certain situations may look on someone less comfortable and wonder: "Will this person ever be able to handle this, or am I going to have to go in and recover the body?"

Both views are flawed, blinded by the experience gap that neither can perceive because of their relative position. The new diver doubts they will ever possess "what it takes"; the experienced diver sees only the gulf between abilities and can not understand why.

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This is one of the challenges of instruction; to bridge the experience gap. To take a person with "minimal diving abilities" (a relative term) and turn him or her into a diver capable of handling almost any situation smoothly, efficiently and safely. This challenge can be formidable under the best circumstances, but the topic here concerns less than optimal conditions.

Zero visibility diving may be the most stressful activity that the vast majority of divers ever experience. It removes the sense most people use to perceive the world and replaces it with a wet blackness where imaginary monsters lurk, waiting and hungry. All those fears of the things that go bump in the night have an avenue into the conscious mind. Without orientation aids, direction becomes only up or down, all other bearing is lost in the murk. Reason can be forced out and the unprepared may find themselves rapidly approaching panic.

Working in zero visibility conditions require divers to rely on senses other than sight for primary information. They must learn to use tactile information and develop the ability to picture in their minds what they feel with their hands and bodies. In many cases the physical structure of the dive site can provide divers the cues necessary to keep track of their position. On sites where physical structure alone is inadequate, the use of a guide line or other introduced navigational aid may be necessary. However, under field conditions, experience has demonstrated that the availability of structure or guide lines will not insure that divers remain oriented. This is especially true for less experienced divers. To aid in the development of these skills there are a variety of approaches which may be utilized.

Some training techniques emphasize composure by placing divers in stressful situations. An example of such a training exercise is the "Regulator Stress Course" employed by Julius Wiggins of the National Academy Of Police Diving, Miami, FL. Other techniques such as the "Zero Visibility Obstacle Course" (Sellers, Scharf 1990) have more emphasis on problem solving abilities while still employing stress. Both of these courses can be effective tools in the training of divers for the zero visibility environment. However, these techniques may require divers to demonstrate composure levels which many do not possess due to limited experience. To reduce the experience gap, other less stressful methods may be employed, thereby allowing divers to ease into zero visibility diving.

The concept of the Zero Visibility Maze and the exercises associated with it were developed for use with the East Carolina University (ECU) program of Maritime History and Nautical Archeology. The Maritime Program attracts participants covering the entire spectrum of diver certification, but most have never experienced zero visibility diving. As a result, the majority of the divers coming into the program do not have the composure or orientation skills required to perform tasks that would otherwise be routine.

Brad Rodgers, Underwater Archeologist with ECU stresses the similarities of the proper movement pattern for zero visibility diving to the slow, controlled movements of *Ti Chi*. This concept appears to be one of the most difficult for divers new to this environment to grasp. Almost without fail, divers inexperienced in zero visibility conditions will move too rapidly and with such heavy handedness that they can be a hazard to themselves and anyone or anything in the water with them.

Slow, deliberate movements must be stressed. As well as paying greater attention to the tactile signals being received from the entire body. A diver experienced with zero visibility conditions, in tune with their body, can identify certain objects as readily with other body parts as they can with their hands. It is as if the entire body becomes an

antenna. This too is a concept that does not come easily to those new to the sightless environment. Couple this inattention with movements too rapid for the conditions and it is no wonder that inexperienced divers becomes disoriented.

Working with the ECU Maritime Program in the field has reinforced the ideas that: To accomplish a specific task under zero visibility conditions, it is essential that the divers know where they are on the dive site and: That the divers require the ability to identify specific items by touch. The use of the Zero Visibility Maze during training can go a long way toward providing divers the background needed to later maximize the time spent working under blackout conditions.

The Training Process

Begin the process of acclimatization/desensitization by blacking out the divers' mask and having it donned in a staging area. While limiting vision may be accomplished by tying something over the mask, a more realistic effect is achieved if a mask with an opaque skirt is modified. Spray painting the faceplate inside and out with several coats of paint will reduce the light coming in considerably; or by removing the faceplate and replacing it with a material such as rigid gray PVC, an effect of total blackness may be achieved. Painting and replacing the faceplate require the dedication of equipment for zero visibility training, an alternate method is to blackout the divers personal mask by covering the faceplate with duct tape. This method will produce the desired effect, but it tends to leave a sticky residue which may not be appreciated.

After vision has been blacked out, have the participants assemble their diving equipment unassisted. This process should be observed to assure it is done correctly. The objective is to insure equipment familiarity and enhance diver confidence. If a mistake is made, inform the person of the mistake and have it corrected. A variation here is to tell the individual that there is a mistake in the way they have assembled their equipment, but not to identify the mistake. The diver must then locate and correct the mistake.

When the divers have correctly assembled their equipment, they are ready for the next task. Give the divers a tactile puzzle to solve. This can be as simple as a series of nuts and washers on a bolt, to be removed and replaced in the same order; or as complex as a child's shape puzzle.

