NATIONAL SPELEOLOGICAL SOCIETY
CAVE DIVING SECTION

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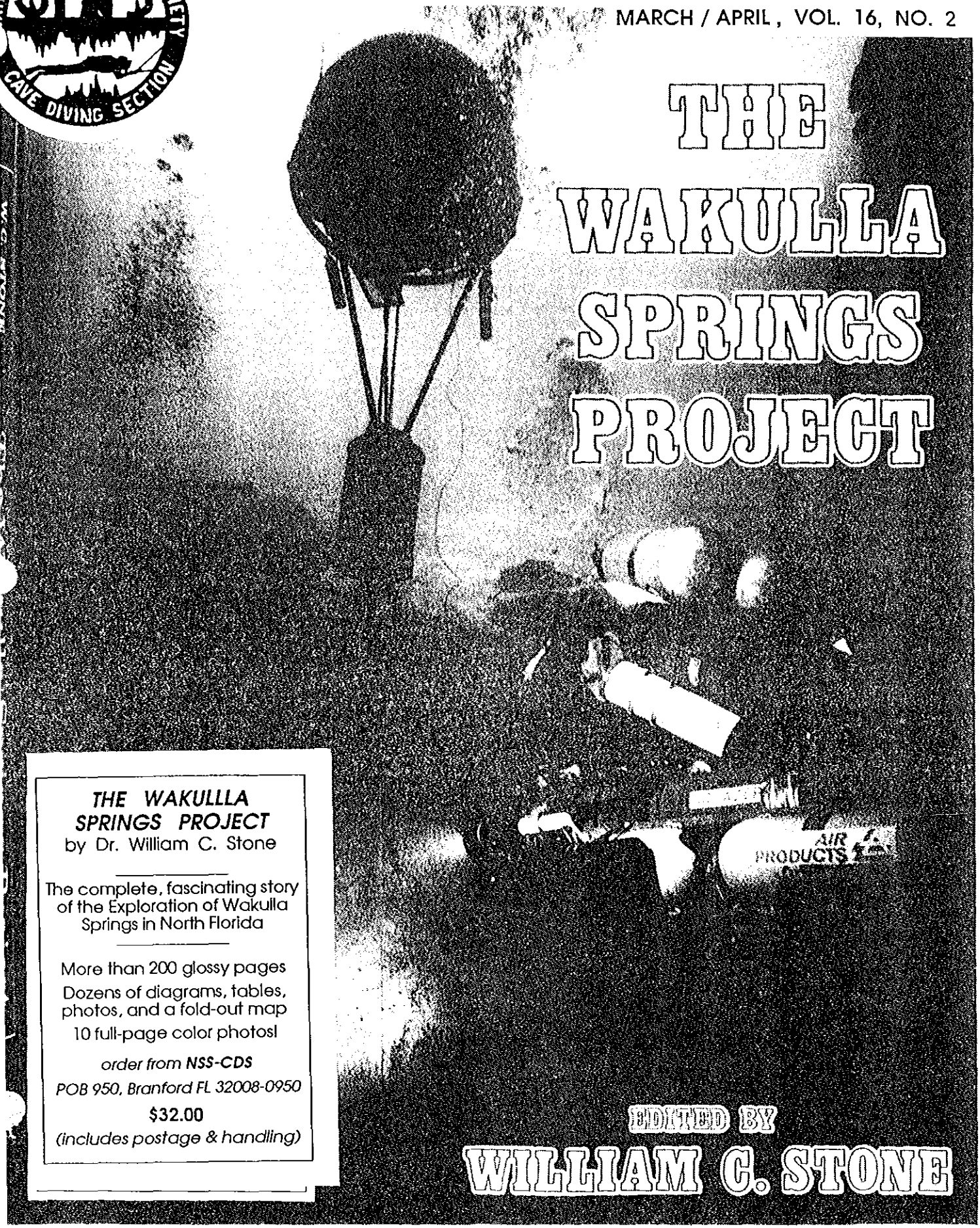

Underwater Speleology is the official newsletter of the
CAVE DIVING SECTION OF THE
NATIONAL SPELEOLOGICAL SOCIETY, INC.
P.O. Box 950, Branford, Florida 32008-0950

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RESCUE/RECOVERY TEAM MEMBERS -

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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.

WHAT THE NSS-CDS HAS TO OFFER. The NSS Cave Diving Section sponsors two Safety and Information Exchange Workshops each year, traditionally held in Branford, Florida over the Memorial Day and New Year's Day weekends, although exact dates and formats vary. This year's SPRING WORKSHOP will be held at the Branford High School on May 27-28, 1989. The WINTER WORKSHOP will be conducted on Dec. 30-31, 1989. Information and pre-registration materials are published in the newsletter and can be obtained by writing to the NSS Cave Diving Section (P.O. Box 950, Branford, FL 32008-0950).

Information on cave-diving books, back issues of *Underwater Speleology*, T-shirts, Maps (available only to people with a cave-diving certification from an accredited agency such as NSS-CDS, NACD, YMCA, or NAUI), and free safety brochures may be obtained by writing to NSS-CDS Publications Coordinator (NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950).

Information on cavern- and cave-diving training can be obtained by writing to the NSS-CDS Training Director (NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950).

CHANGES OF ADDRESS. Members and subscribers are urged to report any change of address or address corrections in writing immediately to the Secretary-Treasurer in order to insure continuity of newsletter receipt. (The Newsletter Editor does not handle the mailing list, thank God!) 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), letters to the Editor, 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 on an IBM-XT-compatible 5-1/4" 360K floppy in standard ASCII text format, WordStar version 3.0 - 5.0, Wordperfect up through 5.0, Multimate, MS-Word, and probably a bunch of other junk I haven't tried yet (no one ever reads this fine print!); however, all computer diskettes must be accompanied by a complete paper printout. For a small fee we can also receive FAX transmissions at the printers (FAX only (813) 484-6665 (8am-5pm M-F)). All submissions become the property of the NSS-CDS.

All articles and letters to the Editor should include the author's name (even if he wishes to be printed as anonymous), return address, and NSS # (if any). If the subject matter refers to advanced exploration dives or techniques, or controversial topics such as deep diving, solo diving, questionable practices or safety infractions, please also include relevant biographical information such as professional qualifications (e.g., if your job is relevant or you have a doctoral degree - specify field), number of years cave diving, number of cave dives, level of certification, instructor status (if any, and number of students trained), exploration and survey projects participated in, cave-diving or NSS awards, etc. (modesty shall not be tolerated, but approximates are acceptable), so that readers may reflect upon the subject matter in the context of the author's experience or lack thereof. (Newly certified divers or non-divers are more than welcome to express their opinions; however, the advocacy of advanced techniques by unqualified divers—or manifestly unsafe practices by any diver—may be subject to review and/or censure.) 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

May 27-28, 1989 - NSS-CDS Spring Cave Diving Workshop, "Cave Diving International," Branford High School, Branford, Florida.

Nov. 17-19, 1989 - NSS-CDS Instructor Institute For additional information, contact the Training Chairman.

Dec. 30-31, 1989 - NSS-CDS Winter Cave Diving Work- shop. Branford High School, Branford, Florida.

SPRING WORKSHOP TAKES SHAPE

Plans are well under way for the NSS Cave Diving Section's SPRING WORKSHOP, to be held over Memorial Day Weekend, Saturday - Sunday, May 27-18, 1989 at the Branford High School in Branford, Florida. This year's victim-volunteers for chairing the workshop are Winter Workshop Chairman Kathy McNally, a fourth-year medical student at the University of Miami, and NSS-CDS Board Member Lamar Hires, a Cave Diving Instructor and National Sales Manager for Dive Rite Manufacturing in Lake City.

The Spring Workshop is entitled "Cave Diving International." Among the list of potential or confirmed Saturday-morning speakers are Wes Skiles, with beautiful new footage from the caves of Australia; Sheck Exley, with exciting presentations on his most recent new depth record at Mante, Mexico and his new distance record at Chip's Hole in Tallahassee; Kevin Downey, on the exotic caves of China; Tom Morris, on the springs and caves of northern Mexico; Joe Prosser, on "Changes to the NSS-CDS Training Program"; and Kelly Brady, on "Awareness in Cave Diving."

Saturday afternoon there will be several mini-workshops, tentatively: "Underwater Still Photography" by Jamie Hempstead (the owner of nine Nikonos cameras!), "Underwater Video" by Don Landis, "Sump Diving" by John Schweyen, and "Issues in Cave Diving Safety" by Mark Leonard. There will be a party at Ginnie Springs that evening, with the traditional cave-diving film festival.

For Sunday plans are in the works for guided canoe trips on the Santa Fe River with a talk on the springs, one-hour karst-terrain sightseeing flights with pilot/guide Sheck Exley, an Introduction to Cavern Diving (for Open-Water-certified divers), an Introduction to DPV Piloting (with Tekna scooters provided—Full-Cave certified-divers only), guided tours of Azure Blue and other caves to be announced (with such highly respected diver-guides as Woody Jasper, Tom Morris, and Bob McGuire), a water session for the Still Photography workshop, and the complete Survey Course taught by John Burge (see separate announcement below). There will be a Bonfire Party at Spring Systems Dive Center that evening.

There will be a nominal registration fee and additional charges for a few of the special offerings. All divers and non-divers alike are welcome to attend. A separate pre-registration flier will be mailed to all NSS-CDS members and subscribers shortly.

SURVEY SPECIALTY COURSE TO BE OFFERED AT SPRING WORKSHOP

- by John Burge

The NSS-CDS specialty course, "Basic Underwater Cave Surveying," will be offered during the second day of the Spring Workshop. The course will take a full (long) day and consist of half a day of lecture and theory on techniques and procedures, and half a day of field exercises (dry land). Those wishing to attend should pre-register. Course prerequisites are:

The student should read the textbook, *Basic Underwater Cave Surveying*, prior to attending the class. This book can be obtained from the NSS Bookstore, NSS-CDS Publications, or several of the dive shops catering to cave divers.

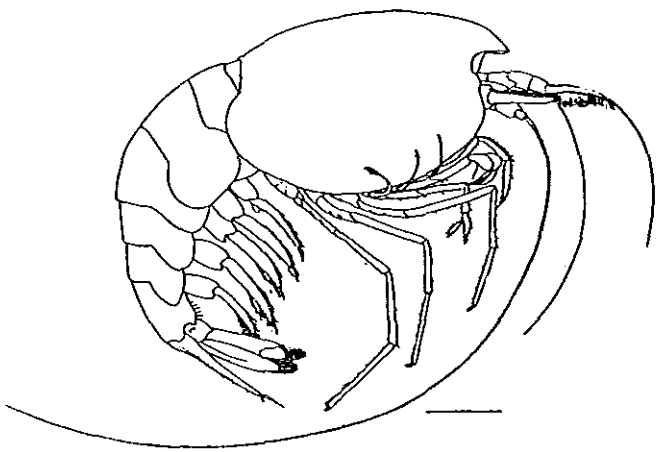
The student should bring to class a line reel (knotted in 10' increments), a slate, a compass and a small calculator—preferably one which will perform trig functions, although the latter is not mandatory. All other course materials will be furnished. The student should be certified as Basic Cave Diver or equivalent.

The course will be taught by John Burge, NSS-CDS Cave Diving Instructor and author of *Basic Underwater Cave Surveying.*

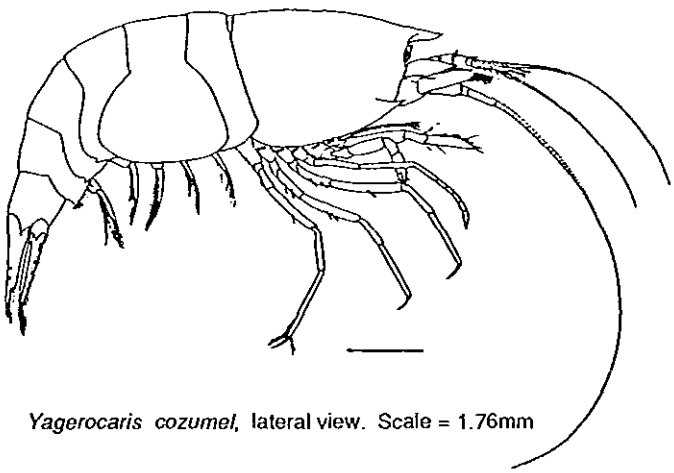
NEW CAVE SPECIES NAMED AFTER JEFF BOZANIC AND JILL YAGER

The *Journal of Crustacean Biology* [8(4): 688-699, 1989] contains an article, "New Species and Record of Cave Shrimps from the Yucatan Peninsula (Decapoda: Agostrocarididae and Hippolytidae)," by Brian Kensley, which describes two new cave species named after Section members Jeff Bozanic (Section Chairman) and Jill Yager (Biology Program Chairman). Kensley's abstract reads:

"The second known agostocaridid shrimp, *Agostocaris bozanici*, is described from a cenote on Cozumel Island. The new species is characterized by having a dorsally unarmed rostrum, and five pairs of lateral, and five pairs of posterior spines on the telson. A new genus and species of hippolytid, *Yagerocaris cozumel*, is described from a different cenote and an anchialine cave on Cozumel. The genus is characterized primarily by the possession of a very strong pterygostomian spine on the carapace, subequal second pereiopods in which the carpi have five articles, a single arthrobranch of maxilliped three, and a rectangular posterior lobe on the telson. Both shrimps are true anchialines, having been taken from the marine-salinity water in cenotes well away from the coast, and both have reduced eyes. The hippolytid shrimps *Somersiella sterreri* Hart and Manning (perviously known only from Bermuda) and *Janicea antiquensis* (Chace) (previously recorded from Antigua, Bermuda, and the Bahamas) are recorded from a cave on Cozumel Island. While these latter two species show some differences from the original descriptions, it is felt to be premature to place them in new taxa."



Agostocaris bozanici, lateral view. Scale = 1.64mm



Yagerocaris cozumel, lateral view. Scale = 1.76mm

NACD COMPUTER BULLETIN BOARD

March 7, 1989

Dear Editor,

This is to let you know, and hopefully, to have announced in *Underwater Speleology*, that the NACD has set up and is currently running the first Electronic Bulletin Board System (BBS) for cave diving.

The NACD BBS began running on March 3, 1989, and is the first Electronic Bulletin Board exclusively for cave divers and run by cave divers. Areas on equipment technology, dive-site reports, a general forum for the exchange of ideas, and a files area for downloading files (currently for the IBM compatible computer) are available. Files for other computers will be posted as they become available.

