



# UNDERCURRENTS

Newsletter of the Bluegrass Dive Club / [www.bluegrassdiveclub.com](http://www.bluegrassdiveclub.com)

January 2006

Volume 36, Number 1

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## January's Club Meeting

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**Date:** Tuesday, January 10th  
**Time:** 7:30-PM (business)  
Social at 7  
**Location:** The Racquet Club  
3900 Crosby Rd.  
**Program:** Travels to China

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## President's Message

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Happy New Year to all of you as we usher in 2006.

The Christmas party was attended by over 70 people, one of the largest I can remember and what food and deserts oh my!

A special thanks to Carol Call, Marion and Kit Hudson for getting there early to help set up, and not to miss Dan and Anna Miller who brought the Ham and Beer even hours before.

The January meeting will be a great video from Dave and Diane Gauss on there travels to China. Dave travels there often and promises a fun look behind the scenes of some of the famous sights.

A lot of diving this year beginning with Florida this month and then the Roatan trip which I was just informed has over 42 members signed up taking place in April.

June will present an opportunity to dive the warm clear North Carolina waters and July Galapagos. With the lake diving we will be offering this summer we will have something for everyone.

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## President's Message Cont.

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Just keep checking the newsletter that John has really turned into a great info packed read and the web site Mike has created that sets the standards for dive clubs nation wide.

See you at the January meeting. □

*Mark*

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## The Editor's Notes

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*By John Geddes*



Hope everyone enjoyed the Holidays as much as I did. Although with lost of sleep while burning the midnight oil making candy and putting the air hockey table together, it was great.

This issue we have some pics from the Dive Club Christmas Party, a BIG THANKS to Mark and all his little elves. □

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## Divemaster's Report

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*By Doug Geddes*



**GALAPAGOS 2006**

Not much to report on for this month. We are still working on our side trip while we are in Ecuador. Our travel agent has been traveling over the last

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## Divemaster's Report Cont.

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month and hasn't been able to work on our trip, but don't worry, we have several options covered. We have made reservations at three different locations in the jungle and are waiting to see if the Sacha Lodge will open up. Our flights are booked on all of our flights, so all we need to do is finalize our agenda and we can put a final price on the trip. As I have spoken several times, I hope everyone is considering getting in physical shape for this trip. I keep trying, but my body and mind don't seem to have the same goal. I will keep on trying. It is still not too late to sign up on the waiting list if you think you might want to go on this trip. Visit our web site and check it out..



### ROATAN, HONDURAS 2006

As I stated many times, just when you think this trip is full it changes again. We have added about 8 persons in the last several weeks and there are still a few considering adding on. We now have 42 persons signed up. If you didn't get the memo, we lowered the air portion of the trip and now the price is \$1495.00 total for the whole week of diving, food and air. WHAT A DEAL!! If you are still considering this trip, you should make up your mind soon, before it is too late. Some people have actually gotten FF miles and this has made the trip UNBELIEVALE. For those you already signed up, remember to check your passport and make sure you have 6 months left on it. If not, you need to get it renewed before we leave. If you don't have a passport, you will need to get one. Passports are becoming required to travel outside of the US. I am still working on a form of mass transportation for us to get to Cincinnati and back. Once I get where I think I have everyone that is going on the trip, I will start assigning roommates. I will double check with everyone before making them final. Many of you have already made known your request, but I will make sure I double check it with you first. No need to email me yet, I will email you first.

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## Divemaster's Report Cont.

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FOR THOSE NOT SIGNED UP YET, hurry up and make up your mind....



### LAKE TRIPS 2006

We are planning on doing the three lakes trips again this year. The dive committee will be meeting this month and finalizing the dates. Once you get the dates, please mark your calendars for these trips. We spent a lot of our due monies on the trips this past year. So in order to keep them going, we need participation from more of our members.



### THANKS DIVE COMMITTEE

I just wanted to thank the dive committee for all their hard work this year putting on the number of trips we did last year. Without them, we couldn't have done the trips we did. Lynn Walters has moved away and I am looking for a few volunteers. If you have an interest in working on this committee, drop me an email or tell me at the next meeting.□

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## From The Secretary

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*By George Fleischmann*



No report from George this month because there wasn't a General or EC meetings.□

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## From the Treasurer

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By Kit Hudson



### 2006 Membership dues to be paid in January.

Student (with student id).....	\$	10.00
Single & Family (1 diver).....		30.00
Family (2 or more divers).....		40.00

**Renewal:** Please send payment to the address listed below. And please make sure there is a correct indication of your mailing address & phone number. And it is very important to indicate an email address.

