



C.D.A.A. Newsletter

No. 119 - MARCH 2012



CAVE DIVERS ASSOCIATION OF AUSTRALIA
(Incorporated in South Australia)

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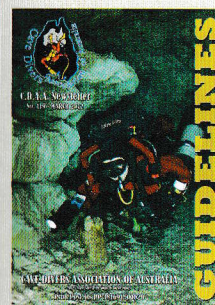
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Mexico

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CAVE DIVERS ASSOCIATION OF AUSTRALIA

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GUIDELINES is a newsletter of the Cave Divers Association of Australia. All articles for the following issue are to be sent to the Publications Director, Email: publications@cavedivers.com.au

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CDAA INSURANCE

Policy Type: Combined Liability Insurance Policy# SY-CAS-08-041140
Insurer: Liberty International Underwriters ABN: 61 086 083 605
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Name Insured: Cave Divers Association of Australia
Public Liability \$10,000,000 any one claim. Expiry: 30 September 2012

'The Basic Rules of Cave Diving'

Through the study of past cave diving related accidents, researchers have found there are a number of common causes for these accidents. By becoming familiar with these causes, divers can learn to avoid similar accidents.

From the research, five main contributing factors have been found in over 90% of cave diving related fatalities.

These causes have led to the five basic rules:

- **Be Correctly Trained.**

In the vast majority of fatalities world wide, the divers involved had no formal cavern/sinkhole (Deep Cavern) training. Of those who did have training, most were diving outside the recognised limits of that training. Many open water Instructors have died in caves.

- **Run a Continuous Guideline to the Open Water (Surface).**

In a large number of overhead fatalities, victims failed to run a continuous guideline from the open water. When silting took place or they became disorientated, exit was then not possible with gas remaining.

- **Always keep a Minimum of 2/3rds of the Starting Gas Supply for Exit when Entering an Overhead Environment.**

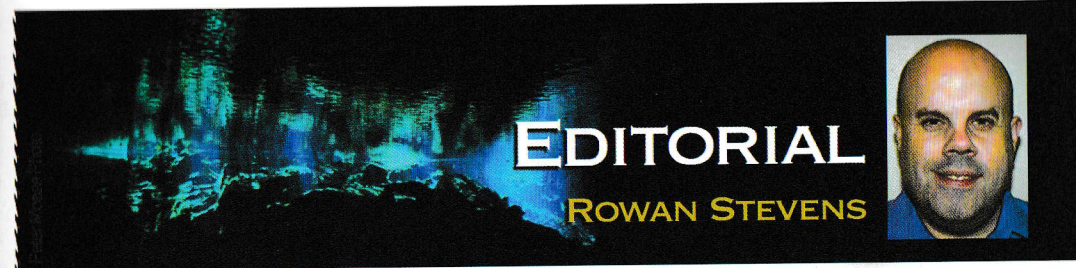
The rule is seen as the minimum in overhead environments and may not offer enough gas if trouble is encountered at the maximum penetration.

- **Always use a Minimum of 3 Light Sources.**

In cave diving this would be a primary and a minimum of two backups, all with the ability of lasting the duration of the dive.

- **Don't Dive Below 40m on Compressed Air.**

The CDAA's maximum depth limit is 40m. Of the trained, well equipped cave divers who have died, almost all were diving beyond 40m on air.



Hello again and welcome to the first issue of 2012.

In this edition we commemorate the life and achievements of Andrew Wight – renowned Cave Diver and Underwater film specialist who tragically passed away in a helicopter crash in NSW on Feb 4, 2012. This is a fascinating tribute to an amazing adventurer. Two members (Ian Lewis #258 and John Dalla-Zuanna #236) have nominated Andrew for inclusion into the CDAA's Hall of Fame, the highest honour we can bestow within our Association. We look forward to voting on this nomination at the 2012 AGM.

This year the **AGM** has been scheduled for Saturday 27th October 2012 and will be held in Mt. Gambier. See **News** on Page 8 for more information.

Also in this issue...

Risks of Solo Cave Diving - one of the hot topics within the Association. This position has been put forward by Brian Kakuk, a guest speaker and side mount instructor at the 2011 AGM Symposium. A very interesting read. Note: An alternative view on Exploration Diving in Teams was requested of another internationally renowned explorer, but was not ready in time for printing in this issue. Solo Diving is one of a number of topics that the National Committee are seeking to receive guidance on from members and have scheduled a series of **State Workshops** for May and June – see **News** on Page 8 for more dates.

In January the National Committee met to review and discuss the three diving fatalities. A summary of these discussions is now available for member viewing on the CDAA Web Site – see **News** on page 8 for further details.

Also for your reading pleasure - Karst Science by Ian Lewis, Oxygen Toxicity in the Field by DAN Asia Pacific, a number of member articles on Diving Baker's Cave, Sitting the CDAA Cave Course as well as Diving in Mexico and Florida which is a popular International destination for our members.

Happy and Safe Diving ...
See you over at the Mount soon.

Rowan Stevens #3177 | Publications and Records Director
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Articles for Guidelines June 2012 - Deadline is May 20th.

- Send articles by email to guidelines@cavedivers.com.au
- Text files should be saved as Word files or Simple Text
- Pictures saved from digital cameras or scanned from photos must be at least 200-300 dpi at 15cm wide, RGB files, and saved as Maximum Quality JPEG's.

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NATIONAL COMMITTEE UPDATE

MARCH 2012

Dear Members

To update you on the last 3 months:

- An internal review of all three recent fatalities was completed. A report has been uploaded to our web site publishing our findings.
- Terms of References are progressively being written for all roles. These are being placed online for members to read.
- A few member against member complaints were received. Of these, two are still under formal investigation with all others dismissed.
- It has taken us over 4 months to track down invoices and receipts in order to complete the accounts and satisfy our auditor. These will be placed online for members to read.
- The draft Constitution was released to members and the Constitutional Sub Committee re-established. The National Committee has provided feedback and a revised draft is being prepared for release and discussion at our State workshops (see dates published in this issue).
- Helen Higgins was voted into office as our new Business Director.
- Strict management controls have been placed on the CDAA bank accounts.
- There has been a very large amount of work on the web site. Changes include:
 - an issues log (resolved 27 member issues) fixing up the user interface and many broken links.
 - updating the certification process.
 - a new document library system.
 - schedules for the 2012 site booking system have been established.
 - source code from personal PCs have been collected and placed into a common source code library.
 - fixed email booking notifications.
 - members can upload new certification photos
 - DENR permits and indemnities can now be generated on-line.
- Member certifications processing has also had a lot of work done to fix things up. The data base has been cleaned up and a lot of work gone into improving data integrity.
- Access to Baker's Cave was re-negotiated and site open on a regular basis.
- Clean-up days were conducted around several sites to get rid of long grass and fix stairs and landings.
- Rather than levy all members, 'user pays fees' were introduced for Kilsbys to cover the lease cost.
- Grants Officer position established – congratulations to David Cowan.
- Two new State Reps – congratulations to Peter Streit (NSW) and Pippa Waterworth (WA).
- New booking officer for Baker's Cave – congratulations to Matt Skinner.
- Safety Officer position has been split into two roles; Safety Officer (vacant) and Search & Recovery Coordinator - congratulations to Richard Harris.
- Shaft fees increased from \$25 to \$30 to cover guide costs.
- The Tank Cave Management Committee was established (nothing to report yet).
- Toilets for Tank Cave and Kilsbys installed on site.
- Work continues on re-writing the course notes e.g. changes to the Advanced Cave Crossover Program.
- Report to members on the Cave Diving Fatality Review

So with this now out of the way – what's next on the agenda?

- Finalising the accounts up to the last AGM so we can review our financial position at each National Committee meeting.
- Running State Meetings to understand members' desires and priorities for the CDAA.
- Establishing a business plan (longer term vision and short term goals).

- Completion of the Constitutional review for voting at the next AGM.
- Report to members from the Tank Cave Management Committee.
- Planning for this year's AGM and Symposium.
- Electronic scanning and storage of our archives.

The National Committee wishes to thank the many members who have volunteered their time in achieving the above.

The National Committee is looking forward to the opportunity of gathering members' thoughts and preparing our future business plan.

We also look forward to meeting members that we don't already know.

**Regards,
The National Committee**



John Vanderleest,
National Director



Helen Higgins,
Business Director



Jane Bowman,
Standards Director



Grant Pearce,
Site Director



Rowan Stevens,
Publications and Records Director

NEWS

CAVE DIVING FATALITY REVIEW

The summaries of discussions held concerning the 3 recent cave diving fatalities (Rob McAlister, Agnes Milowka and Tony Morris) are now available for member viewing on the CDAA Web Site.

To access this report, login, select the 'Members Document Library' from the members menu and filter using the drop-down list by selecting 'National Committee Reports'.

Members are encouraged to read these documents and reflect on their own diving attitude and style. It is common amongst divers in general to develop less optimal diving practices over the years following their formal training. This is not a technical issue but one of mental attitude towards the sport.

These 3 deaths are a reminder to us all not to become complacent and believe that experience overrides the practices and principles taught during training. They are a reminder to us that our training is not the end of our education but only the beginning.

For the more experienced cave divers among us, it is an important reminder that we are the educators and those members with less experience the students. Poor practice is passed on, not by words but by actions.

The safety of all cave divers is the responsibility of all members.

John Vanderleest, National Director

2012 AGM

The 2012 CDAA Annual General Meeting (AGM) is scheduled for Saturday 27th October 2012 and will be held in Mt. Gambier. A general call for speakers is now open – contact Rowan Stevens to register your interest (publications@cavedivers.com.au).

2012 State Meetings

During May and June of 2012 a series of State Meetings will be run by the National Committee to elicit member input on the following topics: Constitutional Review, Solo Diving, Future Investments and Training. These workshops are an opportunity for members to be openly discussing their ideas and for the National Committee to receive guidance on member's wishes. A consolidated report of these meetings will be published by the National Committee and will be used to develop the Association's Business Plan.

- Brisbane - Saturday 5th May 2012
- Perth - Saturday 19th May 2012
- Sydney - Saturday 2nd June 2012
- Adelaide - Saturday 17th June 2012
- Melbourne - Saturday 31st June 2012

Further details (agenda, venue, times) will be posted to our web site, keep an eye out for this.

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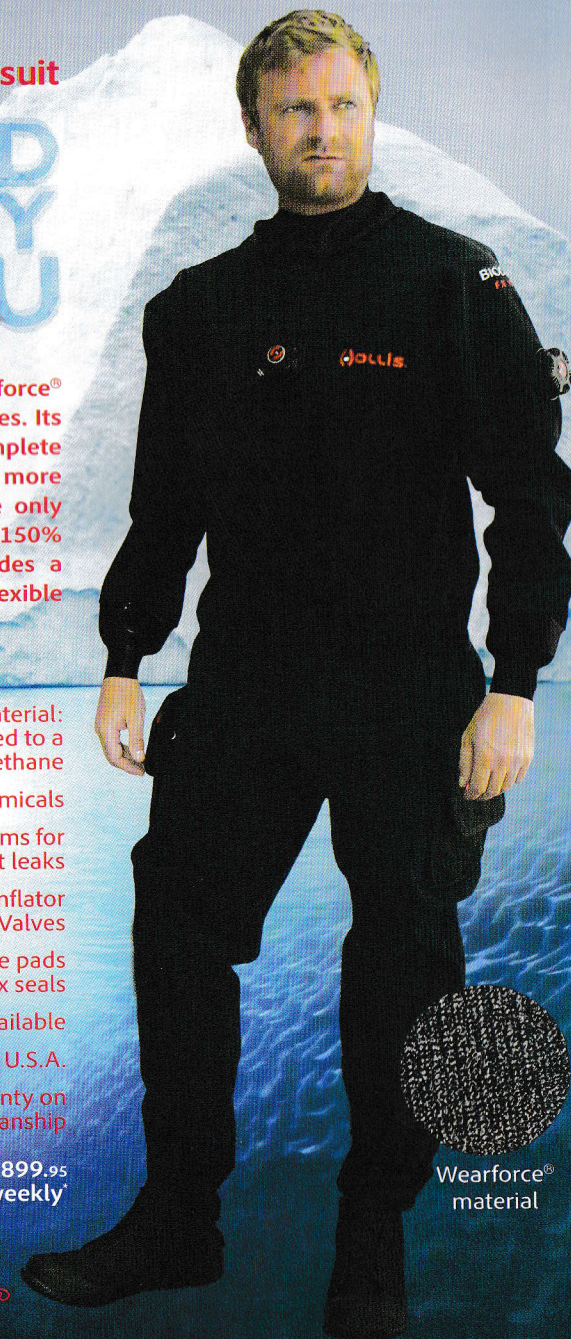
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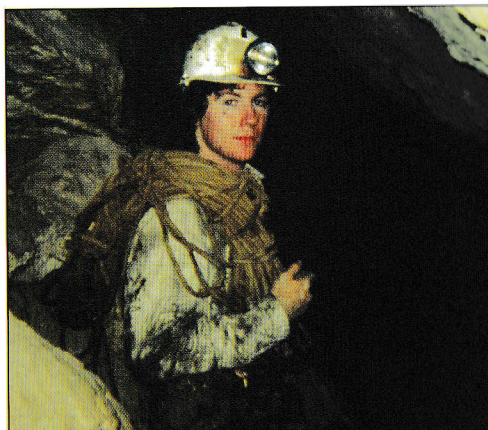
A tribute to Andrew Wight - renowned Cave Diver and Underwater Film Specialist

Andrew Wight was an Australian underwater explorer and film maker. He died in a helicopter crash in NSW on Feb 4, 2012.

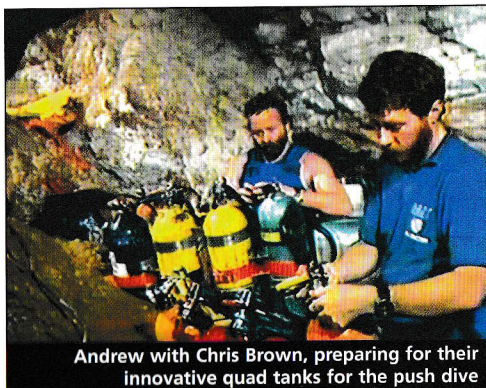
Andy was a highly-experienced cave diver for over 30 years. He grew up on the family farm in Harrow, Western Victoria and took up diving and caving when he began studying Agricultural Science at Latrobe University in the late 1970's. He became a Cave Diving Examiner with the Cave Divers Association of Australia and also served on the CDAA Committee as the organisation began to become more professional at the start of the 1980's.

Andrew began his career in agricultural science with ICI and then worked in scientific research. He became a commercial helicopter pilot and owned his own helicopter in which a number of us flew all over the Mount Gambier area spotting cave entrances, sinkholes and coastal spring systems.

We all called him "Andy" or "Wighty". He had a larger-than-life personality and formed an underwater film company using a play upon his nickname - "Great Wight Productions"! He was highly motivated and operated at the leading edge of the sport of cave diving. In particular, he had a special talent for group motivation, dive team leadership and possessed excellent public relations skills. He said he was "not so mechanically inclined" but more than made up for that with an ebullient "Can Do" attitude.