The phone number is: 912-246-3280

The operating parameters are: 8-1-N

The modem currently supports 300 and 1200 baud calls.

Hours of operation are: 24 hours/day, 7 days/week.

Full access is available to members of the NACD and the NSS-CDS. There is no charge for the use of this BBS.

All new users have to do is call, and complete the registration process from the Main Menu. They will be upgraded and granted full access within 48 hours, usually within 24 hours.

Thanks, John T. Crea (NSS #26052), Bainbridge, Georgia, NACD Vice President and NACD BBS System Operator

NSS-CDS INSTRUCTOR MEETING
- by Joe Prosser, Training Chairman

An NSS-CDS Instructor Meeting was held January 1, 1989 at the Suwannee River Cove Restaurant, Branford, Florida. The meeting was called to order by Training Chairman Joe Prosser at 6:45pm. The purpose of the meeting was to allow Section Instructors the opportunity to voice their opinions on the direction of our training program. Prosser had also asked for members of the CDS Board of Directors to be present so that they, too, could listen to what the instructors had to say. Members of the BOD present included: Treasurer Lee Ann Hires, Pete Butt, H.V. Grey, Lamar Hires, and Joe Prosser. BOD Chairman Jeff Bozanic and Vice Chairman John Burge were unable to attend.

Instructors, BOD members, invited guests, and interested persons totaled some 60 people in attendance. CDS instructors in attendance included:

Lloyd W. Bailey, Jr.
Jim Bowden
Kelly Brady
Gene Broome
Peter L. Butt
Gina I. Chenoweth
James G. Coke, IV
William I. Hay
Lamar Hires, Jr.
Rick Lamb
Mark D. Leonard
Wayne McKinnon
Ronald G. Menke
Mario F. Mitchell
Sondra J. Mohrman
Lt. Henry W. Nicholson
Joe Prosser
Jack A. Rensch
Cliff L. Rooker
Philip L. Sirota
Wesley C. Skiles
Thomas M. Young
Dr. Jonn L. Zumrick

Joe began the meeting by announcing that in the 12-month period of 10/01/87 to 9/30/88 some 1764 certification cards were issued by the CDS and a total of over 2200 Student Registration Forms were turned in. This represented nearly a 30% increase over the same period last year. The instructor responsible for the most certifications was Pete Butt with over 300.

Joe also updated instructors on the progress of obtaining Professional Liability Insurance for CDS Instructors. Attempts to find a carrier willing to handle insurance for either the CDS or the NACD alone or jointly were unsuccessful. There just are not enough instructors available to make it attractive at this time. However, Jeff Bozanic (NAUI), Jack Rensch (PADI), and Ron Menke (YMCA) had each approached their national training agencies to find out if special riders could be obtained for cave diving.

Jack had received official notification from PADI and as suspected, PADI will not cover cave-diving training in any way, shape, or form other than their current Cavern Diver Speciality Course. Jeff had approached NAUI and although NAUI does offer Cave Diving as a speciality, the main concern he found had to do with the potential decompression dives our instructors are likely to encounter during a cave-diving course. At this time NAUI's Training Director, Dennis Graver, has indicated that they are willing to approach their insurance carrier and will attempt to find out if the carrier is willing to write the special rider. No word has come back at this time. As soon as we learn, one way or the other, instructors will be notified.

Jeff also approached NAUI regarding instructor-to-student ratios. NAUI's current policies read 2:1 for all specialities. Jeff feels that NAUI is willing to adopt cave-diving community standards for cavern through cave but this has not been accomplished as of this date. Ron reported a similar story from the YMCA regarding coverage for potential decompression. Ron said that he was trying to obtain a more definite policy statement.

Joe also announced that it was likely that the CDS BOD will require instructors to at least maintain their "active teaching" status with some nationally recognized training organization by the end of next year, if not sooner. Currently the CDS requires instructors to be certified open-water scuba instructors only. Joe mentioned that this requirement is unlikely to effect instructors certified by the CDS in the last three years but it may effect some of the earlier instructors who have allowed their open-water status to lapse. Jeff Bozanic had asked Joe to tell the instructors that should this requirement go into effect, Jeff would make arrangements through NAUI for a cross-over institute for CDS instructors at minimum cost to the instructors.

Cavern Diver Course - Instructor Outline. Prosser reported that since the introduction of the Cavern Diving Manual interest has been high for additional support materials from the open-water agencies. Work on modifying the existing cavern material for open-water agencies has been going well but slower than originally expected. Jack Rensch and Harry Averill have been assisting with materials for use by PADI; Jeff Bozanic has been reviewing materials for NAUI and Ron Menke for the Y. Completion is expected by midyear. No other changes are expected for this course.

Basic Cave Diver Course. Prosser opened the discussion by stating that this course has remained basically unchanged since its conception. The original goal was to make it easier for people who lived a long way away from Florida training sites to take the course. Numerous conversations with instructors suggest that this course may no longer be meeting the needs of students and in fact may even be creating more problems that it is worth. Problems seem to stem from divers taking the course and considering themselves actual cave divers and conducting extremely complex dives without the benefit of additional training. Others have suggested that time limits (ranging from one year to three years) are required. Others still suggest that the course is just fine and that only a few persons are out there disregarding the concepts presented in this level of training. Joe asked for input from the instructors.

Kelly Brady. He wants an expiration or review date two years after issuance. He thought it would encourage the person to be back in contact with the instructor and would also encourage the diver to continue on to the full cave course.

Pete Butt. He was opposed to the idea of an expiration. Pete added that he felt we were having a "knee-jerk" reaction

to the recent deaths [of two Basic-Cave-certified divers]. We would have cards issued under old rules; cards issued under new rules; expired cards; and people who wouldn't take the course because they don't want a card that will expire. He also thought that adding an expiration date wouldn't solve any problems.

Lamar Hires. The old safety brochure said that there was a time limit of two years. He would like to see an expiration date but wasn't sure what can of worms such a program would create.

Joe Prosser. Joe pointed out to Lamar and others that the referenced safety brochure said only that the student had two years in which to complete full-cave-diver training. There were no penalties imposed on someone who did not complete the program within the time limit set and that no one Joe had talked with yet (involved with the original training program and/or safety brochures) knew anything about the time limit. Since there was never any reference to a time limit in any official (or unofficial) training documents, the time limit was likely no more than someone's insertion into the brochure during one of the many revisions it underwent over the years.

John Zumrick. Added that when the program was set up, it was hard to find out when a course was to be held. Most interested people had already gotten in 20 cavern or cave dives before ever considering a course. A modular approach was taken to facilitate instruction; a student could take different parts of the cave-diver training from several different instructors. Certification cards were issued so that the student could show the next instructor that he had received some training already and from whom. There was no formal instructor manual at that time.

Henry Nicholson. The idea of weekend cavern- and/or cave-diving courses has bothered him for some time. He feels that the courses are difficult to teach within the time limits available and the class sizes typical. If it rains, or if the students are weak divers coming into these courses it is very difficult to provide all of the information that the courses demand within the time limit. He also felt that many of the students were not getting all the training that they should be getting. Henry suggested lengthening the time set for the course. This might include expanding the course to two weekends and bringing it up to the level of our current full-cave course, then expanding the current cave course to cover additional problem areas that we are seeing today.

Lloyd Bailey. He said that some Basic Cave divers were double staging only a few weeks out of the Basic Cave Course. He asked why these people were not taking the full-cave training. He saw cost as the primary deterrent, then equipment, and time being lesser deterrents. Some students say that they are "not ready"; others think that they "do not need it." He thinks that anything to strengthen training is good and is in favor of an expiration date for the Basic Cave cards. This expiration date would deliberately inconvenience the diver. It would also encourage them to want to continue on to full-cave. Also, expiring the cards would get the students to reevaluate their skills. The majority are going to go on to use double tanks and we ought to do all we can to encourage them to obtain the full measure of training. Lloyd recommended: 1) expiration of the Basic Cave card, 2) not allowing use of doubles in the Basic Cave course unless the student has paid a deposit on the full-cave training, and 3) doesn't feel an obligation to certify, only to train.

Wayne McKinnon. He was opposed to the idea of a time limit on certification. Divers are constantly being taught to approach cave diving at their own pace. Lots of divers need plenty of time to feel prepared to go on into full cave training. Wayne sees no need to punish many divers with a time limit when only a few divers are involved.

Mark Leonard. We are having this discussion because 1) we've lost a couple of Basic Cave students, 2) Conservation - we're seeing damage occur deep into caves typical of untrained cave divers and we all suspect basic-cave types are creating the damage. Mark is against any kind of expiration date because the expiration is not enforceable and as such won't do any good. Both of the Basic Cave divers who died were warned against attempting their final dives, both were warned on the day of their deaths, and both ignored the warning. Mark added that through "Accident Analysis" we had set some very general limitations on cave diving, yet how many in this room have come up with justifications for breaking the depth rule? He said that the divers who died were adults and had made up their own minds to make dives that were beyond their level of training. Mark also warned about increasing the course lengths as he felt that we would cut down on the number of people trained and then we would be seeing more people cave diving with even less training than they are getting under the present rules.

Wes Skiles. Said he has heard a rumble about getting rid of Basic Cave altogether. He asked why were we all so emotional about it? He agreed with Pete Butt that we are having a "knee-jerk" reaction. Wes feels that an expiration would be a lot of trouble and would not be effective. He thinks that we should go ahead and set the standards. He believes that these standards should be either Cavern or Cave trained and that Basic Cave should not be recognized for anything more than a learner's permit between Cavern and Cave.

Ron Menke. He feels that we should either make the Basic Cave course stronger or expire the card.

Joe Prosser. One of the points which has made the Cavern Course so successful is that it really hit home with the student. In the Cavern Course the student is exposed to many new concepts and ideas he has never experienced before. This creates an enthusiasm which carries over to the Basic Cave Course. However, when they get into the Basic Cave Course what the student finds is a warmed-over Cavern Course with very few new wrinkles. He believes that because of this there is less enthusiasm on the student's part to carry the training on to its conclusion. In essence, the student believes, "I know all I need to know. All the full Cave training will do is allow me to perfect some swimming skills with an instructor." At one time we were forced to rehash a lot of the Cavern Course in the Basic Cave Course because there was such a difference in training between one organization and another. At one time it seemed that all students coming from a PADI background had no concept of how to use a guideline. Other organizations had their instructors teach excellent guideline use but provided absolutely no background in buoyancy control or trim. Therefore we were forced to retrain these divers in concepts only taught in an NSS-type course.

Today's Cavern-trained student comes to us with a much better background then ever before. If we are going to get their attention in this Basic Cave Course then we must learn to teach the course smarter. Joe feels that the concept of a Basic Cave Course fulfills a very necessary step in the development of a cave diver. The idea of a time limit has some merit but it can also serve us only to the point of disguising the real source of the problem, that is, that we are not providing sufficient encouragement for the Basic Cave Diver to want to go on to completing his training with as much desire as that same student expressed when making the change from Cavern to Basic. If that desire were present, then it would make little difference what we did regarding a time limit.

Joe suggested that the instructors consider some structural changes to the Basic Cave Diver Course. Among these: 1) inclusion of much needed conservation (a subject that is just breezed-over in our current teaching), which could be one inducement to continue on in the training as most divers are interested in maintaining the caves and do not wish to cause harm; 2) stress the differences encountered with the diverse

types of guidelines to be found beyond those in use in Florida's more popular caves; 3) more rigorous indoctrination to emergency procedures like lost divers, damaged guidelines, and even greater time spent on evaluating just how little reserve there really is when 2/3's air planning is utilized.

Conclusion. Additional conversation was exchanged between several instructors and guests asking for clarification on some points and exchanging concerns about other points. The instructors were asked for volunteers to examine this course and report back by the next workshop.

Cave Diver Course. Joe Prosser opened the discussion by describing the concerns that the 1985 Training Committee encountered regarding proposed changes to the Cave Diver training at that time. These included strong resistance by many active instructors to changes in a program that was working and meeting the needs of the students at the time. Joe went on to add that he felt that the course need not undergo as much a structural change as might be the case for the Basic Cave diver course but rather a modular approach to the course to be assured that the materials common to any Cave Diver course were at least covered to the same measure. He also said that this was not an attempt to tightly structure the course as he believed that it was vitally important to maintain flexibility to customize for the student. It is necessary to be confident that a Cave Diver Course taught by one instructor at least covers the same materials covered by another.

Mark Leonard. Has been offering a modular approach to his courses for some time. Others, like Lamar and Pete, have their own versions of the same materials and they are pleased with the results. Modular approaches assure that even while a course can alter dramatically from one student to the next, basic materials are consistently covered.

Conclusions. Many of the instructors voiced opinions that such an approach was possible and asked that a committee look into it and report back.

Speciality Courses. Joe Prosser asked if the instructors saw a need for the CDS to offer speciality training above those currently offered today? Perhaps something along the line of an Extended Exploration Course, to cover the unusual circumstances one might encounter when exploring beyond the normal limitations imposed by twin-diving cylinders.

John Zumrick. Thought the idea had no merit at all at this time. If we need to explain how to stage dive then it can be covered at the end of the Cave Diver Training Course.

Gina Chenoweth. Perhaps we should start to consider the need for such training as a way to prepare us for the future.

Wes Skiles. Most of our specialities are made available through the workshops. The workshops are the place for this type of training and that has seemed to fulfill our needs. We really don't have to be concerned with organizing formal training.

Conclusions. Most instructors seemed to follow Wes's lead in this area and the matter was dropped.

Meeting Conclusion. A suggestion was made from the floor that a committee be selected to review all of the training-related materials discussed and to make recommendations to the instructors by the next workshop. From the volunteers nominated for the independent committee, Joe Prosser selected seven cave-diving instructors to report back to him. The seven cave-diving instructors selected were: Lloyd Bailey, Gene Broome, Pete Butt, Lamar Hires, Mark Leonard, Henry Nicholson, and Ron Menke. From this group nearly 60% of the CDS certifications were issued in 1988.

