



# FUNDAMENTALS and SPECIAL TECHNIQUES

Program Guide  
Saturday & Sunday, May 28-29, 1988

This year's focus is on a combination of classroom sessions followed-up by in-field exercises to further develop the special techniques required and encountered by cave divers. Each field exercise begins with a conservation clean-up of the area surrounding the dive site. All activities begin at Branford High School and evening activities include slide and video presentations prepared by Section photographers.

## 8:00 - 9:00 AM Registration

Coffee and donuts provided while you visit with speciality manufacturers and shops that cater to the special needs of cave divers.

## 9:00 - 10:00 AM Program Description

Details of the days activities, including dive sites and precise programs planned for each dive site are presented. In addition, other current events of interest to the cave diver will be presented.

## 10:00 AM - Noon Classroom Lectures

Specific lectures to inform you of the latest techniques and innovations for the cave diver to incorporate in exploring underwater caves.

## Surveyor Introductory Course

An introduction to the field aspects of conducting a survey. Special emphasis will be placed upon a local site and teams will be assembled. Minimum certification level Basic Cave Diver, (full) Cave diver recommended. Allow all day Saturday and Sunday.

## Emergency Procedures in Cave Diving

A frank look at the special needs encountered by the cave diver. Recent incidents provide a back drop for this continuous learning experience. Recommended for all levels of cave and cavern divers. Follow-up water drills planned for Saturday afternoon.

## Streamlining and the Cave Diver

A closer look at making you more efficient in the water, including re-distribution of dive gear and re-configuration of that gear. Streamlining will be emphasized throughout all of the dives conducted during the weekend. Recommended for all levels of cavern and cave divers.

## Extended Exploration Techniques

Techniques and equipment modifications developed for extending penetrations beyond the capacity of standard twin diving cylinders. (full) Cave Diver Certification only. Follow-up water sessions Saturday and Sunday.

## Introduction to Cavern Diving

For the open-water-trained diver with an interest in learning more about our sport. Water sessions to be held Saturday afternoon. Participants must provide proof of diver certification and will need to provide their own equipment.

## Introduction to Basic Cave Diving

For the cavern-trained diver with an interest in learning more about our sport. Water sessions to be held Saturday afternoon. Participants must provide proof of Cavern Diver certification and will need to provide their own equipment.

## Single Rope Climbing Techniques

Anytime cave divers leave North Florida, the need for an appreciation of this aspect of cave exploration becomes evident. The course is intended to aid the cave diver to better appreciate the safety and equipment required. A follow-up cave dive at nearby Azure Cave is included.

**To Pre-register, complete this portion and return same with your check payable to "NSS/CDS" workshop.**

Name: \_\_\_\_\_

Guest Name: \_\_\_\_\_

NSS #: \_\_\_\_\_ Certification Level: \_\_\_\_\_

Workshop fee: NSS Member - \$10.00 \_\_\_\_\_ Non member - \$12.50

Non-diving Guest (each) - \$3.00 Total \_\_\_\_\_ Check # \_\_\_\_\_

Return registration to P.O. Box 950 - Branford, FL 32008-0950 USA  
Fees include a catered dinner on Saturday night. Each diver must provide his own equipment and proof of certification.

Underwater Speleology is the official newsletter of the

**CAVE DIVING SECTION OF THE  
NATIONAL SPELEOLOGICAL SOCIETY, INC.**  
P.O. Box 950, Branford, Florida 32008-0950

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**THE NSS AND CAVE DIVING**

Founded in 1941, the National Speleological Society joins together thousands of individuals dedicated to the safe study, exploration, and conservation of caves. The first cave-diving information ever published in the U.S. was in a 1947 *NSS Bulletin*. In 1948, NSS divers were responsible for the first cave dives in the U.S. using scuba. Prior to 1973, cave diving within the NSS was on a purely local level. That year saw the creation of the NSS Cave Diving Section to provide a vehicle for information exchange. Today, with over 400 members, the Cave Diving Section promotes safe cave diving through semi-annual workshops; cavern- and cave-diving training programs; warning- sign installation; search, rescue, and recovery through the National Cave Rescue Commission; cave exploration and mapping; several texts and publications on cave diving; and the bi-monthly newsletter-journal, *Underwater Speleology*, that you are presently reading.

**MEMBERSHIP**

The National Speleological Society welcomes the interest of anyone who has a sincere concern in the safe study, exploration, and conservation of caves, wet or dry. You may join the NSS either by writing to the NSS main office directly (National Speleological Society, Inc., Cave Avenue, Huntsville, AL 35810) or to the Cave Diving Section (NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950). Regular NSS Membership is now \$25.00 per year, and entitles the member to monthly issues of *NSS News* and a semi-annual technical journal on speleology, voting privileges, and discounts on publications, convention fees, etc. As a sub-organization or "section" of the NSS, the Cave Diving Section is subject to the by-laws and ethics of the NSS. Membership in the Cave Diving Section is open to anyone who is a member in good standing of the NSS. Regular membership is \$5.00 per year, and we also offer a CDS Family Membership for \$1.00 for family members (who are also NSS members) of regular CDS members. Membership in the Cave Diving Section includes subscription to our bi-monthly (6 issues/year) newsletter, *Underwater Speleology*, voting privileges, discounts on publications items, workshop registration fees, etc.

**NEWSLETTER SUBSCRIPTION**

If you do not wish to join the Cave Diving Section, but would like to keep current on cave-diving events, exploration, and technology, you are invited to subscribe to *Underwater Speleology* for \$15.00 per year.