Andrew in early caving days. Photo Tony Richardson



Andrew with Chris Brown, preparing for their innovative quad tanks for the push dive

Pannikin Plains - a turning point

In 1974, Keith Dekkers and I were the first cave divers to explore the underground lakes of Pannikin Plains Cave system under the Nullarbor. By the time we explored that cave, we had been out on the Nullarbor for over a month exploring all the lake sites and were buggered. Consequently on our last dive (Pannikin Plains), neither of us even noticed the entrance to the big underwater tunnel which extends for several kilometres and so we returned saying "It doesn't go!".

Wighty and others didn't accept this! He initiated and led the record breaking Pannikin Plain Cave Diving Expedition in 1988. He was a great innovator and obtained "Aquazep" underwater scooters (invented by a bloke in Communist East Germany who used the prototype to escape underwater across a river to the West) to push the extremes of Pannikin Plains Cave, wearing "Quad" tanks (4 tanks banded together - a big load to swim with). He also engaged multiple professional sponsorships for the expedition in a way not done by the caving or cave diving world before, with the aim of producing a high-quality expedition documentary.

As Wighty's luck would have it, a cyclone dumped an immense amount of rain on the area around the cave entrance while 15 cavers and divers were still underground. Enormous volumes of water poured off the plain and caused a massive boulder collapse in the



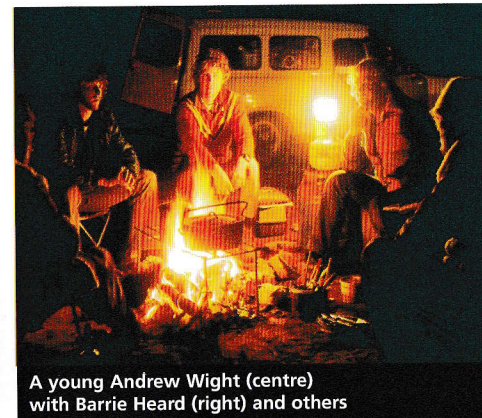
Quad divers with sled and Aquazep scooters at the lake's edge. Andrew is in the water.

entrance. This became world headline news - "15 Cave Explorers Trapped Under The Nullarbor" - and Andy kept his team filming! The result was that the Pannikin Plain documentary became an award-winning real-life drama called "Nullarbor Dreaming". This was shown widely on TV and Andrew received the Australian Geographic's "Australian Adventurer of the Year" Award. The Pannikin Plains documentary subsequently launched his film career and he saw the chance to "live the dream" of making cave diving documentaries.

Film-making Career

With this great success and his gregarious personality, one day he walked into a bar somewhere in the USA and met a Texan millionaire (as you do) who was interested in world-wide underwater documentary-making! They formed a film team and sailed around the world making underwater documentaries on board the huge luxury yacht "Quest" filming a series of underwater adventures - "The Deep Probe Expeditions" and "The Adventures of the Quest".

Andy gained a high-profile reputation for his work and



A young Andrew Wight (centre) with Barrie Heard (right) and others

more than any other individual, internationalised and professionalised the "sport" of cave diving. He expanded underwater exploration and led expeditions to dive and explore many remote and fascinating regions of the world including the caves of Florida, Cuba, the Bahamas, Mexican cenotes and the Caribbean, New Guinea and the southwest Pacific, whale migrations in Alaska and Canada, the Galapagos Islands, deep hydrothermal vents of the Atlantic and the shipwrecks of the "Titanic" and "Bismarck".

Andrew produced 45 documentary films since 1988 and here is a selection of them. Just look at the titles below - what a fantastic range of adventures and a hell of a big list of achievements for anyone's lifetime! Outstanding, Wighty!

Nullarbor Dreaming (1989)

Deep probe films -

- Florida - Window to a Hidden World (1991).
- Australia - Predators of the North (1991).
- Mexico - Water of the Gods (1992).
- Canada - Frontier Man (1992).
- Australia - Great White Shark (1992).
- Rendezvous at Ningaloo (Whale Sharks) (1993).
- Papua New Guinea - Winged Ghosts of the Pacific (WW2 wrecks) (1993).
- Cuba - Beneath the Surface (1993).
- Pearson Island - Mischief & Mayhem (seals sanctuary) (1993).

Adventures of the Quest series -

- The Boiling Sea - mass aggregation of tuna, whales and sharks.
- The Hidden Deep - Mysteries of the deep East Coast of Australia.
- Mirrorworld - a journey through the Rainforest and Reef.
- Silent Warriors - The Elite Navy Divers.
- Cape Crocodile - an encounter with salt and fresh water crocodiles.
- Beyond the Glass - inside and out of the world's largest aquarium.
- The Lonely Hunter - great white sharks of Australia.
- White rock, Blue ice - glaciers and caves of Alaska.
- Alaska: The Cold Sea - endangered marine wildlife of Alaska.
- Swimming with Giants - humpback whales, Dominican Republic.
- Reptiles and Relics - alligators, Dominican Republic.
- Forbidding Islands - uninhabited islands of Navassa.
- Predator Island - lemon sharks.
- Visiting the Vampire - Blood-Sucking Vampire Bats of Belize.
- Monsters of the Shallows - Costa Rica.
- Jungle Cats of Costa Rica.
- Dragon Giants - wildlife of the Galapagos Islands
- Guardians of the deep - Cocos Islands; a mid-ocean crisis.

- Mega Shark (the Megalodon – a huge extinct monster shark) (1998)
- Shark Attack – a survival guide (2000)

Previews and summaries of these films can be seen on his website - <http://www.greatwightproductions.com/>

Fame in Hollywood

All this experience and his enthusiasm led Wighty to become a Producer for a series of major 3D IMAX films over the last decade, directed by the famous Hollywood Director, James Cameron. They became very great mates; James and Andy's particular innovation and focus was on the new 3D filming techniques and together they made several outstanding 3D films –

- "Expedition: Bismarck" (Discovery Channel, 2002)
- 3D IMAX film "Ghosts of the Abyss" (Disney, 2002)
- 3D IMAX film "Aliens of the Deep" - hydrothermal vents
- Disney, "Last Mysteries Of The Titanic" (Discovery Channel, 2006).

Here's a blog about the Titanic film, showing how Andy and James injected their real enthusiasm, imagination and sense of adventure into producing their documentaries.

"I couldn't wait until I received this DVD after ordering it from amazon. Well, in the first two days I watched it twice and what can I say except that this is the best documentary of the TITANIC wreck available. I've been a TITANIC enthusiast for a long

time and love anything to do with the subject and this movie drew me even closer to the allure of the ship. The documentary goes where no one has been before and the quality is superb making you feel like you are part of the exhibition. They enter the Turkish bath room which is overwhelming also James Cameron takes us to the Straus's room and seeing the clock still in its place is breathless. The equipment they use is state of the art which gives you the feel of being there with the crew... If you love the TITANIC, you'll love this documentary."

Finally in 2011 he brought to worldwide theatre screens the 3D feature film "SANCTUM" with James Cameron as Executive Producer. This was a full-length action feature set in a vast cave system in New Guinea in which a team of cave divers encounter flooding, death, accidents, vast discoveries, rivalry, treachery, secret tunnels, murder and ultimate success – you know, the usual events we find on an everyday cave dive!

Back to Australia

In the last few months, Wighty headed up a new 3D office in Melbourne where the company stores 3D cameras, production and servicing equipment and features a 3D screening room. He said that the company would allow filmmakers in Australia to use the same technology that James Cameron had employed in the 3D film "Avatar".

Although he claimed that Melbourne was chosen as the Australian centre for these operations because it was a focal point for international events such as the Grand



Peter 'Puddles' Horne with Wighty doing sound recording work at Pines for his movie SANCTUM 3D, Photo JDZ.

Prix and the Melbourne Cup, I reckon he came back because Melbourne is such a great place and he had so many mates there! Actually, Wighty had friends everywhere in Australia, the USA and in fact all over the world, as he was such a cheerful and outgoing personality.

He also had a high "bullshit capacity", as he often freely admitted! For example, when a great white shark off Port Lincoln swallowed the camera hanging off the boat, the camera kept filming for another minute or so as it went down the shark's throat. When they showed the footage later, Wighty said "See - being chewed up by a bloody great shark is not as bad as you'd think – once you're past the teeth, they're all white and soft inside!"

On the day we lost him, he was heading out in his helicopter to a base ship off the NSW coast which was ready to sail to the Marianas Trench near the Philippines to do a new high-tech documentary on deep sea mysteries using advanced remote robot photography. We will all miss our dynamic and entertaining friend greatly. He definitely made his mark in the world and



Andrew with long time friend John Dalla-Zuanna at Mount Gambier

grabbed every chance available. Isn't that what life is about!?

Farewell, Great Wighty.
Ian Lewis

Acknowledgement is given for much of the more recent information contained in this article which was obtained from the Great Wight website. I would also like to thank Peter Horne for his excellent assistance in the preparation of this tribute.

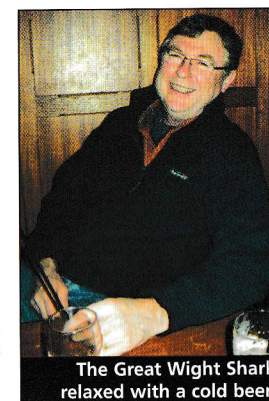
Footnote –

When you look at his outstanding contribution to the sport of Cave Diving via his films, Andy Wight was well overdue for an Award from our sport where he started his excellent underwater career.

Accordingly, two of us would like to nominate him for membership of our Hall of Fame.

Ian Lewis CDAA#258

John Dalla-Zuanna CDAA#236



The Great Wight Shark relaxed with a cold beer.



Andrew with James Cameron (left) and Alister Grierson (right) Director of Sanctum

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John, Sharon and Erica.



Risk of Solo Cave Diving - Opinion of an Explorer

By Brian Kakuk

As cave divers, our reasons for participating in our activity are as varied as the people who conduct the dives. We each have individual reasons for strapping on a set of cylinders and swimming into a place that is considered by the vast majority, a dangerous and high risk environment. Yet we all justify our sport by reciting quotes from our instructors, mentors or explorers who feel that with the proper training and equipment, our underwater/ underground activity is generally safer than driving in city traffic.

Add to the mystique of diving in underwater caves the fact that some of us actually go into these places by ourselves, and some even prefer it, and the uninited simply nod their heads in disbelief. Solo diving is often seen as an activity that is frowned upon for the masses, yet quoted positions on solo diving by major training agencies leave open contingencies for experienced, properly equipped divers:

From: <http://www.scubaadventures.eu/index.php/solo-diving/149-solo-diving-padi-worldwides-position>

"PADI's position is clear; solo diving proponents should advocate responsible solo diving on its own unique merits, requisite training, and equipment needs and not through sensationalized attempts to disparage a proven safety system that has served the majority of recreational scuba divers well. ©2007 International PADI, Inc."

From The National Association for Cave Diving Standards and Procedures:

"The NACD does not condone nor disapprove of solo diving. The NACD believes that individuals have the right to make decisions to dive in the manner they choose as long as it does not endanger other divers or the environment. We believe that there are many ways to dive safely. We believe in the freedom to make decisions regarding our own well-being."

Defining solo diving

The first web search description for a solo diving reveals: "Solo diving is the practice of scuba diving alone without a "dive buddy". Solo diving, once discouraged, is now beginning to gain acceptance among experienced divers who have skills in self-sufficiency and redundant backup equipment."

en.wikipedia.org/wiki/Solo_diving

Descriptions of this type of diving vary greatly depending on the activity. Throughout my diving career I have heard statements such as "same ocean, same day" referring to dive partners who may enter the water together, but soon separate as part of the plan, or as conditions dictate. This is often simply a statement used to circumvent complete admission to acceptance of a solo diving activity.

I prefer my own cave diving definition:

"Diving completely alone where the only possible chance of in-water/in-cave rescue is self-rescue."

I believe this definition leaves little to be interpreted and states emphatically that the diver must have both the experience and equipment required to extricate one's self from the cave when circumstances arise. It also acknowledges the fact that no one can plan for the myriad of scenarios that can possibly happen in an underwater/underground environment, and that the diver must thoughtfully consider and accept the level of risk as such."

Accident Analysis

It is human nature to try and blame either an individual or a practice with a "cause and effect" view of any particular incident. This is where accident analysis comes into play. Accident analysis has been, and continues to be the most effective tool for the evolution of underwater cave related training worldwide. Acknowledging known contributors to an accident cannot be discounted and solo diving is no exception.

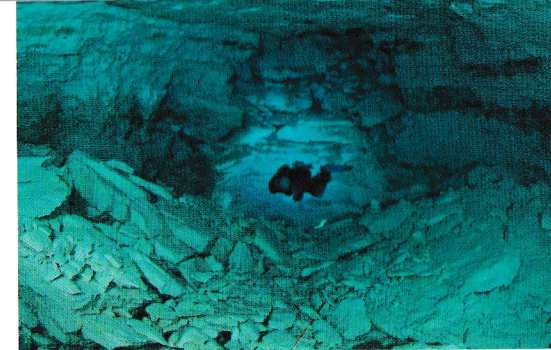
Of the 34 incident reports found on the International Underwater Cave Rescue and Recovery (IUCRR) website (1999 to present) (http://iucrr.org/incident_reports.html), 6 (or 17.6%) of the cave-related incidences can truly be designated as having happened during solo diving activities.

Of these incidences, one was an open water diver with no cave training whatsoever, another being an experienced cave diver, while the remaining divers I would consider very experienced. The numbers are even less (15 out of 234 = 6.4%), in a well-researched presentation, outlining international cave diving fatality statistics from 1973 to 1999 (Bozanic and Halpern PowerPoint "Cave Diving Fatalities a Summary" 1999). It should be noted that this list is incomplete and there are other reports that have either not been submitted to the IUCRR or are not considered cave diving fatalities/incidents. None of the last three cave diving fatalities in Australia were included in these reports.

Some would argue that any "percent" of fatalities deemed from a specific cause should be addressed outright and prevented through regulation. However this mentality does not allow for the list of scenarios where the inclusion of another diver would inevitably lead to a second or third diver fatality. Conversely, it could be argued that some of the multiple fatality dives reported could have been avoided had they been conducted solo. Some of the scenarios where conditions warrant an independent solo diver include:

- Extremely small passages where team members physically cannot reach each other.
- Small Silty passages where a second diver cannot efficiently respond to an out of air situation.
- Scenarios involving extreme methods of exploration including side mount and no mount diving activities.
- Scenarios involving possible line entanglement or inadvertent cutting of the line in zero visibility.

The list above includes real-life scenarios for cave diving on nearly every continent, generally during explo-



ration activities. My personal experience of having a line cut by a second diver on an exploration dive after passing a low restriction half filled with mud is quite real. Additionally, the second diver who had become entangled in the line, simply cut it, abandoned it (and myself) and exited the cave leaving me to find my own way out in zero visibility through a muddy restriction at a depth of 150 feet (45M). Because of this (and some other less dramatic incidences) I have seldom, if ever included other divers on my exploration dives over the last 20 years.

Banning Solo diving doesn't allow for our community to evolve techniques, configurations or training to address different styles of cave diving. Solo cave diving has been an important tool used for exploration of caves worldwide. Thousands of solo cave dives have been safely conducted by experienced, well equipped divers, expanding our knowledge of these amazing places and opening the doors to places that no one knew existed.