TRAINING COMMITTEE MEETING

- by Joe Prosser, Training Chairman

A Committee Meeting of the above-mentioned special Training Committee met January 17, 1989. The Training Committee unanimously agreed to the following recommendations:

1) Change the current training program, consisting of one (1) two-day Cavern Diver Course, one (1) two-day Basic Cave Diver Course, and one (1) four-day Cave Diver Course, to four (4) two-day courses. These new courses and related comments are:

Course Title	Length	Comment
Cavern Course	2-day	No expiration
Introduction To Cave	2-day	No expiration date Single tank only
Intro To Full Cave	2-day	One-year Temp. Card
Full Cave Diver	2-day	No expiration date

At a later meeting the Training Committee will decide on recommendations regarding course content.

REVISED COURSE DESCRIPTIONS

As a consequence of the NSS-CDS Training Committee's meeting on March 19, 1989, the following tentative revised course descriptions were developed along the lines discussed at the January 17th meeting (reported above). The revisions below are in no way intended to reflect a final decision on the Training Committee's part as to any part of the courses. Training Chairman Joe Prosser will be speaking about the course revisions at the Spring Workshop.

INTRODUCTION TO CAVE DIVING
MINIMUM COURSE REQUIREMENTS AND DESCRIPTION

I. PURPOSE: **Introduction to Cave Diving** is a single-diving-cylinder overture to the most basic principles of cave diving. **Introduction to Cave Diving** follows the Cavern Course as the Cave Diving Section's second step in the development of safe techniques for cave diving. The basis of this course is aimed at perfecting skills taught in the cavern-diving program as well as instructing in additional techniques and procedures required for the most elementary of cave dives. Cave dives are planned around very limited penetrations so that the diver may progress into cave diving at a conservative pace. The **Introduction to Cave Diving** course is not intended to train divers for all facets of cave diving. Accident analysis continues to form the basis of the training.

II. COURSE DURATION: Approximately 2 days (beyond Cavern Diver).

III. PREREQUISITE: NSS Cavern Diver certification and proof of some form of advanced open-water training or the equivalent.

IV. LECTURE: At least five (5) hours covering a review of the Cavern Diver program with emphasis placed on the differing techniques and procedures used in a cave. An introduction to the basic guideline configurations typically found inside of popular cave-diving locations with an increased awareness of the delicate nature of the cave system is included. Additional techniques required to minimize potential damage to the cave system will be presented. Accident analysis and its application to typical cave-diving scenarios will form the basis of the emphasis placed on team dive planning.

V. RECOMMENDED TEXT: *Basic Cave Diving - A Blueprint for Survival*, by Sheck Exley.

VI. LAND DRILLS: Use of a safety reel in lost-diver procedures.

VII. CAVE DIVES: Four (4) limited-penetration cave dives in at least two (2) different locations, with one (1) location to be different from those utilized in the Cavern Diver course. These skills may be combined in any manner. Cave dives

are to include:
1. Sharing air and safety drill on each dive.
2. Line following (eyes closed) using touch-contact method of communication.
3. Air sharing in a simulated out-of-air scenario during exit from cave.
4. Use of guidelines in caves.
5. Additional techniques in achieving buoyancy, proper trim, and efficient conservation-minded propulsion techniques.
6. Students to plan dives.

VIII. LIMITS:
1. Penetration is limited to one-third (1/3) of a single diving cylinder.
2. Penetrations are limited to simple linear swims only. No jumps, circuits, traverses, or mazes are allowed.
3. 100 feet maximum depth.
4. 30 feet minimum visibility.
5. No restrictions (any area smaller than that which can be crossed by two divers swimming side by side).
6. No decompression diving.

IX. EQUIPMENT: Each student diver will supply all equipment listed for cavern diving with the following additions or exceptions:
1. Minimum cylinder size is 71.2 cf. with a minimum starting pressure of at least 2000psi regardless of cylinder size utilized.
2. Dual-orifice (Y) valve.
3. Second single-hose regulator (equipped with 5-foot second-stage intermediate-pressure hose; 7-foot hose recommended).
4. Third battery-powered diving light.
5. Safety reel with minimum 75 feet of guideline.
6. Watch (bottom timer), depth gauge, slate, pencil, and submersible dive tables for each diver.
7. At least (3) line markers (clothes pins or plastic line markers).
8. One (1) primary cave-diving reel with approximately 400 feet of guideline per team.

X. INSTRUCTOR:
1. Student/instructor (in-cave) ratio maximum 3:1.
2. Maximum for field exercises may not exceed a student/instructor ratio of 6:1.
3. Instructor must use (at least) full cave-diving equipment during all water exercises.
4. To conduct this level of training an NSS-CDS Instructor must be an "Active Status" (full) Cave Diving Instructor.

XI. CERTIFICATION AGE: Minimum age for certification for the NSS-CDS **Introduction to Cave Diving** is eighteen (18) years of age.

XII. JUVENILE PARTICIPANTS: Applicants must be at least sixteen (16) years of age to participate in the training and may do so only at the discretion of the instructor. Applicants less than eighteen (18) years old but at least sixteen (16) years old may, upon successful completion of all phases of training, qualify for PROVISIONAL STATUS CERTIFICATION. This provision states that the adolescent diver must dive with an adult who is certified at least at the same level. Prior to the beginning of training applicants under the age of eighteen (18) years old must supply to the instructor a signed (by both parents or legal guardian) and notarized waiver.

XIII. EQUIPMENT NOTATION: This course is intended to be taught with all of the students using single diving cylinders only. The instructor is stipulated to require all students to use single diving cylinders through this level of training. If the instructor is confident that individual student(s) will directly follow up this course with the next level of training, then that student(s) may be allowed to partake in the course with twin diving cylinders. Twin diving cylinders must be at least 71.2 cf. each (starting pressure of at least 2000psi regardless of cylinder size utilized), or the equivalent. Cylinder(s) must be set up back-mounted with a dual-valve manifold.

Should the student be allowed to participate in this course with twin diving cylinders, the instructor will note this exception on the student registration form and indicate that no certification card is to be issued. Such forms will be held by the Training Chairman for at least one year before being entered into the training records.

APPRENTICE CAVE DIVER
MINIMUM COURSE REQUIREMENTS AND DESCRIPTION

I. PURPOSE: This is the third in a series of cave-diver-development training courses. Emphasis is upon dive planning and skill perfection through actual cave dives. Techniques learned through the earlier Introduction to Cave Diving and Cavern Diver courses are critiqued and expanded. Exposure to different cave-diving scenarios is the foundation of this training. The Apprentice Cave Diver course is not intended to prepare divers for evaluating all facets of cave diving. It is intended to expose students to basic fundamental principles of cave diving. Students are encouraged to move on to the next level of training before attempting to plan and execute complex cave dives.

II. COURSE DURATION: Approximately 2 days (beyond Introduction to Cave Diving Course).

III. PREREQUISITE: NSS Introduction to Cave Diving and proof of some form of advanced open-water training or the equivalent.

IV. LECTURE: At least five (5) hours covering additional gear, procedures, and U.S. Navy Standard Decompression Tables and their application to the special needs of cave diving.

V. RECOMMENDED TEXT: *NSS Cave Diving Manual*, edited by Sheck Exley and India Young.

VI. OPEN-WATER SKILLS: Use of doubles (unless logged proof of ability).

VII. LAND DRILLS: None required.

VIII. CAVE DIVES: A total of four (4) cave dives utilizing three (3) dive sites. At least one (1) of these sites will be a location not utilized in training during the Introduction to Cave Diving or Cavern Diver courses. Cave dives are to include:
1. Equipment check and S-Drill with each dive. Should be second-nature procedure with each dive.
2. At least one dive will include air sharing in a lights-out, eyes-closed situation through a "minor" restriction using a single-file swimming method.
3. Heavy outflow using special propulsion techniques.
4. Referencing as back-up navigation.
5. Line jumping. Techniques and protocol to maintain continuous line to surface.
6. Specialized techniques for buoyancy control.
7. Students to critique their own dives while instructor is to supervise this process.

IX. LIMITS:
1. Penetration limited to one-third (1/3) of twin diving cylinders.
2. 130 feet maximum depth.
3. 20 feet minimum visibility.
4. No gear removal in cave.

X. MINIMUM EQUIPMENT NEEDS PER STUDENT: All gear listed in the Introduction to Cave Diving course with these exceptions and additions:
1. Back-mounted twin diving cylinders (minimum

cylinder size is 71.2 cf. each with a minimum starting pressure of at least 2000psi regardless of cylinder size utilized) with dual-valve orifice.
2. Compass.
3. 25-watt light with 60-minute burn time or equivalent.
4. Gap reel with minimum 50 feet of guideline.

XI. INSTRUCTOR:
1. Maximum student/instructor ratio of 3:1.
2. Instructor must use at least (full) cave-diving equipment during all water exercises.
3. To conduct this level of training an NSS-CDS Instructor must be an "Active Status" (full) Cave Diving Instructor.

XII. CERTIFICATION AGE: Minimum age for participation in an NSS-CDS **Apprentice Cave Diver** training course is eighteen (18) years of age.

XIII. CERTIFICATION: Certification offered for successful completion of this level of training is a temporary certificate only. This certificate is nonrenewable, non-replaceable, and will expire no later than one (1) year after it is issued. The certificate is issued by the instructor with a copy to be forwarded to the Training Chairman.

FULL CAVE DIVER
MINIMUM COURSE REQUIREMENTS AND DESCRIPTION

I. PURPOSE: This is the fourth in a series of cave-diver-development training courses. Emphasis is upon more advanced cave-dive planning and execution. Techniques learned through the earlier Apprentice Cave Diver, Introduction to Cave Diving and Cavern Diver courses are more closely scrutinized to prepare the students for evaluation of their future cave-diving needs. Exposure to more sophisticated cave-diving scenarios is the foundation of this training. Students are introduced to the basics of surveying and are required to provide an elementary sketch of a cave passage.

II. COURSE DURATION: Approximately 2 days (beyond Apprentice Cave Diver Course).

III. PREREQUISITE: NSS Apprentice Cave Diver and proof of some form of advanced open-water training or the equivalent.

IV. LECTURE: At least five (5) hours covering additional gear, procedures, and more sophisticated cave-diving scenarios. Elementary surveying techniques are presented.

V. RECOMMENDED TEXT: *NSS Cave Diving Manual*, edited by Sheck Exley and India Young.

VI. LAND DRILLS: Basic introduction to line placements and station location as required for surveying.

VII. CAVE DIVES: A total of four (4) cave dives utilizing three (3) dive sites. At least two (2) of these sites will be locations not utilized in training during the Apprentice Cave Diver, Introduction to Cave Diving or Cavern Diver courses. The final dive of this course may be utilized to introduce the student to a special aspect of cave diving. This may include a stage dive, side-mounted equipment use, diver-propulsion vehicle use, or sump dive. These specialty dives are intended to be limited in scope and elementary in nature. Cave dives are to include:
1. Equipment check and S-Drill with each dive. Should be second-nature procedure with each dive.
2. Minimum outflow and potentially silty conditions.
   a. Stress analysis.
   b. Emergency procedure planning.
   c. Anti-silting techniques.
3. One dive to a depth of at least 90 feet but no more than 130 feet. Special dive planning and use of U.S. Navy Standard Decompression Tables.
4. Emergency procedure planning to include air sharing through a minor restriction using single-file method.
5. Referencing as back-up navigation.
6. Line jumping, complex mazes. Techniques and protocol to maintain continuous line to surface in more complex cave-diving scenarios than that faced in earlier training.
7. Buoyancy control with specialized techniques required in more complex cave-diving scenarios.
8. Surveying:
   a. Introduction to basics.
   b. Sketch making by students.
9. Students to critique their own dives while the Instructor is to supervise this process.

VIII. LIMITS:
1. Penetration limited to one-third (1/3) of twin diving cylinders.
2. 130 feet maximum depth.
3. 20 feet minimum visibility.
4. No gear removal in cave.

X. MINIMUM EQUIPMENT NEEDS PER STUDENT: All gear listed in the Apprentice Cave Diver course with these exceptions and additions:
1. Dive-cylinder configuration may consist of any twin single-cylinder configuration agreed to by the instructor and student(s).
2. Each team will provide an in-water decompression bottle on all dives in which staged decompression may become a factor. The bottle(s) will incorporate all necessary support gear including, but not limited to: regulator(s) and submersible pressure gauge(s). The bottle(s) will contain adequate gas for at least 1.5 times the expected decompression needs of the dive team. The bottle(s) will be placed in the water by the team and be located at least one stop deeper than the maximum decompression stop expected for the dive.

X. INSTRUCTOR:
1. Maximum student/instructor ratio of 3:1.
2. Instructor must use at least all cave-diving equipment as outlined above.
3. To conduct this level of training an NSS-CDS Instructor must be an "Active Status" (full) Cave Diving Instructor.
4. In order for the instructor to properly supervise the student during the optional dive, the instructor must be sanctioned to conduct the specialty course, where specified, for the type of optional dive planned. The optional dive is to be viewed and implement as an introduction to the specialty only.

XII. MINIMUM AGE: The minimum age for participation in an NSS-CDS **Full Cave Diver** training course is eighteen (18) years of age.

XIII. SUMMARY: Summary of dive, lecture, and training encompass a total of at least fifteen (15) cavern or cave dives in a minimum of at least six (6) different sites over a total of approximately eight (8) days for the entire training from Cavern Diver to the successful completion of the Full Cave Diver training program. Upon successful completion of this phase of training each student will have development the minimum foundation necessary to analyze future cave dives and set reasonable limitation for those cave dives, and to critique future performance for continued improvement.

ASSISTANT CAVERN DIVER INSTRUCTOR
MINIMUM PROGRAM REQUIREMENTS AND DESCRIPTION

I. PURPOSE: Development of a trained Cavern Diver Instructor requires hands-on involvement under the guidance of a seasoned cave-diving instructor. The

Assistant Cavern Instructor program is designed to allow the certified open-water instructor to gain that experience by working hand in hand with a cave-diving instructor especially versed at developing the required level of competence.

II. TRAINING DURATION: Training is highly individualistic. The amount of time invested by both the candidate and the instructor- sponsor is solely dependent on the background of the candidate and the motivation of the instructor-sponsor. The candidate must observe and co-teach at least three (3) NSS Cavern Diver courses with the sponsor before attending the Caver Diver Instructor Evaluation Institute.

