INTRO TO SCUBA DIVING

- Welcome to the Course.
- What is SCUBA Diving?
- Why SCUBA Dive?
- What is SCUBA Certification?
- What is Nitrox?
- What is NAUI?
- What are the risks of SCUBA Diving?
- Other topics we will discuss:
  - Dive equipment
  - Diving skills
  - Diving science
  - Your body underwater
  - Dive safety
  - Diving as a lifetime sport for all ages
What is SCUBA Diving?
Scuba diving is the most unique adventure sport on earth.

• **SCUBA** is a word that stands for: *Self Contained Underwater Breathing Apparatus.*

• You SCUBA dive with an air cylinder or tank that you wear on your back. The air is supplied to you by a regulator that reduces the high pressure (3000psi) in the tank to the same pressure as the water around you. This pressure is called the ambient pressure. This allows you to fill your lungs to their normal volume at any depth. Your regulator has a pressure gauge that allows you to constantly monitor your remaining air supply.

• During this course you will be shown how to clear your regulator, clear your mask, and trim your buoyancy, so that you can “hang or hover” without movement at any given depth. Modern equipment has made the sport of SCUBA diving safe.

• You will master the skills required to become a safe, certified SCUBA diver.
Why SCUBA Dive?

“There's nothing wrong with enjoying looking at the surface of the ocean itself, except that when you finally see what goes on underwater, you realize that you've been missing the whole point of the ocean. Staying on the surface all the time is like going to the circus and staring at the outside of the tent.”  

Dave Barry
Why SCUBA Dive?

Water is the great gravity equalizer. Even if you have joint problems or are an amputee, the water will set you free. During a SCUBA dive you will be in a weightless state, gravity free. You can go up and down at your own will. Almost anybody can SCUBA dive, WITHIN THEIR LIMITATIONS. As long as you understand your limitations, a wonderful, weightless, world filled with remarkable beauty is waiting for you on each and every dive when you dive in warm coral environments.

Diver propulsion vehicles can be an aid for those with physical difficulties.
Why SCUBA Dive?

The pain of a knee injury or a back injury is usually mitigated in the water. In the water you are weightless. Unlike other training agencies, we teach you proper buoyancy in your entry level Scuba course, not urging you to take a “Peak Performance Buoyancy” for more money. You are taught every thing in your NAUI Scuba Diver Course that PADI charges you more to teach you in that course. You will find resort boat crews are more than willing to help with your gear if you have physical limitations.

Divers who have limits should not dive too deep or in strong currents. The most vibrant colors and diverse fish life are found on reefs in the 20-40 foot range. Divers can spend more bottom time just absorbing this beauty and releasing the stresses of the world in the warm, tropical waters of the Caribbean.

Bahamas Scuba Adventures teaches you to dive in warm, clear, tropical, Caribbean waters filled with colorful marine life and living corals. This is easy, peaceful diving that makes you at one with the ocean.
Why Dive in Cold Water?

When you dive in cold water you have to wear a thick (5-7 millimeter), cumbersome wet suit. Wet suits are made from closed cell neoprene. It is a foam rubber with thousands of air spaces to insulate you by helping to keep body heat in during the dive. This adds buoyancy which must be balanced by weight that you add to your weight system. The wet suit must fit snugly to your body, restricting water flow inside the suit to a minimum to work properly. This can be uncomfortable, the thicker the suit. Look how “comfortable” the diver on the lower right looks.

I doubt you got up this morning and were eager to suit up in a restrictive, tight fitting rubber suit and hood, strap on a heavy weight belt, and jump into water that is very cold with poor visibility.

Wouldn’t you really rather be diving in warm, clear, tropical water?

Are we having fun yet?
Diving in Warm Water

When you dive in warm water there is no need for a cumbersome wetsuit that adds so much buoyancy to your body. You do not have to wear a heavy weight belt to balance this added buoyancy.

You wear only a dive skin made of lycra to protect you from abrasions, jelly fish, and sun on the surface. It offers a slight bit of thermal protection. A thicker dive skin with a soft brushed lining gives more thermal protection w/o added buoyancy.

If you are cold natured, you might wear a shorty 1-2 mil wetsuit over your dive skin, that has very little extra buoyancy. This is called layering. Even a 1 mil jump suit like the divers in the bottom 2 pictures are wearing, have very little added buoyancy. Wearing no skin, like the diver in picture #2, allows you to really feel the water!

Warm, tropical water offers much better visibility and more diverse and colorful marine life. Note the 85 degrees on the dive computer to the right.

Wouldn’t you really rather be diving in warm, clear, tropical water?

This is the water I train you to dive in. We Are having fun!
Why Dive Deep?

As you get into the academics of your SCUBA course you will find as you go deeper, your time underwater is cut shorter. Also the deeper you go, colors become more muted as colors are filtered out by the water. We will discuss this later.

The best life and color is between the 20-40 foot reef range. However, there are times when there is a compelling reason to make deeper dives. Deep dives must be better planned, controlled, and conditions must be good. They are not for the novice. Junior Certified Divers are limited to 60 feet. You gain experience in increments. Reasons for a deep dive might be a wreck at 130 feet or a majestic reef formation at 120 feet. However your time limit at 130 feet is only 8 minutes and 12 minutes at 120 feet. You can stay over 2 hours at 40 feet. Why take all of the time to travel to a dive site to dive for only 8 minutes at 130 feet when you could have dived 55 minutes at 60 feet?

This is a big difference!
What is Scuba Certification?

• In most countries there are no laws governing recreational SCUBA Diving.

• Professional SCUBA Instructors have agreed on certain minimum standards of training for sport divers.

• You must meet specific standards to receive your NAUI SCUBA Diver certification.

• Your certification card will enable you to SCUBA dive under conditions similar to your training conditions. If you desire to try different diving conditions you should, at the least, dive with a Divemaster from that area. If the type of diving involves new types of equipment, seek additional training.

• After you complete your NAUI SCUBA Diver certification your next step is the NAUI Advanced Diver Course. You can take Underwater Digital Imaging along with the Advanced Course now and learn to take beautiful photos and videos of the underwater life and adventures you experience to show your family, friends, and use for school projects. Your U/W photos may not be the exactly what you thought you saw but they can be greatly improved with Vivid-Pix software which is very inexpensive and easy to use. The SeaLife DC2000 does both still and video.
What is NAUI?

National Association of Underwater Instructors

- NAUI was founded in 1960 and the first Instructor Course was held.
- NAUI conducts the zero gravity water training program at the NASA Houston Space Center
- NAUI Facilities teach the programs at West Point, CG Academy, and Special Forces Underwater School in Key West
- NAUI courses are among the most thorough with rescue, self reliance, and buddy system stressed at all levels of training
- NAUI Instructors conduct all of SCUBA training at Disney World
What is Nitrox?

NAUI is the only certification agency that combines Nitrox training and certification in combination with the entry level SCUBA Diver certification program.

SCUBA tanks are normally filled with compressed air. They are not filled with oxygen as many in the uneducated public may think as this would be very dangerous.

