

# Diving Safety

By Doug Van Mullem

# How to Pick A Dive Partner

- Based on your experience level
  - Strong enough to rescue you at the end of a tough dive under worse conditions than you expected to encounter.
  - Experienced enough to select a good spot for your level of ability.
  - Wise enough to know when to go and when to stay on the beach.
  - Mature enough to stay with you during the dive and not run off with “Buck Fever”.

# Now That You Have Your Partner, Plan Your Dive Together

- Before entering the water, discuss with your partner the dive plan. Don't just say you go that way and I'll go this way.
- Discuss:
  - Buddy diving: one up and one down and how tough that will be in these conditions.
  - How tight you plan to stay together and what to do if separated
  - Pattern of planned search.
  - Approximate duration before tagging up or returning to shore or boat.

***DIVE YOUR PLAN***

# Choosing a Dive Location

- Pick your day, your location and timing of your dive, based on dive conditions.
- Know your limits, strength and skill level and match those up to the dive location and conditions.
- Understand surf conditions and shore conditions (rocks versus beach) when considering an entry point.
- Plan your exit point before getting in and know how the tide will change during your dive and what that will do to your exit point.

# Know When The Boat Is Too Small For The "Conditions"



Sitting in a 3.8-metre sea kayak and watching a four-metre great white approach you is a fairly tense experience

# Picking a Boat & Captain

- Know the experience of the skipper.
- Know the capabilities & condition of his boat.
  - – Stay away from poorly maintained boats.
- Have him show you all the emergency gear.
- Ask him teach you how to operate the boat.
- Learn how to use his radio and what station to call for emergencies.
- Know how to quickly disconnect his anchor in case of emergency. Pulling an anchor can lose precious time in a rescue situation.
- Remember: There is only one rule on the boat and that is "The Captain Rules". Listen to him.

# Make Your Own Personal Diver Safety Kit

- Make your own first aid kit.
  - Meds you need, bandages, antibiotics, Hydrogen Peroxide, Sudafed, Musinex, seasick pills, etc.
- Flares, flashlight, water proof matches & whistle. Buy your own hand held ship to shore radio for emergencies.
- Rent/buy a satellite cell phone and a EPERBs for dangerous & long distance trips.
- Take your own GPS to report location to rescue teams.

*Be sure to take this kit with you on your trips.*

# Kayak Safety

- In the surf, even small surf, a kayak is a deadly weapon.
  - It can break knees, heads and drown people.
- Watch out for kids in the surf line.
- Untie your paddle rope and tuck it away before going through surf.
  - The line can easily wrap around you and it will cut fast, even in small surf.

# Kayak Safety

Continued

- Don't wear your weight belt when going through the surf.
- Learn to kayak in calm conditions and then try harder conditions.
- Never get between the kayak and surf line, they can easily break your knees.
- Wear your hood going through surf, that little bit of protection may prevent getting yourself knocked out or seriously cut.

# Basic Safety

- Know the *Wet Suit Weight Formula*
  - For 3 Mil one piece suits with no vested hood, take 5% of your body weight and add 4 pounds. If you weigh 150 this formula comes to 11.5 pounds.
  - For 6.5 mil (or 1/4 inch) suits, take 10% of your body weight and add 4 pounds. If you weigh 150 this formula comes to 19 pounds. 23 pounds if you are doing shallow water diving for halibut.
  - For new suits (first 10 uses) add about 3 extra pounds
  - For shallow water diving (under 15') add 2 pounds for 3 mil suits; 3 pounds for 5 mil suits and 4 pounds for 6.5 mil suits.
- Weight yourself to be positive on the surface and test before you dive.

# Basic Safety

Continued

- Remember the weight belt has a quick release and be prepared to activate it.
- When talking to your partner on the surface, don't put your gun under your arm or between your legs because you are now pointing a loaded gun at him – not a good thing.
- Notify someone responsible of your dive plan just in case you don't return so they know when to call for a search and recovery and where to tell them to search. Remember to let them know you have safely return.

# Basic Safety

Continued

- Don't bring a loaded gun on the boat, even if you are just quickly hoping spots. It just isn't worth the risk.
- Make positive identification on the fish before you pull the trigger. It may save your thumb, your gun, or your life.
- Soupfin sharks are in breeding at the same times and places as WSB and they can look surprisingly similar in the murk.