III. CANDIDATE BACKGROUND: To enter the Assistant Cavern Instructor program, the candidate must:
1. Provide proof to the Training Chairman that the candidate is an "active status" open-water instructor as defined by one of the U.S. nationally recognized scuba-training agencies. The candidate must also have been an "active status" open-water instructor for at least two years or provide proof of having certified at least 25 divers.
2. Provide proof of having successfully completed an NSS Introduction to Cave Diving course (it is recommended that the candidate complete the Full Cave Diver course prior to entering this program).
3. Provide proof of being a current member of the NSS and the NSS-CDS prior to entering the program.
4. Provide written proof of having secured an authorized instructor-sponsor. The Training Chairman maintains a current list of authorized instructor-sponsors.
5. Submit all registration materials and fees to the Training Chairman for the next available NSS Cavern Diver Instructor Evaluation Institute. [The cost of the Institute covers only the direct expenses incurred by the NSS-CDS. Other costs including, but not limited to, instructor-sponsor fees, transportation, lodging, diving fees, equipment rentals, etc., are the sole responsibility of the candidate.]

IV. CANDIDATE'S RESPONSIBILITY:
1. Obtain and become completely familiar with all current NSS training-related materials plus additional manuals as directed by the Training Chairman.
2. Develop and deliver, under the direction of the instructor-sponsor, lectures and field exercises for all phases of the Cavern Diver Course.
3. Prior to attending the NSS Cavern Diver Instructor Evaluation Institute, the candidate must submit the instructor-sponsor's written nomination for the candidate's attendance at the Institute.

V. INSTRUCTOR-SPONSOR'S RESPONSIBILITY:
1. Indoctrinate the candidate with NSS policy on cavern diving.
2. Assist the candidate in becoming knowledgeable with NSS training-related materials by reviewing and testing candidate on this material.
3. Provide the candidate with supervised hands-on experience at presenting classroom and field exercises to students.
4. Provide a written nomination for the candidate to attend the NSS Cavern Diver Instructor Evaluation Institute only at such time as, in the instructor-sponsor's opinion, that the candidate is ready to undertake the responsibility of conducting a Cavern Diver course without further supervision.
5. Use of an Assistant Cavern Diver Instructor will not change instructor-to-student class ratios.
6. Having two candidates fail, or three candidates placed on "provisional status," can result in the (full) Cave Diver Instructor being dismissed from the sponsor program.

VI. INSTRUCTOR-SPONSOR'S QUALIFICATIONS:
1. Must be an NSS Cave Diver Instructor for a minimum of one (1) year prior to participating in the program.
2. Must complete a special "Sponsor Orientation" session with the Training Chairman, or his appointed representative.
3. Must participate, at least every other year, in a "progress evaluation" of the program and its goals at a time and location established by the Training Chairman.

VII. NSS CAVERN DIVER INSTRUCTOR EVALUATION INSTITUTE: The purpose of the NSS Cavern Diver Instructor Evaluation Institute is to review and evaluate the competency of potential NSS Cavern Diver instructors. The Institute will be under the direction of an Institute Coordinator appointed by the Training Chairman. The Institute Coordinator will organize and administrate the Institute. Duties and material presented at the Institute will include:
1. The Institute Coordinator will select a minimum of two (2) cave-diving instructors to act as Evaluators. Evaluators must be approved by the Training Chairman. The Evaluator-to- candidate ratio shall not exceed 3:1.
2. Candidates will receive an orientation to NSS policy regarding cavern training and will be tested based on the following criteria:
   a. Knowledge and familiarity with NSS training-related materials and policies.
   b. Proficiency in delivering selected training-related topics, both classroom and field subjects selected by the Institute Coordinator.
3. Candidates can receive only one of three grades:
   a. PASS, indicating that the candidate may immediately conduct NSS-sanctioned Cavern Diver Courses (pending completion of associated paperwork).
   b. FAILURE, indicating that, in the opinion of the evaluation staff, the candidate is not ready to conduct sanctioned training and should repeat the institute at a later time.
   c. PROVISIONAL, indicating that, in the opinion of the evaluation staff, the candidate needs additional development in one or more minor areas before conducting sanctioned training. In this event, the Institute Coordinator may return the candidate to his original instructor-sponsor or assign the candidate to another sponsor to complete the necessary assignment.
4. Method of evaluation:
   a. The method of evaluating will be by polling of the Evaluators by the Institute Coordinator.
   b. In the event that a decision, regarding the candidate, is not agreed to by the majority of Evaluators then the decision made by the Institute Coordinator is final.
   c. The Institute Coordinator will provide each of the candidates a verbal summary and written follow-up of decisions made at the Institute.
5. Institute length: Approximately two (2) days.
6. Institute frequency: Minimum of once per calendar year.
7. Sponsor limitations: The Training Chairman may not sponsor any candidate.

VII. EXCEPTIONS AND WAIVERS: The Training Chairman may, on a case-by-case basis, make exceptions or grant waivers to any or all of the above.

CURRENT NSS-CDS INSTRUCTORS

The following is a complete listing of all NSS-CDS Instructors current as of March 1, 1989.

RONALD L. ABNER, 608 Heather Ln., Orange City, FL 32763-4832
ROBERT ANDERSON, POB 1253, High Springs, FL 32643
HARRY H. AVERILL, 702 Bolin Creek Dr., Carrboro, NC 27510
LLOYD W. BAILEY, JR., 3500-F N.W. 97th Blvd., Gainesville, FL 32605
STEVEN J. BERMAN, 2728 Langstaff Dr., Palm Harbor, FL 34683
CHARLES R. BOHRER, 330 Sheridan Ave., Satellite Beach, FL 32937
FRANK R. BOUNTING, POB 667, Belize City, Belize, Central America
JAMES L. BOWDEN, POB 164091, Austin, TX 78716
JEFFREY E. BOZANIC, POB 490462, Key Biscayne, FL 33149-0462
KELLY BRADY, Rt. 1, Box 153, High Springs, FL 32643
JAY BROMENSCHENKEL, Rt. 1 Box 911, High Springs, FL 32643
GENE BROOME, POB 822, Branford, FL 32008
DANIEL B. BUTLER, 840 Hays Cir., Honolulu, HI 96818
JOHN W. BURGE, JR., 11711 Chanticleer Ct., Pensacola, FL 32507
PETER L. BUTT, POB 1057, High Springs, FL 32643
J. W. "TEX" CHALKLEY, POB 3155, Ocala, FL 32678
DUSTIN M. CLESI, POB 1012, Mango, FL 33550
JAMES G. COKE, IV, Postal 1345, Cancun, Quintana Roo, Mexico
JOSEPH R. DABBS, 1815 Inspiration Ln., Huntsville, AL 35801
JOHANNA G. DE GROOT, Postal #1, Playa Del Carmen, Quintana Roo, Mexico
STANLEY J. DOVIAT, 3021 Banksville Rd., Pittsburgh, PA 15216
WILLIAM O. DUNN, 1900 Honey Creek Rd., Conveyers, GA 30208
SHECK EXLEY, Cathedral Canyon, Rt. 8, Box 374, Live Oak, FL 32060
MARC W. EYRING, 18 W. Division St., Winter Garden, FL 32787
STEVEN D. FORMAN, 5400 Struthers Rd., Winter Haven, FL 33884
A. DALE FOX, Cmdr., 10700 Marlborough Rd., Fairfax, VA 22032-2222
KEVIN L. GONZALEZ, 1667 S. Hwy. 17-92, Longwood, FL 32750
WILLIAM I. HAY, POB 1481, Tioga, LA 71477
PAUL C. HEINERTH, 8109 New York Ave., Hudson, FL 34667
JAMIE HEMPSTEAD, POB 6774, Columbus, GA 31907
MARK HERMERDING, 5024 W. 13th, Speedway, IN 46224
LAMAR HIRES, JR., POB 3308, Lake City, FL 32056
THOMAS M. ILIFFE, Bermuda Biological Station, Ferry Reach GE01, Bermuda
PETER S. JUBB, 750 - 7th Ave. N.W., Largo, FL 34640
LEONARD J. KOLCZYNSKI, 5139 Westchase Ct., #3, Jacksonville, FL 32210
MARK D. LEONARD, Rt. 14, Box 136, Lake City, FL 32055
WAYNE MCKINNON, 1520 S. Oates St., Lot 28, Dothan, AL 336301
RONALD G. MENKE, 2300 Dawnwood Ln., Orlando, FL 32809
MARIO F. MITCHELL, 801 Wadell St., Key West, FL 33040
SONDRA J. MOHRMAN, Rt. 1, Box 162, High Springs, FL 32643
MILLEDGE MURPHEY, Ph.D., 1815 N.W. 7th Pl., Gainesville, FL 32603
HENRY W. NICHOLSON, Lt., 4517 Park St., Jacksonville, FL 32205
STEPHEN C. ORMEROID, 629 W. 4th St., Marysville, OH 43040
ROBERT A. POWER, POB HM 1643, Hamilton HMGX, Bermuda
JOE PROSSER, 7400 N.W. 55th St., Miami, FL 33166
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JACK A. RENSCH, 2969 Daisy Ln., Columbus, OH 43204-2204
DAVID W. RHEA, 313 Whitecrest Dr., Maryville, TN 37801
CLIFF L. ROOKER, HCR 66, Box Dive, Henderson, AR, 72544
PHILIP L. SIROTA, Rt. 1, Box 211 U, Wellborn, FL 32094
WESLEY C. SKILES, Rt. 1, Spring Ridge, 418 Billy Brown Ave., High Springs, FL 32643
STEVEN R. STRAATSMA, 2901 Beeler Dr., Tampa, FL 33626
PATTON E. WATSON, POB 250174, Montgomery, AL 36125-0174
DENNIS W. WILLIAMS, 1900 S. Harbor City Blvd., Melbourne, FL 32901
FORREST M. WILSON, 2932 Concord Dr., Decatur, GA 30033
J. BILLY YOUNG, 4920 Winters Chapel Rd. #B-6, Atlanta, GA 30360
THOMAS M. YOUNG, 26555 Westwood Dr., Spring, TX 77386
JOHN L. ZUMRICK, M.D., Capt., 15521 Villisca Tr., Derwood, MD 20855

UNIQUE OPPORTUNITY FOR ALL MEMBERS!!! - by John Burge

A unique opportunity has come up which will give all our members an opportunity to give some real help to young diving students not only on the other side of the world, but on the other side of the Iron Curtain.

We recently received a letter from Jerzy Zmurkiewicz of Swidnica, Poland, asking us for help. Jerzy teaches diving to young Polish students interested in diving, but he works under a terrific handicap for lack of equipment and has asked us for help. A copy of his letter and our reply is printed below.

If you would like to do a good turn and donate a pair of gloves, a hood you rarely use, booties, one of your old BC's or even one of your older-model, spare, backup, quadruple redundant extra regulators, then join the gang. Ship your donations to:

Dive Rite Manufacturing Co.
ATTN: Lamar Hires
Rt. 14, Box 136
Lake City, FL 32055

Dive Rite has generously agreed to act as the collecting point and to pack and ship the equipment that is donated. The Section will pay the freight. We will have a nice plaque made with your name as a contributor to be sent with the equipment.

What do you say? How about taking a few minutes and picking out something you can spare. You can also give it to any of the CDS Board Members, and we will see that it gets to Dive Rite. (Don't any of you wise guys send us lead weights, though!)

Swidnica, 6th of January 1989

Dear Friends,

First I want to explain I have found the address and name of your Section in *Skin Diver*, the best source of information about different organizations of American divers and their activity.

I would like to ask you if you can help our youth who want to dive and is members of two scouts underwater clubs (the Moana in Wroclaw and the Trawers in Zlotoryja) and one students club Skorpena at Agriculture Academy in Olsztyn.

We have serious problems with dive equipment. Nobody products this equipment in Poland from many years and we must use old and very often primitive gear made in Poland and other socialist countries many years ago. Yes, some Polish experienced divers have different pieces of dive equipment made in West Europe, but this source is too expensive for every us particularly for youth.

I take part in teaching youth as assistant of instructor at our summers camps from six years. I and my friends want to teach our boys and girls as well as possible and we want to keep the terms of safety. How we can teach well if, of example, they have masks with plexiglass or made of hard rubber which is wounding the skin of face after one week of schooling. We take the group 3-4 persons under water to teach using the decompression tables and it is even too few ones for all members of group. Next, we cannot teach different function of BCs without any BC in group. Moreover water in Polish lakes is dark and cold and my young partner who has not gloves and socks is frozen after 10-15 minutes of staying in water. Sometimes this is not dive exercise for him but underwater survival, please believe me.

There are not accidents, that is fact and our success. This is the result of caution and prudence, but I always ask—what about the modern principles of safety? What about the pleasure of such diving for every young boys and girls who want to be divers very much.

I do not mean tanks, suits, regulators etc. This equipment is too expensive and too troublesome to send by post, even sea-mail. I mean older models of masks, gloves, hoods, socks, small lamps, knives, BCs (vests) or decompression tables (US Navy or PADI, European depth measure only) or other pieces of dive equipment important for safety and cold water protection which are:

- used but good to use
- unnecessary for you
- not designed for selling from the second hand

Any piece will be invaluable for us.

Maybe this request is naivy and unreal, I do not know, but I hope you will understand well the reasons of my enquire and I will find your understanding and benevolence.

If you have any doubts, other opinion or idea, you want to know more about our problems let me know it, I will reply to any question.

Very truly, Jerzy Zmurkiewicz, Swidnica, Poland
P.S. Please forgive me my English, I learn myself.

March 4, 1989

Dear Jerzy,

Thank you for your letter of January 6, 1989. We wish to commend you both on your initiative and for your contribution to youth in Poland who have the desire to learn to SCUBA dive.

Jerzy, the Cave Diving Section of the National Speleological Society has no diving equipment of any consequence. All the equipment used in our activities is the personal property of the individual members of our organization. Therefore, we have no such equipment to donate to your cause.

However, we do have several hundred members, many of whom are active divers and who may consider donating some of their used equipment for your use. With this thought in mind, we will plan to publish your letter in our Section publication, *Underwater Speleology*, at the next publication date. With a copy of your letter, we will publish an article giving our individual members as opportunity to donate equipment in response to your request. If we receive any meaningful donations, we will ship this equipment to the underwater club mentioned in your letter that is associated with the Academy....Club Skorpena at Agriculture Academy.

Before we could donate any diving equipment, we will need the address of the Academy and a statement on their letterhead to the effect that any SCUBA diving equipment received from our organization will be used by either qualified divers or by students under the direct supervision of a qualified instructor. I am sure that you can understand why we would require such a statement.