“Standard air” contains 21% oxygen (O2) and 79% nitrogen (N2). Our body must have the oxygen to sustain life, but the N2 is just absorbed. You will learn in your SCUBA course that too much absorbed N2 can cause divers a problem called decompression sickness, the “bends”. If we breathe a gas mix that has a lower N2 content, (32% O2 / 68% N2) our dives are much safer. There are several reasons to use Nitrox.
What is Nitrox?

As we age our circulation is not what it once was and it is more difficult to get rid of the excess N2 we absorbed, as we ascend.

Nitrox gives older divers a safer dive. Hence years ago Nitrox was nick named “Geezer Gas”.

I do not advocate using Nitrox as a gas mix to increase your dive time. Many think of Nitrox as a “deep diving gas mix”, but this is not the case as Nitrox actually has strict physiological depth limits.

At Caribbean destinations your dive time will be determined by the divemaster. Diving Nitrox to air limits makes your dives safer, as long as you do not exceed the depth limits for your Nitrox mix. You will learn all about this in your Nitrox academics.
What is Nitrox?

Several of Dive Bahamas’ dive sites offer a choice of depths for the group on the boat. Usually these sites are picked as the 1st sites to give divers on the boat a choice of depths. Dive sites will usually have a max dive time of 60 minutes. You can have this with time to spare at 40 feet, but divers going “over the wall” to 100 feet will only have 30 minutes if they dive Nitrox to Nitrox tables. The boat will then move to another dive site which will normally be 30-40 feet. The interval between dives will usually be about 45 minutes. This is called your “surface interval”. The max dive time for the 2nd dive will be 60 minutes.

The group that went over the wall had 30 minutes on the bottom and waited 30 minutes on the boat for you to finish your 1st dive. Now all of you have 60 minutes for the 2nd dive. You have less dissolved Nitrogen in your body, but you had more dive time, even though everyone was diving Nitrox.
As warm water divers diving the Caribbean, we must fly. DAN, the Divers Alert Network, recommends you wait 24 hours before flying after your last dive. When we travel to the Caribbean, we plan to arrive as early as possible so we can get in and get our equipment re-packed in our net boat gear bag for the dive the next morning. Some dive locations, such as Cozumel, have shore diving available on the arrival day. We plan our departure day to fly out in the afternoon. Standard travel agents do not understand this concept. Group dive travel that we book and lead does not book air fare as you can book your own cheaper. We stress that you book early arrival and late departure. Diving Nitrox to air tables, which you will understand after you take the Nitrox academics, makes flying and diving much safer.
What are the risks of SCUBA diving?

Scuba diving, as a sport, has some risk and you must understand this before you become a diver. DIVE SMART!

• In any sport, there are risks – do not over step your training. Take continuing education to learn more about the sport. In your NAUI course, you will learn more skills for your comfort than in of the other training agencies’ courses. WE DO NOT JUST TEACH YOU DIVE SKILLS, WE TRAIN YOU TO BE A SAFE DIVER.

• A little apprehension is normal - NAUI training can help you become more comfortable in the water

• There are misconceptions about the sport - most marine life will not harm you unless you provoke it, bump into it, or are really stupid. Stupid, is spear fishing in an area where there are sharks.

• Modern dive equipment is well designed. It gives years of excellent service as long as you maintain it properly. You MUST rinse it after each dive, then thoroughly when you return home. Every year have it professionally serviced. It is life support equipment, your life.
In This NAUI Program:
You will find that SCUBA diving is one of the most enjoyable activities that you will ever learn.

• Become a NAUI Certified SCUBA Diver! Then:

• Continue your training to become a NAUI Master SCUBA Diver and learn Specialties, such as Underwater Digital Imaging, that interest you. If you are interested you can become a

• NAUI Divemaster! and then possibly on to become a

• NAUI instructor!
Your First Step is Certification

There are 3 phases in your SCUBA Course:

1. **Academics Phase**: is completed on-line with the NAUI SCUBA/Nitrox Diving Educational Systems. Your written exams are on-line. We are available for any questions.

2. **Pool Phase**: (7-8 hours, less for a private course) You will learn the skills and safety of snorkeling and SCUBA diving. Your comfort, the buddy system, self reliance, and safety is emphasized.

3. **Openwater Phase**: 4 dives over 2 days at:
   - Fantasy Lake Scuba Park [www.fantasyscubapark.com](http://www.fantasyscubapark.com) Summer, early Fall
   - Florida: Palm Beach Area All year
   - Bahamas: Stuart Cove’s Dive Bahamas [www.stuartcove.com](http://www.stuartcove.com) All year
SCUBA Diving Equipment

- Basic personal gear
- Scuba regulators
- Buoyancy Compensators (BC)
- Scuba cylinders (tanks)
- Diving instruments
- Travel Gear Bag
- U/W Still/Video Cameras
Buying Equipment for Diving
There are several reasons to go to your NAUI dive store.

- You can see and wear gear before you buy.
- SCUBA retailers assemble your equipment.
- SCUBA retailers can help you with adjusting the equipment.
- SCUBA retailers provide instruction for specialized gear.
- SCUBA retailers usually service equipment.
- SCUBA retailers rent equipment.
- SCUBA retailers are your source for scuba cylinder fills and last minute required items.
Buying Equipment for Diving

Personal Opinion

A blunt and basic word here on buying SCUBA and the required snorkeling equipment for SCUBA diving. There are various brands of equipment on the market at various prices. Very expensive does not mean that it is any better than equipment that cost half as much. Most of the dive equipment companies do not make their own equipment, but sub out the manufacturing of the equipment. For example the same mask that is sold by Atomic, ScubaPro, and Oceanic for over $100 can be bought from Marine Sports for half as much. These companies do not even make their own regulators. Only Cressi is family owned and makes all of their equipment line. Their equipment cost less. The choice is $1300 for a complete set or over $3000, that is no better. The choice is yours.
Basic Personal Gear

- Mask
- Snorkel
- Open Heel Fins
- Booties
- Mesh Gear Bag
- Pocket Snorkel
- Binder Log book
- Dive Tables
- Dive Slate
- Safety Marker
- Knife
- Dive Watch
- Small Net Bag
- Dry Bag (day pack)
- First Aid Kit
- Water Bottle

Items in RED are required Personal Gear for your Scuba course.
Masks

Your mask enables you to see underwater objects clearly.

- The most important consideration: Does the mask fit your face?

- Some essential features of masks are:
  - Retaining band
  - Nose pocket
  - Soft skirt that molds to your face
  - Double-feathered edge seal
  - Tempered glass lens
  - Adjustable strap
  - Low volume for easy clearing

- There are optional features:
  - Prescription lenses
  - Neoprene strap pad
Your New Mask

The lenses are covered with a thin film of lubricant.

• You can use toothpaste or “Soft Scrub” to remove this lubricant.

• Clean and rinse your mask before a dive trip.

• Treat the mask glass with a commercial defog solution prior to each dive.

• Each day you use your mask you will need to prepare it.

• You may have to apply a bit of defog between dives.
Snorkels
The snorkel enables you to breathe normally while you keep your face in the water and watch the beauty beneath you.