# Basic Safety

## Continued

- Consider taking a basic SCUBA course
  - They are good at teaching the basics on safety plus you may need it to recover a deep fish, anchor or buddy.
- Be sure your dive knife can quickly cut your shooting line because you can be tied up by big fish to a stock of kelp as you are trying to cut the fish free of the kelp.
  - This is especially important when changing from mono to cable.

# Basic Safety

Continued

- Consider the amount of gear for the dive conditions you are entering and adjust as required.
  - Rock entry with lots of kelp = Keep it simple.
  - Don't try to take too much gear with you.
- Streamline your gear so you can slide through kelp or travel a long distance easily.
- Lobster bag, 2-3 lights, gage, gun, stringer, float, float line, knife, weight belt, signal buoy, camera, & etc is too much under some conditions.

# Basic Safety – Kelp Diving

Continued

- Before surfacing in thick kelp, put your right arm up over your head, bending it so the hand is above your snorkel on the left and when you start to push into the kelp canopy pull the kelp to one side clearing the way for your head and snorkel to get to air.
- What are the three best ways to get to the other side of a really thick kelp bed?
  - Go around it. This is the safest.
  - Go under it if you have the skills to surface safely and repeat multiple dives. This can be the fastest.
  - Go over it by turning your gun upside down and grabbing it 2/3 back and then pushing down the kelp so you can swim over it. Keep your gun at an angle being careful to not let your point go below the surface. The gun's handle should be below your lower chest. This can be a very stealthy method and a good way to sneak up on openings and look for fish in them. It is also surprisingly easy to cross over the kelp in this way, if you are streamlined.

# Basic Safety

Continued

- Get yourself trained in CPR and First Aide.
- Consider taking a freedive/apnea class
- Understand leg cramps, sooner or later you will get them so know what to do and do it quickly.
  - Divers will dehydrate, loose electrolytes and get leg cramps.
  - Some divers get them in their upper legs and others in the calf. Either can stop you from swimming/diving.
  - Stretch out immediately, return to take fluids, carbs and rest a bit.

# Train Like an Athlete

- If you are a beginner, don't plan a 5-6 hour competitive dive with the Fathomiers. Plan to do half the dive. Work up to longer dive days.
- Work out for diving. It is a sport and you need to be an athlete. Train like your life depends on it ... because it does.
- Ideas for training, and there are hundreds of them. Here are just three:
  - Body surf to get your legs in shape plus this will teach you about going through the surf.
  - Well balanced gym workouts & remember to include sit-ups and pulls so you can cock your gun and paddle your kayak.
  - Dive regularly. There is no better exercise for diving, than diving.

# Sea Sick Pill Recommendations

- I recommend Trip Tone ... it doesn't make you as sleepy as the others and no after headaches. I wouldn't even wait until you see what the seas are like...take one before bed and another dose in the morning with something solid to eat. There is nothing worse than being sick on a boat!!! By Larry Carter
- Another Good type of pill is Meclizine HCL

# Real Shallow Water Blackout Stories

## “Once was Not Enough”

- In 1969 Roy Rogel, a San Diego Delta Free Diver and my teammate was diving off Solana Beach in a club tournament. During the meet, a fellow diver came across Roy lying motionless on the bottom at 40 feet in 15 foot visibility. What a coincident, but wait, there is more. The diver pulled his belt off and surfaced Roy. It happened that a commercial abalone diver & boat was near by. He shouted to the boat hand and she pulled her husband up by the hose, he was using hookah. His day job just happened to be Chief Lieutenant of San Diego's City Life Guards and yes he was trained in the new science of CPR (rare in those days to find someone trained in CPR). What a coincident, but wait, there is more. He had just installed a radio on his boat. He called for an ambulance and in those days they were called “meat wagons” since the drivers had no medical training and only rushed the ill/dieing/dead to the hospital but there was one crew in all of SD County that had just been certified in CPR, you guesses it, Roy got that crew. Solana Beach, the location for the tournament, had just put a road ramp from the high cliffs to the shore and finished it just weeks before the tournament so the ambulance could go straight to wet sand and get Roy off the ab diver's boat. What a coincident, but wait, there is more. At the hospital the Doctor on duty just happened to have interned in Hawaii and he had actually seen several cases of Shallow Water Blackout (SWB). Keep in mind, Roy showed no sign of life from the moment he was found until he got into the emergency room. The doctor revived Roy and he lived to dive another 11 years. Roy died in 1980 from his second SWB occurrence which also happened during a dive tournament. This time he was found on the surface but too late to recover. Roy was a highly decorated soldier and POW in WWII and escaped 5 times from the Germans and was recaptured 4 times. In his escapes well over 100 other men who were escaping with him died. Only 7 of his fellow escapees from all those escapes lived past the end of the war. Roy was already on his 8th life when I met him. A great diver, a great athlete, a great American and a dear friend lost to SWB.