Of course, we have no way of knowing at this time how many, if any, of our membership may be willing to donate any equipment. Also, we have no way of knowing if any equipment is donated if it would be worth the cost of shipping all the way to Poland. Therefore, even tough we empathize with your plight and will conduct this program as we have outlined, please do not count on receiving any equipment unless and until we get some kind of response from our membership.

We expect to publish our next newsletter with your letter during March or April and should know if we have any responses by the May/June time frame at which time we will advise you. In the meantime, we would ask that you send us a letter with the statement we will need from the Academy.

Wishing you all the best, and safe diving,
John Burge
For the NSSCDS

MINIMIZING HAZARDS IN CAVE-DIVING INSTRUCTION - by Milledge Murphey

[About the Author: Milledge Murphey, Ph.D. (Psychology) is Director of the University of Florida Academic Diving Program, Training Chairman of the NACD (National Association for Cave Diving), and a recipient of the International Safe Cave Diving Award (which recognizes the completion of 1000 cave dives). He has written extensively on cave diving for numerous diving and caving publications.]

Having recently certified the famed subaquatic cave explorer and peerless cave-diving equipment designer and hand crafter, Ray Wester of Tallahassee, I had decided to gently semi-retire from active instruction. This would be a nice way to go out with memories of the Bob Goodman/Ray Wester explorations dancing in my head, and then Ray and I could do "grins" dives as middled-aged cave divers should, to our hearts' content. Enter a conversation with a dive-center operator in need of an instructor and I am once again teaching a Basic (Introduction to) Cave course in the Branford area on November 24 and 25, 1988.

In preparation for teaching the course, I, as in the past, routinely checked my notes, the paperwork in my briefcase for NACD, NSS-CDS, NAUI and YMCA, and drove to Branford with full cave gear packed for another (and final) class. I got there at 9:00am and began the lectures, line drills and equipment evaluations/modifications typical of any Basic (Introduction to) Cave course. The students were a group from Virginia who had taken their Cavern Diver training one year earlier, and as we knew each other form the past, we were convivial from the outset.

The training dives proceeded without incident, and as I had four students, I was doing each dive twice. Everyone was enjoying Little River in air-clear condition and the students ran the reel with better than average ability.

As we began one of the training dives, we had planned a penetration to Table Rock where we would turn and exit in a leisurely manner. All checks completed, we submerged for what I guessed would be an uneventful 20-25 minute training dive, and the two students preceded me into the cave to demonstrate their reel-handling, line-running, and technique skills.

The dive proceeded smoothly, and soon we were at the permanent line in good form. With an air-pressure check at that point we proceeded to drop through the keyhole and begin a leisurely pull and glide toward the famous Table Rock turnpoint. As we rounded the right-hand turn to view the rock, the lead student inexplicably jumped from the permanent line to the Mud Tunnel jump line and swam in followed by his buddy. Neither realized that they had switched from the permanent line to the jump line. I immediately flashed them and they responded quickly, the lead diver losing neutral buoyancy and falling into the clay as he turned his head to the left rear to look back at me and my flashing 50-watt English light.

Abruptly the visibility diminished to a clay-clouded zero. Within milliseconds I was confronted with the originally leading student's mask three inches from mine, open mouthed (no regulator in mouth), frantically signalling out of air. I immediately handed him my 7' hose, thankful that the second stage for my long hose was in my mouth where locating and passing it was maximally instinctive and immediate. The visibility then diminished further as I gained my short-hose backup regulator from the base of my throat where it is affixed via use of a rubber neck-encircling band. I then rested in the near-zero visibility for a moment, and clicked off the emergency protocols (out-of-air diver to lead out, wait until silt clears to move, check air pressure, caution student to breathe conservatively, locate line when water clears, check on other

student's position and condition, etc.). I was glad I had 100's on, glad I had begun the dive with 2000+psi, and glad I had my regulators configured in the Hogarthian manner, long hose in mouth, short hose in immediate-location position, otherwise this dive could have ended before we surfaced.

After about 3-5 minutes the students gained control as the water cleared, and although he was still suffering from optical platter syndrome (his eyes were as big as plates and were unblinking), I gave him a hand-generated "OK," which he returned. I then signaled for him to begin to establish contact with his own backup regulator but he refused, and gave me a near-panic "up" signal. I attempted to calm him further, displaying my pressure gauge and indicating that we had enough air for exit on my equipment and were OK, and that he should resume breathing his backup regulator so we could exit. He refused again and gave me a jerky and near fully panicked "up" signal. I returned it and decided that due to conditions I would lead out as he refused to budge until I moved. (I later learned that he did not move because he was so disoriented that he didn't know which way to proceed on the line.)

I began swimming slowly, looking back to check on his condition every breath and signaling for him to hold onto my arm, leg, body or equipment, which he failed to do. The second student stayed neutral and appeared relaxed as he watched our air sharing, apparently assuming that we were doing an impromptu drill as a part of the training. In the meantime, the student with whom I was sharing air stayed negative and throughout the exit literally walked out of the cave. During the exit he lost the second stage once but we reestablished the air-sharing configuration adequately as the 7' hose provided ample margin for contact maintenance. The other student had watched the entire scenario and exited calmly, never having been involved in his buddy's difficulties.

Upon arrival at the surface I asked the students to describe the events as they had occurred. Both did so with wide variance as to the exact sequence and content of events. I then described my impressions and asked what had caused the out-of-air signal. Upon checking his equipment the student advised me that his primary second-stage mouthpiece was torn. I asked its age and he stated, "two or three years." Here ends the description of events except to state that, as in other similar experiences, both during dive incidents or following recoveries of drowned divers, no one has ever expressed thanks for the effort of saving the life (or in recovery, returning the remains of the deceased loved one to the surface) at the risk of life. This is an aspect of diving which I have never understood, but from experience (personal and reports of others) I know that we're rarely thanked for our efforts.

This event caps off my formal diving-instruction career and as I reflect retrospectively I want to encourage all cave-diving instructors to check very carefully <u>all</u> of their students' equipment before the first dive of any course. In the case of second-stage mouthpieces, I have had one of mine fail (resulting in a near accident) [Ed.: see the author's article, "The 'Apology Dive': A Near Miss," in *Underwater Speleology*, July/Aug. 1987, Vol. 14, No. 4] and have had two students experience similar failures as well. Had I checked the mouthpieces carefully (or even asked the simple question of how old carious rubber products were) of all of the students at the course outset, the incident would not have occurred.

I change most rubber on my own equipment annually—fin and mask straps, regulator diaphragms, all O-rings, second-stage mouthpieces, high-pressure hoses, etc. Such regular replacements are at small cost when compared to the potential hazard(s) which occur when an incident develops, or when the ominous specter of death due to failure of a rubber or silicone mouthpiece (which wholesale for $.65 or $1.85 respectively) occurs.

One other thought I have on the incident is related to the ever more common (Basic) Introduction to Cave course wherein the students are from a northern state and haven't entered the cavern or cave environment since they completed their cavern course in Florida a year or more ago. Perhaps we should give consideration to the potential for a log-check requirement. Such a check might reveal the need for a potential student to have a thorough cavern shakedown check-out dive before beginning even the short penetrations required for a (Basic) Introduction to Cave Diving course.

ONE IS NOT ENOUGH - by Lamar Hires

[Editor's Note: The opinions expressed in this article are its author's and should not be inferred to represent the official policies or attitudes of the NSS Cave Diving Section.

A formal proscription against diving below 130' on air is an integral part of the NSS Cave Diving Section's safety rules as derived from Accident Analysis. Our statistics indicate that almost all underwater-cave fatalities involving divers with some level of cave training have been on dives that have exceeded this maximum recommended depth of 130'. Because of the physiological effects of gas partial pressures at depth, as well as the increased complexity of almost all technical facets of a deep dive, all divers are strongly cautioned against attempting such dives. The NSS Cave Diving Section does <u>not</u> recommend, encourage, or sanction such dives. While the problems outlined in the following article have ramifications applicable to cave diving at any depth, their application to deep diving should be a further demonstration of the potential hazards of such diving.]

ABOUT THE AUTHOR: Lamar Hires has been a Cave Diving Instructor for more than five years, has trained more than 200 cave-diving students, and is on the NSS Cave Diving Section's Board of Directors. He has made well over 1000 cave dives; has participated in the exploration and survey projects of Little River, Bonnet, Cow, Madachaulk, and Wakulla; and is National Sales Manager for Dive Rite Manufacturing in Lake City.]

You are at Diepolders #2 on a Saturday morning doing your equipment check:

Lights working—all three.

Both regulators working.

Air checked—thirds calculated.

Oxygen for decompression and regulator checked.

Time to suit up in a nice 1/4" farmer john, hooded vest and jacket. You go over the dive plan one more time with your buddy and guide: a 30-minute dive at 220'; it's very important to stay on the ceiling, not because of silt, but because the bottom is close to 300' in depth.

Time to hit the water. Your safety drill complete, you start down hanging decompression bottles at 20'. You now continue on down the crack to 180', constantly filling your BC and feeling the wetsuit you put on compressing to the point where it feels like street clothes instead of the thick wetsuit you put on at the surface.

Staying on the ceiling, you slope down to approximately 210', and start around the perimeter of the room, putting more air in your BC, filling it to the point where the overpressure valve bleeds off a little. You reach back to check your BC; it's tight, but you need a little more lift, so you hit the inflator again. A little more air and it's holding. The BC is so tight it's pushing your canister light into your side.

You are enjoying the dive! You're on the ceiling sloping down to 220'; time to hit the inflator again. Air is going into the BC and you hear the overpressure valve bleeding off again so you stop inflating. But air continues to bleed. You hit the inflator again, but the bleeding of air becomes faster and you start to sink.

You're at 240' and going down to 260'. You signal your buddy, but he's not responding—but no wonder: he's at 220' and looking the other way. You continue to put air into your BC, draining your tanks. You're at 280' nearing the floor as tunnel vision starts to take over. Now on the bottom, you finally have the attention of the guide and your buddy. The guide comes down to help but doesn't have enough lift in his BC to help and your buddy is on the verge of blacking out himself. What do you do? Your BC has a hole in it and you are on the bottom at 290', barely holding on to consciousness, with sheer walls to ascend to get out and now very low on air.

Cave-diving safety is based on redundancy and training. Training teaches us how to deal with situations, environment, and proper use of equipment.

Equipment and Redundance. Why is the BC the only piece of equipment that is not backed up, when it gets worked harder than everything else? I mean the BC gets operated at maximum capacity when a cave diver puts on a set of 104's and a wetsuit, not to mention the stage bottles. Operating any piece of equipment at maximum output increases the probability of failure. I am not saying two BC's should be worn all the time. On shallow dives, one BC is adequate when the cave will allow you to exit, even if it means crawling out or bouncing off the floor—even though this technique is not good for the cave.

But two BC's should be mandatory any time there is a straight vertical descent to depth where the only way out is with the BC, or when doing multiple stage diving to take some of the load off your primary BC.

There have been a number of BC failures, everything from seams splitting to overpressure valves sticking open, corrugated hoses being snatched off the BC, and punctures. None of these has resulted in a fatality, but does this have to happen before this is given serious thought?

Drysuits make a good source of backup flotation, but check it out—can you stay afloat on the surface with 104's on and no air in your BC by using your drysuit without blowing air out the seals?

I feel anyone deep diving should have two sources of buoyancy just in case. The scenario I posed could happen to anyone. Maybe those who can should make two sources of buoyancy mandatory. Better safe than sorry!

REAL WORLD - by Alton J. Hall, Jr.

Damn, I'm cold, I tell myself as I sit more than a little scared and very miserable. It's dark outside and even darker inside; as a matter of fact, it is as dark as I have ever seen, an inky black darkness that seems intent on developing me. Swallowed by the darkness; what a pleasant thought. "Come on, Parker, let's go." Thoughts during decompression, after my second cave dive: Little River.

Damn, I'm cold, I think as I lay shivering in bed. The motel air conditioner seems to blast icicles about the recently refurbished room. Oh, well, at least it works, which is better than my previous visit here.

"Get up! Let's go," I say to friend and dive buddy, Steve. Steve and I have been planning this trip since April, when I left the "real world" of presidential politics and moved to Destin to take a sabbatical teaching diving. Lately, as I approach the start of law school, I'm a little unsure about what the "real world" really is. For now, it doesn't matter, as it is time for a pre-breakfast dive at Little River.

Steve signals that decompression is over and we can return to the surface. I again ponder the existence of the "real world" as I ascend through water so clear that I'm not sure it's there. As we break the surface and I signal OK (old habits die hard), I am startled by the number of people sunning on the river bank. Their appearance is as mysterious to me as ours must be to them...we all thought we were alone.

"Gosh, what a beautiful dive." Steve's musical English accent returns my thoughts to the present. "Yes, it was," I answer, thinking how much more comfortable I was this time as opposed to my last visit here as a student.

Steve and I both learned to cave dive under the watchful eye and able tutelage of Parker Turner. After several dozen cave dives and half as many months, I am beginning to feel as comfortable in the cave as Steve and Parker. I just wish I could frog kick as well as they do.... "Let's eat," Steve says as we return to the motel.

After a hearty breakfast and equally pleasant conversation with the owner, we leave the motel in search of a good airfill for the day's second dive. A few miles, $5.00 plus tip, and an hour later, we have what we sought, 3500psi, and the bonus encounter of more nice people. I am again doubting the attributes of the "real world."

"Next stop Ginnie Springs," Steve says as I remove our drysuit underwear from the coin-operated dryer. "We've got to do something about these wrist seals," I tell Steve.

Ginnie Springs, a cave-diver's paradise, I think while forking over the hefty entrance fee. "The diving is worth every penny," Steve encourages. Browsing through the impressive array of cave-diving equipment, while waiting on Steve, I wonder how many people in the "real world" have ever felt the exhilaration and sense of accomplishment that cave diving brings. Suddenly I realize how perfectly sane people can jump of out of a functioning aircraft just for fun. Just as suddenly I wonder if I am a thrill seeker; no, I'm too much of a chicken.

Later, as we enter the Devil's Dungeon, I wonder if Steve is a thrill seeker. Let's hope not, I whisper to myself. The thought is lost as my light catches Steve's bubbles; they appear as hundreds of tiny lights scrambling frantically for the surface. Another day in paradise, I think while watching Steve gracefully negotiate the cave...I've got to learn that kick.