Proper Training and Equipment - Independent Gas Supplies

It would be foolhardy to state that solo cave diving is safer than buddy cave diving. There are so many scenarios where having a second diver and accompanying gas supply have saved a life, especially where back mounted, manifolded double cylinders are used. In fact, it is the opinion of myself and many others that due to the lack of true redundancy in a manifolded system (these are only redundant AFTER an isolator valve is closed), divers using this configuration should always dive with a partner, or carry extra, completely independent gas supplies reserved specifically for bailout in the event of a gas supply casualty much as Closed Circuit Rebreather (CCR) divers do.

Redundant gas supplies such as independent back mounted cylinders, Buddy Bottles (independent bailout stages), or side mounted cylinders are the only completely redundant gas supply configurations cur-

rently used for cave diving or technical diving. Solo Divers are strongly urged to use one of the above configurations and stick by their intended uses including the strict use of the 3rds rule or better, and always maintaining redundancy.

When I look at accident analysis that included solo divers, I see that the root issue comes back to two actual causes. One is the first of the 5 general rules of cave diving derived from accident analysis...Training. These divers either broke their rules of training by either not maintaining redundancy of their gas systems, dived beyond their level of training, dived past the rule of thirds (also the third general rule of cave diving) or dived too deep for their level of training (also the 4th general rule of cave diving).

The second cause that I see could possibly be called flat out bad luck. It appears that the only plausible explanation for a few of these accidents was simply that they were delayed in their exit, either due to entanglement or becoming stuck for a prolonged period of time, probably in zero visibility. Since no one was there to see exactly what happened, it is impossible to say whether it was that the divers were distracted and simply broke the rule of thirds, or whether the "bad luck" scenario contributed.

Accepting Risk Responsibly

When any diver makes the decision to cave dive, regardless of what level they are participating at, and whether they dive solo or not, they should completely consider the level of risk of the dive. Divers should keep in mind that they are accepting the risk of the dive not only for themselves, but for others including, family who they might be leaving behind (and having to deal with the emotional and financial ramifications of a worst case scenario), friends and the cave diving community as a whole.

As members of the cave diving community, we need to consider how our dives might also impact our fellow divers, land-owner relationships, possible legal actions, and local and federal regulations that might be imposed on us. After looking at reports and speaking with persons who have done recoveries of solo divers, it seems to me that the answer doesn't lie with banning an activity that has been conducted since our sport was conceived. I believe we can greatly reduce solo diving as a contributing factor through 1) training, 2) experience, 3) being properly equipped, and a commitment to the proper use of all three.

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Karst Science

A brief comparison of four great cave diving areas through documentaries

By Ian Lewis

Comparisons and a Film record

For this issue, I'm going to look at a comparison of four very large limestone regions full of great cave diving – the Nullarbor, Mount Gambier, Florida and Mexico's Yucatan Peninsula. These four regions consist of some of the world's largest continuous limestone sheets. They have several special things in common – creamy coralline fossil-rich rock, vast flat-layered sedimentary strata, riddled with caves and sinkholes (karst), and extensive fresh or near-freshwater aquifers. Their limestones are generally about the same age and were all formed at a particular phase when much more of the earth's coastal areas were covered by warm tropical seas, in latitudes that are colder today.

The comparison of the four regions is very interesting but for this article I wanted to look at them partly through the eyes of another cave diver – Andrew Wight. His tribute article appears elsewhere in this issue. But Wighty enabled a comparison between these areas in a different way than just looking at samples and writing geology papers – he and his friends all got in there and filmed these places. He began all this in 1988 when he organized the Pannikin Plains expedition to the Nullarbor. It turns out that the video he produced with all its drama of the entrance flooding has given us a permanent record and excellent insight into Nullarbor cave forming processes which we had not had before. Much more than that, he was part of a group of us developing a wider concept that even though the limestone in these four big regions is similar, it is the environment that affects its aquifers and the caves which therefore form. Wighty began to explore these connections in a series of documentaries which have become a great record of the difference in their characteristics.

The Nullarbor

I gave a workshop at the CDAA AGM a couple of years ago with an exercise at the end where I got everyone to examine a satellite photo of the

whole Nullarbor Plain looking for tell-tale geological signs which may indicate cave zones there. In later years we have begun to link the big caves with suspected large fault lines and Cocklebiddy is a prime example – 7kms in a straight north-south line which shows up much longer on the satellite image. The water in the Nullarbor lakes and tunnels is called an "unconfined aquifer" as it reaches air and is not under artesian pressure. One theory is that the deep groundwater slowly dissolves wide flat passages along these fractures until they become so big that they collapse upwards into those familiar massive hallways.

But this always seemed a bit simplistic as there is much less rubble left in these passages than we'd expect. So a lot more rock has been removed over time, and it takes a great deal of aggressive ongoing solution in moving water to achieve that. Pete Buzzacott emailed me a while ago asking why were there large water-scalloping marks so high up on the walls of the giant entrance chamber of Cocklebiddy Cave (there are also outstanding examples in Abrakurrie Cave). Well, they are evidence that the water level was once a lot higher, but also evidence that the whole Nullarbor limestone region is being gently uplifted so many of the caves are now high above even ancient water tables. So how could still water low down in these systems continue to produce large and sometimes intricate passages? Wighty's Pannikin Plains film provides a very important answer and it's documented!

We think the Nullarbor is flat but it's not. A large cave entrance has a wide flat drainage basin around it several kilometers in diameter with a tiny gradient leading to the entrance. You never see it by just standing on the surface. But when the cyclone hit Pannikin Plains, up to 30 square kms of water all headed for the entrance and we have this amazing photo of the lake across the surface of the plain, all hammering into the cave. Such a huge volume of fresh water full of organ-



ic and soil elements pours through the rockpiles and mixes with the static brackish water below. This interface suddenly becomes highly chemically active and dissolves limestone at a fast rate. It is a major contribution to the development process of large deep caves there. In 1974, we had the same experience at Cocklebiddy and a waterfall poured straight into the entrance, formed immediately after an hour of rain. So we now realize that cave formation out there is also episodic, related to cyclonic water inflow, not just slowly by still groundwater.

So the Nullarbor caves are long, deep, with near-stationary water (a micro-movement towards the coast) but much of the limestone is high and dry. One possibility is that the extremely deep magma under the Western Shield that has lifted the Nullarbor limestones is generating heat in several faultline areas which may be why Tommy Graham's Cave has relatively warm water - evidence from Pete Buzzacott's thermal studies there (there are other explanations for this, too).

Mount Gambier

I've written quite a lot about this region on several occasions. After Wighty completed the Pannikin Plains film "Nullarbor Dreaming", a

number of us talked quite a bit about how the cave-forming processes might occur in the Mount Gambier area, since we don't get surface floods there. There is magma below a number of the volcanoes, far closer to the surface than deep beneath the Nullarbor. The whole Mount Gambier region has been eased upwards over the last million years or so but the pressure doing this has been periodically relieved by volcanoes blasting through the top – the Mount Burr Range has about 8 volcanoes and there's Mount Gambier and Mount Schank, of course. There are faultlines across the region along which sinkholes develop and there's an actual faultline in Kilsby's Hole which runs along the main direction of the giant room, and is in fact its whole south-eastern wall.

We understood that here, the aquifer is very close to the surface and flows imperceptibly towards the coast, like the Nullarbor. Wighty took a couple of plane flights with us as we searched along the coast for outflows. As is now known, there are a number of them besides Pics and Ewens, though not nearly as big. But they all add up and there's a lot of water movement happening within a kilometer of the coastline draining the karstfield. Wighty had plans in recent years to criss-cross this region in his helicopter to work on a Mount

Gambier documentary about the connection between the aquifer, the limestone, karst features and the surface ecology of the coastal wetlands. We will continue this work.

Florida

One reason why a doco on the Mount Gambier area didn't get done at the time was that the opportunity came for Wighty to film in Florida. He combined with Wes Skyles, another highly-experienced cave diver there who knew the region like the back of his hand and was one of the experts on Florida after Sheck Exley died on a 1000ft dive in the Mexican mountains. Wes was also a superb underwater cameraman and the quality of his work from Florida to the Antarctic still astounds and delights us. Wighty and Wes made a doco on the interrelationship of the Florida aquifers, the surface river systems, the karst, the life forms they support, the environment and the problems of pollution.

Florida's limestone is also like Mount Gambier – close to sea level. But the big difference is that the aquifers flow strongly throughout the limestone and are fed by head waters in the hills of southern Georgia to the north where there is snowmelt after winter and almost a year-round supply of incoming water. So Wighty's documentary shows us that Florida cave passages are much more rounded than ours with scalloping, sculpting and cusping in the walls from the effects of the strong currents, where cave divers can't just jump in with the current or they never get back against it! No such trouble in Mount Gambier or the Nullarbor. Wighty was one of the pioneers of the use of underwater dye releases by divers and this has been used to trace very slow movements in Mount Gambier and the Nullarbor but fast ones in Florida.

So the whole Florida limestone plain is like a sponge with several large taps continuously filling one end and with leaks in all directions down the middle. It is a very active cave-forming process and doesn't need flash floods like Pannikin Plain Cave to keep dissolving in large volumes.

Wighty and Wes were very brave boys to put on film the foul effects of large profitable farm enterprises (particularly mega-dairies) pouring vast

amounts of pollution directly into the aquifers. The sight of it is horrible. The danger was that they were threatened several times by owners and big business who did not want the bad publicity. These are multi-million dollar operations and they didn't want a few uppity cave divers blowing their cover, especially when there were rare white crayfish to protect as well. It got nasty there for a while but Wighty and Wes still made the decision to feature it in their Florida documentary anyway. Fortunately, this has led to greater awareness of the effects on all Floridians and better anti-pollution laws.

Mexico

The Yucatan Peninsula is huge with hundreds of cenotes and thousands of smaller entrances to water. They are still being found in the jungle all the time. The Yucatan limestone has experienced something far more impacting than the other three regions – it is riddled with huge complex fracture patterns from the effects caused by the enormous meteor which wiped out the dinosaurs and plenty of everything else when it smashed into what is now the Gulf of Mexico, along the northern border of the Yucatan. The Yucatan limestone was not there then (60 million years ago) but arrived about 20 MY ago and is heavily influenced by the remaining meteor impact fractures. The Yucatan aquifers flow throughout these intricate patterns, generating sinkhole and karst development in intense quantities.

Andy looked at the variety and patterns of caves and sinkholes, relying on locals as guides, and learned of the intimate relationship they have with these features going back over 1000 years of the Mayan civilization. Cenotes were used for human sacrifices but also for vital water supplies as the jungle was not a dripping wet year-round monsoon jungle but a dry, tangled one grimly growing through the limestone with roots ever seeking the precious water beneath. Where there were no handy caves, the Mayans and their descendants have even scraped out sizeable rooms in the soft limestone to capture groundwater seeping in from the aquifers.

Later on, Wighty and others began to realize that the springs and flowing cenote systems along the east coast towards Cozumel were showing signs

of pollution from further inland where locals did not connect in their minds that rubbish in various cenotes flowed straight into their water supply near the built up areas. This happened in Mount Gambier too but at a far slower and less obvious way. However, in the eastern Yucatan it meant lives were at risk through ugly dangerous direct pollution. Wighty followed this link between humans and karst in subsequent documentaries.

So this has been a quick sketch of four main global limestone cave diving regions and how they compare. It is also an acknowledgement of the importance of the film record of them. We still use these documentaries to draw new insight into comparative studies of karst and hydrological science, influenced by their different environments.

Footnote –

The accompanying photo of a diver with a green snorkel was the first underwater photo ever taken in Pannikin Plains Cave. The reddish rock of Pannikin Plains shows clearly close up in perfect

viz. Keith Dekkers took the photo and yes, it's me in cutting-edge cave diving gear in January 1974! Single tank with J-valve (in upright position!), horse-collar vest, US divers sealed beam, wrist-mounted capillary gauge and the long snorkel. On one expedition, Wighty borrowed my panel van to drive from our Murr-El-Elevyn campsite to Cocklebidy and sideswiped a truck as he pulled out onto the highway. When he got back, I said "How the hell could you miss seeing a bloody huge Semi on the highway??" On his later Pannikin Plain expedition, Wighty found a long green snorkel in 30m of water at the bottom of the entrance lake. He was talking to a bunch of us later at Mount Gambier and wondered how a snorkel like this got into Pannikin Plain. I said "Er, it's mine. I lost it when Keith and I turned around and headed out because we hadn't even noticed the huge tunnel leading off from the bottom of the lake tunnel". Wighty said "How the hell could you miss seeing a bloody huge tunnel off the lake passage??" I guess honors were even!
Ian D Lewis #258 (LM)

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Oxygen Toxicity in the Field

By Kathy Weydig and Joel Silverstein

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Technical diving expeditions require extensive planning. Despite the best of plans, accidents can happen when you least expect them. How you deal with them is critical to the outcome.

The National Oceanic and Atmospheric Administration (NOAA) had granted us a civilian research permit to visit the USS Monitor. NOAA had stopped issuing permits in 1997 and began work with the U.S. Navy to salvage certain parts of the ship. Between 1998 and 2002, divers removed the propeller shaft, engine & gun turret.

Our visit would be the first civilian visit in more than seven years. The USS Monitor rests at a depth of 72 metres 29 km out from Cape Hatteras, N.C. At that depth, our divers would be using mixed gases to document the changes to the site since they had removed major portions of the Monitor. We were also gathering decompression data for new mixed-gas dive computers for Cochran Undersea Technology.

The incident

Two days into the second week of our project, a rare incident occurred: A team member convulsed as a result of oxygen toxicity. One of our photographers, a 51-year-old man with five years of technical experience and more than 30 years of overall diving experience, suffered an underwater convulsion caused by oxygen toxicity. His dive was to last no more than 20 minutes with a "run time" of 60 minutes. (Run time is the total time spent underwater in reference to a decompression dive. In this case, the diver spent 20 minutes at depth and 40 minutes on decompression stops.) He carried twin tanks filled with 17/40 trimix and decompression cylinders of 50 percent nitrox and 100 percent oxygen, standard mixes at these depths.

After 14 minutes on the bottom, the diver began his ascent to 21 metres, where he was to make his gas switch to nitrox with 50 percent oxygen. By mistake, he switched to pure oxygen. While man-aging a large camera without a tether, he made the gas switch to 100 percent oxygen instead.

This put his partial pressure of oxygen level, or PO₂, at 3.12 atmospheres absolute, more than twice the maximum oxygen level for a diver. (Note: The U.S. Navy is currently using 1.3 ATA as the limit in its closed-circuit rebreathers, while limits of 1.4-1.6 are more commonly selected by civilian divers and NOAA scientific divers. See Oxygen Toxicity sidebar.)

While making his ascent, the photographer continued breathing the oxygen for the next nine minutes. At 12 metres, he encountered another diver who was completing decompression. At this point, his eyes went into a blank stare, his body went rigid, and he began to convulse. The other diver grabbed him and the anchor line and attempted to hold his regulator in place.

Not interrupting his own decompression, the diver held the injured diver while the convulsion continued. As the diver's entire body shook, the decompressing diver managed to deploy a marker buoy to get some attention. Two divers had just entered the water and got the injured diver to the surface. On the boat we heard a yell for help.

To the rescue

Immediately we went into rescue mode. Swimmers rolled into the water to get the injured man up and on to the deck, where we stripped him of all gear. The injured man had a weak pulse and was experiencing labored breathing; clear froth came from his nose and mouth.