**IMPORTANT! - CHANGES OF ADDRESS**

Members and subscribers are urged to report any change of address or address corrections in writing immediately to the Section in order to insure continuity of newsletter receipt. Membership/subscription status, applications, and general information may be obtained by writing to the Secretary-Treasurer c/o the Section's permanent address:

Secretary/Treasurer  
NSS Cave Diving Section  
P.O. Box 950  
Branford, FL 32008-0950

**NEWSLETTER SUBMISSIONS**

We welcome all current news items, reports, articles, photographs, negatives, slides, cartoons, notices for gear wanted for sale (individuals only), or other submissions of relevance or potential interest for publication in this newsletter. We can now accept textual information on computer diskette if it is in an IBM-XT-compatible standard ASCII text format or WordStar version 3.3 or lower, using 5-1/4" 360K floppies; however, all computer diskettes must be accompanied by a complete paper printout. All newsletter submissions should be sent in directly to the Editor:

H.V. Grey, Editor, UWS  
P.O. Box 575  
Venice, FL 34284-0575

**CALENDAR**

Mar. 25-27, 1988 - Undersea & Hyperbaric Medical Society, Gulf Coast Chapter, Annual Meeting. Baton Rouge, Louisiana. See announcement, page 5.

Mar. 26-27, 1988 - "A Need for Better Understanding," NACD Bi-Annual Cave & Cavern Diving Orientation Course for Scuba Instructors, Diving Leaders and Advanced Divers. Contact Steve Gerrard, P.O. Box 33, Wacissa, FL 32323, (904) 877-8196.

May 28-29, 1988 - NSS-CDS Spring Cave Diving Workshop. Branford, Florida.

June 17-22, 1988 - The 4th Symposium on the Geology of the Bahamas. College Center of the Finger Lakes Bahamian Field Station, San Salvador Island. See announcement, page 4.

July, 1988 - Congresso de Espeleologia da America Latine e Caribe. Belo Horizonte, Minas Gerais, Brazil.

July 15-17, 1988 - NSS-CDS Instructor Institute. To be held in Florida. For additional information, contact the Section or Training Chairman. (Additional non-Florida Instructor Institutes are planned and will be announced.)

Sept. 30 - Oct. 2, 1988 - FADO (Florida Assoc. of Dive Operators) "International Dive and Travel Show." Orange City Convention Center, Orlando, Florida. Contact Russ Teall, 111 Saguaro Ln., Marathon, FL 33050, (305) 743-3942.

Nov. 18-20, 1988 - NSS-CDS Instructor Institute. To be held in Florida. For additional information, contact the Section or Training Chairman.

Dec. 1988 - NSS-CDS Winter Cave Diving Workshop. Branford, Florida.

Feb. 3-5, 1989 - NSS-CDS Instructor Institute. To be held in Florida. For additional information, contact the Section or Training Chairman.

May 1989 - NSS-CDS Spring Cave Diving Workshop. Branford, Florida.

Nov. 17-19, 1989 - NSS-CDS Instructor Institute. To be held in Florida. For additional information, contact the Section or Training Chairman.



Florida Speleological Researchers, Inc. - 1988 Board of Directors. (Left to Right) Back Row: Ed Smoak, Vaughan Maxwell, Sheck Exley, Bill Main, Jamie Stone. Front Row: Paul Heinerth (Vice Chairman), Dustin Clesi (Chairman), Bill Gavin (Secretary/Treasurer), Dr. William Fehring. Not pictured: Dale Sweet. Photo by Steve Gerrard.

## VICTORY IN HERNANDO! - by Florida Speleological Researchers, Inc.

*"Dropping into the downstream ballroom, my 75-watt cuts through the crystalline, cobalt-blue water and only pitifully illuminates this giant hall. Stopping momentarily to shake the silt off a line unseen by a diver in over two years, we are amused by the familiar whine of approaching DPV's.....the Guides are back!"*

Saturday, February 20, 1988 proved to be an eventful day in the annals of organized cave diving. A small group of highly experienced cave explorers and instructors, incorporated under the name **Florida Speleological Researchers, Inc.**, had successfully regained exploration privileges at the famed Diepolder Sink systems (pronounced Dee-Polder, after the former owner) located in Hernando County, Florida. Recently concluding over 18 months of negotiations with the owners, the directors of F.S.R. assumed exclusive responsibility for all diving operations on this property once again.

These divers are all former Diepolder Guides who have maintained an excellent safety record in these extremely deep cave systems for over 10 years. They hold affiliations with the NACD and/or the NSS-CDS and all share unilateral progressive interests in cave diving. The key to the reopening of these sites was F.S.R.'s ability to reduce the landowners' liability by assuming a portion of it themselves. Further liability barriers and internal controls were built in so as to protect the parties involved. Incorporation of the group was instrumental in accomplishing this end. All fees and expenses incurred by F.S.R., both past and future, are absorbed by the individual Directors. As a result, two of the largest known submerged cave systems in the western hemisphere are now accessible to the cave-diving community through the group. Contact a current

F.S.R. Director for further information. NOTE: Due to the advanced nature of these dives and the contractual obligations on behalf of F.S.R., Inc., only full-cave trained divers with deep experience may accompany a current F.S.R. Director into these systems.

The first annual meeting of F.S.R.'s Board of Directors took place on Feb. 20, 1988 at the property. This marked a day of fellowship as the group had not formally assembled in over two years due to the on-going negotiations by its officers. Old business was resolved and future direction was determined. The newest Director installed (Bill Gavin) brought many years of additional experience to the association. Current projects include line restoration, survey, bio-sampling and exploration.

The diligence and hard work on the part of Florida Speleological Researchers represents a landmark precedent in the area of landowner relationships for cave diving. Other core groups are reported to be working to reopen closed sites for cave diving and have approached the F.S.R. group for information- sharing and suggestions. It is hoped that these kinds of positive actions continue: to ultimately reverse the recurring trend of cave closures which affects us all!