The Playschool shape puzzle is a wonderful challenge under blackout conditions. It consists of 18 different shapes to be placed into a box with 18 matching holes. This puzzle may be completed in less than five minutes (usually by parents of small children) or may be perceived as totally baffling. A hint about the Playschool puzzle; the shapes have a tactile design present on each piece that corresponds to the side of the puzzle on which it belongs.

In addition to the shape puzzle, the divers should be put through a series of item identification exercises both in and out of the water. By handling a variety of common every day articles and items that are project specific, the divers can develop a mental picture of objects they may encounter in the field. The divers may be asked to identify every day articles based on life experience. With more unusual project specific objects, the identifications should be made prior to the divers handling of the items.

Items should be as varied as possible and should include objects which could produce minor physical injury if mishandled. The objective here is not to injure the divers, but to make them aware of the potential for cuts, scrapes or punctures. The

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concept of grasping with a light touch is reinforced by the manipulation of items such as hooks, frayed wire, metal with rough edges, etcetera. The divers should be cautioned before they are given these items to handle. After the divers have completed the item identification orientation they are ready to progress to the Zero Visibility Maze.

Unlike an obstacle course or other higher stress exercise, the Zero Visibility Maze does not require one on one supervision. Spot checks of the divers involved in the drill are usually all that are necessary. For most circumstances, four to six divers are easily supervised by one safety diver. This reduction in supervision requirements translates into larger numbers of participants in a given time period.

A primary purpose of the maze exercise is to allow divers the time to develop and improve personal movement and orientation skills. Therefore, direct contact with the divers by the supervisors should be kept to a minimum. The supervising divers should be instructed to limit their contact with the participants to situations that would be considered a threat of injury, or when an individual is being so heavy handed that they are destroying the maze structure.

As with any underwater activity, the divers and supervisors should be briefed on predetermined emergency and recall signals. When the exercise is conducted in a shallow pool, personnel overseeing the activity are outfitted in snorkeling gear to facilitate ease of movement.

The design of the maze need not be overly complicated, but it is important that the structure be stable. If it is applicable, design the Maze to be similar in structure to what the divers will experience in the field. For example, if a grid will be used on an upcoming dive site, the pattern of the grid should be duplicated as closely as possible. This preconditioning allows the divers to become accustomed with "the feel" of the structure they will encounter.

Set up of a Zero Visibility Maze does not entail a major investment, though the heavy handedness of many divers require the use of taught lines and rigid or semi-rigid materials. Items common to many pools (for example; aluminum benches) may be assembled to provide a recognizable structure. With this established, a series of guide lines overlaid to provide an orientation aid is all that is necessary for the basic maze structure.

For inexperienced divers to receive the maximum benefit from this exercise, the maze should contain easily identifiable landmarks. Features such as distinctive corners, knots, direction indicators, and the use of a variety of construction materials will provide attentive divers the cues necessary to quickly become and stay oriented. Objects similar to those the divers have handled on the surface should be placed at various points throughout the maze. These objects are used for item identification, location exercises as well as orientation aids.

The divers enter the maze by way of decent/ascent lines. The number of entrances, while exercise specific, should reflect what the divers will encounter during field work. They are required to use these lines for ingress or egress.

The divers may be assigned any number of tasks as part of the maze exercise, but the first assignment should always be to explore the maze and become oriented.

Examples of diver tasks may include:

Have the divers draw a map of the Maze before visually inspecting it.

Have the divers list on a slate the objects they encounter.

Have the divers retrieve specific objects from specific locations.

The Grope. Have the divers identify other divers they encounter during the

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exercise.

Show the divers a drawing of the maze and have them follow a specific path from entry to exit.

Place the divers in contact with the Maze at an unknown point and have them locate a specific object or exit point.

Have the divers assemble or disassemble portions of the maze.

Assignments are limited only by imagination, but it is suggested that the progression be from the simple to the more complex. The tasks should reflect what the divers will be expected to accomplish in the field.

CONCLUSION

The Zero Visibility Maze and related techniques were conceived to address specific problems encountered while training inexperienced divers for blackwater and brownwater conditions. The techniques discussed here, while designed for controlled zero visibility sites such as those associated Underwater Archeology, have application to any diver training where zero visibility is a concern. As with any other stressful activity, experience and training under zero visibility conditions are the keys to mastery. No training program is perfect and all training programs should constantly evolve if the needs of the individual diver are to be met. It should be emphasized that the training techniques discussed here, while stressing the development of individual skills, do not profess the elimination of safe diving practices, but are a useful training aid for preparing divers for the zero visibility environment.

LITERATURE CITED

Sellers, S.H. and R.J. Scharf. 1990. Training scientific divers for zero visibility diving, in W.Jaap (ed.), *Diving for Science*.1990, American Academy of Underwater Sciences, AAUS, Costa Mesa, CA.