- Written In Memory of Roy Rogel, by Doug Van Mullem.

# Real Shallow Water Blackout Stories

## “Too Good for My Own Good”

- I almost lost it last November in Belize. Unfortunately I was feeling too comfortable free diving to 45 feet and hanging for 2-2.5 minutes taking pictures of fish. No wetsuit and warm water made me feel like superman. As a result, I spent too much time waiting for a fish to turn the right way and as I headed for the surface my vision was super starry (which I've had mild cases before) then as I got to about 10 feet my brain could not control the muscle movements in my legs. I was saying to myself Kick, Kick and nothing was happening. Lucky for me I had enough momentum and positive buoyancy to get me up. As my face came out I almost couldn't figure out how to breath. I was telling myself inhale, inhale! but my brain forgot how to do that. As I gasped for air and sputter kicked to keep my head out I recovered. That was the worst "close to blackout" as I've ever come. Like an idiot I was by myself, in my own little world mentally and 500 yards from the boat at the edge of a 250' drop off. That one event has changed my entire vision on how I dive in the future. That was a warning shot from the guy above and it was heard loud and clear.
- In a way I can see how my good friend Steve Seo bought it. He went to Mexico with the mental place that he would return with a world record catch and permanent club record. I told Steve this story the day before he left. I wonder if he just blew it off thinking that could never happen to him....

# Real Shallow Water Blackout Stories

“When I was a Young Jock”

- Many years before I learned of SWB, I use to believe that if I came up before seeing little white stars floating in my eyes that meant I wasn't pushing myself hard enough. Some days I would see stars on 20 to 30 dives. I also use to swim underwater in pools with no fins and go for 100 meters. In those swims I always came up seeing stars and the last time I did it I could see nothing but BLACK lasting for three breaths after surfacing and my friends, who I couldn't see, were saying "Look at how purple his lips are." That was my last time swimming 100 meters underwater.

Signed, Slow to Learn and Lucky to Still be Alive

# Lessons to Prevent SWB

- If you are surfacing and seeing little bright stars floating in your eyes (they look really cool) then you are pushing yourself too hard and are only a few seconds from death by SWB. Don't do that again!
- If your legs are giving out as you push for the surface that is because the muscles are out of oxygenated blood. If your legs give out, you die. Don't do that again!
- If you surface and feel like puking but you don't have the muscle strength to do it because there is no oxygen in them then you dove too hard. Don't do that again!
- SWB victims can be recovered - take the time to be a responsible partner and learn CPR. An interesting thing about SWB is that you can shut off your throat and not take water into your lungs. You can also bite your snorkel so hard that it is hard for the rescuer to take it out of your mouth. If a rescuer turns you over with your snorkel in the mouth and you recover your first breath will be seawater. Rescuers need to be aware of this and try to get that snorkel out fast with a jerk when turning over the victim. This will hopefully open the airway, if not open it and do CPR.

# Lessons to Prevent SWB

## Continued

- Here is one tip that few realize and it can save your life. You know you can dive 60' with no problem. But if you are doing extra hard & long dives, like when you are recovering a fish which is held up in the rocks or kelp, then your dive needs to either be shorter since your exertion is greater or your recovery needs to be longer. It will take you a longer time to recover with each successive hard dive. You may feel like you are ready after 30 seconds because your lungs are full but you have deeply depleted the reserves of oxygen in your blood. Take an extra 30 seconds or minute to recover all of your blood in your body. Your legs will tell you when you are truly ready to dive because the numbness from a lack of oxygen will have left them. It takes a long time to recycle all your blood through your lungs to replenish the oxygen fully. Repeated deep hard dives will get you. Take the time to save your life! The fish isn't going anywhere but you may be if you don't take that extra breath.
- Your attitude (or mind set) is what will keep you alive. Dive with safety as your first thought. It will be too late to have it as an after thought if you don't.