## BAHAMAS GEOLOGY SYMPOSIUM - submitted by William L. Wilson

In the early 1980's, the geologists who had utilized the College Center of the Finger Lakes (CCFL) Bahamian Field Station considered it important to hold a meeting to promote a better understanding of the research being conducted during different times of the year on San Salvador. This led to the 1st Symposium on the Geology of the Bahamas held in March, 1982. Similar conferences have been held every two years, resulting in the publication of three Proceedings volumes.

The geology group at the CCFL Bahamian Field Station is now taking the initiative to organize the 4th Symposium on the Geology of the Bahamas. The objectives are to provide a forum for the presentation of the results of current geological research being conducted throughout the Bahamas archipelago, to provide an informal setting for the stimulation of contacts and cooperation between geologists working in the Bahamas and geologically similar areas, and to promote the growth of knowledge in the general area of carbonate geology.

The format of the Symposium will consist of mornings and evenings devoted to papers and discussions, with afternoons spent on field trips. The papers will be published in a Symposium Proceedings volume.

The Symposium will be held from June 17 through 22, 1988 on San Salvador Island, Bahamas at the CCFL Bahamian Field Station. The staging area will be Ft. Lauderdale, FL, early on June 17. Total fees, including round-trip airfare, US and Bahamian Departure Taxes, Room and Board at the Field Station, and Registration Fee (which includes Proceedings Volume) - \$483.

Contact Dr. Donald T. Gerace, Director, CCFL Bahamian Field Station, P.O. Box 350307, Ft. Lauderdale, FL 33335.

## UHMS ANNUAL MEETING

The Undersea & Hyperbaric Medical Society - Gulf Coast Chapter will be sponsoring its annual meeting at the Baton Rouge Hilton in Baton Rouge, Louisiana from March 25-27, 1988. Numerous papers will be presented on a wide variety of subjects relating to diving medicine, decompression, dive-accident prevention, and other pressure physiology topics. Workshop registration is \$45 for non-UHMS members (Daily registration - \$20 for commercial or sport divers); banquet - \$35; hotel rates are \$50/night single or double. For more information contact: Hyperbaric Medicine, Our Lady of the Lake Regional Medical Center, 7777 Hennessy Blvd., Suite 115, Baton Rouge, LA 70808, (504) 765-8976.

## ARTICLES ON CAVE DIVING

Husband-and-wife free-lance writers Yvette Cordozo and Bill Hirsch have recently had two of their articles on cave diving published in national magazines. "Deep Thrills," featuring several large, color underwater photos, appeared in the January 24, 1988 issue of *Sunshine*, and "Yucatan's Caves," also with several fine color underwater photos, appeared in the February 1988 issue of *Florida Sportsman*.

## NEW SURVEY BOOK

New board member John Burge is in the final stages of completing a 128-page book, with accompanying slides and guides, on survey techniques. John's new book will be an invaluable aid to the Surveyor Course to be offered at the Spring Workshop. We hope that the book will be printed and available for purchase at the workshop.

## NSS-CDS DPV PILOT COURSE

A new specialty course on the safe use of diver propulsion vehicles in underwater caves has been written by Tampa cave-diving instructor Dustin Clesi. Course prerequisites are an NSS-CDS Cave Diver certification or equivalent and proof of a minimum of 50 cave dives (with at least 25 cave dives beyond the Cave Diver course). The course features classroom lectures, land drills, and at least three cave dives at two different cave-diving sites. The course will go into effect June 1, pending final board approval at the Spring Workshop.

## RECALL ON DRYSUIT VALVES

The January 1988 issue of *Undercurrent* reports that after considerable pressure from the Consumer Product Safety Commission, DUI (Diving Unlimited International) has finally issued a recall of two valves which come with their drysuits. *Undercurrent* reports that in the case of the "Air Control Valve" (AC), there have been at least 11 recorded incidents involving involuntary inflation, some reportedly leading to embolisms. The other valve, the GSD valve, was recalled last year for replacement of potentially defective O-rings. To return a suit or valve, contact DUI, 1148 Delevan Dr., San Diego, CA 92102, 1-800-327-8439. (Depending on which replacement valve you select, there may be a charge for replacement.)

## ALACHUA SINK PROPERTY OFFERED TO CAVE DIVING SECTION

Joe Prosser, Alachua Sink Project Coordinator, reports that he has just been contacted by legal representatives of the Upjohn Company (pharmaceuticals) to discuss the transfer to the NSS Cave Diving Section of the parcel of land on which Alachua Sink is located. Details of the proposed transfer include approximately five (5) acres of land located just off Hwy. 441 in Alachua, Florida. The property is adjacent to Sonny's Bar-B-Que. Before transfer takes place, a legal description, survey, etc. must be completed. Then the entire deal must be approved by the IRS.

The transfer is expected to take between 3 and 5 months. We ask that everyone refrain from visiting the site during this time period so as to avoid anything which may void the deal. After all, it is not ours until the deed is received.

Not included in the property transfer is a legal easement unto the property. The easement includes approximately 75-100 feet of road necessary to enter the property from Hwy. 441. We must still negotiate for this easement in order to secure legal entry to the site. This is not expected to cause any particular concern; it's just that this will also take some time.

Alachua Sink is described as a Karst Window into an extremely large and long aquifer leading to a surfacing at Hornsby Spring some 10 miles or so northeast of the site. Hornsby Spring is listed as one of Florida's largest flowing springs. Depths within Alachua are estimated at 160 to 220 feet deep. As such it is not a dive site for the great masses of members of the cave-diving community. Visibilities are usually limited and entry can be difficult. Located in a depression from which surface run-off is typical for several nearby business, visibilities are subject to local weather conditions.