**Contact or Mail to:** Bluegrass Dive Club  
% Kit Hudson  
231 Stourbridge Rd.  
Versailles, KY 40383  
(606) 873-4974  
kithuds @ iglou.com

**New Members:** Go to our web site under Membership and fill out the form there. □



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## Safety Corner

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By Rick Stephan



**Note:** I found this month's article to be particularly interesting, given the fact that I, as a penny pincher, have often gone on dive trips with older, sometimes patched up equipment. I discovered on the Dale Hollow dive this summer that my BC had sprung a leak. Much better there than 95' down in Honduras! I didn't have an emergency, but certainly could have.

When we took our beginning open water classes, lo those 10 or 20 or even 30 years ago, we practiced a lot of safety related exercises. I remember swimming the length of the Y pool breathing from a bare tank. We did ditch and dons and practiced the 'sky diver' position to slow an ascent. I don't remember practicing any of that stuff recently though. We need to think about what we would do in an emergency situation. Just as our equipment gets older and in need of checkups, we should do the same with our dive skills. The most important safety gear we have is our brains. Reading up on how to handle different situations is one way to prepare yourself for the dive season ahead. See you in the water!



*Remember, safe diving is fun!*

### Surviving Gear Failure

From the July 2005 issue of *Scuba Diving* magazine

By John Francis

Let's suppose you're cruising the reef at 70 feet, minding your business. You exhale, start to take another breath and ... nothing. No air comes out of your reg. None. You pull hard on it, practically swallowing the mouthpiece, but you may as well be sucking on an empty Coke bottle.

What do you do now?

This kind of failure--a regulator refusing to deliver

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## Safety Corner Cont.

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air with no warning--is extremely rare. Regulators almost never fail completely and are designed to free-flow rather than lock up if they do. It's not impossible for a regulator to refuse to deliver air from a full tank whose valve is open. But it's a one-in-a-million event.

Of course, that's like saying only one in a million planes falls out of the sky. One is a big number if you're on that plane. In diving, as in airline travel, equipment failure is rare but can have serious consequences. There's one big difference, though, between you and the frequent flyer in seat 44B gobbling peanuts: If the worst happens under water, there is always some action you can take to improve your chances. And that brings us back to that interesting question: What action? How can you recover from an equipment failure, and what might you have done to prevent it?

The recovery depends on the type of failure, obviously, and you could spend yourself thin obsessing about every clip and strap. But there are two equipment systems to worry about most: air supply and buoyancy control. If you can breathe and maintain altitude, you've got time to sort out any other problem and make a safe landing. Your air supply and buoyancy systems can each fail in two directions--too much or too little--so you've got four scenarios of gear failure to sweat over.



### Gear Failure No. 1: No More Air

Of the four catastrophic failure possibilities, suddenly losing your air supply is the most rare, but easily the most terrifying. If ever you're going to panic, hold your breath, shoot for the surface and embolize, this will be the time. And the antidote to panic offered by the training agencies isn't much help. "Stop, breathe, think, act" doesn't work well if you can't get past Step 2. So if you really can't take another breath, you need to have pre-thought your next move because the odds of figuring it out on the fly are, frankly, pretty small.

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## Safety Corner Cont.

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So what is that best move if this breath is your last? If you have a completely redundant air system--a pony bottle, Spare Air or the equivalent--it's obvious: Go to your backup, make the slowest ascent that air supply allows and pat yourself on the back for your foresight.

No backup air system? "I'd have three options," says Steve Martell. He's a PADI and IANTD instructor with a lot of dives since 1974. "First, I'd see if my octopus is working. If that's not working, check my buddy. And if that's not working, it's free-ascent time." Try your octopus by all means; the problem may be in your primary second stage. You might also try reaching behind your head to the tank valve, to make sure it is open. It's surprising how often a diver mounts his reg, pressurizes it, then closes the tank valve and forgets to reopen it. Everything looks good: There's pressure in the gauge, and there's even one breath of air in the hose and reg to get you to the bottom. (Can you reach your tank valve behind your head? Are you sure which way to turn it?)