We began first aid and oxygen administration while the captain radioed the U.S. Coast Guard; he issued a mayday call and requested a helicopter. We worked on the injured diver for almost 30 minutes, when, without any notice, he regained consciousness and sat up.

Still there were other divers we needed to get out of the water before we could move the boat. Once everyone was on board, we completed the airlift.

The helicopter flew to Virginia Beach, where the injured man underwent hyperbaric treatment. He

remained overnight under observation and was released the next day. The diver made a full recovery and within a few months he returned to diving. Our own dive operations resumed the next day.

A good outcome

The outcome of this accident was positive, but it could have quickly become a fatality. Fortunately, we had a management plan and personnel in place to handle the situation and the support of the Coast Guard; as a result, we airlifted the injured diver expeditiously to an appropriate medical centre.

After the incident, we revised our diving protocols. All divers now conduct a visual gas confirmation check of ascending and descending divers, and a dive partner or safety diver confirms all gas switches. In addition, camera tethers are now mandatory.

Good planning entails preventive measures

Technical diving operations require a support crew not only to run the diving operations but also to manage unexpected accidents. While oxygen toxicity cases rarely develop, this incident showed what can happen.

Oxygen Toxicity

Although oxygen is required for human life, it can have toxic effects when breathed at above-normal pressures. The target organs affected are the lungs and the central nervous system. Oxygen toxicity involving the lungs, called pulmonary oxygen toxicity, results from many hours of exposure, usually encountered only during recompression treatments or during long decompression using enriched oxygen breathing.

Recreational divers can encounter oxygen toxicity involving the brain (termed CNS oxygen toxicity). The diver using regular scuba equipment at reasonable depths will not encounter this problem, but gas density and heavy exertion can cause carbon dioxide retention that makes divers more sensitive to oxygen. The current maximum oxygen partial pressure recommended for recreational diving is 1.4 to 1.6 ATA.

Air will have an oxygen partial pressure of 1.4 and 1.6 ATA at 61 and 72 msw, respectively. Divers using modified gas mixtures with concentrations

of oxygen higher than air are at risk at much shallower depths.

A 32 percent enriched-air nitrox mix will have an oxygen partial pressure of 1.4 and 1.6 ATA at 36 and 43 msw, respectively. A 36 percent nitrox mix will have an oxygen partial pressure of 1.4 and 1.6 ATA at 31 and 37 msw, respectively. A diver breathing pure oxygen can have convulsions at depths as shallow as 6 msw.

Signs & Symptoms

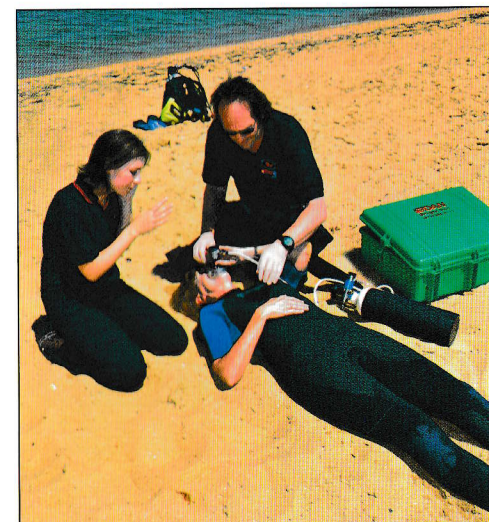
- Nausea • Convulsion • Dizziness
- Ringing ears • Abnormal vision
- Facial twitching • Confusion

Convulsions or seizures due to oxygen are not harmful per se, if the diver can be prevented from injury while thrashing about or from drowning. An oxygen convulsion may occur without warning.

Prevention

Do not use breathing gases with oxygen concentrations inappropriately high for the depth. Oxygen partial pressures high enough to cause symptoms are unlikely when diving on air within recommended recreational depth/time limits; most likely they will be encountered when breathing elevated oxygen mixtures or when using closed circuit rebreathers improperly.

A maximum oxygen partial pressure of 1.4 ATA has been recommended for open-circuit scuba using nitrogen-oxygen breathing gas mixtures. For ►



scuba divers who adhere to the 1.4 ATA oxygen limit, an oxygen convulsion is unlikely.

Oxygen partial pressures as high as 1.6 ATA following the NOAA depth/time limits have been used by some, but it is usually recommended that these higher partial pressures be reserved for situations in which the diver is largely at rest, such as during decompression stops.

For extended diving exposures using rebreathers, the U.S. Navy has a 1.3 ATA limit oxygen partial pressure. Special training is required before diving nitrox or using rebreathers. This should include methods of minimizing the possibility of oxygen toxicity.

If symptoms occur, reduce the oxygen partial pressure immediately by ascending or switching to a breathing gas with a lower oxygen partial pressure. Do not assume that an oxygen convulsion will not occur until the diver has been on a reduced oxygen level for at least five minutes.

Treatment

Early symptoms should be treated by surfacing, if possible. Management of an underwater seizure

is difficult, and the victim's life is clearly at risk. Like learning CPR, practicing the proper handling of an oxygen convulsion helps you maintain this vital skill.

Once the convulsion subsides, if the mouthpiece is secure (or if the diver is wearing a full face mask) and the diver is still in the water and breathing, then leave everything in place until you can get the diver out of the water. Once on the surface, if the diver is not breathing, remove the mouthpiece and begin rescue breathing, clearing the airway, as required.

While the injured diver is in the water, the main goal is to prevent drowning. After the seizure ends, ensure that the diver's airway is open. Once out of the water, be on the lookout for foreign bodies in the airway.

During a convulsion, it is possible to bite off parts of the mouthpiece, which can find their way into the trachea. In these cases the diver will begin coughing upon returning to consciousness, or the diver may try to breathe but not get any air into the lungs. Here you need to institute the standard procedures taught in CPR classes to remove a foreign body.

Source: Dear GdeL, Pollock NW, (with Moon RE, Uguccioni DM, Myers J, Douglas E). DAN Dive and Travel Medical Guide, 4th ed. Divers Alert Network: Durham, NC, 2006; 90 pp.

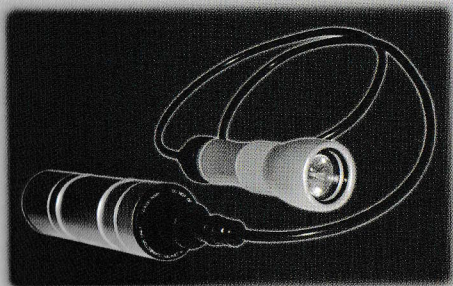
Who is the Divers Alert Network (DAN)?

For scuba divers worldwide, DAN means safety, health and peace of mind. DAN are the experts in diving accident management. The organisation is committed to improving the safety of diving for all divers. DAN strives to achieve this goal via activities that include providing Worldwide Emergency Evacuation Coverage and optional Dive Injury Insurance Services for Members; funding and/or manning 24-hour diving emergency hotlines throughout the region; offering non-emergency diving medical advice, accident management training; and undertaking data collection and research to enhance dive safety. www.danasia-pacific.org

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Bakers Cave

A bit like The Shaft, Allendale and The Pines all rolled into one amazing and fun dive site

By Michael Mallis #4553

I first dived Bakers Cave in February this year with a group of five others that included Jimmy Wirtanen, Claire Cooper and Fabrice Boesch; Tim Muscat had dived this site earlier and so was naturally the site organiser for the day. It certainly won't be my last dive here for many reasons. If ever you get the chance to explore this little-dived site, jump at it, you will not be disappointed. For whatever reason it has not been patronised for some years and only recently has it gained favour. Maybe it had something to do with the land ownership change.

Matt Skinner, the site manager, best put it to me when he described the site as being like The Shaft in that you are lowered down into the water and in a cavern with a lake and don your gear in the water; like Allendale as you will see blue yabbies and with the same general profile of a constant sloping floor

that bottoms out to black silt at about 33 metres, and like The Pines as there are many places to poke around in and run jump reels and even passages where divers can only access areas single file. Differences are that it is far wider than Allendale and a lot higher from the floor to the roof especially in the first half of the cave. Visibility is absolutely crystal clear and as good as or better than the best day at Kilsby's. A few good things about this site is that you can actually stand up in about one metre of water atop the rock pile (dependent on the water table as it is seasonal) and gear up. Also there is a fixed orange line running down the centre of the cave from about six metres to near the bottom.

The rules and obligations are many and are similar to Kilsby's and unique to this cave rated site. The conditions of entry are summarised below.

Up to six divers can dive the site on one day. Indemnity forms need to be signed prior to the dive and you must have an original with you on the day of the dive and must be left in the dairy office of the farm during your stay. Even non-divers CDAA members need to fill out an indemnity form. This copy will last you five years. Only currently paid up CDAA members can enter this site whether they are diving it or not. A condition of entry is that if you need to use a toilet then do so, one is made available next to the office in the dairy (does it get better than that I ask you). Do not use the paddock at all regardless of what you might think.

As with Kilsby you all arrive at the farm gate at the appointed hour, anytime after 8am, and enter the property in your vehicles single file and very slowly drive down the driveway that passes next to the farm house and dairy. The idea being to minimise the dis-



Cave entrance in foreground looking north towards the dairy.



The cave entrance itself showing the solution tube and the lowering of gear. The water surface is barely visible in this photo.

turbance to the farmer and his family because of possible barking dogs and the fact that this is a working dairy and they just may be asleep that time of day as they have probably been up since 5am

milking cows. Vehicles leaving the property must do so slowly and as one group and in single file. You must be off by 2pm so you don't scare cows when they are rounded up for the afternoon milking. Basically we have to minimise our presence as much as possible and keep the land owners happy. Like at Kilsby's no-one can leave the property (walk or drive) at any time unless everyone leaves together. Dives at Bakers Cave have to be booked by at least two weeks ahead of time after which the site manager requests the permission for diving to take place.

Other local site rules include at all times at least one person must be topside who has rope handling skills and at least one

person in the group that has previously dived this site. A steel ladder or SRT gear can also be used. In our case we used a vehicle to help hoist divers and their gear up out of the cave entrance and required



Jimmy preparing to be lowered into the cave entrance.

one belayed person to help guide the lift whilst the other drove the car. If possible a low range equipped gear box on a 4-wheel drive vehicle or something similar would be a better option than the manual gearbox cars we used, just be careful you don't burn out your clutch like Fabrice nearly did. Once there allow enough time to set up the A-frame and for gearing up. Two dives are possible before having to leave. Always leave the site tidy and exactly as you found it.

It goes without saying that CDAA member behaviour during the whole time they are on site is noted and that establishing good relations and sticking to the rules will see us in good stead with the owners. It would be a pity if any bad behaviour by some results in the CDAA losing access to this magnificent dive site. Other site rules and conditions are listed on the CDAA web site but basically you need to book at least two weeks ahead of time via the CDAA on-line booking system and no compressors or smoking is allowed on site.

The actual cave site is located about 50 metres north along Stock Route road from Gouldens Sinkhole and on the west side of the road. From here you assemble and drive slowly as a convoy through the farm, past the dairy and onto the dive site which is located approximately 40 metres from the dairy. Remember if passing through gates always leave them as you found them, just like at Kilsby's. The actual dive site itself is fenced off and you need to remove the west side top railing to actually enter the area; it keeps the cows out I imagine. The cave entrance itself is about 900mm in diameter and for the first metre has a raised concrete pipe section that is capped off with a two piece steel plate. This top is not locked and one only half need be removed for access. The tunnel itself is about five to six metres long which opens up to a cavern that has a lake about 12 metres wide at the water's surface. There is another 10 to 11 metres of drop before you reach the water. An A-frame is assembled above the entrance that can be belayed from nearby fence



An overview of the dive site and cave entrance showing the belayed A-frame, fence with top railing removed, orientation of vehicle to the A-frame and belay line plus one half of the steel top removed.



Claire contemplating her turn to be lowered into the cave entrance.

posts. Lifting the steel cap reveals a solution tube that has been widened enough to take lower a decent sized diver. As with The Shaft you are lowered by your harness wearing your immersion suit, and fins. It is recommended that you also wear your mask and take along a torch switched on as you enter. Once in the water swim to one side atop the rock pile in approximately one metre of water. From here you will don and doff gear.

You gear up standing on top of the rock pile and once you are kitted up and checks made and advised the topside crew of your dive time etc you are away. You descend into a large open cavern that casts terrific shadows of your buddies on the white walls when you illuminate them from behind. The walls and ceiling are quite soft to the touch so be very careful touching them. I noticed some occasional dislodging of this soft limestone when our exhaust bubbles hit the walls and ceiling which resulted in small marble sized pieces of limestone falling; that was a little disconcerting I must say. We managed to get to the black silt bottom at 33 metres but

there is also white silt to be seen in amongst the boulders.

We ran a few jump reels to a few tunnels which were up against the sides of the cave and between large boulders. The whole cave floor is littered with large and small boulders which made for some interesting exploring opportunities. The water clarity was astonishing, no doubt as a result of so few people have dived this site in recent times.

We managed an hour's dive time with our safety stop but the overall run time from entry to exit was closer to two hours. Factor this in if two dives are planned for the day. At our safety stop we amused ourselves by watching blue yabbies scurrying about. You will also see some old bones and relatively recent animal carcasses near the top section, no doubt

due to some unfortunate critter falling in and drowning. Old bottles and some manmade debris litters the area but nowhere near as bad as Allendale.

In my humble opinion I think this is one of the most interesting cave dive sites going around. It offers something for everyone and will not disappoint. Its appeal is not only in the cave itself and its varied attractions but in the difficult logistics required to get in a dive, but isn't that what diving is all about, the preparation and planning, the execution and the post-dive debrief afterwards over a cold one at the local pub.

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CDAA Cave Course – A personal experience

By Michael Mallis #4553

As soon as I learned that Andy Higgins was putting on a CDAA cave diving course I immediately and without hesitation signed up on the spot. Like I told Andy a while later there were two reasons why I did so; first, I was ready for it. This meant that in the time between doing my Deep Cavern course in March 2010 and now, I had done nearly 300 dives in many and varied conditions and confident enough to tackle the next logical challenge for the sort of diving I wanted to do. I also gave myself at least a year's worth of Mt. Gambier diving, some 30 odd sinkhole dives over seven trips in order to build up the experience and prerequisites needed to tackle the next stage in gaining a Cave Diver qualification. More importantly, I felt mentally ready to take on the new challenges that this sort of diving demands. The second reason was that the course had come at an opportune time as I had the time to do it. Coincidentally Andy was also my Deep Cavern course instructor and I found that his style of imparting knowledge and skills was in tune to my way of learning (although I could have done without the air gun). And so, the alignment of the heavens was perfect for me to undertake yet another new challenge which would hopefully make me an even better and safer diver.

My fellow victims, I mean participants, on the course were Jimmy, Adrian and Tim. Coincidentally both Jimmy and Tim were on my Deep cavern course 18 months earlier and I had known Adrian through his association with my local dive shop. It's nice to have familiar faces and buddies to hang out with at the best of times and especially on a cave course. In preparation for the course Jimmy and I travelled to Mt Gambier in July to do some practice dives and refresh our skills. We even dived Gouldens just to familiarise ourselves with the terrain once again by laying and recovering a line a few times with and without masks. I even explored the slot for the first time located under the platform that undercuts the ramp down to about 15m whilst laying a line and feeling quite proud of myself until I turned around. Despite what I thought were my best efforts to keep silting to a minimum I had crapped out everything, it was dark and the only light source was my torch. Turning around I saw a slow moving avalanche of silt advancing down the gradient across a

one metre front. I remember thinking at the time, "Crap, so this is what it's like?" The training automatically kicked in and quite deliberately and smoothly I recovered the line and all the while keeping a level head until finally seeing Jimmy and daylight soon after. I am quite used to ocean diving in very low visibility and I do about one third of my dives at night anyway but a silt-out situation in an enclosed environment is another situation all together. At least in the ocean there is a way out and that is straight up, in an enclosed overhead environment there is no such easy option. Whilst this was not a cave or true enclosed environment it did give me a sense of what it could be like in the days to come.