It surely would have been nicer to be able to report a similar success with some sites more usable to the cave-diving community, for example, the Yana System. However, our position as an IRS-sanctioned tax-exempt organization helped to put us into the position of being able to take advantage of the generosity of a corporation like Upjohn. Receipt of Alachua Sink represents a major step in the direction of continued access of dive sites for cave divers in Florida. Indeed, such acquisition may be the only guaranteed method of providing any access to dive sites. This precedent may well lead the way toward reopening other dive sites. We must appreciate our victories in this regard, large ones and small ones.

One of the jobs facing the Section and its membership, and the cave-diving community in general, is to build a specific conservation and management plan to preserve this site and protect it for future generations. We will do our utmost to keep you informed as to the progress of negotiations and disposition of the property. You are all encouraged to continue to pursue the opening of other sites.

## SUMP DIVING IN THE NORTHEAST PART II: SOLO DIVING

- by John Schweyen

"You're diving alone?! . . . What happens if you get into trouble?" Sound familiar? This is the typical reaction of a non-diver who has just learned that I'm about to boogie through dark water all by my lonesome. Many open-water divers are even more emphatic than non-divers about solo diving under adverse conditions: "You're diving alone?! . . . You gotta be crazy!!" or something more derogatory. Usually, I explain how difficult it is to communicate under these conditions and how another person would just complicate matters. While this is not the only consideration, and it may not fully convince them that solo diving is in my best interests, it is food for thought.

What concerns me more is that many cave divers in this country have negative opinions about solo diving, whether or not we're talking about sump conditions. One of these open-minded individuals once declared with a straight face that solo diving is suicidal. I think part of this results from the open-water training most of us have received and part from human nature, the fear or anxiety of being alone in potentially hazardous conditions despite the fact that assistance would be difficult, or maybe even impossible, if someone else were present. (After all, who wants to drown all alone in some godforsaken cave in the middle of nowhere?--Better to drown with somebody else at your side.) However, when prejudice and fear are put aside and consideration is given to dive objectives, expected environmental conditions, and team safety, solo diving may be the safest, most logical approach.

But before we start talking about the pros and cons of solo diving, let's put ourselves in the right frame of mind. Since low visibility, constricted passage, etc. mean different things to different people, it might be worthwhile to explain these terms in the context of this discussion. Low visibility does not mean less than 50 ft. and it does not mean less than 10 ft. In the present context, low vis might be anywhere from 4 ft down to zero vis, also known as chocolate milk. Cold water is that in which neoprene or dry gloves must be worn to prevent severe loss of dexterity or in which there is a chance of regulator freeze-up. Caves in New York range from freezing to 45 degrees, those in Pennsylvania range from 37 to the high 40's and in West Virginia, many sumps are at a balmy 50 to 52.

Sump passage in the northeast tends to be wide, but low enough so that side-mounted tanks are required and silting is unavoidable. Many of these sites are just one long restriction. In a typical sump, the diver goes in with vis at 4 to 15 feet but comes out in 2 feet or less. Since the passage is low, there is no question that line traps will be encountered--the question is how long will it take to negotiate them on the way out. Depth is rarely a factor since most of the sumps are less than 30 feet. However, a few places reach 100 feet and one of these is at 190. Hauling distance may be anywhere from insignificant to two miles, but the difficulty of the haul is also dependent on how much crawling or climbing there is. In many cases, the furthest point of exploration is beyond several sumps and only divers can haul gear from one sump to the next.

Many of the difficult conditions encountered in sump diving in the northeast--cold, low-visibility water, constricted passage, awkward staging areas and long hauls--are also found in other places, only to a lesser extent. So, although some of this discussion is applicable to other areas, in general it is relevant only to conditions as they exist in this neck of the woods. I'm emphasizing this because, for any particular cave dive, the decision to dive solo or not is at least partially dependent on the expected conditions. For example, while I avoid diving with a buddy in low visibility or restricted passage, this doesn't mean that I'll solo in a cave down in Florida just because there is a patch of silt and a few restrictions. An important difference

between sump diving in this part of the country and cave diving elsewhere is that here the sump jumper approaches a dive with the knowledge that there may be continuous exposure to restricted passage and low visibility.

I think most people reject solo diving because they're concerned that they'll get into trouble somehow and they'll need help from the faithful buddy. This rationale bothers me for a couple of reasons. First, the competent cave diver should be self-sufficient in most any emergency situation that might occur underwater, even if he or she does not practice solo diving per se--for woe unto the buddy-dependent diver who runs afoul just as the buddy swims out of sight around a corner. In favorable conditions, a buddy can be helpful in many situations, but that same buddy should not be used as a crutch to compensate for inadequate skills or lack of vigilance in following the guideline or noting important features underwater. Anyone who relies on a buddy as a necessity rather than a convenience is probably putting both members of the team at risk. Second, this rationale presumes the ability of the diver-in-trouble to get the attention of and then communicate the nature of the problem to another diver who is able to render assistance. These are dubious prospects in the sump environment--any adverse conditions that prompted the situation or increased its severity are likely to impede communication and assistance.

Two situations in which self-sufficiency is impossible on a solo dive, and which proponents of the buddy system always present as the absolute and irrefutable justification for never diving alone, are incapacitation and total air loss. If there is a significant possibility of the former because of physiological or environmental conditions that are beyond control, and solo diving is out of the question, then one should consider avoiding the dive completely. Rescue of a diver who has been disabled underwater would be a formidable challenge and not without risk. I wonder how many people out there have practiced this in sump conditions, or any cave for that matter? It would be silly to put more than one life at stake under these circumstances.