- There are many different features:
  - “J” shaped tube.
  - Flexible or adjustable mouthpiece so that the snorkel will fit more comfortably in your mouth.
  - A purge valve to allow easier clearing of water from the snorkel.
  - A molded or soft mouthpiece.
  - Large bore tube that allows better air exchange.
  - A neoprene snorkel keeper is more comfortable than the plastic keepers.
- Most Important:
  - Comfort and Breathing ease.
- Stay away from “dry snorkels”

They impede the flow of air, in and out. For the cost of a dry snorkel, you can buy a standard snorkel and a pocket snorkel.
Many SCUBA divers object to wearing a snorkel while on SCUBA. “Older” divers have been using snorkels so long that it is just second nature. The snorkel is a very important piece of safety equipment. Through the years there have been many attempts to store the snorkel (yellow snorkel in picture) “off the mask” during the dive, but this was cumbersome. The dive industry responded with the compact or pocket snorkel made of silicone that can be rolled up and stored away in your BC. You can attach it to your mask when you surface as needed. Note the diver lower right, he is not wearing a snorkel, but has a pocket snorkel.

**NEVER DIVE WITHOUT A SNORKEL!**
Booties

Booties provide protection and comfort for your feet.

- Booties are made from neoprene rubber.
- Some of the different types of booties you can find are tropical cut and full booties with zipper.
- The bootie should fit snugly but comfortably on your foot.
- Booties are designed to be used with open heel fins.
- Low cut are best for warm water and are lower cost than full booties with zippers.
Open Heel Fins

Fins give you the thrust you need to swim with SCUBA gear.

- Fins MUST be open heel design with a heel strap.
- Open heel fins give the thrust required in the ocean and are much easier to manage than closed heel fins, especially going up and down the ladder, getting in and out of boats.
- Full foot fins must be worn over bare feet which leaves feet unprotected while walking over rocks or navigating around a shifting boat with a 35 pound tank on your back and very top heavy. Very dangerous. I have seen injuries.
- **I will not teach students that use full foot fins during my course.**
Dive Knife

A Piece of Safety Equipment.

- Dive knives are a tool to signal with (Bang on your tank), cut a piece of monofilament fishing line off the reef, flip over a shell, or cut rope off a prop.
- It is definitely not a weapon!
- You should have a small knife that attaches to your BC or console hose.
- Scissors are excellent for clearing fishing line off the reef.
- You should never spend a lot of money on a knife as it will be the first item you lose!!!
Dive Watch

A dive watch is required to time your dive. You must know how long you have stayed at depth so that you can calculate the amount of nitrogen that has been absorbed into your body from the air you have been breathing. Each buddy team must have a watch. It is best for each buddy to have a watch. Dive watches can run the range from $45 to $25,000. The Timex to the left cost $45 and is rated to 200 meters. The rule of thumb is that the watch should be rated to 3X the depth you expect to visit. A 100 meter watch is perfect.
Dive Slate

- You should have a dive slate to carry on each dive so that you can communicate with your buddy. With the use of hand signals you can get across the basics, but a slate can be used for better communication. The pencil will write under water. On the boat you use the same soft Scrub that you use on your mask to erase and clean the slate. Underwater you can use a small bit of sand and rub it gently against the slate.

- You attach the slate to your BC with a quick release lanyard. Put the slate in a BC pocket, do not let it just dangle and snag on the reef.
Dive Tables

You should ALWAYS have a set of dive tables in your dive bag or dry bag on every dive trip. This rule is absolute even if you are using a dive computer. Take your NAUI Decompression Tables that you got in your NAUI SCUBA Diver Education System with you on every trip.

Even if you are using a Dive Computer, you should have your tables as a backup.
Dive Tables and Dive Computers

You calculate the bottom time available for each dive which is based on these tables that have been developed through testing over the years. The NAUI Dive Tables are also “Safe Sided” to further make your dives safer. Using the tables, the depth you use for a dive MUST be the deepest depth you went to on the dive, even though it might have been for only a short period.

Dive computers have been developed using models of tissues in your body and how they release Nitrogen. The computer keeps tract of your depth and calculates Nitrogen uptake. A dive computer will actually give you more time at depth because we as recreational divers do not go to a set depth, we vary our depth.
Dive Tables and Dive Computers

Computers have come down in cost dramatically. A basic computer is all you need. All computers today are Nitrox programable which means that you can program in the Nitrox mix, O2 percentage, you are using. More expensive computers, in my opinion, are not worth the money, especially the “air integrated” computers that also tell you how much air remaining in your tank. A computer is an electronic device. It can “die” or lock up. I have seen it happen. If it is an air integrated, your ability to know your air supply is also not working. If your computer is not working, your “fall back” is your trusty tables that every NAUI divers knows how to use. If your tank pressure gauge is electronic also, you are screwed. Simple is best, and cost much less.
In your Binder Log Book you record your dives and keep important dive information. This would include a copy of your Certification Cards, a copy of your DAN membership card, and an equipment list. Also if you are a diver with any medical issues, you should have a copy of your Physician’s Medical Authorization to dive. Many resorts will not let divers over the age of 60 dive with a Physician’s Medical. Your Log entries are a proof of your dive experience.
Dive Skin

- A dive skin is essential to protect you from cuts and abrasions if you brush up against a ship wreck, piling, bulk head, or heaven forbid, the coral reef. The dive skin will also protect you to a degree from jelly fish, hydroid, and Portuguese-Man-of-War stings. The dive skin also offers some thermal protection.
- The dive skin will protect you from chaffing from the BC straps and protection from sun exposure while you are on the surface.
- When you are riding on the boat in a wet dive skin, it should be un-sleeved, pulled down to the waist, and the arms tied around the waist as air rushing across the suit wicks moisture away and will chill the diver causing hypothermia.
- This Cressi skin is 1-mil and offers more thermal protection than a regular lycra skin.
Small Net Bag

A small net bag carried inside your mesh dive bag is used to put the following type items:

1. Dive slate
2. Mask cleaner
3. Defog
4. Spare mask strap
5. Spare fin strap
6. Extra QR lanyards
7. Any other small items that you do not want to just be freely moving around inside your dive bag.

Best size is one large enough to handle your dive slate.
Mesh Dive Bag

• Mesh dive bags are designed to hold all of your gear except your weight belt or weights.

• You can lay your bag on top of your weight belt and buckle it through the straps of the bag or you can wear your belt as you walk. Never put the belt in the bag. It is best to hand your belt on to a boat.

• Never wear a weight belt while boarding or on a boat. If you were to fall over board, you would be in big trouble!!!

• Mesh bags are best as they can be immersed in the rinse tank to facilitate rinsing after your dive. They are also easier to stuff away on the boat between dives. If you do not have a mesh bag you have to rinse each piece separately!
Dry Bag – Day Pack

• This bag is used to carry your dry items such as:
  1. spare T-shirt
  2. shorts
  3. towel
  4. first aid kit
  5. snack or lunch
  6. Water bottle
  7. Binder Log Book and Dive Tables
  8. Camera

• Unless you have a true “dry bag”, be sure to put this bag in a place where it will not get wet or put item inside ziplock bags.