# Why a Whistle is a Good Idea

- We were diving on Santa Barbara Island and heard a man yelling. The yell was coming from the direction of the setting sun and wind; and seemed to be 300 plus yards away so we could not make out who was making the noise. At first, we assumed it was a kayak party coming around the island. After the yelling continued for some time we got alarmed and decided it was time to get our divers out of the water and go rescue this guy. It turned out to be a diver from the other small boat in the area. His boat was about 100 yards away from him but up wind so he wasn't heard for a very long time by his boat's driver. The diver had shot a "large white sea bass" and it had tide up to kelp about 60 feet down in 100 foot of water. This was deeper than he could reach. He couldn't leave his spot since he had no way to mark it so he stayed there and yelled and yelled for 30+ minutes until he finally got our attention. If he had carried a whistle, both boats would have easily heard him and known he needed help. Also, if he had an inflatable float to tie to the float line or kelp to mark the spot then he could have swam to his boat to retrieve the tank he needed to recover his fish.

# Why a Whistle is a Good Idea

Continued

- This diver was not prepared for the type of hunting he was doing. You can buy a pocket size (when not inflated) salami shaped 3' - 6' long marking float for \$30 to \$40. Also, Skip Hellen has very big inflatable floats for sell that can lift 100 pounds and can give you the horse power to lift that fish out of kelp. Another important thing to remember when hunting large fish that are in an area that may go out of your capabilities is to be more careful of your shot and shoot for the head. It is much easier to control a fighting fish if you have control of their head and don't let it get turned for deep water or structure. Fish will almost always go down and out to deeper water and look for structure when scared or hurt. If you want to hunt game fish, then be prepared for the conditions you plan to be diving in. Your boat should have a tank on board plus you should have a float line or reel line 25% longer than the depth of water; an inflatable float to mark your spot and hold up a fish; a sharp knife capable of cutting steel shooting cable if you are using it and at a minimum shooting line and kelp; and a whistle is always a good idea.

# You Can Smile Only When You Come Back Safely



# Remember, There Are Many Good Reasons to Dive Safe



# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Last Updated 8 March 2007

- Below is a great list of diving/boating/sea conditions & weather forecast websites that is a combined product of Skip Hellen and my research over the years. If saving time, ensuring safety and having good boating/diving conditions is important to you, along with the ability to plan a dive trip somewhat reliable up to 3 days in advance then you will love this list. I have tried to make the listing as user friendly as possible. The most important categories to check are prioritized and listed first to last plus my favorite site in each category is listed first. The other sites are backup and additional depth if further analysis is needed.

- **Three-Day Swell Forecast:**

<http://cdip.ucsd.edu/?nav=recent&sub=forecast>

## **Current Swell Conditions in SC:**

- [http://cdip.ucsd.edu/?nav=recent&sub=nowcast&xitem=socal\\_now](http://cdip.ucsd.edu/?nav=recent&sub=nowcast&xitem=socal_now)
- [http://www.diver.net/weather/all\\_cat\\_chnl\\_wam.shtml](http://www.diver.net/weather/all_cat_chnl_wam.shtml)

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- **Key SC Weather Buoys Providing Current and Past Swell Conditions, Wind Speed/Direction, & Air/Water Temperatures:**
- [http://www.ndbc.noaa.gov/station\\_page.phtml?station=46063](http://www.ndbc.noaa.gov/station_page.phtml?station=46063) = Point Conception
- [http://www.ndbc.noaa.gov/station\\_page.php?station=46025](http://www.ndbc.noaa.gov/station_page.php?station=46025) = Santa Monica Bay
- [http://www.ndbc.noaa.gov/station\\_page.phtml?station=46047](http://www.ndbc.noaa.gov/station_page.phtml?station=46047) = Tanner Banks
- [http://www.ndbc.noaa.gov/station\\_page.phtml?station=46086](http://www.ndbc.noaa.gov/station_page.phtml?station=46086) = San Clemente Island, S.E. End
- Other Off Shore Weather Buoys and Master List of Buoys:  
<http://www.ndbc.noaa.gov/Maps/Southwest.shtml>  
<http://facs.scripps.edu/surf/socal.html>  
<http://facs.scripps.edu/surf/buoylist.html>
- **Marine Weather Forecast - Local synopsis:**
- [http://meteora.ucsd.edu/climate/calif\\_marine\\_fcst.southern](http://meteora.ucsd.edu/climate/calif_marine_fcst.southern)
- [http://meteora.ucsd.edu/climate/calif\\_disc.los\\_angeles](http://meteora.ucsd.edu/climate/calif_disc.los_angeles)  
<http://www.nwsla.noaa.gov/>  
<http://www.myoc.com/weather/ocean.shtml>