But if the first stage locks up or your tank is empty, the octopus won't work either. You don't have seconds to waste, so at the same time you reach for your octopus and your tank valve, you should start moving toward either your buddy or the surface. But which? This is where things get dicey. If you dive by the book, the choice is easy: Your buddy is practically within arm's reach, so you can be on his octopus in seconds. But what if your buddy is not quite that close? Says Martell, "If you're at 25 feet and your buddy is 25 feet away, why go to him when it will take the same amount of time to go to the surface where you don't have to hook up with anyone and there's plenty of air?" And what if your buddy is looking the other way and picks just this moment to chase a fish? At least the surface isn't running away from you.

There is no clear doctrine for this situation. "The diver has to make a judgment," says Martell. But given the high risk of panic, you had better have visualized this and preplanned your response. Maybe it's a simple matter of going to whichever is closer, your buddy or the surface. Maybe your default is to go to the surface if you're shallower than some personal depth limit like 25 or 30 feet, and to go to your buddy no matter what if you're deeper. But you should decide on some course of action, even tentatively, before you need it. If you

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## Safety Corner Cont.

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don't have a plan ready, panic is going to have its hands around your throat quickly.

If you decide to ascend, try to do it right. You practiced a "controlled emergency swimming ascent" in training and most likely promptly forgot it, but the essential thing is to keep your throat open. Look up, put your head back and hum or say "ahhhh." And try to remember that the situation is not quite as dire as it looks. Even if your reg fails at the worst possible moment, after you've exhaled and before you can inhale, your lungs are not really empty. They still have their residual volume of air, which will expand as you ascend. In fact, you may even need to exhale again before you surface. And remember that residual volume still contains considerable oxygen. The frantic urge to breathe is triggered by the buildup of carbon dioxide, not lack of oxygen, and if you can fight that urge, you can remain conscious longer than you might think. When you reach the surface, report what happened, breathe emergency oxygen if you can get it and see that you're examined for signs of DCS or embolism.

Assuming you survive this adventure undamaged, you can then consider what went wrong. Be prepared to point the finger at the mirror, because operator error, not equipment failure, is most often the cause of a complete loss of air. Maybe you mounted your reg on an empty tank, or you forgot to open the tank valve (or a helpful stranger closed it), or you just breathed down the tank without checking the gauge.

If you're innocent, could the regulator have failed? "It can happen," says Shane Taylor. "But it's very rare." Taylor has repaired more than 10,000 regulators in his 13 years at A1 Scuba in Englewood, Colo. He is service center manager there and the brain behind Oceanic's new Dry Regulator Technology. He says if the main spring in the first stage breaks, or the transfer pin in a diaphragm regulator breaks, the reg will shut down. Even less likely, the second stage can fail if the lever is turned sideways--a failure he has seen just once when another technician apparently overtightened the valve body and stripped threads.

More likely than a reg lockup is a catastrophic air loss that empties the tank rapidly. But the result is the same: You are left with no air. How rapidly your tank could empty depends on how big the leak is and how much air you have when it starts, but as a point of comparison, I opened a tank valve

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## Safety Corner Cont.

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wide and timed it. A full aluminum 80 emptied in less than a minute.

If that happens, look for a blown O-ring between the tank valve and the yoke. O-rings blow out when they leak a stream of air strong enough to, in effect, grab the O-ring and pull it off its seat. They leak because they are worn out, hardened or damaged when installed, or their seat is scratched. The tank valve O-ring is the usual suspect because it takes a real beating and is rarely replaced until it leaks--when it's in pre-failure mode.

Don't dive with a leaking O-ring, not because it leaks a little air, but because it might soon leak a lot. O-rings almost always blow out when you first pressurize the system, before you enter the water, but they can blow later. An early warning, if there is one, is the hissing sound of escaping air or, under water, a stream of bubbles. You and your buddy should always check each other for bubbles near the beginning of every dive.



A blown hose can also exhaust your tank. It will announce its approach first with a bulge or crack, then with a stream of tiny bubbles. The hose is most likely to fail near an end, where rubber meets metal. Often that area is hidden under a hose protector, so it's a good idea to slide those back and inspect the hose from time to time. Surprisingly, the high-pressure hose is less a worry than the low-pressure hose. Its inside diameter is so tiny that much less air can come out, even if the hose is completely cut.