I undertook the course in October 2011 which consisted of six hours of formal theory training along with three in-water training and three supervised cave dives in at least two different sites. The pre-requisites for the course are that a diver has had to have held an entry level SCUBA diver award for a minimum of 12 months, hold a CDAA cavern award, have at least 30 unsupervised cavern dives totalling 15 hours or 15 hours of unsupervised sinkhole dives deeper than 18 metres and totalling a bottom time of 7.5 hours.

A minimum age of 18 years with a current diving medical completes the requirements. Personally I would add that this is a minimum level and doing more would be highly encouraged. A week before we were to travel to Mt Gambier and over two nights the formal theory component of the course was undertaken at Andy's home in Melbourne. Every aspect of what we were to demonstrate in a week's time was thoroughly covered and on the last night we sat for the test. Needless to say we all easily passed.

Travelling to Mt Gambier took just over six hours with a couple of pit stops and lunch. In my experience I always try and get to the Mount before dusk, the reason being the kangaroos that have a scant regard for their own or human life when they stray onto roads; the evidence of which lies beside the road every few kilometres. I left Melbourne at 10am and arrived at 4:15pm.

Everyone made their own way and on the whole took their own route; personally I prefer the Western Highway and taking the Ballarat bypass through



Andy Higgins demonstrating the use of jump reels

Beaufort, Skipton then onto the Midland Highway through Hamilton. Everyone stayed at Pine Tank Lodge, a favourite haunt for a lot of cave divers as it is close to a few of the more popular cave sites like The Pines, Fossil, Mud Hole, Stinging Nettle and Tank. I was greeted by Grant Pierce, owner manager who at the time was unpacking his utility truck after having just returned from a Nullarbor cave diving expedition; after a few minutes talking about his exciting dives I right then and there set my sights on doing the same thing in two years time, interested Jimmy? It gave me a new goal to aim for but first things first; I still had to pass the cave course before thinking about these things.

Jimmy, Tim, Adrian and I were housed in the 'new' wing and I can attest to the fact that it is very quiet and I slept like a baby every night of my stay, mind you, the course activities and late nights had something to do with this. Most evenings were spent in town either at the Mt Gambier pub or one of the restaurants. As is my nature I dressed up as I would for any other night on the town but perhaps I was a tad overdressed as Grant commented on the fact that he thinks mine was the only suit and tie he has ever seen at Pine Tank Lodge; surely that can't be right!

The practical side of the course consists of six dives and con-

ducted over three days in which the first three dives are done at Gouldens followed by the next three dives at cave rated sites; in our case this was to be one at Allendale and two at Pines. The first day saw us do land-based skills which we were to demonstrate underwater, first at Gouldens then for real in a true overhead environment. These skills involved self-extraction from line entanglement, the use and deployment of jump-reels, direction and personal markers.

And so, what was the course like? I have to honestly admit that it wasn't as tough as I had imagined, on the whole it is actually less daunting than the Deep Cavern course and for a lot of reasons; first Deep Cavern for most is a diver's first encounter with overhead/sinkhole/cavern diving and is certainly much more structured than your average OW dive course. There is more emphasis on team work, equipment configuration, communications, trim and a heightened awareness of one's environment and limitations not to mention the use of twin sets, valve shutdowns, situational awareness, in-water S-drills and personal safety. For most divers this is also their first encounter with fresh and cold water diving, twin sets and even dry suits making the course that much tougher. By the time you do your cave course all these skills are expected to have been mastered; it's not the time to be refreshing anything.

As far as new skills are concerned, if you do your homework you will already know what is expected of



Adrian and Tim at Pines



Jimmy contemplating his turn in Gouldens

you and have even practiced these skills beforehand. In hindsight I believe that all of us 'students' psyched ourselves out into believing that the skills we were asked to perform in Gouldens were far harder than they really were. I believe we all demonstrated less than perfect skills those first few Gouldens dives; I put it down to nerves and anxiety at what Andy could do to us when we least expect it like losing a regulator between breathes or getting a blast from that blasted air gun (pun intended). In one instance it didn't help to have the added real-life drama of both my second stage regulators free flow at the most inopportune times (thanks Adrian for adjusting them later that night). Theory is one thing but actually demonstrating skills in real-world conditions is quite another thing altogether. We all stumbled at something or other and excuses notwithstanding we still came through.

Our only saving grace was that with each dive we dramatically got better at our skills and much to Andy's relief. He did confide to us later that he was initially surprised at our less than perfect coordination of skills as buddy pairs but I put it down to our own heightened levels of anxiety. This just reinforces my conviction that divers considering doing the Cave course must have done at least two things, first, practice with a dive buddy the skills you are expected to do on the course or at the very least find a buddy that is already cave certified and practice with them, a lot. I can't say for how long or how many dives you should do but practice until you can literally do them blindfolded. Second, go to Mt Gambier if at all possible and dive Gouldens to at least re-familiarise yourselves with the layout as most people would have last dived it on their Deep Cavern course. Practicing the skills at Gouldens would be a bonus and I highly encourage anyone to do so if at all possible.

Gouldens would be familiar to most recent deep cavern and cave divers as it is most often used for controlled in-water training. It is not necessarily deep but it does have a pronounced thermocline at about 10 metres, lots of tie-off points and more often than not suffers from low visibility. The next three training sessions would see us demonstrate our skills in the same buddy pairs.

It is also a requirement that correct pre-dive in-water safety checks are made; trim and buoyancy, hand/tactile and light signals given, regulator exchange with masks blacked out and running a secured guide line to the surface. Furthermore we must demonstrate appropriate trim and buoyancy at all times and not stir up silt. Things can get a little more complex as you will find yourself with a black-out mask after

having run out a line which has a cross-over, as those pesky cave gremlins will reset your tie-offs. The point of this exercise is to correctly feel your way back to the secondary and primary tie-offs during a simulated silt-out situation.

Everyone gets to do these skills in turn and with the same buddy pair throughout the course. Each task is explained beforehand so that there are no surprises in that regard. Another time you get to do an alternate air share with your buddy whilst following a line with



Pine Tank Dive fill station

mask blacked out. Personally I'd prefer the no mask option but that's too easy as you can still see something but the mask makes sure you can't get any visual cues and is more realistic.

In no particular order more skills were demonstrated which included retrieving a line, removing any wraps/tie-offs, make your way back to the surface with an alternate air source supplied by your buddy with both masks removed (now that's a lot of fun, not, in 12C water). The last skill demonstrated in Gouldens was extricating oneself from an entanglement around cylinder valves at depth with a black-out mask on. There was also a reel lock and abandonment exercise in which we exited whilst sharing air and again with a black-out mask. On one of these exercises in which we recovered the line and exited with no masks we also had to perform a simulated deco stop at the secondary tie off point.

After our Gouldens dives we were ready for the real thing, Allendale cave. This was to be our first 'real' overhead cave environment and we were quite eager to get on with it. There was no hesitation when Andy asked who would be first, "Pick me, pick me" I was hollering inside but with all the control I could muster I nonchalantly raised my hand with apparent disdain; and so Jimmy and I were chosen, YES. I don't think Jimmy would have cared either way but I was so ready for this I was bursting.

After a pre-dive and on-site brief in which we inspected the entry/exit points Andy set up a knotted rope and tied it off to a fence post before we descended down and into the mouth of the cave. Just as well because when I was fully kitted up I lost my footing on some loose gravel at one point and overbalanced; fortunately I recovered with the help of the rope. I have since

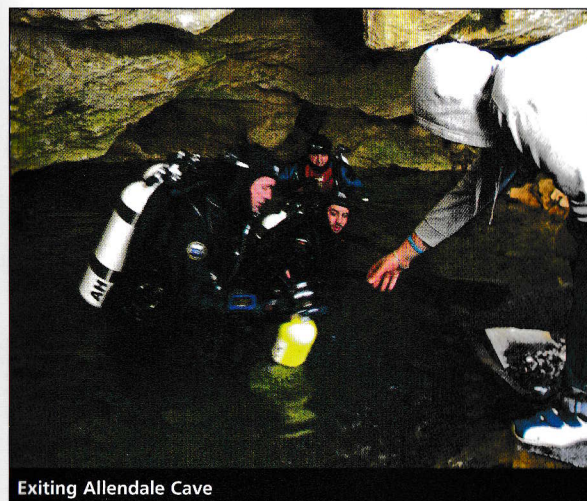
put in an incident report to the CDAA advising them of the near miss along with a suggestion that perhaps a safety rail of some kind be installed.

The brief included not only the skills that were to be covered but exactly how an entry was to be effected; Allendale at this time had a higher than normal water level, maybe one metre higher. This meant that one had to be particularly careful entering and taking slow and deliberate steps all the while not stirring up the silt. You put on your fins in the water and gently float over to the entrance when you descend into the cave mouth. Andy had entered just prior to Jimmy and me. I laid the line after having earlier made a primary tie-off onto a stake just outside the cave. We entered the water and after gear checks we descended with lights on whilst paying particular attention to the cave floor and ceiling and making sure we didn't touch any surface for fear of seeing it explode in a cloud of silt, naturally a big no no.

Finding tie-off points was not difficult as there was enough rubble to do so. I stuck to laying the line on the left hand side of the cave so that when you exit it will now be on your right hand side. At one point Jimmy later took great delight(?) in recounting how a huge rock I had dislodged (which I hadn't noticed and so easy to do) had tumbled down just missing me. I was naturally oblivious to this as I was quite excited and enthralled at the thought of getting to actually be doing this, my first true cave dive. We passed some rubbish and some graffiti scratched on the cave walls and made our way to the bottom at 24m which was our target depth.

Andy at this point indicated by pointing to what appeared to be another opening lower down in the cave at about 27m but as this would have exceeded

our dive plan I indicated we were not going there; the point was not laboured and I figured later that maybe this was a test, who knows. Satisfied at this we looked around the cave a bit before ascending a few more metres to a convenient rock mound where one of the pre-planned tasks was to turn off our lights and get used to the dark. It was the blackest of blacks you could imagine with the only sense you had was the sound of your exhaust bubbles. Fortunately I do not fear the dark or suffer any sense of claustrophobia, but if I harboured any such fears this was surely the place to find out. If nothing else this just task underlines the importance of never losing sight or feel of the line as in situations like this it truly is your only salvation when slit out or darkness envelops you. This exercise lasted for maybe a minute but



Exiting Allendale Cave

it felt longer. With lights on again and a reel swap Jimmy now slowly took up the line and led us out. We planned for a six minute decompression stop at six metres which as always goes painfully slow. I find things to amuse myself like emulating Andy in hovering just above the cave floor using nothing but breathe control, something I learned earlier from Andy in my Deep Cavern course. We ascended slowly leaving Andy behind taking up the line and reel which we left at the cave entrance ready for Adrian and Tim to use.

Without any time wasted we exited and the next buddy pair entered the water straight away for their turn. In hindsight I could have been a bit more careful in my fin work but at least neither Jimmy nor I silted out the place which has to count for something. It is said that you always remember your 'first time' and for me, this was an experience I will always be able to recall with infinite detail (except the rock rolling incident), it was truly awe-inspiring and very thrilling. As in Gouldens we were to again demonstrate the following skills; correctly follow a predetermined dive plan, achieve and maintain neutral buoyancy and trim, deploy and retrieve a line using wraps and tie-offs, demonstrate appropriate hand and light signals. Also, where appropriate, do an appropriate safety-stop.

The last two dives were done at Pines. I had been here before but only on a sightseeing tour just to familiarise myself with the terrain a year earlier. Back then there was no stairway to the water's edge but I must say regardless of what others might think I found it at best very safe considering what consequences could befall a diver if they should slip and fall as I nearly did at Allendale. This time Tim and Adrian would go first. Primary tie-offs are easy here, just use the stair handrails and try and let out enough slack line and toss the reel (remember to lock it off first) before launching it as far into the entrance as possible. By the time it came to our turn Jimmy and I were ready for our dive. On this dive we were to make a secondary tie off before heading down to the bottom end of a cave at about 20m that lead upwards and try and pass through a slight constriction. Jimmy had the reel and led. I followed and placed a few direction markers and checked the tie-offs as we went along all the while keeping in 'contact' with light and hand signals.

Jimmy passed through a constriction that is just wide-enough for a single diver to enter but even though I am thinner (sorry Jimmy but I am) I just couldn't manage it after a few attempts (my big head no doubt). The turnaround signal was given and we started to head back. Up until this point I was quite oblivious to the presence of Andy (from now on read cave gremlin) as I was quite enjoying the dive, forgetting that we still had skills to demonstrate. I turned around to check on Jimmy and signalled to him if he was okay. It took me

a few seconds to realise that he was indicating something behind me. Turns out Andy had a surprise up his sleeve and the simulated emergency situation, which was not a panicked or an out-of-air scenario like I half expected, but an entanglement. Talk about déjà vu, he did the same thing to me 18 months earlier in Gouldens, I wonder if he remembered, probably not. Rushing over to him I quickly assessed that he'd done a fair job of entangling the line round himself, again, valve posts and all. I signalled to him to stop to which thankfully he acknowledged.

Untangling Andy was easy enough and the signal was given to head out with Jimmy taking up the line. "Yes, nailed it" I thought, one more dive to go ... but without warning everything went black (it went black for Jimmy soon after as well), "Oh yeah" I thought; now I have to get out by following the line. And so with black-out mask on I followed the line back out until prompted to stop; this I did all the while trying to keep a slow and deliberate pace and being conscience of my finning and not bash into anything. In any case I found a few direction markers which reassured me I was on the right path. After a few minutes of this I got the pre-determined signal (a light tap on my primary regulator) from Andy to exchange my primary regulator for the secondary in the space of one breathe; more task loading I thought. This I did easily. Thank goodness that was over I thought; now I can relax and get back to enjoying the rest of the dive.

After a decent surface interval and some food our last dive at Pines was with the same buddy pairs in which we demonstrated the laying of a line under the ever watchful eye of Andy. This time we entered the top-most end of a tunnel system which is located to the left of the cave entrance at five metres depth in which one enters vertically; that was fun. Andy took us to a section of the cave system that has a sign indicating that only advanced rated cave divers could proceed. I could see why this was rated so, as the cave constricted to a point where only divers advancing in single file could proceed. At this point the exercise was to swap over from our primary light to a backup light and head out again, simulating a primary light failure. We headed back out of this cave and back down into the main body of the cave and explored a tricky swim-through. As we had completed our last skill we just enjoyed the dive.

As always with this and every other dive we still had to follow a pre-determined dive plan, achieve and maintain neutral buoyancy and trim, demonstrate appropriate signalling, tie-offs, reel work etc; by now it was expected of us to do this flawlessly. At this level of diving it is expected of us that these skills are to be done to an even higher degree of finesse and perfection than before. Once topside and after the dive debrief we



Newly certified Cave Divers - L to R: Tim, Jimmy, Adrian, Andy and Michael (kneeling).

were formally told we had all passed the cave course, YES we did it.