Total air loss is more of a concern. Because this can occur so rapidly when only one supply is used, the only way you can cover your butt is to be sure that a buddy is always available. This is virtually impossible in many sumps. Even if a buddy is available, survival is not guaranteed since you will have to share air while negotiating restricted passage in low vis. Try doing this after a good adrenaline kick. Again, we have a situation in which both people are under considerable risk. This scenario can be avoided by using completely redundant air supplies instead of apparatus with critical O-rings or manifolds whose failure would result in a total loss of air. It would also behoove the diver to use reliable equipment that is tolerant of the expected conditions. If regulator performance in very cold water or heavy silt is unknown, maybe some serious field testing is in order. If the diver just can't abide by two regs, a third can be used. With proper redundancy, the possibility of total air loss should not be a factor in deciding whether or not to dive alone.

Obviously, in the event of incapacitation or total loss of air, the solo diver is dead meat. It's just a matter of reducing the risks to an acceptable level by using the proper equipment and diving within one's limits. Before I start bringing along another diver just to rescue me if I have complete failure of both air supplies or a rock falls on my head, I'll stop driving my car on public roads.

So, buddy diving in adverse conditions is not all it's cracked up to be. But that's not all--it can actually be disadvantageous. The dive buddy is certainly the most complicated, unpredictable, and uncontrollable component in the diver-equipment system. Sure, you can make general statements about how your buddy will respond under certain conditions, but you never know exactly what will happen until that situation is actually experienced. And then, no two situations are exactly alike, and your buddy's response wouldn't

be identical both times even if they were. The more difficult the conditions, the more a diver is stressed and the more that diver becomes an unknown factor just at a time when everything should be under control. In case there is a malfunction, your buddy cannot be ditched or clipped off in favor of a backup. But I wonder how many people would use dive gear as uncontrollable or unpredictable as their dive buddy might be in a pinch.

The most extreme example of the other diver being unpredictable or out of control is when that diver is panicked. I don't think anyone doubts that a diver who is out of control and behaving erratically puts the entire team at risk. However, I think that many cave divers tend to over-simplify the situation. I've heard from several people that in a case like this it is best to get out of the way until things calm down. This is a good idea, since dealing with a person who is pumped up with adrenaline is a dangerous prospect underwater. Unfortunately, diagnosis in low visibility is not possible unless the divers come in contact, and then things can really get exciting. Then a judgment call must be made as to whether or not the diver is really out of control--after all, when there isn't much time left, any sane person will act quickly and forcefully and will not appear to be normal. A premature decision may mean unnecessary death for one diver, a belated realization may result in a multiple fatality.

Now let's sit back and think beautiful thoughts about the advantages of solo diving before, during, and after the dive. First of all, the logistics and support required to get to the dive site are minimized if only one diver is involved. Some sumps are difficult to reach even without dive gear. The more technical or strenuous the haul, the more difficult it is to find a qualified support crew. The diver who is comfortable with solo diving will have more opportunities than one who insists on the presence of a backup.

If multiple sumps are on the agenda, then gear must be hauled from one sump to the next. Obviously, the people doing the hauling between sumps must all be divers. This is not inconsistent with solo diving--people just dive through one at a time and stay out of each other's way. On the other side of this sump, it may take several people to haul just one set of dive gear to the next. Transporting more than one set of gear in a situation like this is in many cases prohibitive in terms of time and energy, so a solo dive may be the only option.

Both the staging area and the sump may be amenable to only one diver. I'm talking about staging areas where there is only room for one diver to kit up and the sherpas either lie on their bellies in the water or remain further back where it is more comfortable. Then there are sumps where the diver cannot turn around to come out--more than one person may be fine providing the diver in back doesn't mind communicating with a pair of fins.

In the context of exploration, solo diving is substantially more efficient than buddy diving. Decisions can be made more quickly and concentration can be devoted to exploration since the lead diver won't be task-loaded with monitoring and reacting to and communicating with a following diver. There are no bottlenecks at restrictions and backing up is easier. There is only one person to kick up the silt. Line traps are not as likely since other people are not fiddling with the line, possibly moving it off the original route. Line tension is more controlled since other divers, in reduced vis, will not be in contact with the line. The solo diver chooses the most convenient swimming rate. There is no premature turn-around on air, and less chance of aborting the dive because of equipment failure or because a particularly difficult situation is encountered underwater. In essence, the diver-equipment system is under the control and management of one person.

Finally, the diver is making the most efficient use of his or her time when diving alone. One can only acquire so much

experience by following somebody else through a sump and allowing someone else to organize the dive. The quickest way to become adept at resolving the problems one encounters during a push is to be out in front as much as possible, making decisions and correcting for any mistakes. Otherwise, one is stuck in the back in reduced vis and merely reacting to another person's decisions without the benefit of understanding what the options were and why those decisions were made. This is like getting jerked around on a leash without knowing why, and has been known to stunt the growth of potential explorers.

One thing I haven't mentioned is the possibility of an injury or other problem beyond a sump. When it comes to cave exploration, this is my major concern. Although I prefer to dive solo most of the time, and although I am not accustomed to turning around in the face of going borehole just because nobody is with me, I do feel more comfortable with someone else around when I'm exploring dry passage. Beyond a sump, rescue is a feasible though complex operation. Procedures for handling this type of emergency are currently under development in Great Britain and Europe. Details can be found in the British Cave Diving Group newsletter. There has also been a sump-rescue workshop in this country, but I have not seen published results. When it is not possible to bring someone along to the other side of the sump, the cave explorer should take every precaution to avoid injury. This means avoiding loose rock and hairy climbs--one careless move and you may be back there for a while.