• However, this bag MUST not be stowed at your dive station or in an area designated for U/W cameras. Stow it forward.

• Be sure to write your name on the bag or put a luggage tag on it.
First Aid Kit

Most diving activities occur in remote areas. Usually dive boats have good first aid kits, but you should not go running to the crew if you have a small cut or abrasion. You should “Be Prepared” to handle the small things like yourself. Suggested FA kit:

- 2 Sterile dressings 4”x4”
- 2 Sterile dressings 3”x3”
- 2 Conforming gauze bandages
- 1 Elastic bandage with Velcro 2”
- 3 Butterfly closure strips
- Assorted Band aids
- 1 Triangular bandage
- 2 Sting relief wipes
- 3 Antiseptic towelettes
- 2 Tincture of benzoin swabs
- Tube antibiotic ointment
- Aspirin
- Acetaminophen (500 mg)
- 3 Antihistamines
- 1 Splinter picker forceps
- Oronasal CPR mask

All of this can be put in a dry box or a ziplock bag, inside your dry bag.
Motion sickness

You need to think and be aware of motion sickness before it happens. There are many natural aids that can help. Crackers, ginger pills, and others work well. Try to stay from prescription meds as they may make you drowsy. There is an acupressure technique using an elastic band with a plastic button that puts pressure on the Nei-Kuan point in the wrist. These work very well and have no side effects like drugs. They are used by physicians for chemo patient’s nausea.
Water Bottle

- Your water bottle is so important for so many reasons. As a diver, you MUST keep hydrated. You must not wait until you are thirsty to start drinking water. You loose water from your body with every breath you exhale underwater. The air in your tank has had virtually all of the moisture removed during the compression and filtration. Each time you inhale, this “dry air” is being re-moisturized by pulling moisture from your body. Therefore after, and BEFORE EACH DIVE, you must hydrate your body.

- Most dive boats have drinking, but it is so much easier to draw water into a bottle and mix some fruit drink mix with the water and hydrate.

- During your SCUBA course this is one point that you will hear me push continually. Hydration is so important for divers. There are so many problems with the transfers of breathing gasses that can occur if your blood and tissue is not properly hydrated. Also snack on carbs to keep your blood sugar in line. Some boats will provide fruit.
Gloves?

• Why will not talk much about gloves. We talk about dive skins to protect you from cuts and abrasions, but what about cuts on your hands from getting cut on coral? The answer is –

• KEEP YOUR HANDS OFF THE CORAL AND YOU WILL NOT GET CUT!

• Most areas of the Caribbean today do not allow you to wear gloves on dives. If you have on gloves you have a tendency to put your hands on the live coral and that will kill the coral polyps.

• The only time you should wear gloves in warm water is when you are catching lobster.

• However, be careful going up and down a mooring line as it will have growth that can abrade/sting you, but do not let go!
Snorkeling Skills

- Fit and adjust mask
- Cleaning mask
- Defogging mask
- Donning mask
- Adjusting snorkel
- Fit and adjust fins
- Snorkel clearing
- Swimming with fins
- Equalizing sinuses
- Surface dives
- Proper use of hands while snorkeling
- Underwater swimming
- Buddy system
- Use of safety vest
- Communication
- Entries
- Exits
- Retrieval of objects from the bottom
- Buddy assist
- Cramp release
- Surface tow of buddy
- Stowing and rinsing gear
SCUBA Diving Skills

- Assembling scuba equipment
- Donning scuba gear
- Entries and exits
- Mask skills
- Regulator skills
- Buoyancy skills
- Safety skills
- Equalizing sinuses
- Ascending and Descending
- Buddy system
- Communication

- Handling your scuba equipment in the water
- Removing and replacing your scuba unit on the surface
- Removing and replacing your weight belt
- Navigation skills
- Rescue and emergency procedures
- Disassembling your scuba gear
- Proper packing of your gear
- Rinsing and stowing your gear after the dive and after the trip
Mask Skills

There are a number of ways that water can get into the mask during your dive.

• Clear water from your mask by pressing on the top of the face plate and exhaling as you roll your head back and look upwards.
Gearing Up

When you are ready to go diving, you and your buddy will begin putting on your SCUBA gear

• Help each other gear up as needed

• Do a buddy check of each other to make sure that everything is in place and that your tank valve is turned on.

• If you have to walk a short distance, walk backwards. Walking with fins is dangerous! If you are seated just beside the dive platform, you can put your fins on there and step down on to the dive platform. When you get to the platform, turn around and face out to step down. Hold onto a rail or let the crew help you.
Donning Your Fins

When you are ready to go diving, and have completed donning your SCUBA gear, the last item you don at the entry point is your fins.

• Your fins should be donned at the waters edge or dive platform.
• When you put your fins on, use the “OPPOSITE HAND / OPPOSITE FOOT” method. Grasp your fin by the blade and use your left hand to put your right fin on and right hand for the left foot. Hold your leg in a “FIGURE 4” to put your fins on, while holding on to something or your buddy.
Entries From a Boat

Now that you have all of your equipment on, you are ready to make your entry.

1. Before you stepped to the entry point and put on your fins.
2. Step down onto the dive platform with your mask in place
3. Put your regulator in your mouth
4. Step forward and make a “Giant Stride” entry
5. Turn back to the boat and give an “OK” sign
6. Pair up with your buddy when they enter and begin your dive as you were directed by your divemaster in the dive brief. Group with the rest of the divers and head to the bottom or the mooring line.
Entries From Anchored or Moored Boats

- Buddy team swims together away from the entry area towards the anchor/mooring line so the next divers can follow.

- In **current conditions**, some boats will have a line (geriatric line) to pull or swim along to the anchor/mooring line,

- When you get up to the down line, immediately go down at least 10 ft. **DO NOT HOLD ON TO THE LINE AT THE SURFACE**. Descend down the anchor/mooring line.

- **MAINTAIN CONTACT WITH THE LINE ALL THE WAY TO THE BOTTOM!**

  *IF YOU LET GO, CURRENT CAN SWEEP YOU AWAY.*
Entries From Anchored or Moored Boats

- Make your dive and remember where the anchor/mooring line is located. You must make your ascent up this line, **MAINTAIN CONTACT WITH THE LINE ALL THE WAY TO THE SURFACE.**

- Then swim to the safety stop line for your safety stop.

- Then you go the trail line to wait your turn for the ladder. You should hold the trail line as you wait and as you swim to the dive platform.

- Take turns moving to the ladder to exit.