Damn, I'm cold, I think as I crown Steve's second king on our magnetic checkerboard. Decompression is bad enough without getting whipped at checkers. Steve grins behind his regulator as I check the remaining time, hoping for an early reprieve. Even the snails seem to express mirth at my looming defeat.

The sunlight shimmers through the water as we return to its warmth and wholesomeness. Cave diving is so contradictory, I ask Steve if he thinks we enter caves just so we can return to the surface. I think Steve wonders where I come up with such thoughts. The question is moot anyway, as I intend to continue cave diving regardless of the motive. But for now our thoughts are occupied with the long trip back to Destin.

Later, as I prepare to leave Florida and all her attributes, I reflect on the last few months. I recall the students I have introduced to the underwater world, the misty mornings paddling across Merritts Mill Pond, and the sun-baked afternoons on the deck of the diveboat. I think of the small silty tunnels and the strange comfort they provide, the crackling blue of the Gulf, and its awe-inspiring marine life. I remember the skill and patience with which Parker tried to improve my cave-diving skills; I recall trying to duplicate this patience while teaching my wife to dive. Most importantly I think of the friends I have made in Florida, the truest people I've ever known. Contemplating all this instills a certain sense of melancholy, and again I consider the "real world" and wonder...am I entering or leaving.

A. J. SPRING CAVE, Allamakee County, Iowa - by Mike Nelson (NSS #27176)

[Editor's Note: The opinions concerning sump-diving techniques and dive planning expressed in this article are its author's and should not be inferred to represent the official policies or attitudes of the NSS Cave Diving Section. The NSS

Cave Diving Section considers Sump Diving to be a highly advanced, highly specialized form of cave diving that is properly beyond the scope of most recreational cave divers. All divers are cautioned against making such dives without the proper training, equipment, and experience.]

Trip Report - August 4, 1988: Mike Nelson, Delores Nelson, and Greg McCarty.

I took another dive into A. J. with just over 200' of 1/8" line at my disposal. As always, I had felt confident in really getting somewhere this try, but the realities of this line of cave exploring are a bit different when on the scene, as opposed to contemplating them while still at home.

I moved on past the 100' mark that I had attained at the limits of the reel I used on my last dive. The cave appeared to be rising at the next corner. When I reached it, however, there was no air as yet. There was a good-sized joint-aligned room, though, that reached 10' or so to the left past the corner. There were two sharp rights in a row here and the passage gave the distinct feel of almost running into itself. It must come close to paralleling itself for a ways. Beyond these last two right-hand turns the passage got wider and shorter, may 10-12' by 3-4'.

If it was over-excitement that caused me to abort that first dive, then it was being over-calm that caused me to turn around on this one, at around 160-170'. The cave seemed to be trending upwards at the next corner, about 20' ahead, where it turns back left again.

Trip Report - August 28, 1988, "Satisfied at Last": Mike Nelson, Delores Nelson, and Greg McCarty.

This was my 6th dive into A. J. Spring Cave. My exploits are not the stuff that cave legends are made of. If the reports, to this point, have an air of any kind, I hope it is of extreme caution. A. J. has presented me with what may be a very unique cave and a once-in-a-lifetime opportunity to explore and search for large, going dry cave, which is actually what all of this is being done for.

Every dive before this one had left me with the feeling that I could have and should have done more. The demands of scoping out virgin underwater passage for hazards had precluded the accurate reading of the line reel and memorizing passage features. By this dive I was getting accustomed to what I was doing. I also adopted a varied form of the reasoning used by steel workers: "Anything over 20' up (read: beyond free-diving abilities) and height (read: distance from air) doesn't matter any more.

Everything "clicked" on this trip. I kept accurate count of distances and related them to turns and close spots. I monitored my air-pressure gauge better and for the first time took periodic depth readings. From the last passage before the joint-aligned room to the farthest point reached so far, the cave seemed to be trending slightly upwards. So I was truly surprised to find that I was in 5' of water yet. This was a 150' into the sump. While checking out all these details I managed to snag and then unsnag myself from the line.

I scanned the passage ahead before going on and noticed something rather out of place on the ceiling. It was my homemade neoprene boot for my 40-cubic-foot tank! When I couldn't find it before the dive, I had thought that I had just misplaced it. I obviously had dislodged it on the previous trip. Latching onto it and keeping track of it for the rest of the trip in and out was a minor but extra piece of task loading that I was glad to be able to take in stride.

Moving forward I was in cave that remained about 12' wide with a ceiling and floor that were coming together as the passage looked to be making its first gentle turn, to the left. I was working my way over a breakdown pile covered with the first real mud I had encountered in the cave. I was positive I was seeing the underwater reflection of surface ahead and proceeded over the breakdown/mud bank.

Once over the bank, the floor dropped and the ceiling rose. The floor was sand again. Down and slightly to the right the passage looked as though it should go, but there was a sand plug. I looked to the left and there was no cave there either. It made no sense, considering the tremendous amount of water that had to occasionally pass through here to keep things open and clean. Rolling onto my side and looking up I saw what people with more cave knowledge than I, claim had to be a solutionally enlarged joint. My impression, at that time was, and will remain, of looking up into the bottom of a true crevice. Air was visibile about 2' up it. I gave two halfhearted attempts at pushing myself up into it, but decided to familiarize myself with the way out of the last bit of virgin cave I had pushed. I was 200' into the sump, had spent 3 or 4 minutes in this last "room" and my air was nearing the 1/3 level.

As I started back over the mud bank I experienced the first zero vis in A. J. On all of the earlier trips, shining my light ahead while leaving the cave caused the same kind of glare that driving with high beams in fog does. Letting my light float on its lanyard, its diffuse beam allowed me visibility past the end of my arms and reel and usually a couple feet of the line. I was in pitch black as the cave began to squeeze me. Then my harness snagged. Of course, laying there in that situation, the first thought to come into my mind was, "Well, you've gone and done it now." Less conscious was the thought, "Are your friends ever gonna be pissed about having to come drag yer carcass out of here." These are totally natural thoughts that deserve to be ignored.

I unhooked the harness, reeled some line and worked over in the direction where the passage had to be bigger. Then I got stuck on my backup lights. Releasing them, I worked my way over the rest of the pile and back into familiar cave. That didn't matter, though, I still huffed and puffed my way out of the cave using considerably more air than I had coming in. I hauled up into the air-filled room, glad to see the light of my support man, Greg (who, by the way, had followed me in for about 90' to take a look around). I had been in 20 minutes, used 800psi of air in and 1200psi coming out, exiting with exactly 1/3 left.

As the title suggests, this was the first dive into A. J. Spring Cave in which I was totally satisfied with my performance. I had done all I could reasonably expect to do, and a little more. I had negotiated all the passage possible, safely monitored my progress and air consumption, added unexpected tasks, performed unpracticed maneuvers (attempting to explore the crevice) while staying out of my line, encountered "challenges" in zero vis, and dealt with them. I also came out of the cave with more than an inkling of all that I do not know of what I'm doing.

A. J. Spring Cave is truly an enigma. After fast thaws and big rains, the flow from it has filled its stream banks with water a couple of feet deep and 6-8' wide. Under normal conditions its discharge is mere gallons per minute. The rise pool is a pitiful 3-4' in circumference and only 2-1/2' or so deep. The entrance is close with side-mounted gear. Once inside it should be a shallow muddy mess, but it is large and beautifully sculptured cave. (By Iowa standards.) At approximately 255' it is one of the longest caves is Allamakee County. But what is going on in there and where is the rest of the solutional passage?

There is a large deep crevice 30' into the main sump; it could bring in a lot of water but would have little effect on keeping the rest of the cave as clean as it is. Could the horizontal passage continue vertically offset up the crevice/solutionally enlarged joint? Could the apparent sand-filled plug be backing up water until it reaches a point that it has enough pressure to blast out the plug and flush the entire cave clean? (See *NSS News*, Vol. 45, No. 4, April 1987, "Turkey - The Mystery of Altin Besik Duedensuyu Magarasi - The Cradle of Gold.") A possibility, but not too likely. I may have to go in for one more look-see before winter sets in, but will save any attempts at pushing up the

crevice until later.

Looking at the topo map, a conservative estimate would put 100' of rock over A. J. and under Miller's Pit Cave (the second deepest in the state at 107') three miles away in the plateau above. There is room for a little bit of theoretical cave in between. Iowa is not famous for its caves, but its caves really ought to be famous for their challenges.

LETTER TO *THE GAINESVILLE SUN*

January 24, 1989

Dear Sir [Editor of *The Gainesville Sun*],

This letter is in response to the article, entitled "Diver Camp Worries Residents," which appeared in your paper on January 8th [Ed.: reprinted in *Underwater Speleology*, Jan./Feb. 1989, Vol. 16, No. 1]. I have enclosed responses from Dr. Lawrence Abele, Chairman of Biological Science at Florida State University, and Gregg Stanton, Director of the Academic Diving Program and Research Diving Coordinator at Florida State University. It is our joint belief that the aforementioned article portrayed cave divers in a manner which is far from the truth.

To begin with, all cavern- and cave-diving training devotes a great deal of time to teaching students to protect the caves and the surface areas which surround them. The cave-diving community frowns upon the littering of dive sites and urges its members to pick up any garbage which they find. I have many times seen divers exiting the Peacock and Telford systems with handfuls of cans and other assorted garbage which was left by others. When individuals dumped two truck loads of garbage into a sink in the Telford system, it was cave divers who, on their personal time, cleaned out the sink. In addition, just since November, the National Association for Cave Diving (NACD) has sponsored a clean-up of Hornsby Sink and the National Speleological Society's Cave Diving Section (NSS-CDS) has sponsored a clean-up of the Peacock system. Further, both the NACD and the NSS-CDS have Conservation Committees which are devoted to the protection of caves worldwide, and the title of the NSS-CDS's semiannual workshop on December 31st was "Conservation and Safety." Clearly, cave divers have a very high regard for the environment.

Concerning the comment about cave divers being "beer-guzzling, gun-shooting rowd[ies]," there are a number of points about which you should be made aware. First, cave divers come to the Luraville area to cave dive—not to fire guns. The divers realize that they are guests in the area and would not jeopardize this by discharging weapons near these valued dive sites. A case in point is that this past weekend I found a discharged bullet while diving in the basin at Peacock I. NO DIVER WOULD HAVE DONE THIS. The knowledge that another diver might well be in the water would certainly prevent this type of action. This indicates that it is others in the area who are doing the shooting. Second, the consumption of alcohol drastically increases a diver's risk of a condition known as decompression sickness. Decompression sickness can cause paralysis or death in certain situations. Therefore, because of the extended dives which cave divers undertake and the number of dives per day which they make during trips to the Luraville area, most cave divers will not even drink one beer after diving—much less "guzzle" many.

This letter could go on to list and discuss the many other inaccuracies which appeared in the January 8th article. However, the point is clear—the negative statements which were made in the article about cave divers hold little or no truth. The fact of the matter is that there is a small group of people in Luraville who are resistant to change—whether or not it is inevitable. Although the NACD does not wish to make light of the concerns of this group, you should be aware that there are quite a few cave divers who own land in the Luraville area. Further, the people whom I spoke with at Luraville's general store stated that the views expressed in the article about the cave-diving community are not shared by most of the town. They welcome the divers as a source of income for the area.

As a final note, please be aware that the NACD is working with a number of state agencies to provide them with information concerning the aquifers of Florida. It has been discovered that rather than isolated systems, there are large underground rivers in Florida which are capable of carrying pollutants from one area long distances into the drinking water of others. Therefore, the NACD is undertaking projects which are designed to help the state reevaluate its urban planning so as to ensure the quality of the **public's** drinking water. Negative comments, even though they have no basis in fact, can jeopardize the good which the cave-diving community is trying to accomplish.

It is very important that your paper correct the untruths which were stated about cave divers in the January 8th article. The above certainly demonstrates that the community is striving for the protection of the caves and the areas which surround them. I thank you for your understanding in this matter and look forward to reading your paper's next article about cave divers. If you have any questions about this or any future information concerning cave diving, please do not hesitate to contact me,

Sincerely, Christopher H. Muir, Temple Terrace, Florida, NACD Instructor and Public Relations Chairman

LETTERS TO THE EDITOR

[Editor's Note: The opinions expressed in these letters are their authors' and should not be inferred to represent the official policies or attitudes of the NSS Cave Diving Section.]

Dear Editor,

Regarding my article on solo diving ["Sump Diving in the Northeast, Part II: Solo Diving," *Underwater Speleology*, March/April 1988, Vol. 15, No. 2, pp. 6-8]: anyone who thinks I was suggesting diving alone as a way to avoid incompetent buddies completely missed the point. The issue is not one of incompetence, but of inability to communicate.

In general, the sump environment precludes effective communication between divers. Although the group may be working towards a common goal, the team concept fails as exigencies present themselves during the course of the dive. Even if we're talking about experienced, competent divers, what you've got is an uncoordinated team—not a good situation when you're rigging a sump. This, along with the other considerations I mentioned—logistics, liability, and efficiency of exploration—is why I think solo diving is safer in the long run than team diving *in sump conditions*.

I was glad to see that Roger Werner decided not to hold his piece (sic) any longer and made recommendations for mitigating the risks of solo diving—sort of a micro-course on the subject. I don't know of any organization that endorses solo diving either, at least not in the sense that it is official policy. I do know that it is standard procedure outside of this country when difficult conditions are anticipated. In England, after the pool and open-water drills, probationary divers go solo or with an instructor diver, depending on the site. Emphasis is on self-reliance. My understanding is that solo diving is not endorsed any more than team diving, but that solo diving is the norm. To advocate either in official policy would introduce an unhealthy rigidity.

Roger mentioned that he wanted to spur discussion of possible solutions to some of the problems a solo diver might encounter. Well, I found a solution to the entanglement problem earlier this year. The procedure requires a knife, a gap reel, and a tether. With 1/4" three-fingered mitts, closed eyes, and taut line, it takes me about five minutes to cut and splice so that I end up with a continuous guideline-tether combination leading

back to the surface. With a foot of vis, and no gloves, it might take a couple minutes. I'll be including this routine in an article on low-vis guideline technique in the next issue.

John Schweyen (NSS #24848), Hackensack, New Jersey

[Editor's Note: John Schweyen is Program Coordinator of the NSS-CDS's Sump Diving Project.]