Given that there was still some daylight a third dive for the day was still possible. Since we have passed the course some of us were quite eager to do a cave dive just because we could. Unfortunately Jimmy had to drive back to Melbourne because of work commitments and Adrian was happy enough to sit this one out so that left Tim and myself. We did Fossil cave, nice and easy and close by. Like at Allendale and Pines we had asked Andy what else was there to see in Fossil but his answer was still the same, "...see for yourself...". To his credit he didn't want to spoil it for us and remove the element of surprise or adventure one has in finding out for oneself.

In hindsight I cannot overemphasise the following points to anyone considering doing the cave course; first, do not make the mistake of thinking it is necessarily difficult, it is not. The only difficulty you might have is overcoming your natural instinct in believing that it has to be hard. In fact, I found the Deep Cavern course more strenuous and mentally challenging than the Cave Course, go figure. Second, I cannot overemphasise the need for preparedness and practice prior to the course. This could mean travelling to Mt Gambier and diving Gouldens a few times just to perfect your skills. Familiarity with the surroundings is no bad thing to do

in preparing yourself. Practicing under piers is also a good idea and preferably with the buddy that will be doing the course with you. Some skills like direction marker placement and line entanglement extractions are taught in the theory and in-situ and are best left to the instructor to properly teach.

Special thanks go to Andy Higgins for his expert guidance, wisdom and above all patience, a better instructor I could not have wished for. I can only hope to live up to his, and my own, expectations in utilising my new-found cave skills from here on end. To my fellow dive buddies Jimmy, Adrian and Tim many thanks for your friendship, camaraderie and help, it was truly appreciated; so, when do we go back again for some more cave diving lads?

MICHAEL MALLIS' DIVE BIOGRAPHY

Michael has been diving since 1993 after having signed up for a resort dive in Fiji. He used to refer to himself as a warm-water only diver even though he has always lived in Melbourne. Not since 2008 has he started diving locally. He has since truly immersed himself in the diving scene with over 700 dives whilst gaining a whole swag of certifications along the way. He is better known to some as the Midnight Elf, describing himself as mischievous but not malicious.



Mexico & Florida, June 2011

By Sarah Speight #4527

In April 2011 I was Cave certified and since then have been cave diving solely in Mt. Gambier. However, after reading lots of trip reports and seeing YouTube videos of Mexico cave diving, I decided I had to go and check it out. It's quite a lot of effort travelling to Mexico, so I decided to visit Florida as well. I didn't know much about the cave diving at either destination and I soon found out there was a lot of it. I was told that Florida was more challenging than either Mt. Gambier or Mexico, and that there was flow, which is about all I knew. Another purpose to the trip was to get experience diving different cave environments which is something instructors like to see when you do Advanced Cave course in Australia. I hope to do this next year so I can dive some more sites in Mt. Gambier.

Mexico - getting there!

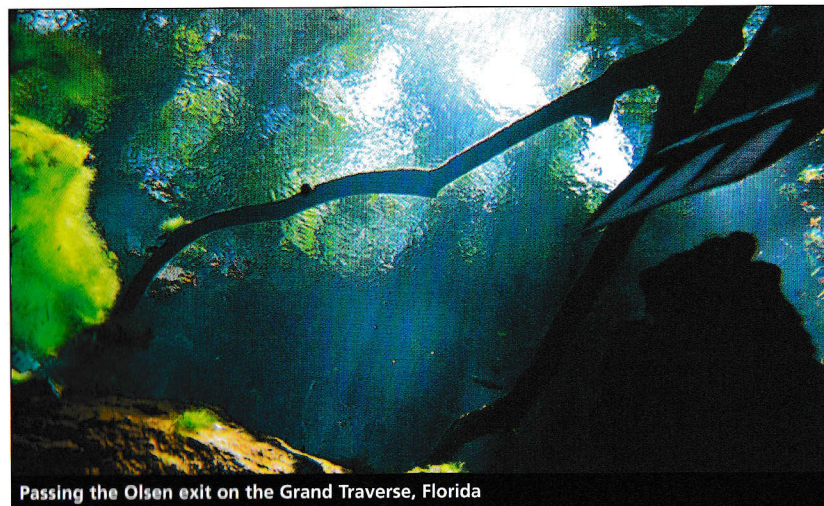
It's a bit of a pain getting to Mexico from Australia. A direct flight to Cancun was \$3300 with not a

great deal of time saved, compared to flying to Los Angeles (approx \$1200 return to Melbourne). LAX to Cancun is another \$250 one way. It took 32 hours from Melbourne to Cancun, arriving at about 1am. I shared a taxi from the airport and crashed for the night at a cheap hostel. From Cancun I took the bus (ADO is the name of the bus) at about 10am the next day to Tulum (92 peso's or \$7AUD) which took around two hours.

Accommodation

I was originally going to stay in Playa Del Carmen but was recommended to stay in Tulum by a cave diver Jean who I have chatted a bit with on Flickr. His advice about getting around Mexico and things to do was invaluable and it made things far easier for me (such as telling me what bus to catch, pros and cons of different places to stay, as well as what cave dives were good). I ended up staying at Posada Yum Kin Hotel - pyktulum.com. It cost \$65/night including breakfast. The cost was shared between myself and two friends... so very cheap! It also had

good internet and it was a really great hotel, the room was very nice and clean, the surrounds were lovely and it had a really awesome pool. The manager was very helpful telling us nice places to eat and things to check out. He helped us hire a



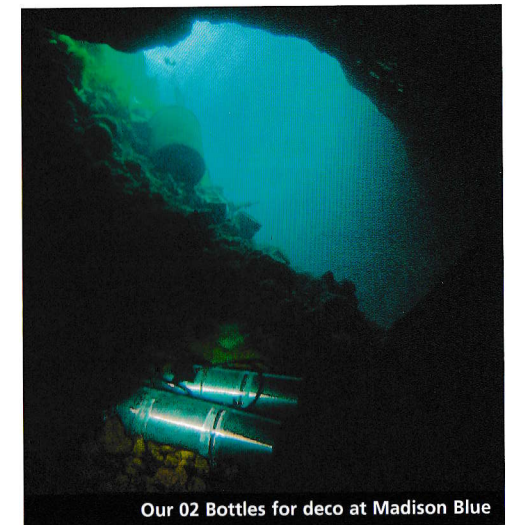
Passing the Olsen exit on the Grand Traverse, Florida

car, organise spa treatments and so on, so I highly recommend this place! The only downside people might find is that it is not in a picturesque area, being six blocks out of town (10min walk) though I enjoyed the walk to and from town. It was 30 peso/\$2 taxi ride to town or 100 peso/\$7 to beach front. I spent a week there before I moved to an apartment in Puerto Aventuras (as my two friends had to leave and I wanted a cheaper place). I had no idea about the details as it was organised by my cave guide.

Diving in Mexico

I didn't have a buddy on this trip so I decided to hire a guide. I went with a recommendation from a cave diver I know in Australia who mentioned Dennis Weeks at Diablo Divers - diablodivers.wordpress.com. He was an awesome guide and I can't speak highly of him enough! He went above and beyond what I expected, not only diving stuff but he took me to Playa Del Carmen for two nights and other places like Puerto Aventuras for dinner and/or sightseeing after the diving. As I had no transport, he helped me organise things like a new place to stay after I finished in Tulum, fixing my drysuit for me (it got damaged in transport, three holes), teaching me how to use stages in caves, answering all my random questions about Mexico, translating Spanish for me and just overall being very accommodating about what dive sites to do.

The first cave I did was Gran Cenote and we did two dives there on the first day. I was a bit worried how I would go diving AL80s (the most common tank available there though you can hire steel tanks at some places. As I have only ever dived twin steels, I trimmed out just fine and they were very comfortable. I was amazed at the difference between Mexico and home - the water was 25C. The caves I had dived before were very small and not decorated. On the first dive I swam 55 minutes into Gran Cenote before I hit thirds, which is just not possible at the caves I have been diving in Mt. Gambier unless I went very very slowly. Also they were more complex navigational; with most dives we were doing involving 2-4 jumps.



Our 02 Bottles for deco at Madison Blue

I went on to dive Jailhouse, Chan Hol, Tajma-Ha, Minotauro, Nai Tucha, Tres Estrellas and Pet Cemetery over the rest of the trip. I loved the halocline in Minotauro so that was one of my favourite dives but Pet Cemetery was my favourite over all as I loved just the appearance of the cave as well as the Blue Abyss. Though getting into the cave was quite uncomfortable as the place was SWARMING with mosquitos and I got bitten up quite badly. Bring bug spray!

The diving itself was so easy and nice as the water was very warm, the viz so good, the caves I was in didn't have any real restrictions, and it was shallow so I didn't have to do any deco. Deepest dive was 22m but mostly around 13m. As I was going to Florida I brought my drysuit and was diving a trilam suit with just tracksuit pants and one stripy thermal top on underneath. Most dives were 90mins+ and I did not get cold despite many dives ending up soaking due to the leaks in my suit (fixed one, next day still leaking, fixed another, next day still leaking, found three in the end). One day I got fed up with having a wet drysuit so hired a 2mm wetsuit and was quite comfortable in that for three hours in the water that day. If I go again, I would bring my 7mm wetsuit as I prefer to dive wet and it is easy to do in Mexico.

Besides cave diving I did heaps of non-diving stuff as I spent most of the first week there with non-diving

friends. We went to the beach which was awesome – water was bath warm and there were beds on the beach so I could lie in bed all day on the beach whilst getting drinks delivered to me, my friends did a Mexican cooking class one day, we all went to Gran Cenote to snorkel, went to Tulum ruins and also Coba (where you are able to climb one of the pyramids). Tulum was quite

nice, not as busy as Playa though with not as much to do, but the amazing beach would definitely mean I would stay there again. It was very convenient for a lot of the cenotes as well. I can't wait to go back, possibly 2013 at the same time, as June is off season so things weren't busy and also much cheaper.

On to Florida

After my stint in Mexico I flew from Cancun Fort Lauderdale (\$130) as I originally planned to do some ocean diving though kind of ran out of time for that, where I met my cave diving buddies Dave, who I had organised to dive through a forum and one of his friends Dov. We went to Ocala for the night and

spent the next day doing American things such as shooting guns and eating hamburgers, as well as collect all our tanks to go to Luraville – on some days we had 10 sets of twins in the van. I think it took about six hours to get from Fort Lauderdale to the cave diving site but it was in two parts so it didn't seem that long. Orlando would be a better airport to fly into for cave diving I think.

Accommodation

I stayed at a place, within very close walking distance to Peacock Springs called Cave House. <http://www.runawaylobster.com/cave%20house/Cavehouse.htm> It was a nice place with lots of room, internet, TV, laundry and so on. The kitchen was nice too so we could cook meals easily, though we got supplies out of town as there is only one little shop in Luraville.

Diving in Florida

The first dive I did was the Grand Traverse in Peacock Springs, so I only managed one dive on the first day as that was quite a long dive at two hours and tiring with all the swimming. I had LP95s that I borrowed for the trip and I didn't

find these 100% comfortable (heavy and a bit short, prefer longer tanks) but it was nice to have stacks of gas! My buddy on this dive I had to spend a bit of time working out metric to imperial each dive, something I had learned in advance of the trip. Compared to Florida the cave was not very decorated and was quite dark and a fair bit colder (though still quite warm compared to home at 20C/68C) but I still enjoyed the dive a lot. I switched back to my 200g thermals for these dives, which were comfortable for all the dives I did (especially after Dave managed to find the last hole in my suit and I went back to being dry on dives!).

The next day I dived Little River which was fun and

being around 30m), Cow Springs, which I really enjoyed, found it quite interesting and the rope to pull yourself along was quite funny. The flow wasn't very bad but I used it anyway. Madison Blue I was diving with Dave again -which was my favourite as it was a fun dive, he was happy to go at my mega slow pace and we found some Godzillas in the Godzilla room which I thought was a cute thing to have on a dive. Basically there are a few Godzilla toys that you find and re-hide in a different spot in a particular room of this cave.

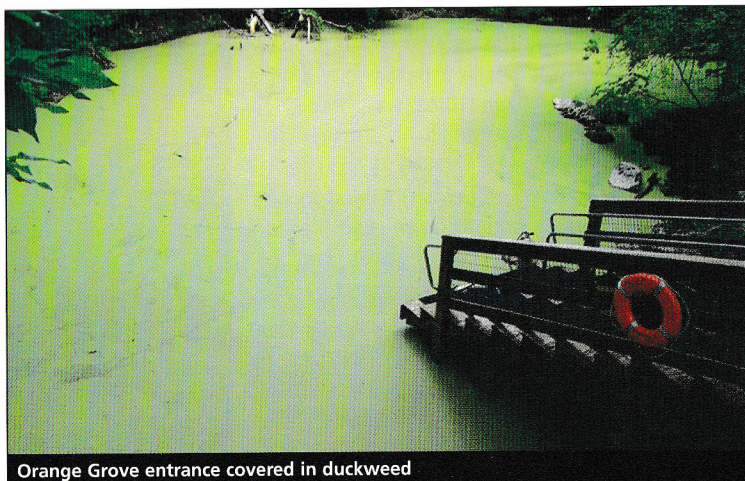
The final dives were at Ginnie Springs, just when I thought people were making a big deal about flow in caves for no reason... Was completely taken by

surprise at trying to get into this cave and I lost most of my fingertips on this dive trying to pull myself into the entrance as well as gave myself a bit of a headache trying to swim too fast (I haven't done that since I was a new diver!) so I was not really a fan of Devil's Eye/Ear dive... maybe if I had a scooter or had more experience in dealing with flow and pull and glide I would have enjoyed it more. The other three

on the trip went back in for a second dive there but Dave and I went to do the Ballroom cavern for an easy dive to finish up my cave diving trip.

Florida and Mexico were great to dive but not all that easy, as there was a bit of flow on most dives. We had deco on nearly every dive. It was colder and not as pretty. I think it was definitely helpful in improving my overall cave diving experience though.

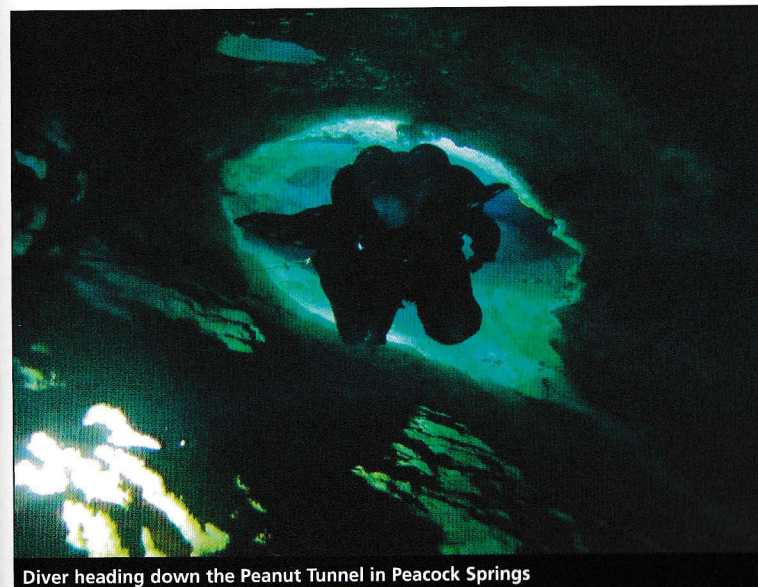
I also did the deep section of Orange Grove (which was the deepest dive of the trip at 50m, most dives



Orange Grove entrance covered in duckweed



Trees in Orange Grove deep section



Diver heading down the Peanut Tunnel in Peacock Springs

got my first experience of flow but it was not particularly strong at all. Ended up turning before thirds as I didn't feel like doing heaps of deco - that was mostly why I turned dives rather than hitting thirds as many of the caves were around 30m. The next dive I was joined by Dave and Dov, and we did the Well, the Peanut Tunnel and a few other sections in Peacock Springs. I lead a lot of this dive so went at my usual pace which is slow as, so we didn't get very far on this one.