- Wait your turn, only 1 person on the ladder at the time.
Entries From Moving Boats “Float Dives”

- After you make your entry and give “OK” sign, group up with team leader to descend to the bottom as quickly as possible as you may drift off the reef.
- Stay together as a group and do not get ahead of your team leader as you glide along the reef.
- As your buddy team gets low on air go to team leader and indicate that your buddy team is going to ascend or the group may ascend.
- Ascend the float line and let go of the line just as you break the surface. The float will move away from you. **DO NOT HOLD ON TO THE FLOAT LINE AT THE SURFACE**
Entries From Moving Boats “Float Dives”

- As you ascend, keep a loose “OK” with your thumb and index finger around the line, but let go just as you break the surface.
- Put air in your BC on the surface and you and your buddy turn towards the boat.
- Keep your eyes on the boat and wait for the boat to pick you up.
- The boat will run directly at you. When it stops, the dive platform should be will be just beside you. If not crew will throw out a trail line. Swim towards the dive platform holding the line. DO NOT LET GO.
- Take turns moving to the ladder to exit.

In Cozumel, they do not use float lines. The boat crew watches the bubbles. The group or buddy team ascends directly to the surface and waits for pick up by the boat.
Exits- Getting Back on the Boat

There are some very important points to remember as you exit the water and get back into the boat. This CAN BE the most dangerous part of your dive if you do not do it correctly.

• NEVER TAKE YOUR MASK OFF UNTIL YOU ARE COMPLETELY ON THE DIVE PLATFORM! While you are going up the ladder you could fall back into the water.

• Keep your snorkel or regulator in your mouth, just in case you happen to fall back into the water w/o fins.

• Watch the movement of the ladder as it moves in the swells.
Exits- Getting Back on the Boat

• Grab the ladder at least a foot below the surface with 1 hand, cross your leg in the “figure 4” position, take off your opposite fin, and hand it up. **DO NOT GET ON THE LADDER**, just hold the ladder below the surface.

• Then take hold of the ladder with your other hand, but do not let go with your 1st hand **UNTIL** you have the firm grip with 2nd hand and take your other fin off, by same method, opposite fin. Then hand the fin up.
Exits- Getting Back on the Boat

• **THEN**, climb up the ladder (mask on and reg/snorkel in mouth). **NEVER LET GO OF THE LADDER!** Keep your mask on and your regulator or snorkel in your mouth until you are firmly on the dive platform.

• Gather up your fins and go to your space

• **Stow your gear.** Then you can setup for next dive or relax on the ride back. Do not leave your gear strown all over the deck!
Entries and Exits from Shore

Entry:

• Enter the water with all of your gear on except your fins.
• Walk in holding your fins
• When you get to mid-chest or mid-gut depth, put on your fins using the Figure-4 method. Use your buddy for support.
• You should be wearing your mask and using your snorkel while putting on your fins.

Exit:

• Swim in to mid-chest or mid-gut depth and stand up.
• Keep your regulator in your mouth or put your snorkel in your mouth.
• Working as a buddy team, use the Figure-4 method, take off your fins.
Using Your Fins

Your fins provide you with thrust and stability in the water.

- The most common kick is the flutter kick. Kick from your thighs. Only slightly bend your knees. Do not “bicycle kick”. Point your toes and think of the tips of your fins as the extension of your legs. Get additional thrust by flexing your ankle with each downward kick. It will become natural and intuitive. “Be at one with the water, do not fight with it.”

- You can use a dolphin kick to use different muscles.

- When replacing a fin in the water, use the same figure 4 position you use to don your fins.
Assembling SCUBA Equipment

Only you are responsible for proper assembly and operation of your equipment.

You will learn how to properly assemble your own SCUBA equipment. You must assemble your own equipment. This cannot be done for you by anyone. SCUBA is a self-reliant sport.
Procedure When You Get on Your Dive Boat

When you get on board the boat, immediately pick a place on the boat as close to the dive platform (rear) as you can. Place your gear bag on the bench.

1. Pull out your regulator and check the pressure in each tank. If either tank is low, ask for a replacement.
2. Setup your 1st tank and check the regulator and BC, turn air off
3. Stow your gear bag beneath the bench
4. Do all of this before the boat leaves the dock
5. Remember to turn your air on when you reach the dive site.

After you have setup and stowed, you should then stow your dry bag forward and then stake out a place for the ride out to the dive site.
Procedure Between Dives

When you get back on the boat after your 1st dive, immediately go to your area, take off your tank and bungee in place. Then go pick up your fins.

1. Break down your first tank
2. Setup your 2nd tank
3. Pressurize to check the system
4. Turn off the tank
5. Bungee tank in place
6. Stow your gear

NO!

After you have setup and stowed, you can rest, HYDRATE, and eat something between dives
Procedure After Your Dives

When you get back on the boat after your last dive, immediately go to your area, take off your tank and bungee in place. Then go pick up your fins.

1. Break down your tank
2. Bungee the tank in place
3. Do not put tape back over valves
4. Return weights to weight box
5. Stow your gear

After you have broken down and stowed, you can rest, HYDRATE, HYDRATE, HYDRATE, and snack on something on the ride back to the dock.
Regulator Skills

Learning to scuba dive includes more than just learning how to breathe from a regulator.

• When you breathe underwater you just breathe in and out in a normal fashion. **NEVER HOLD YOUR BREATH!**

• Clearing the regulator:
  – Exhale into the regulator and the water will go out the exhaust port.
  – Place your tongue in the mouthpiece and press the purge button to blow water out through the exhaust port.

• REMEMBER: Exhale small bubbles when the regulator is not in your mouth. **NEVER HOLD YOUR BREATH!**
Recovering a Regulator
There are two ways to recover your regulator.

- **Sweep method:** Drop your right shoulder and sweep your right arm down and back, catching the regulator with your arm.

- **Reach method:** Reach back with your right hand till you find the valve. Hook your thumb under the hose and run your hand down the hose to the mouthpiece.
Other Regulator Skills

- **Changing from snorkel to regulator:** When you swim out to the dive float line you will use your snorkel. You will have just enough air in your BC to make you buoyant. Just before you get to the line, you switch from the snorkel to the regulator WITHOUT TAKING YOUR HEAD OUT OF THE WATER. You release the air from your BC with your left hand and put your right hand ON THE DOWN LINE. Come down the line while maintaining contact with the line all the way to the bottom.

- **Orally inflating your BC:** You can orally inflate your BC by taking a breath from your regulator and breathing into the BC inflator hose while holding down the manual inflator/deflator button. Be sure to release the button as you stop blowing or the air will escape. Then you put your regulator back in your mouth and clear it to take a breath.
Monitoring your Air Supply

You must check your air consumption by frequently checking your submersible pressure gauge.

- At a minimum, check your air every 5 minutes.
- Also ask your buddy how much air they have remaining.

The buddy team’s dive time is limited by the person with the least amount of air.
Review on Regulator Skills

What have you learned so far?

- Describe what you should do anytime the regulator is out of your mouth.
Review on Regulator Skills
What have you learned so far?

- Describe what you should do anytime the regulator is out of your mouth.

  Exhale small bubbles from your mouth when the regulator is not in your mouth.

NEVER HOLD YOUR BREATH!
Buoyancy Skills

If there is one skill that determines a person’s diving ability, it is buoyancy control.

- Many factors affect your buoyancy in the water:
  - Weight of your equipment
  - Type of tank you are using
  - Body density
  - Air in BC
  - If you have on a wet suit, the thickness of the wet suit
  - Weight on your weight belt

You must begin your dive properly weighted.
Buoyancy Skills

If there is one skill that determines a person’s diving ability, it is buoyancy control.