February 20, 1989

Dear Editor:

I am responding to Roger Werner's article in UWS 16:1, February 1989, concerning solo diving. I found it very informative. He does not condone solo diving to the diving community, but instead he attempts to explain the risks involved. For those divers who do dive solo, he makes recommendations for a safer solo dive. Overall, I found it to be very good in its content. I commend him for a fine article.

Most of my cave diving is done solo, unfortunately. I am in a situation where trained cave divers are not readily available for me to dive with. I also do most of my diving in general during the weekdays because of my work schedule.

I also do not condone solo diving, but I will continue to solo dive when the situation gives me no other choice. I get withdrawal symptoms if I am out of the water for more than a week. I love diving. Staying out of the water for weeks at a time until and if partners become available for a dive does not set well with me at all.

I do enjoy solo diving in that it gives me an opportunity to really enjoy a dive and not have to worry about my dive partners. It also sharpens my cave-diving skills by diving on a regular basis.

Since I either dive with a double-80 manifold rig or a single 100 with a Y-valve, I almost always carry a pony bottle with me on solo dives. My dives are usually of very short penetration (less than 300'). I have had no problem utilizing my pony bottle to get me back to the surface from a cave dive or deep dive. I have tested it to that effect.

If I dive solo, someone always knows where I am going, and about what time I should be home. I then notify that person upon my return. On a wall dive or deep dive, I wear a weight belt with 12 to 18 pounds of weight, depending on whether I am fully suited or not. I have yet to have a BC problem on these dives (the inflator/deflator buttons do get checked before the dive), but if I do, the weight belt is the first thing to go. I hope I don't have to do this in a real situation!

Whether I solo dive or have partners, my equipment is not neglected by any means. Diving deep or in a cave with poorly maintained equipment is asking for trouble.

Well, I believe I have hashed this out long enough. I hope to continue to see future articles on solo diving. I realize that the vast majority of the diving community is against solo diving, but some of us do dive solo, for whatever reason it may be, so let's keep talking about it. Let's pass on our experiences and recommendations, as Roger Werner did with his article.

Sincerely, Frank R. Lavallee (NSS # 27829), Brandon, Florida

February 22, 1989

Dear Editor,

My bride, Jane Curry, and I recently returned from a week-long vacation in Quintana Roo, Mexico.

I'd like to publicly thank Mike Madden, of Aventura Akumal, and Jim Coke, of Excursiones Akumal, for going out of their way to make our vacation a successful, enjoyable adventure. The graciousness and hospitality offered by both gentlemen was most appreciated and will be long remembered.

Thank you, David Lund

February 8, 1989

Dear Editor,

Al Shamess, David Sawatzky and I would like to thank the many NSS-CDS members at the Winter Workshop who showed us the true meaning of "Southern hospitality," and spent considerable time explaining warm-water techniques to us northern sump divers. The Branford session was overwhelming.

We would particularly like to thank Lamar Hires for his professional instruction and advice, and apologize to him for some rather extensive silt ranching on the first dive. It was not a pretty sight, and Lamar—though still in control—obviously needed a stiff drink that evening. Thanks to Hires we are now marginally acceptable on the muddy fringes of Floridian cave-diving society, and I sincerely hope we can repay him in the near future, by teaching him to dive in 40° water in a wetsuit.

Best Regards, John Pollack (NSS #8945), British Columbia, Canada

February 1, 1989

Dear Editor,

From articles I've read in the NACD Newsletter, the *NSS News*, and the NSS-CDS Newsletter, I've learned that there exists, maybe...possibly...somewhere...at least one computer program for mapping underwater caves that runs on either IBM, Macintosh, or Apple...I think!

I'm an NSS-CDS- and NACD-certified cave diver living in Mexico City. I want to help Mike Madden and Jim Coke in particular, and anyone else interested, with their survey efforts. I direct a computer center in Mexico City, and have access to most common computer types (IBM, Mac, Apple, etc.).

Both Jim and Mike are, as you may know, very active cave-diving instructors, ambassadors of good will, and ardent underwater surveyors living in Akumal on the Yucatan Peninsula of Mexico. They each have several projects on line, and could use some technical help in the form of computer applications. Mike has a copy of SMAPS (thanks to Wes Skiles!) that we will start with. Are there other programs out there?

Dry-cave programs called CMASS and KARST were developed to aid with the Lechuguilla Cave Project (*NSS News*, Dec. 1988). Is it possible to get these programs? Are they for sale? Does anyone know anything about them? I would like to see them and the documentation for them.

What about CAVEFILE? Mentioned in the '87 NSSCDS Member's Manual, it can be "combined with regular Macintosh-based cave plotting programs." What regular Mac cave-plotting programs? Who has these regular programs? Who has CAVEFILE?

Please help me if you can. If you have this software and are willing to share or sell it, or if you know someone who does have it, or if you know where it can be purchased, please contact me.

You may hear from a friend that <u>they</u> got the same letter that you are reading—very possible! I'm sending this letter to several people hoping to find the software. However, please don't assume that "the other guy will do it"! If you can help, do it yourself. I will respond to every letter that I get and return disks within two days.

Many thanks for your help and safe caving!

Harve Thorn
Director, Computer Program
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[Ed.: The following letter from the NSS Survey and Cartography Section Chairman John H. Ganter of the Dept. of Geography at Pennsylvania State University, is the first of, hopefully, many responses to Harve's request. I will be pleased

to print other responses that offer information on the availability and use of computer cartography programs.]

March 23, 1989

Dear Harve,

Thanks for your inquiry about survey plotting software. In general, this tends to be fairly ad-hoc and is set up for one project where the developer can look over the user's shoulder and prevent/repair problems. Here is some info which I have written for both you and *Underwater Speleology*.

The only exception that I know of is SMAPS, which has a highly dispersed user base of I believe somewhere around 50. Version 4.1 is a major revision which appeared in October 1988. It is substantially more powerful than the 1985-era version 3.3, has extensive new editing capabilities, and costs $49.95 ($10 more for export) including a 100-page manual. The vender is Doug Dotson, SpeleoTechnologies Inc. PO Box 293, Frostburg, MD 21532. Phone: 301-689-3423. It runs on PC/XT/AT; 640k RAM and a hard disk are recommended. A number of printers and plotters are supported; the base price includes a choice of two drivers. There is a computer BBS (Bulletin Board Service) BITNET and phone support. The user-interface is based on pop-up menus. Video graphics are expected in Summer 1989.

I am a very experienced 3.3 user, and have used 4.1 some. The editing functions (cut/pates, automatic prefixing and suffixing of station names) and accommodation of things like depth gauges and Topofil are very appealing. One can import and export files, link surveys so that they do not have to be repeatedly processed, and plot ticks for wall and ceiling measurements on the plans and profiles. There are some bugs in the parts that I have used, but nothing really serious. It's usable, but a little sloppy and really should be considered an advanced beta (test) version. The manual is slick but extremely difficult to follow; an interactive tutorial is reportedly in the works. In summary, SMAPS 4.1 is for heavy-duty use and it requires some learning. Dotson has demonstrated that he responds to suggestions and I expect that SMAPS will get a lot better.

For the Mac user, I'm not clear on the status of Purple Passion. It, like all the others that you hear about once, will probably be hampered by a lack of organized and business-like distribution and support.

Let me know if I can be of any further assistance.

Sincerely, John Ganter, Chair, NSS Survey & Cartography Section

Dear Editor,

RE: Legal Liability and the Assumption of Risk in Wilderness Travel

Although we strive to be as safe as possible in the wilderness, most of us recognize that our right to risk life and limb in pursuit of adventure in rugged terrain is basic to the expression of freedom in wilderness travel. In this regard, I am in agreement with Mr. Luchars of Atlanta, Georgia (*Underwater Speleology*, Sept./Oct. 1988, 15:5, p. 20), who argues the merits of a legal liability environment in which the wilderness traveler assumes legal and moral responsibility for his own safety. In theory, assignment of the burden of liability to the participant in a high-risk activity is advantageous. In practice, however, the difficulties may be insurmountable.

Mr. Luchars, for example, offers a consideration of cave diving and mountain climbing as high-risk activities, whose participants could benefit from self-liability assumption. In reality, however, they are very different activities, and these differences are enhanced by the varying philosophies which permeate wilderness travel.

Most notable among these differences is the depth of self-regulation inherent in the scuba industry, which is unprecedented in the forum of wilderness adventure. As scuba divers, we have all grown up in the shadow of the "C" card and as it has evolved we have seen it grow, divide, subdivide, and finally become twisted by industry-wide greed. Nevertheless, the "C" card remains a declaration of training and a statement of potential competence underwater. In the absence of intimate knowledge of a diver's experience or psychological makeup, the "C" card helps in defining the likelihood of surviving any given dive.

In serving as a training standard, the "C" card provides a mechanism for assignment of self-liability in diving; assumption of responsibility according to level of diver training, as defined by certification level—recognizing, of course, that such a measure has limitations and may, in many instances, be completely inadequate.

In approaching a landowner, the prospective cave diver should only need to brandish his cave-diving certification to assure the cave owner that he is competent to safely dive the system. To that extent, a landowner may allow access with clear conscience, the diver assuming legal and moral liability for his own safety. The informed landowner, of course, will recognize the meaning of cave-diver training/certification. The burden of continued access then falls squarely upon the shoulders of the diver, dependent on an unblemished safety record to preserve the meaning of cave-diver certification. And this is how it should be.

Mountain climbing, on the other hand, is untouched by the spectre of certification. One learns climbing at a school, or from friends. But, no certifications exist and the climber is strictly his own master. In this regard, climbing is reflective of virtually all other wilderness activities. In the absence of demonstrable certification, however, it is more difficult to assign liability to the individual because it is nearly impossible to evaluate the capacity of a person to bear such responsibility.

There seem to be only two ways around this. One would be to opt for a system of certification in all avenues of wilderness adventure, so that judgments could be made regarding a person's capacity to accept liability for a given excursion. The second would be to recognize that a mature, rational person is indeed capable of assuming responsibility for his own safety.

Unfortunately, each presents its own inherent problems. On the one hand, the community of wilderness travelers would probably rise in revolution against the constraints of certification, and the mechanics of implementing such a system would probably be impossibly cumbersome. On the other hand, in considering the wide range of experience of people at play in the wilderness, it is justified to ask what overall degree of responsibility can be expected.

The vast majority of wilderness travelers are safe as they negotiate rugged terrain and I remain inclined to believe that they should be allowed free access to the wilderness, assuming complete liability for their own safety. Perhaps this is because I have enjoyed wilderness access that is available and have felt the frustration of denied access to extensive cave and cliff systems on state- or privately owned land. I balk at the thought of a required certification to establish my competence to climb in safety or to safely travel underground.

However, I cannot help thinking about the vast horde of the irresponsible. Analysis of cave-diving accidents teaches that open-water divers regularly exceed their safe diving limits. The frightening death of untrained divers in underwater caves is, unfortunately, all too common, all too tragic. Perhaps this reflects an environment that is too extreme to allow freedom of choice in decisions of responsibility. Should these divers be protected from themselves? I am inclined to think that they should. But, perhaps this is because I am already a certified cave diver and such restrictions would hopefully not apply to me. Discussion of these and related ideas in invited in open forum.

Respectfully,

— *[Editor's Note: Author's name is withheld at his request.]*

TO "ANONYMOUS AGAIN" FROM WAKULLA CO.:

This is starting to get good! The tantalizing claim in your most recent letter that you know who "Fred" is begins to narrow the field, but alas!—only slightly. (I love it! You know that I just have to find out who you are, don't you?)

Thank you for your letter acknowledging that your original submission was in fact apocryphal; I accede, of course, to your decision to withdraw the letter from consideration for publication. Your stated intent, however, of "increasing the awareness of the cave-diving community to possible misfortunes of 'sneak diving'" is excellent, and I would urge you to consider writing another letter or even an article (anonymous if you prefer) which presents your arguments in...shall we say, a slightly more straightforward manner?

I very much look forward to hearing from you.

—The Editor

LETTERS TO *NSS NEWS* EDITORS

[The following three letters were printed in the March 1989 issue of NSS News, *Vol. 47, No. 3 and are reprinted with permission; the first two make reference to Joe Prosser's article, "Comment on the Deaths of Bill McFaden and Robert Swicegood," which appeared in* Underwater Speleology, *Sept./Oct. 1988, Vol. 15, No. 5, and was also printed in* NSS News. *A response by CDS member Doug Chappell which was submitted to* NSS News, *"hoping for equal time," appears afterward.]*

Letter # 1. My problem with your article on Ms. Swicegood's unfortunate death and other cave-diving articles in the *News* is that I question the underpinning premise of the articles. I don't believe that training and experience per se make for safe cave diving. In fact, pushing that assumption has created an elitist attitude among many NSS cave divers that increases the inherent risks in cave diving.

The NSS-CDS Training program is based upon a number of interesting axioms. For example, "the Rule of Thirds." The premise is that a diver under stress and dealing with the increased physical exertion of buddy breathing can maintain the same rate of respiration.

I'm not opposed to training. I think that the attitude that such training can create and has been reflected in the *News* can be very dangerous.

Cave diving on the cutting edge of technology is dangerous, and that the elitist attitude that training seems to have engendered in many cave divers can be equally dangerous. Safety comes from not taking yourself seriously and diving well below your level of ability.—Bill Cate, NSS #4498, Pacifica, California.

Letter #2. Cave diving is one of the most dangerous activities within our sport. In every sport someone has to push the safety envelope. When you talk of divers, it is the one who has to go just a little bit deeper than the next guy. In racing, it is the person who has to go faster than the last guy. No sport is without its chances. If water stops my progress while caving, then it was meant to happen, and in my book, the passage ends.

It is apparent that Miss Swicegood was a very active and intelligent person, who has lost her life in an area of our sport that can be best discouraged.

The *NSS News* should add a disclaimer that cave diving is a dangerous activity that should be done under close supervision or not at all. I am sure that many of the NSS membership will not agree with my feelings, but I would like to hear their comments in regards to this matter.

Accidents happen in caving as in any sport. But there are some things that we as cavers can do to lower our chances in regards to them. Every time someone dies while cave diving, it hurts our sport. Is it any wonder that more and more landowners are posting their land and saying no to cavers.

I try to promote caving and support the goals of the NSS. But I cannot support those members or an organization that will not speak out on this issue of cave diving. I myself would give anything to have had a fourth of the knowledge that Miss Swicegood seemed to have. But I would give it all away to keep my life for the good of our country, my family and our sport. I am sorry that Miss Swicegood was killed, but I do not support the amount of coverage that was given to her death by the *NSS News*.—John P. Knight, NSS #27988, Mt. Washington, Kentucky.

