The Villages Scuba Club

Preventing Out of Air Emergencies

Diver's Self-Study Module 12/28/2024

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I. INTRODUCTION:

This self-study module provides resources to assist divers in developing techniques to prevent them from running out of air. DAN reports, "41% of diver fatalities are caused by running out of air," due to ignorance or apathy. It presents techniques taught in basic and advanced scuba certification programs that divers often forget. By practicing these safety techniques, divers can reduce stress and virtually eliminate the risk of running out of air.

II. SELF-STUDY, PREVENTING OUT OF AIR EMERGENCIES. To use this self-study module:

1. Assess and build your air management knowledge by watching the *OUT OF AIR While Scuba Diving* video and noting the diver's air mistakes, safety decision points, and actions the diver could have taken to prevent running out of air. Then compare your notes to the list of mistakes in paragraph V. If you overlooked or do not understand the mistakes, continue studying this module until you do.
2. Practice these air management techniques until they become automatic and train your buddies to do likewise.

III. HAVE THE NECESSARY EQUIPMENT & PROFICIENCY TO MANAGE YOUR AIR SUPPLY:

1. Use and understand a pressure gauge and computer with gas/air/dive time remaining (and alarms) features to monitor air status. Be prepared to act at decision points:
2. Be proficient in air-sharing techniques by:
   a. Preparing for a panicked diver to snatch your regulator from your mouth.
   b. Giving the primary regulator to the out-of-air diver.
   c. Giving the octopus regulator to the out-of-air diver.
   d. Being competent in purging your regulator by exhaling or pushing the purge button.
3. Understand air-related signals (ref. 7) including:
   a. I am low on air.
   b. I am out of air.
   c. How much air do you have?
   d. I have __ psi/bar.
   e. Ascend.
   f. Go to the safety stop.
4. Dive your plan complying with the Divemaster's briefing and:
   a. Frequently check air pressure/dive time remaining and be ready for increased inhalation effort.
   b. Know the remaining buddy/group air status and dive time.
5. WHEN CONCERNED ABOUT RUNNING LOW ON AIR ACT AT DECISION POINTS:
   a. Get close to your buddy (or other diver), communicate air status, and prepare to share air.
   b. Closely monitor inhaling effort and air available; share air and ascend if inhalation effort increases.
   c. Conserve air:
      (1) Move higher in the water column following the group if current and surge permit.
      (2) Limit vertical movement, relax, put away the camera, swim slowly, and frog kick.
      (3) Make a slow, safe, angled ascent with your buddy following the Divemaster to the safety stop.
      (4) Prepare to share air.

6. ASCEND WHEN YOU ARE OUT OF AIR:

Consider yourself out of the air when you are not sure you have enough air to surface safely; it becomes hard to breathe; air pressure is at or below 300 psi/18 bar (or other specifying ascent pressure/alarm level).

a. Continue "Concerned About Running Low On Air" actions and:
b. IMMEDIATELY BEGIN (work toward) ASCENDING.
c. ASCEND at a safe speed, pausing for a safety stop if air is available.
   (1) ASCEND angling toward the Divemaster.
   (2) ASCEND directly to the surface.
d. Prepare to share air; be ready to make a Controlled Emergency Swimming Ascent with your regulator in your mouth while you attempt to breathe.

IV. VERIFY AIR SUPPLY AND COMPETENCE BEFORE YOU GET WET:

1. Check equipment and plan with your buddy to avoid air emergencies. Ensure your:
   a. Tanks are full.
   b. Verify the tank valve is fully open by breathing with the regulator while watching the pressure gauge/needle remain stable (bouncing pressure indicates the tank valve is not entirely open).
   c. Regulators, gauges, and computers are secured, alarms are set, and they function correctly.
   d. Buoyancy/trim (weight) is correct for the dive.
2. Ensure your Buddy has completed their equipment check, is prepared to share air, agrees on proximity, and communications, and is ready to comply with the Dive Master's briefing.

V. AIR MANAGEMENT DECISION POINTS AND SAFETY MISTAKES IN THE VIDEO:

1. The diver failed to dive with proper buoyancy and trim, prepare an adequate air/dive plan, dive with a buddy, close up when low on air, communicate air status, initiate air sharing, correctly react at 900, 400, 200, <100 psi, and when breathing became hard. He ignored decision points, swam excessively, moved his arms excessively (causing elevated breathing), didn't employ air-conserving techniques, descended while low on air, and incorrectly signaled.
2. Things they did correctly: they managed anxiety and remained relatively calm, didn't panic, didn't snatch the regulator, ignored the camera, focused on the air problem, attempted to communicate, and shared air.

VI. MORE TO CONSIDER:

Dive time/gas time remaining computers with alarms greatly simplify air management and make diving SAFER. Breathe a tank empty, so you will know by inhalation effort when it is empty and how many breaths remain when your gauge indicates zero pressure. Practice breathing from a free-flowing regulator. Check your air as you descend at the beginning of the dive. Secure your octopus so it doesn't damage the reef and you can locate it immediately when needed.

VII: REFERENCES:

1. Video: *Out of Air*, https://www.youtube.com/watch?v=30Dh0W_cPpg.
2. DAN's online (downloadable PDF) Smart Guide, *13 Ways to Run Out of Air & How Not To*, https://dan.org/health-medicine/health-resource/smart-guides/13-ways-to-run-out-of-air-how-not-to/.
3. Video: *How to perfect your trim position for scuba diving*, https://www.youtube.com/watch?v=swFWri2ln3c.
4. Video: *Improve Your Air Consumption - For beginners*, https://www.youtube.com/watch?v=eSiqY5qNHX8 .
5. Video: *What if you run out of air while scuba diving*? https://www.youtube.com/watch?v=G7kwYppP2zg.
6. Video: *Scuba Diving Hand Signals*, https://blog.padi.com/scuba-diving-hand-signals/.

Don't touch the coral!