

14. Diving Opportunities

Your exertion has used much oxygen, which has produced much carbon dioxide (CO_2), which stimulates you to breathe more to expel the CO_2 . The feeling of a lack of air is caused by the need to reduce the amount of CO_2 dissolved in your blood. You need to minimize your activity immediately and breathe deeply until your breathing returns to normal.

Rapid, shallow breathing (hypoventilation) moves only a small amount of air in and out of your body. The structures from your mouth to your lungs do not allow gas exchange, so your body is not getting oxygen or ridding itself of CO_2 . Gaining control of your breathing by stopping or reducing activity and breathing deeply until you feel better is the correct course of action and can help prevent panic. When your breathing is under control, you can think clearly and manage the difficulty that caused your anxiety.

Many factors affect air consumption, but the primary cause of high air consumption is exertion. Relax and move slowly. If you are too buoyant and have to exert to maintain your position in the water, your air supply will be depleted rapidly. If you are wearing too much weight, your attitude in the water will increase your frontal surface area and drag will increase air consumption. Adjust your weight and trim so you can hang suspended in a level position, and then relax and enjoy diving.

The first step is to tell yourself that you have time to manage this problem. The next step is to think of the options available to you. The quickest and easiest solution is to switch to your extra second stage or alternate air source. Your buddy's extra second stage is another good choice. The worst way to manage this problem is to spit out your regulator and swim to the surface.

The current is pushing cold water into and through your wet suit. If you swim at an angle to the current, you will reduce the flow of cold water through your suit and not get as cold. You can also look for places where you can be shielded from the current. You do not need to swim constantly when diving. Most of the life in the ocean is less than 1 inch (2.45 cm), so it is a good idea to stop and look closely at any underwater formations. Some of the best and safest ways to warm yourself after diving are to remove your wet suit, get dry, get out of the wind and into a warmer environment, wrap yourself in a blanket or sleeping bag, eat high-energy food, drink warm drinks, and avoid stimulants. The principle is to warm yourself from the inside out instead of using external heat, which is dangerous. Remember that your core temperature will not be normal until you begin to perspire.

Did you think about the density of water and how much resistance to movement it causes? People usually think they will ascend rapidly if they lose their weights, but if you respond quickly, this situation is not difficult to manage. Quickly deflate any air from your BC. Then invert yourself to get your fins above your head, swim downward forcefully for a few kicks, grasp your weight belt, and replace it. (You will learn how to do this skill in chapter 6.)

When you ascend 10 feet (3.3 m) to swim over the reef, your buoyancy will increase because your wet suit and the air in your BC will expand. If the upward excursion is brief, you may be able to control your buoyancy just by keeping the amount of air in your lungs minimal. If the excursion is long or you are unable to control your buoyancy by breathing, vent some air from your BC to maintain neutral buoyancy until you descend again.

If you don't stop swimming, you will experience air starvation. And if you do stop swimming, your buddy will disappear and you may become separated. Prevention is best. Get your buddy to agree that you will swim side by side at all times and that when one of you stops, you both stop. If your buddy is ahead of you and you want or need to stop, use a rock or the butt of your dive knife to bang on your tank to get your buddy's attention. If your efforts fail, stop and get your breathing under control and then surface to reunite with your buddy if he does not return to you. You are out of air, but only at a depth of 50 feet (15 m). As amazing as it sounds, if you start swimming slowly to the surface, there will be additional air to breathe from your tank as the surrounding pressure decreases with ascent. This is not the best option, however. In chapter 6 you will learn other ways to deal with situations involving loss of air supply.

Minimize sun exposure, soak and rinse after use, store in a dark and dry location that is free of smog, inspect your gear regularly, and have your equipment serviced regularly or as needed.

The most important concerns for most diving equipment are fit and comfort. Features, colors, and price do not matter if the equipment does not fit well or is uncomfortable to use. If possible, rent equipment before you make a purchase so you will know if an item is right for you.

If all of the air escapes from your tank and the valve in your second stage is open (or if you happen to depress the purge button and open the valve), water can enter your tank. You will learn how to minimize the chances that your regulator will free-flow. If you detect water inside your scuba cylinder, take it to a facility for maintenance as soon as possible.

Air has weight. The air in a typical scuba tank weighs five to six pounds (~2.25-2.7 kg) when the tank is full. As you deplete the air, your buoyancy increases. The loss of weight may not be apparent at depth if you wear an exposure suit because pressure compresses the suit. You simply add less air to your BC than you would if you were not wearing an exposure suit. Problems arise as you near the surface with a scuba tank that is nearly empty because your suit expands and you are unable to overcome the positive buoyancy caused by the loss of weight from your cylinder. To avoid this problem, you need to adjust your weight to be neutrally buoyant just below the surface while using a tank with approximately 500 psi of air remaining in the tank.

You need just enough air in a dry suit to keep it from squeezing you. Any excess air forms a bubble inside the suit, and the bubble rises to the highest point. If you tip upside down to do something, the bubble can rise to your feet, may loosen your fins, and can cause you to float upward in an inverted position. This problem is just one example of why you need special training in the use of a dry suit.

A compass is a magnet, and magnets attract one another. Placing your compass near your buddy's compass causes the needles to shift position and the readings to be inaccurate. You need to keep your compass away from any items that can cause the needle to deviate from its natural direction.

The best way to clean your diving equipment is to soak it in warm water, rinse it gently with flowing water, and dry it thoroughly before storing it. Some equipment parts, such as dry suit zippers, require scrubbing. Follow the manufacturer's instructions.

The attachments to a scuba regulator first stage may include a cylinder pressure gauge, a primary second stage regulator, an alternate air source second stage, a BC inflator hose, and possibly a dry suit inflator hose.

The water temperature affects the equipment you use, your body temperature, your diving procedures, the visibility underwater, and the underwater life, among other things. Water temperature has a profound impact on your diving adventures. Knowing what to expect and how to be prepared for the temperature of the water is essential.

Water visibility is affected by depth, pollution, water movement, weather conditions, algae, temperature, your movements, and other factors. Check present diving conditions with your local dive facility and postpone diving when visibility is poor.

A good way to manage currents is to know in advance what to expect. Obtaining training for diving in various currents is important. Being aware that the current is weaker at the bottom than at the surface is helpful. Swimming at right angles to a current may help you get out of some currents. Diving against the current is a common practice, but in some situations it is best to drift with the flow of the current.

When you encounter a strange animal underwater, respond by stopping movements, respecting the animal, observing it from a distance, and refraining from provoking or feeding the animal. Nearly all marine animals are defensive, not aggressive. Think and respond. The worst action to take when you see a strange or large animal is to panic and ascend rapidly to the surface.