During your NAUI Scuba Diver Course you will learn to:

• Determine the exact weight you need, so you’re not too light or too heavy.
• Trim your weight system and scuba gear so you’re perfectly balanced in the water.
• Streamline to save energy, use air more efficiently and move more smoothly through the water.
• Hover effortlessly in any position – vertical or horizontal.

PADI has you pay additional to properly learn these skills in their Peak Performance Buoyancy Course
NEVER DIVE OVER WEIGHTED!

- Never use your BC to compensate for excess weight
- When you start the dive you should be neutrally weighted with no air in your BC
- Excess weight causes drag and will cause you to use more air!
- You should try to maintain a horizontal attitude during the dive
- **Over weighting is EXTREMELY DANGEROUS!**
Checking Buoyancy

• You must test your buoyancy at the surface before you begin your dive.

• You will control your buoyancy during your dive by adding to or removing air from your BC, but there should be no air in the BC at the surface to be neutral.

NEVER DIVE OVER WEIGHTED!
Checking Buoyancy

STUPID PEOPLE DIVE OVER WEIGHTED!

NEVER DIVE OVER WEIGHTED!

It is one of the most dangerous mistakes you could ever make. Always check your buoyancy BEFORE you get on the boat, if at all possible. If you are over or under weighted once you make your entry, crew can hand you weight to get you buoyancy correct. If you were too heavy on the 1st dive, remove weight for your 2nd dive. You should not have to add a lot of air to your BC for neutral buoyancy.
Descending

Being able to descend easily in the water is one of the important skills of diving.

• **Some of the general steps for descending:**
  – Descend feet first and vent air from your BC as you descend.
  – Never turn and try to go down head first with air in your BC.

• **You will lose buoyancy as the pressure compresses your wetsuit and any air in your BC.**
Descending

Your rate of descent should not be rapid. It is recommended not to exceed a rate of 75 feet per minute.

• As your wetsuit compresses, you may need to adjust your weight belt.
• Use your fins as little as possible during descent.
• Doing a controlled descent down an anchor or mooring line will allow you to concentrate on:
  – CLEARING YOUR EARS! (it is easier to clear your ears when you descend feet first)
  – Your surroundings
  – Your buddy
  – Your equipment
  – KEEP YOU FROM BEING SWEPT AWAY BY CURRENT
  – Where you are headed
Ascending

For every descent you make, you make an ascent.

Proper ascents:
You can make a direct ascent to the surface to return to the boat when there is no current and you are making a shallow dive just below the boat, you should:

• Look up, swim towards the boat
• Turn 360 degrees as you ascend, if possible
• Ascend at a rate of no faster than 30 feet per minute, ascend no faster than your bubbles.
• Vent air from your BC as needed, as any air in your BC will expand during ascent.

• DO NOT RIDE YOUR BC TO THE SURFACE.

Ascend to the safety stop line for your safety stop of 3-5 minutes at 15-20 feet.
Ascending

For every descent you make, you make an ascent.

If you are ascending up the mooring line:

- **MAINTAIN CONTACT WITH THE LINE ALL OF THE WAY TO YOUR SAFETY STOP DEPTH,**
- then swim to the safety line.
- After you reach the safety stop line, hold there for your safety stop.
- Safety stops can be done
  - on the mooring/anchor line.
  - On a weighted line tied off at the stern
  - Or some boats have a “hang bar:

Hand signal for a “3-minute Safety Stop
**Ascending**

For every descent you make, you make an ascent.

- Do not go all the way to the surface and hold on to the mooring line at the surface. The surface surge can lift you several feet out of the water and slam you back down if there is surface action. If the seas are running 4-6 feet, at one minute you are at the water’s surface and then you can be 6 feet above the water. The diver at the right is making 2 major stupid mistakes:
  - Holding the anchor line at the surface and
  - He does not have his snorkel or regulator in his mouth
- If you do go all the way to the surface, you have skipped your safety stop. You must go back down to 15 feet and swim to the safety stop line.
Ascending

If you do not find your way back to the anchor/mooring and make your ascent up that line OR ascend “off the line”, you can be swept far away from the boat by the current. When you surface several ocean waves may separate you and the boat.

If this happens, the boat WILL NOT BE ABLE TO SEE YOU!!!

Always know where the anchor/mooring line is during your dive and have enough air to get back to and make your ascent. When you make your ascent MAINTAIN CONTACT WITH THE LINE ALL THE WAY TO THE SURFACE.

These divers did not surface on the line. They are lucky in that they have safety tubes/sausages and the seas are calm. They are waiting for the boat to pull anchor and come get them.
Buddy System

The Buddy System is one of the most important concepts in Scuba Diving

The following points help you keep track of your buddy:

- Agree on a leader.
- Establish your dive direction.
- Maintain your same position relative to each other for the entire dive.
- Plan your dive and dive your plan.
- Use the lost buddy procedure if you get separated.
  - Get vertical and look in all directions
  - Rise about 10 feet & look for bubbles
  - Ascend to surface after about 1 min
  - At surface wait for buddy
  - After about 5 min signal for help in finding your buddy
Communication

There are standard signals you need to know to communicate under water as well as on the surface.

- Remember, for a signal to be effective, all concerned must discuss it and agree upon it before you start the dive.
- At the surface, you can use different types of audible and visual signals to communicate.
Communication

- Come here
- Watch me
- Go under
- Level off
- Go that way
- Which direction?
- Ears
- Cold
- Slow down
- Hold hands
- Get with your buddy
- Lead and follow
- Stop, stay
- Problem, trouble, Something is wrong
- OK, OK?
- Distress
- OK, OK? (On surface at distance)
- Danger
- Go up, going up
- Go down, Going down
- Low on air
- Out of air
- Share air
Diving Science

• Characteristics of Air and Water.
• Buoyancy.
• What is Pressure?
• Your Body.
• The Anatomy of Your Lungs.
• Indirect Effects of Pressure.
Direct Effects of Pressure
You will learn how pressure increases under water and how it affects your body.

When we descend in water, the force from the combined weight of air in the atmosphere above the water and water above us will subject our bodies to increasing pressure as we descend, go down deeper.
Direct Effects of Pressure

Our bodies must adjust to this increasing pressure as we descend (go down to depth). Then we must adjust to the decreasing pressure as we ascend, come back to the surface. We have all felt the effects of this pressure as we go to the bottom of a swimming pool. Now as we are going deeper, we MUST make adjustments, or we cannot go any deeper.
The Air You Breathe

Most of the time, we do not think about air, because breathing is an automatic activity.

- Air is a mixture of gases, basically
  21% Oxygen
  78% Nitrogen
- **Nitrox** uses mixtures that are higher in Oxygen and lower in Nitrogen.
- Gasses can be easily compressed. Therefore we can compress a lot of breathing gas, standard air or a **Nitrox** mix into our SCUBA tank.
What is Pressure?

When you descend in water, the force from the weight of the air and the weight of the water above affects you.