A rapid free-flow of the regulator second stage is another way to lose your air supply in a surprisingly short time. How short depends partly on your depth. I pressed the purge on one second stage and measured a flow of 600 psi per minute at the surface. You'd lose twice as much at 33 feet, three times as much at 66 feet and so on.

A second-stage free-flow is a problem of its own, but before moving on to that, it might be encouraging to note that none of these air-loss scenarios will completely exhaust your air supply

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## Safety Corner Cont.

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instantaneously. You'll be able to get at least one more breath from your reg, probably more.

### Gear Failure no. 2: Too Much of A Good Thing

If your regulator does fail, it is more likely to deliver too much air than not enough. That's a free-flow: Suddenly your reg is pushing air into your mouth nonstop instead of in response to your breathing. Stories have been told of regs literally shooting out of a diver's mouth, but that seems unlikely if your teeth have even the slightest grip on the mouthpiece. It's more likely that the surprised diver spit it out.

Now what should you do? Your first thought should be to remind yourself you are not in immediate danger. "The bubbles and the noise are startling, but it's really not that difficult to breathe off a free-flowing reg," says Martell. Grip the mouthpiece with your teeth, but lift your lips and let the excess air escape along your cheeks. Or you can switch to your octopus. But a rapid free-flow can deplete a full tank pretty quickly, so your second thought should be to get to the surface. Keep your buoyancy under control and ascend at a normal, 30-feet-per-minute rate if you can. Obviously, this is a situation for common sense. If you're at 120 feet with not much air left and somehow you find yourself with a rapidly free-flowing reg, you don't want to dawdle. DCS is treatable; drowning is not.

What has gone wrong? Most likely, says Taylor, the first-stage high-pressure seat has failed, which sends too much pressure down the hose, overpowering the low-pressure valve in the second stage. (In that case, the octopus will free-flow too.) If the metal filter gets wet, it will corrode. If it then breaks apart, pieces can end up under the valve seat. Or maybe the seat in the second stage has failed to close against the orifice--because a grain of sand is stuck between the seat and the orifice, for example. Sometimes that problem can be cured on the spot by hitting the purge button several times and swirling the reg back and forth in the water.

### Gear Failure no. 3: We're Going Down!

What if you're sinking and you touch the power inflate button on your BC but nothing happens? Your first priority is to stabilize your buoyancy. Drop your weights? That might make you uncontrollably positive. Instead, kick upward

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## Safety Corner Cont.

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while you reach for the BC's oral inflator. If that restores neutral buoyancy, you have time to deal with the problem.

Still sinking? Air won't go into your BC and you can't kick hard enough to maintain altitude? Now you have to drop weight. If you have an integrated-weight system, try dropping only one side first. With half your weight still aboard, your ascent won't be as fast. Only drop all your weight as a last resort, because that can create an uncontrollable ascent.

What happened? Most of the time when a diver loses the ability to add buoyancy, it's not really an equipment failure. Instead, he has failed to attach the low-pressure hose securely to the BC inflator. The first time he touched the button, the hose popped off. It's not always his fault, however. Occasionally, when you pull on the corrugated hose to activate the shoulder dump, the hose tears or pulls completely off the BC and water fills the bladder. And sometimes the valve malfunctions.



### Gear Failure no. 4: Uncontrollable Ascent

Not as bad as going to the bottom to stay, it's still pretty bad. Air embolism, typically caused by a too-rapid ascent, was the second leading cause of death of divers in 2002, after the catchall category, "drowning." It was also identified as a contributing factor in many more deaths.

Your first move should be to dump all the air from your BC. Now some good news: virtually every BC that ScubaLab has ever tested will dump air faster than the power inflator can put it in. Even if the inflator valve sticks open, you should be able to get negative again by opening your best exhaust valve--which is usually the one at the end of the corrugated hose. Be sure to hold it as high as possible. When you've stopped your ascent, you'll have time to detach the low-pressure hose from the inflator. If that doesn't work, flare out into the sky

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## Safety Corner Cont.

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diver posture so water resistance slows you down. And remember to keep your airway open while you're ascending by saying "ahhh" all the way up.