Mexico and Florida

Geoff & Deb revisit the wonderful caves of Mexico and Florida for CCR Cave Diving, Tour & Training

By Deb Williams #3092

We checked our rebreathers, drysuits and all the rest of our dive gear in at Qantas domestic in Melbourne, next time we'd see our gear would be Dallas Fort Worth, we had a short stopover in Sydney while we cleared customs and then it was a direct flight to Dallas, we splurged on premium economy – well worth the extra points. At Dallas we were briefly reunited with our luggage before dropping it off for the transfer to Cancun. Customs and Immigration was very quick in Dallas, so we relaxed in the Admirals Club lounge prior to our flight to Cancun. In Cancun Geoff must have looked a bit dodgy and had to open all his bags for a brief inspection, then we were met by the driver from Villa De Rosa, I slept most of the way to Akumal and it seemed like we were there in no time.

MEXICO

Walking into Villa De Rosa was like coming home – our condo opened directly onto the beach – so nice to sit and relax after diving. On Sunday Peter Broger our guide for the next 10 days came to say hi. Peter seems to know everyone in the area – he is a Poseidon CCR instructor and can service any type of dive gear, he was able to do a few running repairs for us and even organized a new dry suit for Geoff. You can even hire a

Poseidon from him if you don't want to take your own CCR – tempting!

After sorting out all our gear, we travelled to Playa Del Carmen and caught the ferry across to Cozumel, to catch up with Rev Dan who we had met in Mexico 3 years ago when he was doing his training. Cozumel is a lovely coastal town, with lots of nice reef diving.

On Monday we started diving – first dive was a 90 minute circuit in Ponderosa – a very pretty dive with a bit of everything – a few decorations, tunnels, cenotes and a great spot to dust off the cobwebs.

Dive Sites:

Chan Hol is a stunning property just on the outskirts of Tulum – I could easily live there. When we arrived, the family were cooking a traditional Mayan meal in the oven in the ground, after our first dive, they invited us to join them and sample the local food – great chili dipping. The diving at Chan Hol is just stunning we did 3 days of diving here on this trip and have still only seen a tiny bit of the cave, depth is around 10.6m, we explored parts of the mainline, jumped off onto side tunnels and back, circuits, checked out the artifacts and I would thoroughly recommend this as a dive – easy access, lovely garden surrounds – a beautiful place.

Nohoch Nah Chich (The Giant Birdcage) is a huge very shallow cave system with a stunning cavern area and a large tourist attraction of fly fox zip lines. We lowered our gear over the edge down to a decked area to gear up and commence the dive in the large cavern area. The cavern area has under water lights and you could do an awesome dive without even entering the cave itself. The Nohoch system has more than 300km of beautifully decorated caves.

Car Wash is a great site – a 20 min or so swim (cave dive) con-

nects the main sinkhole to the other sinkhole called Luke's Hope – continuing upstream you can visit Room of Tears – a jump off to the left, or continue on the main line to Adrian's room. It's very pretty swimming past Luke's hope underwater as the light reflects in on various angles. Downstream from the main entry area, there are a couple of different tunnels you can follow, one of them Satan's Silt hole is a shallow tunnel with a halocline right through the middle – you have to swim through it, there is not room to swim above or below. The main cavern area is beautiful, Geoff spent a while snapping pics in here after our dive. There was a 3-4 foot long fresh water crocodile swimming around in the main pond prior to our dives, fortunately there were a few open circuit divers blowing bubbles which seemed to scare him away.

Taj Mahal – Open Water & Cavern divers galore here – they do 45-60 minute dives in the cavern area. Stone steps down to the water with plenty of room to gear up. There's a choice of dives with everything – white decorations, dark rock light filtering down from other cenotes – definitely worthy of several dives.



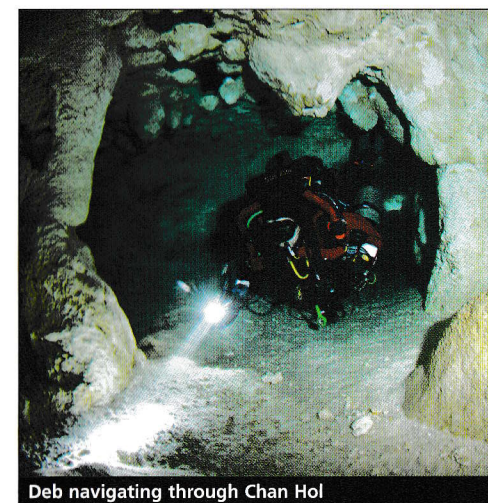
Skeletal remains and more in Chan Hol



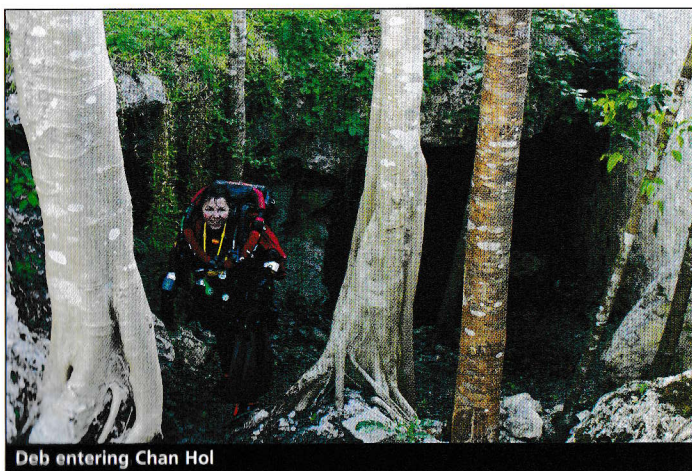
Pet cemetery - small fish below



Taj Mahal



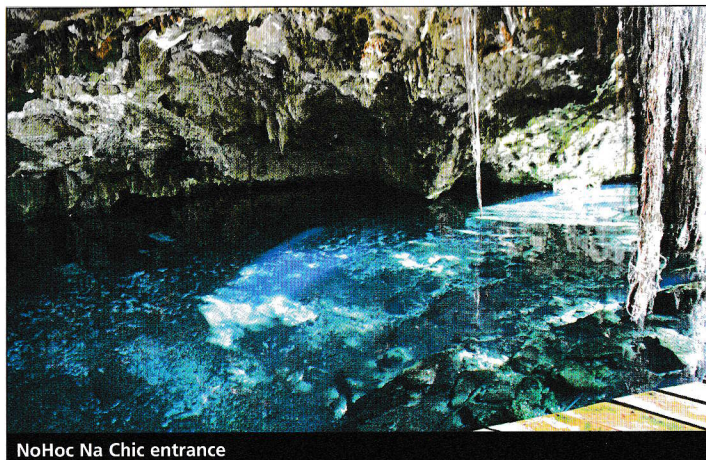
Deb navigating through Chan Hol



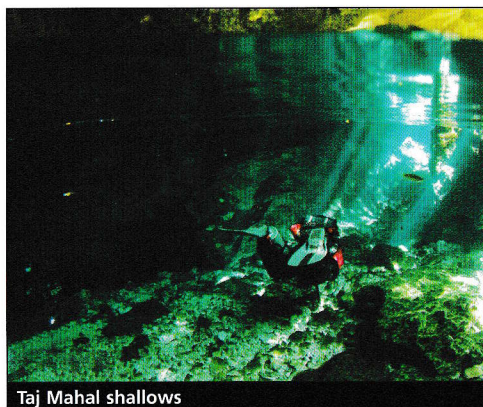
Deb entering Chan Hol

Pet Cemetery is a long drive on a very bumpy road into the jungle and we arrived at a clearing, the sand was raked, the bathrooms were spotless and again we had a choice of amazing caverns and stunning decorated tunnels to swim through. Timber stairs and decked walkways provide easy access, there are benches and seats down near the waters edge. Up top you can relax and have lunch under the trees at the tables and chairs – very civilized. Because it is quite a way into the jungle not many snorkelers go to Pet Cemetery, but like so many Mexican cenotes the cavern area is amazing. After we had done 2 x 100+ minute dives we then spent another hour or more in the cavern area.. well worth the bumpy ride. Pet Cemetery is part of the NoHoch system.

"Dreamgate" - what a stunning cave, from the surface the cenote looks a bit like a Mt. Gambier sinkhole, that is where the similarity ends.. underwater a stunning cavern area that is beautifully decorated – columns everywhere. Once we entered the cave area it just got better and better, at one stage it was like swimming along this stunningly decorated path – I felt like I was in fairyland on a path meandering through the sparkling decorations, we went through a few restrictions, jumped onto other lines, and then spent another 40 minutes



NoHoc Na Chic entrance



Taj Mahal shallows



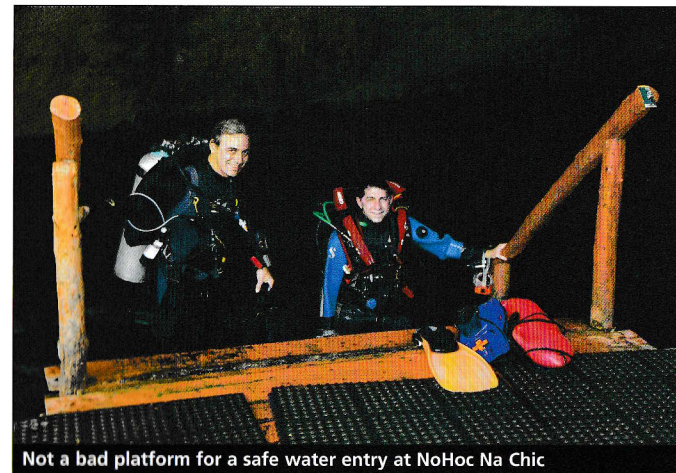
Taj mahal entrance

exploring the other side of the cavern at the end of the dive – the cavern areas are bigger than most of our aussie dive sites. Gear is lowered over the side down to the gearing up tables, it's an easy walk down the wooden stairs along the boardwalk to the waters edge.

When you finish diving, it's a short trip into Tulum to visit the ruins, or if you are like us, it was very hard to leave the stunning beach outside our door at VDR, Akumal. The wireless internet even works out on the beach. Meals are served to you in your room or by the pool, or on the beach, there is a cocktail bar on the beach. Tony and the staff at VDR go out of their way to accommodate any request and I'd definitely stay there a 3rd time, if I can get back there again.

How to get there: MEL-SYD-DFW-CUN and then a 1.5 hour drive to Akumal.

What does it cost: \$3418.80 USD each for 13 nights in a beach front condo at Villa De Rosa, 3 meals a day, 10



Not a bad platform for a safe water entry at NoHoc Na Chic

days of guided diving including Air & O2, transfers to and from Cancun Airport.

O2ptima cartridges: \$65 each, Rebreather cylinders \$10 per day per pair (because VDR did not have small cylinders)

Site access fees: vary from 100-150 pesos per person, you don't need to pay for the guide

Water temp: 24 degrees.

Depths: most sites are 12 m or shallower, occasionally we got a little deeper.

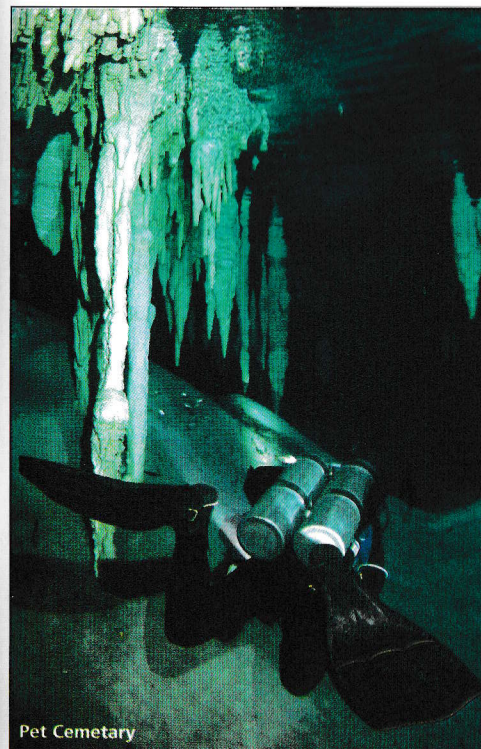
FLORIDA

After two weeks of great diving in Mexico, Geoff and I flew from Cancun to Jacksonville (via Dallas), last trip we flew CUN/MIA/JAX which is a little shorter, but a horrible little prop plane with zero legroom from Miami to Jacksonville. The plane from Dallas was a jet, so definitely worth the little extra flight time.

Arriving in Jacksonville at 10pm, we picked up our hire car (more like a Truck – a huge Chevy Suburban) and headed to a motel about 4 miles from the airport. It's much easier to negotiate driving on the wrong side of the road in daylight than late at night.

First stop on Saturday morning was Gamble Scuba in Gainesville – Steve Gamble is like our Damien Grigg, the drysuit guru of Florida, for a drysuit zip replacement in Geoff's suit, (suit was ready on Monday) then we were off to Cave Excursions in Luraville where we were greeted with open arms by Bill and Linda Rennaker. Our little house on the edge of Peacock State Park was waiting for us – it's such a convenient location and very comfortable.

On Sunday we were welcomed to Lake City by Lamar and LeeAnn Hires who also made us extremely welcome and we left their home with a car load of cylinders



Pet Cemetery

for our rebreathers and bailouts. A quick trip into Dive Rite headquarters on Monday and Geoff's rebreather was upgraded to the latest and greatest electronics and new DSV (mouthpiece), as well as new lungs and wing.

Over the course of the next 5 days undertook CCR Cave Course with Lamar Hires we dived at Little River, Peacock Springs and Madison Blue - each of these caves have numerous areas to explore and you could easily spend a week exploring any one of them.

Our first dive with Lamar was at Little River where we swam approx 1200 feet to the Florida room, and then did a couple of circuits around different parts of the cave, pretty amazing to spend 110 minutes in the water most of that time in the 20-30 metre range and to only rack up less than 15 minutes Deco - gotta love rebreathers.

The course focused on safe rebreather practices for diving in caves. Bailout planning and options for "staying on the loop" in the event of failures - we did different drills on every dive, exiting on our bailouts, swapping cylinders amongst us, flying our units manually, in semi closed mode and generally increasing our knowledge and skills to be able to deal with anything that may arise.

Florida is such a fabulous environment to do this training in, the water is warm and clear (20 degrees), caves have varying strengths of flow so you get to experience swimming against and with the flow, sandy bottoms, rocky bottoms, white caves, dark caves, silt, no silt... you name it you can get it all in Florida.