Letter #3. Roberta Swicegood was, to many of us, a close friend and a respected speleologist. Roberta was a supportive, goal-oriented person generally unswayed by prejudices or provincial bias. Her drive for hard-core cave exploration was an inspiration to many; indeed, there were few techniques of cave exploration unfamiliar to her. She was accomplished at cave diving, vertical caving, blasting, and mapping. She was not thwarted by low, wet, muddy, or otherwise nasty leads. Indeed, she seemed to seek them out.

I once lost a set of Suunto compasses deep in Roppel Cave, Kentucky. Over a year later, I was pleasantly surprised by the sight of Roberta dangling a pair of cleaned Suuntos in front of me: "Are these yours?" she smiled.

Roberta was truly an Amelia Erhart of the caving community. I support a move that has been suggested to retitled the Lew Bicking Award as the Bicking-Swicegood Award, for the distinction she valued so highly.—John H. Rosenfeld, NSS #19791, Lancaster, Pennsylvania.

Response Letter. I'd like to respond to Mr. Cate's comments in the March *NSS News* "Cavers' Forum" regarding the Swicegood accident and cave diving in general. As an active cave diver of over 14 years, I found Mr. Cate's remarks particularly illconsidered. His first revelation, that training and experience, per se, don't make for safer cave diving, is laughable. If this is true, then I suppose the same would apply to mountain climbing, sky diving, or any other technically dependent activity. Inexperience, complacency, bad luck, or a mixture thereof, are far more basic problems which Mr. Cate fails to recognize. I was relived, however, that he is not opposed to cave-diving training, although by reading the few CDS-related articles in the *NSS News*, he apparently believes that such training is useful for instilling elitist tendencies and little else. I wonder if he personally knows many NSS-CDS members who, out of print and in real life, display the same supposed behavior.

Regarding NSS-CDS training practices, Mr. Cate's remarks seemed to indicate a basic misunderstanding of current, standard equipment and techniques in use. We don't "buddy breathe" in cave diving. We use tanks with dual-orifice valves and redundant regulators, one with a significantly longer second-stage hose. In out-of-air situations, which seldom occur, you transfer this regulator to the affected diver and swim/scooter out. With the exception of diving syphons, difficult passage, side-mounting, or employing DPVs, the "interesting axiom" of using the "Rule of Thirds" is an acceptable safety guideline for air management by compatible dive teams.

It was Mr. Cate's ending statements that I found the most irksome. Cave diving, even on the "cutting edge of technology," is a challenging sport, but I do not believe it to be dangerous. Neither do I consider myself to be an elitist, even though I have been trained and certified by both the NSS-CDS and the NACD. Contradictory to the fallacy of Mr. Cate's final assertion, safety in cave diving comes from taking yourself and your participation in this sport as seriously as humanly possible, and diving to the level which your training, experience, attitude, and dive-team partners permit.

Doug Chappell (NSS #25394), Collierville, Tennessee

NEW PUBLICATIONS VOLUNTEERS

We are very pleased to welcome Carol and Terry Evans of Venice, Florida as our new T-shirt vict...I mean, volunteers.

FATALITY AT MORRISON

According to a preliminary report, two open-water divers, Tom Clark (age 32, PADI Basic Scuba 3-31-88) and Mark Jebeles (age 29, PADI Open Water 9-28-88), both of Birmingham, Alabama, entered Morrison Spring in Walton County, Florida late on the afternoon of Saturday, March 4, 1989. The cavern room was described as clear, but dark river water was flooding the cavern entrance.

Their bodies were recovered by local divers on the scene. One was found with 1500psi in his tank; the other had 800psi. Their lights were still operating. Their equipment was taken to a scuba shop in Panama City for inspection, although there was no apparent problem with any of the gear. Autopsies indicated that both divers had a lot of silt in their lungs and stomachs.

Wayne McKinnon, the NSS-CDS member making the report, said that he went to the spring the next day and found the line intact and close enough to the entrance to have current still force divers out into open water. He thought that the divers may have stirred up sand and just wallowed in it until they got scared into panic.

FATALITY AT VORTEX

According to a preliminary report, two open-water divers, Dale Kitchen, a scuba instructor from South Carolina, and Drew W. Morrison, open-water certified and reportedly working on Advanced Open-Water, entered Vortex Spring in Holmes County, Florida on Sunday, March 19, 1989 at approximately 7:45am to check the site out prior to beginning some type of open-water training.

Others at the scene said that five people went into the cave on that dive; that three went into the cave zone, two remained in the cavern (the divers who subsequently died). Flow conditions were described as typical (slight outward push). Vortex had just been recently reopened after dredging operations to clean the cave of silt. The site was described as having more silt than usual at the entrance. The cave zone is tighter than the cavern zone, but with a sandy floor. Apparently the other divers, returning from the cave zone, did not notice the two dead divers.

When the divers were missed, the Vortex management went down to check on them. The two bodies were found approximately 20' into the cave at a depth of approximately 48'. Both were on the floor and wearing dive computers. Their computer bottom times indicated 1:02 hours on Kitchen at recovery and 3:00 on Morrison, who was recovered later than Kitchen. Kitchen reportedly had 2500psi remaining in his single 80 cf. tank, and Morrison reportedly had 1800psi remaining in his single steel 71.2 cf tank.

Kitchen's body was removed almost immediately; Morrison's body, much later. Kitchen was reportedly found with a severe bump on his head. At first there was speculation that he may have knocked himself out. However, according to Wayne McKinnon, the NSS member who provided the preliminary report and talked with the Medical Examiner, the Medical Examiner said that Kitchen did have slight abrasions behind the ear, which he believed was related to the mask rubbing the head; initially, the Medical Examiner felt that this played no important role in the fatality. No final word will be available until the investigation is complete.

Apparently the recovery divers disassembled the gear at the site before releasing it to the authorities; no trained recovery specialists were on the scene. The equipment was transported to a dive shop in Panama City for examination.

FATALITY AT BLUE GROTTO - by Lloyd A. Phillips (NSS #24852) and Joe S. Harrell (NSS #24135)

[Editor's Note: Two reports were received on this drowning, one from NSS-CDS Rescue/Recovery Team Member Sgt. Lloyd Phillips of the Jacksonville Sheriff's Department, and the other from Joe Harrell, Central Florida Area Coordinator of the NSS-CDS Rescue Recovery Team. Lloyd wrote that this was only his second visit to the Blue Grotto; both times he arrived in time for a drowning recovery. Joe wrote that he has been involved in Emergency Services (Fire & Rescue) for over 20 years (and underwater recovery for over 16 years) and has seen enough death for a lifetime, but that for some reason this particular recovery affected him especially hard.

I think there is a message here for buddy divers of all levels of training. I am strangely reminded of the Star Trek *episode, "Court-Martial," where Kirk is on trial for the death of Cmdr. Finney. The defense attorney asks Kirk: "This Class 1 search you conducted for a missing crewman 'presumed to be injured,' it assumes that he wants to be found, doesn't it?" "I beg your pardon?" And the light begins to dawn....]*

LLOYD PHILLIPS: On Sunday, January 29, 1989, at 11:30am, I arrived at the Blue Grotto [Williston, Florida] with my diving partner, J.C. Deen. Together, we entered the dive shop and were talking to the owner, Ed Paradiso, when a man entered the shop and said, "Ed, I've got a lost diver." Ed Paradiso immediately grabbed his diving gear and entered the water in an attempt to locate and rescue the lost diver. While this was being done, Deen and I prepared our equipment for the rescue or recovery dive.

11:55am: Ed surfaced and reported that he had not located the missing diver, but that he had seen an area in the back side of the cavern in approximately 100' of water that was totally silted out with near-zero visibility. At that point Ed tied a gap reel off and left it for us. I instructed the victim's group to continue searching the campgrounds in case the victim had left the water unnoticed. I then interviewed the victim's partner, Josh Petterson, who reported that he had last seen the victim in the daylight zone at an area known as "Peace Rock."

Josh had signalled for his buddy to surface into an air bell, and received an acknowledgment. When his partner did not join him inside of the airspace, Josh went to look for him. Josh stated that when he could not locate his buddy, he assumed that he had misunderstood the signal and surfaced. Josh then surfaced and reported that his partner had left him. Josh had approximately 1700psi left in his air tank. Immediate attempts were made by three divers that were already in the water, to locate the victim.

12:35pm: Deen and I entered the water with full cave-diving equipment, assuming that we were looking for a diver that had suffered an unsolvable emergency and drowned, probably in the silted area that Ed Paradiso had told me about. We first checked the air bell. We then proceeded down the permanent line to a depth of 100', where we quickly located the gap reel left for us by Ed. Picking up the reel, we then entered a total siltout and began the search.

We did an arch search in the entire area, occasionally passing through small areas of clear water. When we were satisfied that the victim was not at this depth, or in this area, we returned to the permanent line and left the gap reel. We then separated and began a slow ascent searching the cavern ceiling and floor areas, off of and away from the line, until we were sure that the victim was not in these areas. During this search we had an average of 75' of visibility. We swept the entire cavern area. (We did not crawl underneath boulders or into cracks.) We then entered open water and began our decompression stops at 20'. We surfaced at 1:40pm.

1:40pm: I reported to Levy County Sheriff's officers the results of our search, and advised them that we would refill our double tanks and make a second dive. Josh Petterson was again interviewed but could not offer any additional information. Ed Paradiso phoned for backup divers while Deen and I prepared for a second dive. We decided that we would concentrate our search near and behind the "Peace Rock" area, since this was the area where the victim was last seen.

2:20pm: Deen and I proceeded down the line to Peace Rock and began searching the entire right wall of the cavern. Heavy silt areas were seen and were undisturbed. We searched underneath Peace Rock and behind it, and searched all areas in about a 50' radius of Peace Rock where a drowning victim could come to rest outside of the daylight zone, assuming that he had become briefly lost and panicked. Again, we were assuming that we were searching for a diver who had drowned due to some emergency such as air failure, out of air, severe embolism, blackout, or whatever, while trying to exit the cavern.

We descended to a depth of 95' and searched every logical area possible, again in somewhat limited visibility, and out of the daylight zone. At this point I was having serious doubt that we had a victim. We then ascended to about 60' and checked the entire wall on the left side of the cavern until we reached open water. We then began decompression stops at 20'.

3:35pm: We surfaced and reported the results of our search to Sheriff's officers. Joe Harrell had arrived with backup divers, and I briefed the group on what we had done. I reported to Joe that Deen and I had too much bottom time and RNT to make a third deep dive.

JOE HARRELL: At approximately 13:50 hours on Sunday, January 29, 1989, I received a telephone call from Ginnie Springs Dive Shop. They were calling in request for a recovery team to be assembled for a possible assignment at Blue Grotto, Williston, Florida. I immediately called Ed Paradiso at Blue Grotto for full information. He advised me that one diver had failed to surface and that a search had already been initiated. He could not understand why he and other divers at the site had been unable to locate the lost diver. I was also advised that two NSS-CDS Rescue/Recovery Divers were on the scene and had been unsuccessful in their first dive. I was given the names of Lloyd Phillips and Jimmy Deen as the two divers on the scene.

I advised Ed that I would organize a team and "be on the road shortly." As I was getting "no answers" and recording machines using my roster, Rick VanEldick called from Spring Systems where he had been told of the situation. Rick is a Region 3 NSS Recovery Diver who lives in Ocala. Also with him were Dave Englebrecht and Tom Zoeller. I told them to meet me at the site. Next I called NCIC to record the recovery and advise them that a team was already en route to the scene. (They had not been notified prior.)

Upon arrival I met with Sheriff Dean, Ed P., Lloyd P., and Jimmy D. Lloyd and Jimmy had completed a second dive with no success in locating the diver. Time was now approximately 15:45 hours. Rick V. and fellow divers also arrived about this time. An interview was conducted with the missing diver's dive partner, and information on the dive plan that had been followed and other miscellaneous information was gathered. As Lloyd and Jimmy had already made two long dives in the system, I suggested they rest and fresh divers would make the next search. Ed and I were to search the upper 30' of the hole, and Rick, Dave and Tom would search the cavern area. On this initial dive the body was located in a breakdown area at a depth of about 70', below what is known as "Peace Rock." All divers surfaced and pertinent information was given to the Sheriff's Dept. Rick had been unable to recover the body due to its positioning between rocks.

After a short rest and discussion of the possible means of removal, Ed and I reentered the water for the removal. Approximately 6-8 minutes after our descent, Rick and friends followed for possible assistance. The victim was tightly wedged between rocks and I was not able to effect a removal from the direction in which he was located. By this time Rick was at the location and, after communication, was able to find a route to the other side of the body. After deflating the BC and removing his weight belt, we were able dislodge and remove the body. The victim was removed from the water at 19:42 hours and turned over the Sheriff's Dept.

The victim was an 18-year-old male from Lawrenceville, Georgia. He had approximately 1-1/2 years experience as an open-water diver, and had no cavern or cave training. He had come to Crystal River with a dive-shop trip from his home area. Several of the divers and their instructor had gone to Blue Grotto as a side trip.

The diver's tank was found to be out of air; the regulator was in working condition; he had two lights, both of which were operational. All of the scuba gear was rented [from Crystal River].

After he and his partner had signaled to surface, he appears to have gone off on his own into the breakdown/silt area and become lost and then wedged between rocks in his attempt to find an exit.

Thanks to all divers who assisted in a rather unusual recovery. A special thanks to Jeff Holmes for his valuable assistance in gathering data and keeping accurate logs on all divers while this operation was in progress.

LLOYD PHILLIPS: This diver failed to maintain contact with his buddy. It is my opinion that he was playing "hide and seek," and became trapped, and, unable to free himself, he drowned. He was open-water trained and should not have left his partner and descended into the deeper area of the cavern into a low silty area approximately 40' from the guideline. He probably had plenty of air (at least as much as Josh) when he began looking for a good hiding place. He broke nearly all of the rules: Failure to exit with 2/3 of starting air. Failure to maintain a continuous line. Failure to be properly trained. Failure to maintain contact with his buddy.

GEAR FOR SALE

For Sale: Two Seatec Drysuits complete, like-new condition. One XL, one Medium. $500.00 each or best offer. Call Kevin Christensen (407) 649-8093.

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