If it is easy to get more than one diver to the dive site, and underwater exploration is in order, one person can wait while the other starts laying out line. After some predetermined time limit or after the first diver has returned and given a report, the second diver enters the water and continues exploration at the point where the first person left off. I have found that forty minutes to an hour is a good limit for 80 cubic feet; this gives me time to suit up and if the first person hasn't returned by then, it probably means that he or she was successful in passing the sump or that there was trouble. In other words, enough time has passed to let things settle down one way or another. Serial solo diving of this type is very efficient in terms of exploration and affords multiple observations and opinions without the problems associated with buddy diving.

If the sump has been passed before, and exploration underwater is not anticipated, then I prefer to separate divers by at least five minutes. This is usually enough to prevent the divers from getting in each other's way and should they meet up underwater, it is understood that there are no obligations.

Is solo diving suicidal? If it is, there are some very, very lucky divers walking around. I'm not sure how many people in this country practice solo diving on a regular basis but I do know that it is an accepted practice in the northeast amongst active sump divers. These people recognize the advantages of solo diving and prefer not to expose themselves to the risks inherent in diving with more than one person. Granted, there have been some accidents outside of this country during solo dives, but who's to say that another person would have made a difference? It may have ended up as a multiple fatality. I don't claim to be intimately familiar with all these accidents, but from what I understand, many of them could have been avoided if the people involved hadn't exceeded their limits. In other words, it wasn't merely a question of being alone. Personally, I've been in one or two situations where another person saved me some trouble, but these were not life-threatening emergencies. I've been in many more situations where I was grateful nobody else was around to complicate things, and I've been on a few dives that were unsuccessful because I was with another person.

What it all boils down to is a realistic assessment of the risks involved. There are risks associated with both solo diving and diving with a buddy. By using the proper equipment and diving within one's limits, the risks associated with solo diving can be

minimized. This is not to say that buddy diving is in order if one decides to push the limits or anticipates a particularly hazardous dive; on the contrary, another person would be an additional unknown, a complicating factor under stressful circumstances. It would be selfish to bring that person in just because there is a slight chance that he or she might save one's ass instead of getting killed also. Sump diving is not a social sport.

Diving with a buddy, one is in the presence of a very complicated, and relatively unpredictable and uncontrollable entity. Each diver is handicapped by the additional task loading involved in monitoring and communicating with the other person. In addition, each diver is reacting to the buddy's presence and actions whether or not the buddy intends it. To the extent that additional task loading, lower visibility, less line control and lower efficiency increase the risk of sump diving, diving with a buddy is unsafe. A solo dive is under the control of one person who is more efficient and requires less support than would multiple divers. The solo diver also learns more by being out in front. All this increases the likelihood for success in sump exploration.

Finally, I make this disclaimer. I am not advocating solo diving as the best technique for all sump dives. Occasionally, it may be inconsistent with certain objectives such as photography or instruction. I am also not encouraging other people to go out and start solo diving. This is a decision which should be made only after considering dive objectives, personal experience, environmental conditions, and available resources. I am merely presenting the relevant considerations. Food for thought.

## LETTER CONCERNING RAINBOW SPRINGS

*[The following is a letter to CDS member/instructor Dr. Milledge Murphey from the Honorable Jon Mills, Speaker of the Florida House of Representatives, dated February 19, 1988.]*

Dear Dr. Murphey:

Thank you for your letter urging that I vote for repeal of the state law currently closing Rainbow Springs to diving. No such legislation has been filed at this time, but I will keep your comments in mind should any legislation be filed.

As recently as 1986, the Legislature recognized the Rainbow Springs area as a valued natural resource by designating the area as an aquatic preserve. By legislative definition, an aquatic preserve is "an exceptional area of submerged lands and its associated waters set aside for being maintained essentially in its natural or existing condition." The Rainbow Springs Aquatic Preserve contains one of only 27 first-magnitude springs known to exist in Florida, flowing at an approximate rate of more than 500 [sic] gallons per day. The area provides habitat for such endangered species as the manatee and the American bald eagle. The primary values of the Rainbow Springs Aquatic Preserve are both biological and recreational.

Currently, there is much interest in the headwaters of the Rainbow River as a CARL (Conservation and Recreation Lands) acquisition. On February 12, this project was ranked 36th on an interim list to be presented to the Governor for final approval in March. If purchased, there is the possibility that this area could be managed as a park, providing on-site assurance that the resource is "maintained essentially in its natural and existing condition," while allowing a variety of recreational uses. However, until some management strategy is in place, area environmentalists fear that opening the area to divers will result in damage to the resource such as widening the spring vents to gain entrance into the subterranean caverns below. In fact, such activities have already taken place in this river. Such

actions damage the resource and may potentially result in loss of life for inexperienced divers.

Please keep me informed. I assure you that if this piece of legislation comes up for a vote, I will weigh the alternatives carefully.

Sincerely, Jon Mills, Speaker

## RESCUE/RECOVERY TEAM MEMBERS...

Report any change of address or telephone immediately to your Area Coordinator!