What happened? If the power inflator stuck open, don't be too surprised. The valve is little more than a bicycle tube valve. (In some cases, that's literally what it is.) In time, the valve corrodes and sticks. If the problem is not the inflator, you've evidently lost some or all of your ballast weight. Many of the earlier integrated-weight-system pouches were closed or held to the BC with nothing more than Velcro. That stuff degrades in time, the hooks stop grabbing the eyes, and the pouch opens or falls off. The buckles on old-fashioned weight belts sometimes pop open too.

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### Stitches in Time

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These gear failures don't have to happen, and if they do happen they don't have to be catastrophes. Here are the actions to take:

> **Overhaul the two vital equipment systems annually—your regulators and hoses and your BC.** "People tend to think that a BC is just something that you wear, and that you don't have to service it," says Taylor. As a result, BC failures are far more common than regulator failures. Service both at the same time.



> **Inspect your gear after every dive and repair immediately.** "Some people get very comfortable with the idea that gear always works," says Vahagn Nahabedian, a technical diver and instructor since 1995. "I've been guilty of that too. Once I had an inflator valve that I knew was a little sticky, but I postponed doing anything until it stuck open on a dive. Now I really stress making a post-dive equipment inspection. If something is wrong, I take care of it immediately."

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## Safety Corner Cont.

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> **Minimize your weights.** Overweighting magnifies any buoyancy control problem. If you're too heavy, your BC will be overinflated to compensate, and if you lose or drop weights you'll pop up like a cork. Or if you lose all buoyancy, you'll sink faster.

> **Rehearse emergency skills, especially air sharing and emergency ascents.** "The big killer is panic," says Martell. "You should practice those skills until they are boring. When they are kind of rote and something happens, your body remembers."



> **Stay closer to your buddy as you go deeper.** At some depth, probably different for all divers, going to the surface is no longer an option.

> **Invest in a fully redundant air supply.** The best insurance against panic is the knowledge that, whatever happens, you can breathe. Carrying your own backup air source means you won't have to depend on a buddy to share his.

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### Water with Your Air?

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Another "too much" situation is a "wet" regulator, one that leaks water into the mouthpiece. This is like a free-flow in that you can usually breathe through it. The typical cause is similar to that causing a free-flow—a grain of sand under the exhaust valve—and it may be possible to cure it the same way, by working the purge and swirling the reg in the water. A cracked or torn mouthpiece is another cause. Occasionally, a mouthpiece comes completely off the second stage. Now you have not only too much water, but no air at all. Fortunately, you don't need the mouthpiece. Spit it out and put the stub of the reg where it had been attached into your mouth and breathe normally. □

# Bluegrass Dive Club 2006 Calendar

[Print out and post in your favorite place](#)

## January

10, Tuesday Dive Club Meeting  
19, Thursday FL Manatee Trip  
31, Tuesday E.C. Meeting

## February

14, Tuesday Dive Club Meeting  
28, Tuesday E.C. Meeting

## March

14, Tuesday Dive Club Meeting  
28, Tuesday E.C. Meeting

## April

1, Saturday Roatan Dive Trip  
11, Tuesday Dive Club Meeting  
25, Tuesday E.C. Meeting



## May

6, Saturday Club's Derby Party  
9, Tuesday Dive Club Meeting  
30, Tuesday E.C. Meeting

## June

13, Tuesday Dive Club Meeting  
27, Tuesday E.C. Meeting

## July

11, Tuesday Dive Club Meeting  
25, Tuesday E.C. Meeting  
26, Galapagos Islands Trip

## August

8, Tuesday Dive Club Meeting  
??, Saturday Club Pig Roast  
29, Tuesday E.C. Meeting

## September

12, Tuesday Dive Club Meeting  
26, Tuesday E.C. Meeting

## October

10, Tuesday Club Dinner / Meeting  
31, Tuesday E.C. Meeting

## November

14, Tuesday Club Meeting (Elections)  
28, Tuesday E.C. Meeting

## December

??, Saturday Club Christmas Party



## 2004 BGDC Officer's & Staff

Mark Kidd, President	266-2276
Carol Call, Co-Vice President	253-3992
Dan Miller, Co-Vice President	948-5133
George Fleischmann, Secretary	873-9539
Kit Hudson, Treasurer	873-4974
Doug Geddes, Divemaster	224-3197
Rick Stephan, Safety Office	223-3719
Mike McCann, Webmaster	255-3937
John Geddes, Undercurrents Editor	223-7926