- This force is called pressure.

- If you weighed a column of air which is 1 inch by 1 inch (1 square inch), and as tall as the atmosphere above the earth, it would weigh 14.7 pounds.

- It would exert a pressure of 14.7 Pounds per Square Inch (psi)

- This constant pressure is also called 1 atmosphere of pressure.
  
  (14.7 psi = 1 atmosphere)

In SCUBA diving we call this 1 AT or 1 ata
What is Pressure?

- As we descend the weight of the water added to the weight of the atmosphere subjects our body to increased pressure.
- Each 33 feet we descend adds an additional 14.7 psi or one atmosphere of pressure.
- At 33 feet of salt water we have 2 times the pressure we have on us in this room at this time.
- At 66 feet we have 3 times as much.
- At 99 feet you would have 4 times as much pressure as you have on you right now.
- At 99 feet we have 4 ATs of pressure on us. (3 ATs for the water and 1 AT for the air above)

It is easy to compensate for these pressure changes if you know how.
What is Pressure?

- Air: weighs less than 1 ounce per cubic foot.
- Fresh Water: weighs 62.4 pounds per cubic foot.
- Salt Water: weighs 64 pounds per cubic foot because it has salts dissolved in it.
What is Pressure?

- Fresh Water:
  34 feet = 1 Atmosphere = 14.7 psi

- Salt Water:
  33 feet = 1 Atmosphere = 14.7 psi

- Air:
  All of the air above the earth
  = 1 Atmosphere = 14.7 psi

- Each foot of salt water = 0.445 psi

- Each foot of fresh water = 0.432 psi
Your Body

When you dive, the increase in pressure caused by the water as you descend affects air spaces inside your body.

How pressure affects your air spaces.

• **Squeezes:** If the pressure outside an air space is greater than the pressure inside the air space, the situation is called a squeeze and it can cause damage to your body.

• **Blocks:** When air is trapped inside an air space and the pressure outside the air space is less, the air tries to expand and can cause damage to your body. The air will eventually push out the blockage, as in a sinus squeeze.
The Middle Ear

You must be able to equalize the pressure inside your ears to comfortably and safely dive.

- Anatomy of the ear:
Middle Ear Squeezes

Occurs when the air or water pressure in your outer ear is greater than the air pressure in your middle ear.

• Equalizing your middle ear:
  – Move air from your throat through the eustachian tube into your middle ear, by blowing gently while holding your nose, or wiggle your jaw, or yawn.
  – For most people this is not an automatic process.
  – If you cannot equalize during a dive, you must end the dive.

• Before you feel the slightest pressure in your ears, you need to equalize.

Diver holds his nose and blows gently. Air flows up the eustachian tube to the inner ear to equalize pressure. If there is a blockage, the air cannot flow up the tube.
Middle Ear Squeezes

Never force equalizing your ears. You could cause serious damage to your ears.

• The key to successful ear equalization: **Start as soon as you start descending. Do not wait for pain to begin!**

• If problems occur:
  – Ascend a few feet and try to equalize again
  – Look up while clearing as this stretches the eustachian tube
  – Never try to clear with forceful blowing
  – Remember to descend feet first

• If you have a head cold, you must not attempt to equalize by any method.

• You have to be clear of blockages. The best way is to clear out the mucus with a sinus rinse.
Sinuses

Your sinuses are air cavities lined with mucous membranes and surrounded by the bones of your head.

- **Sinus squeeze and blockage:** The sinus has a small opening that allows air to enter the sinus if this opening is blocked by mucus, the sinus cannot equalize. If air is trapped inside a clogged sinus, the air will expand on ascent, can cause pain and push the mucus plug out and any trapped sinus fluid out into your mask.

- Do not dive when you have a cold or sinus congestion.
- **Decongestant drugs:** Avoid taking any medications that you know produces side effects such as drowsiness when you use them.
- Clean your sinuses out with a sinus rinse to prevent problems
Water Pressure

Air Pressure from your throat must get up through the Eustachian Tube to equalize the water pressure that is on the outside of the eardrum.

NeilMed Sinus Rinse
https://www.youtube.com/watch?v=uNwWjALegDA

Your ears and sinuses are your major limiting factors,
Take Care of Your Ears!
Go to the link below to find hints on clearing your ears.

Swimmer’s Ear

The diving has been great all week. Now, while sitting in your room, you notice that one of your ears itches and the ear canal feels wet. You look in the mirror and don't see any problem, so you go to bed. Next morning when you wake up, you feel a fullness in your ear and a twinge of pain. What a time for an earache!

You wonder if you should cancel the day's diving. Your problem is probably otitis externa, a fancy name for an external ear infection sometimes called swimmers ear. As the name implies, it's usually associated with someone who swims a lot - and divers certainly fit that bill on dive-intensive scuba holidays.
Swimmer’s Ear

The Cause
Despite what most people believe, otitis externa is not caused by bacteria in the water: instead, it's triggered by the bacteria normally found in your external ear canal. Here's how these normally innocuous bacteria can become troublesome.

With frequent immersion, water swells the cells lining the ear canal. Eventually, these cells pull apart - far enough for the bacteria normally found on the surface of your ear canal to get underneath the skin, where they find a nice warm environment and start to multiply.

Next thing you know, your ear canal itches, is sore and becomes inflamed. If left untreated, the swelling can spread to the nearby lymph nodes and cause enough pain that moving your jaw becomes uncomfortable. At this point, the only treatment is antibiotics, and diving is definitely out.
Swimmer’s Ear

Prevention

Medical research has stressed that it is the acidic pH that is the most important feature of solutions used for prevention of swimmer’s ear. A 2 percent acetic acid (vinegar) solution has a pH of 3.0 and has been found to drop the ear canal pH to 4-5, bactericidal to the normally found bacteria in the ear canal. White wine vinegar is 4-6 percent acetic acid, and if it's mixed with an equal amount of isopropyl alcohol, it would probably work fine. Using undiluted vinegar may make the solution too acidic and cause irritation. Using less alcohol may be wise if you find that the 50:50 mix provides too much drying - this can make your ear canal sore after several days of use. You can add water if you are using the solution for an extended trip.
Swimmer’s Ear

Using the Solution: The head is tilted to one side and the external ear canal gently filled with the solution, which must remain in the canal for five minutes. The head is then tilted to the other side, the solution allowed to run out, and the procedure repeated for the other ear. The five-minute duration must be timed with a watch. If the solution does not remain in the ear a full five minutes, the effectiveness of the procedure is greatly reduced. -From the U.S. Navy Diving Manual

No matter what solution you use, remember its effectiveness is drastically reduced unless it remains in the ear canal a full five minutes. Another caution: the above solutions are for use in the otherwise normal ear with an intact eardrum. If there is any hint that the eardrum may be torn, do not use these solutions as they may cause damage to middle ear structures. And if any solution causes irritation, stop using it.
Other Air Spaces

Any air space trapped in or around your body will be affected.

• **Teeth:** Air at depth can seep into a cracked tooth or filling and cause pain or can expand during ascent and cause pain. Make sure your teeth are in good condition.