AREA ONE: North Florida  
Lenny Kolczynski  
1000 Broward Rd., #1106  
Jacksonville, FL 32218  
(H) 904-765-1940  
(W) 904-771-6207

AREA TWO: Northwest Florida  
G. E. O'Brien  
5429 Hamilton Bridge Rd.  
Milton, FL 32571  
(H) 904-994-6082  
(W) 904-994-4540

AREA THREE: Central Florida  
Joe S. Harrell  
8162 Darts St.  
Brooksville, FL 34613  
(H) 904-596-4395  
(W) 813-847-8102

AREA FOUR: South Florida  
& Caribbean  
Joe Prosser  
7400 N.W. 55th St.  
Miami, FL 33166  
(H) 305-966-0619  
(W) 305-592-3146

GEORGIA:  
John Crea  
P.O. Box 1906  
Bainbridge, GA 31717  
(H) 912-246-9349  
(W) 912-246-3500

ALABAMA:  
Joe Dabbs  
1815 Inspiration Lane  
Huntsville, AL 35801  
(H) 205-534-8668  
(W) 205-544-0623

TEXAS:  
Jim Bowden  
1306 Colorado St.  
Austin, TX 78701  
(H) 512-477-5043  
(W) 512-441-3708

OTHER (United States):  
Steve Ormeroid  
629 West 4th St.  
Marysville, OH 43040  
(H) 513-642-7775  
(W) 513-644-2559

## TRAINING CERTIFICATES AVAILABLE

After numerous requests, Training Chairman Joe Prosser has developed handsome wall certificates suitable for framing, which recognize completion of an NSS-CDS Cavern, Basic Cave, or Cave Diver course, each in a different color. The certificates are \$10.00 each.

To order, send check or money order to the Section's permanent mailing address (NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950) along with a photo copy of your certification card(s) for each training level certificate desired.

## NEW CAVERN BROCHURE

A new safety brochure on Cavern Diving (see opposing page) is now available. The brochure is designed to soft sell the idea of cavern training as a safe, inexpensive, interesting, and even fun alternative to attempting to explore an underwater cave without any specialized training.

When properly folded, the brochure leaves space on the final panel for dive shops or cavern-diving instructors to stamp their own names and addresses. Or, for a minimal charge, arrangements can be made to print a shop's or instructor's name and address on a quantity of brochures.

The brochure was designed and written by Joe Prosser and H. V. Grey, with the cover illustration by Wayne McKinnon. The brochures are free for reasonable quantities, and can be obtained by making a request in writing to: NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950.

# NSS/CDS CAVERN DIVER TRAINING COURSE REQUIREMENTS (Abbreviated)

**I. PURPOSE:** The course develops the minimum skills and knowledge for cavern diving, and describes the dangers involved with cave diving. Planning, environment, procedures, techniques, problem solving, and other specialized needs of cavern diving are covered.

Problem solving in cavern diving include, but are not limited to: body positioning (trim), buoyancy control, emergency procedures, line following, and propulsion techniques. Accident analysis forms the basis of this learning experience. Special emphasis of the unique environment include silt, entanglement, disorientation, and equipment modifications. Cavern diving is in no way intended to provide instruction for cave diving.

**II. COURSE DURATION:** Approximately two (2) days

**III. PREREQUISITE:** Basic scuba diver certification (advanced diver training recommended) or the equivalent.

**IV. RECOMMENDED TEXT:** NSS Cavern Diving Manual

**V. LECTURE:** At least seven (7) hours covering these topics: NSS policy for cavern diving, environment, accident analysis, psychological considerations, equipment, body control, techniques, and accident prevention procedures.

## VI. LAND DRILLS:

1. Guideline use
2. Following line with no visibility
3. Sharing air
4. Emergency procedures

**VII. CAVERN DIVES:** Three (3) cavern dives to be conducted in two (2) different caverns and to include:

1. S-drill (Share air and equipment check to begin each dive)
2. Demonstrate buoyancy compensator use and body positioning via weighting and distribution
3. Demonstrate specialized propulsion techniques
4. Guideline use
5. Reel use
6. Explore cavern

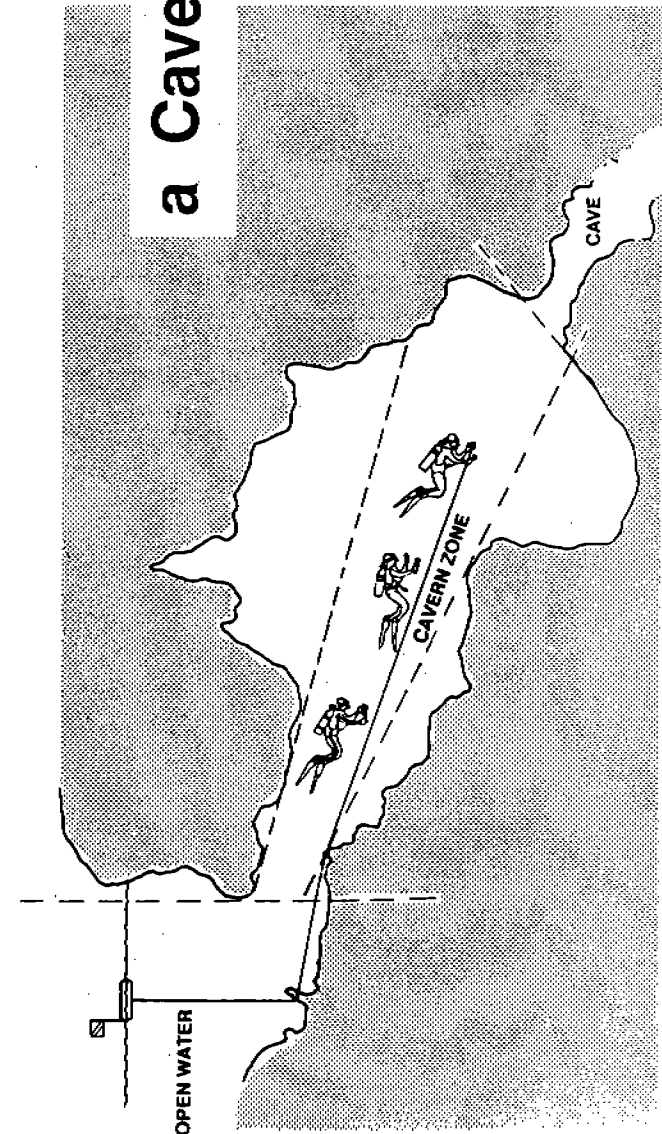
## IX. LIMITS:

1. Daylight and free ascent zone of cavern
2. 130 (ft.) linear distance from surface
3. Maximum depth not to exceed 70 ft.
4. Tank (50.0 cf minimum)
5. Single hose regulator with submersible pressure gauge, octopus second stage, and power inflator for buoyancy compensator
6. Exposure suit (wet or dry)
7. Buoyancy compensator
8. Submersible repetitive dive tables
9. Slate and pencil
10. Weight (as required)
11. Two (2) battery powered submersible lights
12. Knife (recommended arm or chest mounted)
13. Also, one (1) per team: Watch, depth gauge, reel

The NSS/CDS Believes that cavern diving is a natural extension of open-water diving. A Cavern diving course is designed to introduce the open-water diver to the techniques developed for safe exploration of that portion of a cave illuminated by natural daylight with the minimum amount of specialized equipment and training.

If you would like to learn more about cavern diving, then contact your local dive shop, your instructor, or write the NSS Cave Diving Section; P.O. Box 950: Branford, Florida 32008-0950.

# Consider a Cavern Diving Course



This pamphlet is a public-safety message produced by the Cave Diving Section of the National Speleological Society, Inc., a non-profit educational and scientific organization dedicated to the conservation, study and safe exploration of underwater caves.

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Certainly as one learns about the crystal clear water associated with blue holes and freshwater springs, the curiosity to dive these locations can be overwhelming. The lure is the prospect of virtually unlimited visibility with solid rock above, below and to the side of the diver in the form of large, often elaborately decorated rooms, archways, and canyons.

As normally sane, rational divers, our only desire is to "sneak a peak" into this underground world. We have no intention of making the extensive explorations planned by expert cave divers, and therefore feel that we have no need for any of their specialized training, or for all the extra tanks, lights, reels, helmets, and other assorted hardware that these people carry. After all, we're only going "just inside the entrance" — not some alien planet.

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**The lure is the prospect of virtually unlimited visibility with solid rock above, below and to the side of the diver in the form of large, often elaborately decorated rooms, archways, and canyons.**

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If this seems like a completely reasonable statement to you, then you are at least half right. But you could also be dead wrong! The plain facts are that if you do not have at least some of the cave diver's equipment and training, then you fit the profile of typical victims of cave-diving accidents.

Fortunately, you don't have to take a full-blown cave-diving class or invest in twin diving cylinders and a lot of other fancy, expensive gear in order to make enjoyable, safe penetrations in this environment. In fact, as an open-water diver you probably already have most of the equipment necessary for cavern diving: an octopus or safe second-stage regulator, and a buoyancy compensator with power-assisted inflator. You may already even have one of the two battery-powered lights required for cavern diving, so that all you may

need to obtain is an extra light and a small cavern-diving reel with suitable guideline.

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**The plain facts are that if you do not have at least some of the cave diver's equipment and training, then you fit the profile of typical victims of cave-diving accidents.**

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A Cavern Diving Course, lasting only a single weekend, will teach you the fundamentals of guideline use, air planning, and anti-silt swimming techniques. Hansel and Gretel, as the story goes, used bread crumbs to try to find their way out of the forest. This method was not successful for them, and improper use of a guideline (or using no guideline at all) may be even less successful for you.

Typical guideline for cavern diving (dives limited to that portion of a cave illuminated by natural daylight) is made of white nylon approximately 1/8" in diameter, and is your only guaranteed method of finding your way back to the cavern entrance. The guideline is tied off outside the cavern entrance and is never more than an arm's length away throughout the dive. For easy, safe management, the line is played out from, and retrieved onto the cavern-diving reel.

Air planning is another aspect of cavern diving. Because the cavern ceiling prevents you from making a direct ascent to the surface, as you would in open water, you must reserve extra air for the exit from the cavern. Sounds simple doesn't it? Yet, failure to follow this simple rule is the second most common reason that accidents occur in underwater caves. The course will teach you how to figure the minimum amount of air to keep as a safe reserve, and how to handle other problems and emergencies associated with exploring caverns.

Special modified swimming techniques will help you to move efficiently through the cavern without

stirring up the sand and silt that lie along the floors and ledges of caverns so that you will be able to enjoy beautiful, gin-clear water throughout the dive. Improper swimming techniques can very quickly reduce 100- foot visibility to near zero, so this is an important aspect of cavern diving not only from the esthetic standpoint, but from the safety standpoint as well. In addition, the course will teach you how to recognize other potential hazards before they become real hazards.

The Cavern Diving Course will also enable you to understand the differences between cavern diving and cave diving, and to appreciate how the limitations that have been set for the "cavern" zone help insure your safety. As part of the course you will do initial training exercises on dry land and in open water, and will then make three cavern dives in at least two different caverns. Taking a Cavern Diving Course will not make you a cave diver, but if you abide by the rules and limitations explained in your training, you will never again exactly match the profile of the typical cave diving accident victim.

In the meantime, if you insist upon making a cavern dive before taking the course, consider using this safety technique: don't take any artificial lights with you or any member of your dive team. If neither you or your buddies carry lights, the cavern will get very dark very fast. This will tend to limit your penetration to a safe distance. This way, until you can arrange to take a Cavern Diving Course, you can truly "sneak a peak" without putting yourself or your buddies in danger. Enjoy our planet's beautiful caves, but please do so safely.

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**Special modified swimming techniques will help you to move efficiently through the cavern without stirring up the sand and silt that lie along the floors and ledges of caverns so that you will be able to enjoy beautiful, gin-clear water throughout the dive.**

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