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- Winds for SC Ocean & Coastal – Speed and Direction Provided:  
<http://www.nawcwpns.navy.mil/~weather/mugu/mesodata/analysis.html>
- Tides:  
<http://cdip.ucsd.edu/?nav=recent&sub=forecast&xitem=tide&xindex=016&xindex=012>
- <http://tbone.biol.sc.edu/tide/tideshow.cgi?site=Cabrillo+Beach%2C+California>
- <http://facs.scripps.edu/cgi-bin/plottide.pl>
- Moon Calendar - shows phases of the moon:
- <http://www.krellworkshops.com/test/>

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- The Big picture Via Satellite (Great Stuff):  
<http://www.intellicast.com/Local/USNationalWide.asp?loc=usa&seq=IntlSat&prodgrp=World&product=PacificHIRESLoop&prodnave= Pacific Satellite weather>
- <http://www.intellicast.com/Local/USNationalWide.asp?loc=usa&seq=IntlSat&prodgrp=World&product=World&prodnave=none> = world satellite weather view
- [http://www.weather.com/weather/map/90045?from=LAPmaps&name=index\\_large\\_animated&day=1](http://www.weather.com/weather/map/90045?from=LAPmaps&name=index_large_animated&day=1) = SoCal Weather/rain radar loop
- <http://radar.wrh.noaa.gov/radar/latest/DS.p19r0/si.ksox.shtml>  
SoCal Radar showing rain  
<http://facs.scripps.edu/surf/sepa.html>  
<http://www.wrh.noaa.gov/Oxnard/javaLinks/animation.1km.vis.htm>  
|  
<http://www.wrh.noaa.gov/Oxnard/javaLinks/animation.4km.ir.html>  
[http://diver.net/weather/npac\\_anim.shtml](http://diver.net/weather/npac_anim.shtml)  
<http://www.goes.noaa.gov/GIFS/WCIR.JPG>

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- **Water Visibility Indicator. Note, this is a pay site:**  
[http://www.terrafin.com/sstview/latest\\_chl.htm](http://www.terrafin.com/sstview/latest_chl.htm)
- **Surface Water Temp:**  
<http://www.terrafin.com/sstview/samples/freesocal.htm>
- <http://www.diver.net/weather/img.shtml?128.160.23.54/products/OFA/epeofa.gif>
- <http://www.nodc.noaa.gov/dsdt/cwtg/spac.html>

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- **Islands:**

**San Clemente;**

[http://tenby.ucsd.edu/two/realtime\\_index.htm](http://tenby.ucsd.edu/two/realtime_index.htm)

<http://www.scisland.org/>

**San Nicholas;**

[http://weather.yahoo.com/forecast/San\\_Nicolas\\_Island\\_CA\\_US\\_f.html](http://weather.yahoo.com/forecast/San_Nicolas_Island_CA_US_f.html)

<http://www.nawcwpns.navy.mil/~weather/mugu/mesodanta/nsis/lasthour.html>

**Charts:**

<http://www.4seatow.com/charts.htm>

**Artificial Reefs off California:**

<http://www.dfg.ca.gov/mrd/artificialreefs/index.html>

# Web Sites to Help You Plan a Safe, Productive and Fun Dive/Boat Trip

Continued

- Department of Fish & Game (DFG) Regulation website:
- [http://www.dfg.ca.gov/mrd/sportfishing\\_regs2005.html](http://www.dfg.ca.gov/mrd/sportfishing_regs2005.html)
- Jet Stream Analyses:
- <http://squall.sfsu.edu/crws/jetstream.html>
- I saved the best till last. Here is the best site of all for scouting an area for reefs:
- <http://mapserver.maptech.com/homepage/index.cfm?lat=33.54571051568571&lon=-118.35729949565865&scale=868003&zoom=50&type=0&icon=0&width=498&height=498&searchscope=dom&CFID=1554425&CFTOKEN=34536242&scriptfile=http://mapserver.maptech.com/homepage/index.cfm&latlontype=DMS>
- Learn how to use this site and you will be able to develop an incredible amount of knowledge about an area before you ever get there.