• **Mask space:** Simply exhale once in a while from your nose into the mask to equalize the closed space in the mask. If you do not, you can get a mask squeeze, also known as a giant hickie of the face.
The Anatomy of Your Lungs

Your lungs consist of millions of tiny air sacs, called alveoli. If the pressure outside these sacs increases, the sacs will expand and rupture, causing serious injury!

Lung over-expansion injuries:

- Air Embolism
- Pneumothorax
- Tissue Emphysema
Lung over-expansion injuries
Air embolism: The most serious injury.

If You Hold your Breath while Ascending:
- Air in an aveoli expands and ruptures, allowing air to enter the blood stream.
- These bubbles pass through the blood stream and finally get to the brain, expand there and cause a blockage.
- Can cause unconsciousness, paralysis, brain damage, and even death.
Lung over-expansion injuries
Air embolism: The most serious injury.

ALWAYS BREATHE NORMALLY
INHALE, FOLLOWED BY A NORMAL EXHALE

NEVER HOLD YOUR BREATH!
ALWAYS, BREATHE NORMALLY
Lung over-expansion injuries

Air embolism: The most serious injury.

Remember we stated that each of foot fresh water would cause a change of 0.432psi per foot. (A little less than half a pound of pressure change per foot of water.) This means that in the 5 foot end of the pool, there is about a 2 psi change between the bottom to the surface.

\[
5 \text{ psi} \times 0.432 \text{ psi/ft} = 2.16 \text{ psi}
\]

Theoretically, it only takes an over pressure of 2 psi to cause a tear in an alveoli that can cause an air embolism. So, **THEORETICALLY**, if you took a full breath and stood up in 5 feet of water without exhaling, alveoli could expand, tear, and you could get an air embolism.

**NEVER HOLD YOUR BREATH!**

**ALWAYS, BREATHE NORMALLY**
Hyperbaric Treatment

If you suffer an air embolism, you will need to treated in a hyperbaric chamber.

If an Air Embolism or Decompression Sickness occurs:

- Basic Life Support (CPR)
- Place victim on 100% oxygen (reduces bubbles and size)
- Transport victim to the nearest medical facility and contact the Diver’s Alert Network (DAN) to locate the nearest hyperbaric chamber.

Medical Emergency Hotline: 919-684-9111

DAN Oxygen Kit

https://www.youtube.com/watch?v=05R-xaOaLbU
Air Embolism and Decompression Illness

There is one main factor that leads up to an air embolism and that is holding your breath while you are ascending.

**NEVER HOLD YOUR BREATH**

Always breathe normally. Take normal breaths and exhale normally. If you have a problem, such as a flooded mask, stop, relax, and clear your mask. Never look to the surface for resolution. If you try to ascend, you will hold your breath and get an air embolism. Use your training.

If you find yourself in a very low air situation, relax, think, and act by going to your buddy if they are close by to buddy breathe. If they are not close, use your training, do not panic, do a controlled Emergency Surface Ascent. It will work. Once you are on the surface, inflate your BC, put your snorkel in your mouth, and relax.
Air Embolism and Decompression Illness

Things to remember that can help to prevent you from getting Decompression Sickness:

1. Follow your dive tables or computer.
2. Stay hydrated. Drink water even though you do not think you are thirsty. HYDRATE! HYDRATE! HYDRATE!
3. Be well rested for your diving. Your body’s ability to properly release and get rid of excess N2 is hampered when you are not tired.
4. Do not dive in cold water. When diving in cold water, blood pools to the center of your body and the heart has a more difficult time pumping the blood. This also applies to not getting too cold in any diving activity. Do not wear any wetsuit that is too constricting as it will have the same pooling effect.
5. Be very careful of alcohol consumption before diving.
Air Embolism and Decompression Illness

Many of the same rules apply to prevention of both Air Embolism (and the other over expansion injuries) and Decompression. When Decompression Illness, DCI, bubbles form in the brain, the same symptoms occur as do with Air Embolism. This why we now usually call Air Embolism, an AGE, Arterial Gas Embolism because it can be caused by air or N2.

The most important preventatives for both are:
1. Never look to the surface to resolve a problem
2. Control your ascent rate
3. Watch your bottom time
4. Hydrate
5. Rest
6. Alcohol in moderation
7. Exercise after diving in moderation
8. Make smart decisions, use your training, don’t be stupid
Diver First Aid and Safety

Divers must be prepared to handle emergencies. NAUI teaches divers how to prevent accidents and manage emergency situations.

- Divers participate in activities in remote areas.
- Divers must be prepared to be self-reliant.
- NAUI teaches Self-Reliance - “BE PREPARED”
- NAUI incorporates rescue training and awareness at all levels of training
- DAN/NAUI First Aid Courses:
  - CPR-BLS/First Aid
  - CPR-HCP/First Aid
  - Oxygen Provider
  - Hazardous Marine Life Injuries
  - Neurological Assessment
  - Dive Emergency Management
  - First Aid for the Diving Professional
First Aid and Safety
Everyone must be prepared to handle emergencies.

Everyone, no matter whether a diver or not SHOULD, take a Basic Life Support Course: CPR and First Aid. This is very easy today.

The DAN-NAUI Basic CPR and First Aid course consist of:
1. Free on-line academics and student text
2. Practical session where the student pays for a student kit consisting of an Oronasal CPR mask, class First Aid materials and certification fees. This practical session takes about 3 hours. There is manikin practice for adult, child, and infant CPR. And practice bandaging, splinting, and medical emergencies.
Who Makes the Decision If You Make a Certain Dive? Ask Yourself, Am I Qualified?

You and you alone have the final decision as to whether you make a specific dive.

If you are not feeling well, do not feel good about the dive that is planned, or feel the dive is above your training or experience, do not be afraid to ask to go to a different dive site. You paid for the dive!

If the 1st dive of the day for your dive boat is to be an 80 foot dive and you do not want to make an 80 foot dive, you and your buddy move to another boat that is making a shallow reef dive.

Never allow someone to bully you into diving in conditions you are not comfortable with.

This could be because you did not get a good night’s sleep or you are having ear problems. You always have the last word!
Group Dive Trips

After you have earned your NAUI SCUBA Diver and Nitrox Diver certifications, you should begin diving with a group of experienced divers. When you go on dive trips, you can learn about different types of diving and earn openwater credit towards your NAUI Advanced and Master SCUBA Diver Certifications, diving with your NAUI instructor. With these programs there are also offered several specialty programs such as Underwater Digital Imaging and Wreck Diving. The members of your dive group are a source of a wealth of diving knowledge. They realize that they were once novice divers and are willing to share with you. There is also the social aspect to share your new sport with other divers over dinner or in the bar.
Stuart Cove’s Dive Bahamas - 85 Degrees at 40 Feet in October
Queen Angel Fish
French Angel Fish
Lin Feeding Caribbean Gray Reef Sharks
Stoplight Parrotfish and Blue Parrotfish in Night Dive
Ultimate Dive Adventure!
Stuart Cove’s
Shark Adventure Dive
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