If you are ever thinking of doing some more training, I would thoroughly recommend speaking to Lamar as he is a very knowledgeable instructor and all round nice guy. We were welcomed into the Dive Rite family and made

to feel extremely welcome by everyone we met in Florida.

After finishing diving we travelled down to Birds Dive Centre, Crystal River where we swam with Manatees - they are gorgeous big animals who seem very tolerant of people, if you float on the surface, they will come right up to you and say hi, snuggle up for a cuddle and scratch on the belly. Crystal River is close to Eagles Nest so if you are planning to dive there, try to fit in an early

morning snorkel with the Manatees, about 2 hour drive. Cost is \$45, we stayed at the Best Western almost next door to Birds, as it's a 6.15am start - cost \$95 for the night.

We continued on to Orlando and spent a day at Kennedy Space Centre (NASA) - well worth the trip, only a couple of hours from Crystal River. Entry is \$43 for one day or you can upgrade to annual pass for an extra \$7 - excellent value.

Today we have flown from Orlando to LA and are currently in the Qantas Club Lounge waiting for our flight back to Melbourne.

What does it cost: \$55 USD per night for a 3 bedroom 2 bathroom house at Rennakers (they call them trailers but they are transportable homes).

Airfills, O2 and Trimix are by the litre and really cheap - some of our fills were only \$2 - \$3. Staying at Rennakers, you just back up to the fill station and use the long hose to fill directly in the back of the car. When out and about

Wayne & Amigos has a great self-serve setup - simply set yourself up on the computer, fill your cylinders, record the details and pay your bill at the end of the trip.

Site access fees: \$4 per car at Peacock, \$5 at Madison, nothing at Little River.

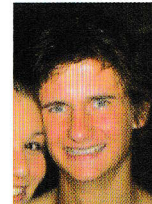
Water temp: 20 degrees

Depths: 20-30m range. Penetration Distance: miles of tunnels and caves to choose from.



Car Wash - both pictures.

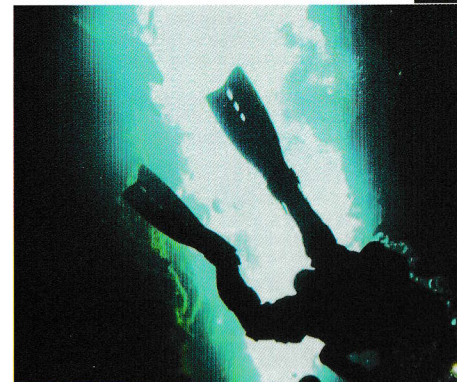
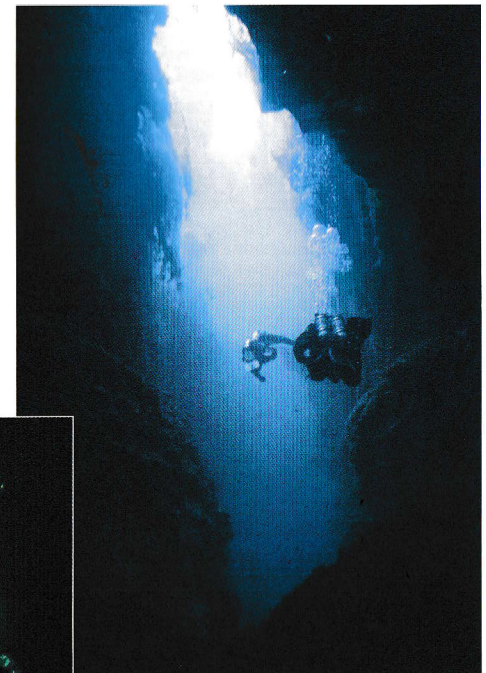
CDA A Member Profile ~ James Demidowski #4662 ~



I live in Victoria, am 19 years of age and am Deep Cavern certified. I began cave diving this year after diving for 4 years. The gear i use is Oceanic for open water and Hollis harness and wings for my tech diving, along with Posiden regs and a DiveRite canister. I dont mind what brand the gear is as long as it does the job. The dive store I am affiliated with is IDC Scuba in Portsea. I am not a underwater photographer but I am looking at buying an Intova IC12 Camera and Housing.

My last dive was at Pic's and was the best dive I've done to date. It was amazing and I've attached a photo from that dive taken by a dive buddy.

My career is as a carpenter and I work around the Eastern suburbs in Melbourne. I'm not married but not single either. My partner is also a recently certified diver and she hates the idea of cave diving. She also hates the idea of me doing it even more, but I'm not going to stop because this is what I love.



CDAА SITE ACCESS - www.cavedivers.com.au

Remember: Access is a privilege, not a right. Please be considerate of landowners wishes. CN = CAVERN S = SINKHOLE C = CAVE P = PENETRATION

SITE LEVEL OWNER ACCESS DETAILS

MOUNT GAMBIER - SOUTH AUSTRALIA DEH SITES

Ewens Ponds	Nil	DEH - P.O. Box 1046 Mt Gambier 5290 (08) 8735 1177	Groups of 6 or more, phone/mail to Dept. for Environment & Heritage (DEH) Smaller groups, no need. Fax: (08) 8735 1135
Gouldens	CN	DEH	General Diving: Divers to contact DEH and notify of date and site to be dived. Please make requests by phone or fax only. Divers must have the correct CDAА diving endorsement for the site and carry current financial CDAА membership card. The diver must have signed an indemnity with DEH before access is permitted and original copy must be received by DEH prior to diving.
2 Sisters	CN	DEH	Training: The Instructor is to notify DEH of the date the sites are needed and to forward signed indemnities from each student and their temporary card number/ membership number.
Fossil	C		Permit holders by phone or fax. Be aware of delicate vegetation. \$26/dive or annual Permit \$60.
Piccaninnie Ponds	S	DEH	NOTE: Indemnity form to be completed with m'ship renewal & lasts same length as. M'ship. NOTE: Divers should renew their Piccaninnie Ponds indemnities at least 2 weeks prior to their intended dive date.
Horse & Cart	CN	Peter Cunningham	By phone or mail, 1 week prior. Ph: (08) 8738 4003.
Tea Tree	CN	PO Box 2168, Mt Gambier 5290	
Little Blue	S	District Council of Grant	Permission not required - must carry card.
Allendale	C	District Council of Grant	Obtain key from Lady Nelson Tourist Information Centre.
Ela Elap	S	Mr. Peter Norman	Visit the house before diving.
One Tree	S		If no one is home - no dive!

FORESTRY SA SITES

Dave's Cave	C	Maximum 3 divers all weekends between May & November inclusive (check and update on CDAА website).
Hells Hole	S	At least 4 divers in group - 1 with previous site experience.
Pines	C/P	Unrestricted days or numbers - Cave rated divers must not enter Penetration sections (stop signs)
Mud Hole	C	Unrestricted days or numbers.
Nettle Bed	P	Open every weekend. Maximum of 4 divers per weekend undertaking 1 dive only (check an update on CDAА website)
Stinging Nettle Cave	P	Open every weekend max 3 divers per day undertaking 1 dive per day (check an update on CDAА website).
Iddlebidy	P	Open every Saturday max 4 divers, 1 dive only (check an update on CDAА website)

Owner: Contact Forestry SA by email: conservationandrecreation@forestrysa.com.au. Fax: (08) 8724 2870 or Phone: (08) 8724 2870 or book on-line via the CDAА website to arrange permit. Divers must advise FSA of their online booking. Collect permits from the Forestry Office, RHS of driveway to Carter Holt, Jubilee Hwy, Mt G.

IMPORTANT: • No diving on Total Fire Ban Days. • Permit also required to run compressors during fire danger season. • Keys for Hells Hole, Nettle Bed, Iddlebidy & Stinging Nettle Cave can be obtained from Lady Nelson Visitor Centre on presentation of Forestry SA permits.

Kilsby's S Landowner leased to CDAА Access - We have access fortnightly. Minimum of 3 divers in the water at one time. Refer to CDAА website. Twin Tanks - Maximum depth of 40 metres on Air.

Meet at gate of property at 8.55am or 12.55pm. Book on-line at www.cavedivers.com or contact Craig at kilsby@cavedivers.com.au
No animals, visitors or mid-week diving allowed. No diving on Total Fire Ban Days.

BARNOOLUT SITES

Ten Eighty	S/C	Scotts Agencies P/L	Access: ALL BARNOOLUT SITES ARE CLOSED.
Blacks Hole	S/C	Scotts Agencies P/L	
Shaft	S/C	Generally open one weekend a month. Trevor Ashby	For access dates refer to Guidelines or the CDAА web page. Nitrox as a diving mix is not allowed in the Shaft unless a trimix endorsement is held but deco mixes attached to the shot line are permissible. Refer to Shaft access bulletin within CDAА Regulations. Divers applying to dive in the Shaft for the first time must document dive experience with twin tanks. Download form off website.
Engelbrechts		Mt Gambier	Obtain key from Mt Gambier Tourist Information Centre. Access agreement must be signed prior to diving. 2 divers must sign out keys, all divers must sign in
- East	C	Council	advising which groups they are diving with. Diving should be avoided after heavy rain due to possible water contamination. Diving hours are now restricted to 8am to 8pm CST.
- West	P	Lessee: Ph: 08 8723 5552	Download Indemnity from Web Page. Access available for experienced Penetration divers only. Access agreement must be signed prior to diving. Allow 4 wks for indemnity process.
Three Sisters	P	Millicent Council	Contact: Brenton & Kemelee Contact Email: site@cavedivers.com.au
McKay's Shaft	S		Access Manager: David Fielder. Email: tankcave@cavedivers.com.au
Tank Cave	P	CDAА	Access Manager: Matthew Skinner. Email: bakers@cavedivers.com.au
Baker's Cave	C	Manager: Brad Dibble	Climbing equipment required.

NULLARBOR - WESTERN AUSTRALIA

Cocklebidy	C/P		Apply in writing for permission to dive at least 4 weeks in advance of trip to: District Manager, Department of Environment and Conservation (DEC), PO Box 234, Esperance, W.A. 6450.
Murra El Elewyn	P/C		Phone: (08) 9083 2100 Fax: (08) 9071 3657.
Tommy Grahams	C		The Department for Planning and Infrastructure, Midland, State Land Services South East. PO Box 1575, Midland 6936. Contact Kim Allison, Email: kim.allison@dpi.wa.gov.au
Weebubbe	S/C	DPI	Phone (08) 9347 5047 Fax (08) 9347 5004

N.S.W. - WELLINGTON CAVES

Limekiln (McCavity)	P/C	Both Penetration and Cave Level are being accepted for this cave depending on its water level at the time. The cave has a restriction at the entrance which is underwater making it a Penetration Dive. During drought, the water level drops to form a small lake below the restriction allowing experienced Cave Divers access to this delicate cave.
Water (Anticline)	C	Affected by high CO ₂ levels during Summer/Autumn. Access is co-ordinated with the Wellington Caves management by Greg Ryan - gregr@cs.usyd.edu.au . Phone (02)97434157
Rum Jungle Lake	S	Unrestricted access currently exists - Please refer advice Guidelines #68 or check CDAА website.
Burrinjuck	S/C/P	This is a tri-rated site. Please see details in issue No. 73. There are no specific access arrangements.

OZTeK

Dive Conference & Exhibition

16 - 17 Mar 2013

Widely acclaimed as one of the world's most dynamic and exciting diving spectacles the eighth OZTeK Diving Technologies Conference and Exhibition - OZTeK2013 - is a clearly targeted event focused solely on divers and diving.

Featuring many of the world's most informative and entertaining diving authorities as speakers - and building on the success of previous OZTeK's - the OZTeK2013 Event will again include a full-scale Dive Exhibition, together with talks, displays, seminars, workshops, film and video presentations, industry updates, an 'Evening with Diving's Explorers', a Gala Dinner and more.

<http://www.diveoztek.com.au>

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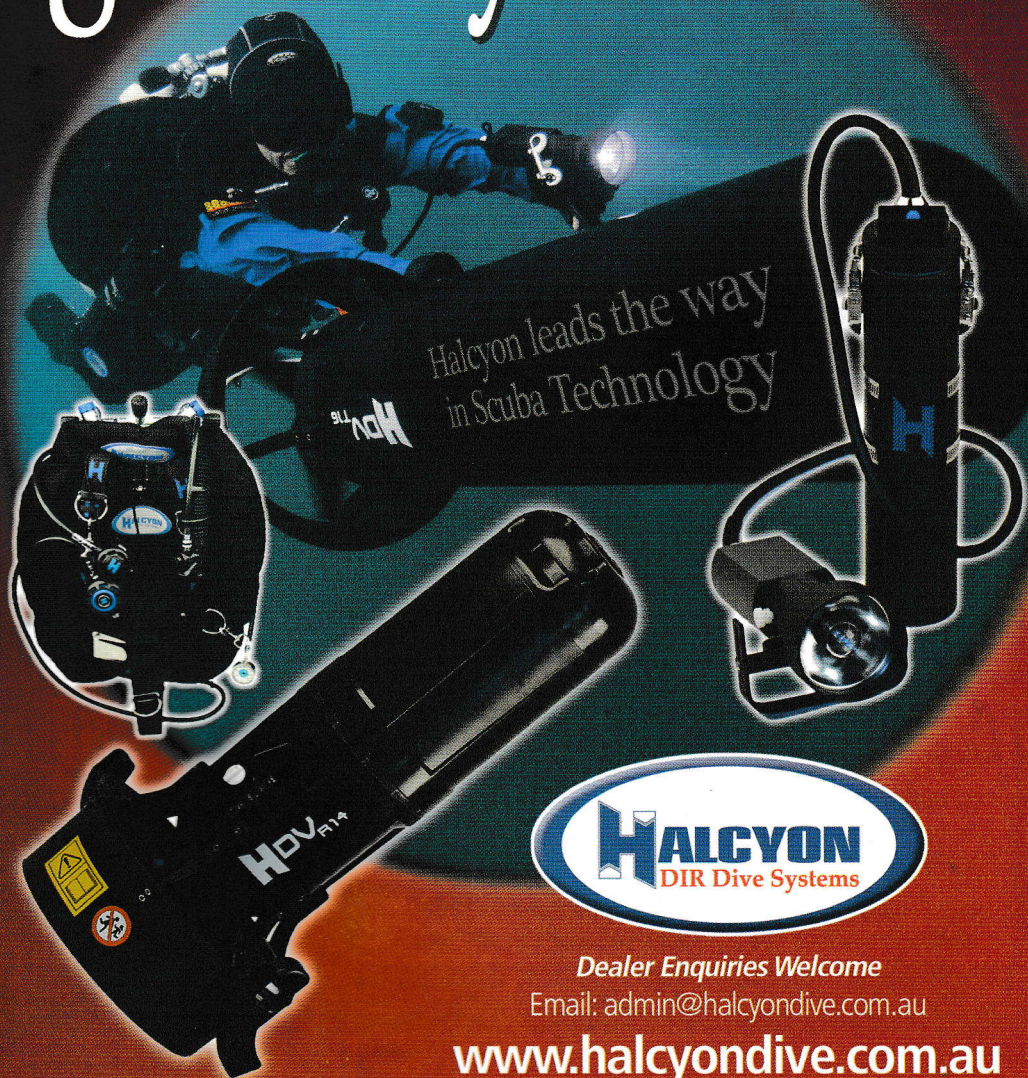


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* Dependant on stock and suit

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