



Smithsonian Institution

Diving Safety Regulations

It has long been the position of the Smithsonian Institution that the ultimate responsibility for safety rests with the individual diver. Buoyancy compensation is critical in slowing ascent rates and fundamental to safe diving practices.

A. Dive Computers

1. Only those makes and models of dive computers specifically approved by the SDCB may be used. In 2004, the SDCB has approved Suunto, Uwatec, and Orca Industries models.
2. Each diver relying on a dive computer to plan dives and indicate or determine decompression status must have his/her own unit and be proficient in its use. It is strongly recommended that each diver also dive with a back-up dive computer.
3. A diver should not dive for 18 hours before activating a dive computer to use it to control his/her diving. Once the dive computer is in use, it must not be switched off until it indicates complete off-gassing has occurred or 18 hours have elapsed, whichever comes first. Only 1 dive on the dive computer in which the NDL of the dive computer has been exceeded may be made in any 18 hour period.
4. On any given dive, both divers in the buddy pair must follow the most conservative dive computer.
5. If the dive computer fails at any time during the dive, the dive must be terminated and appropriate surfacing procedures should be initiated immediately.
6. Breathing 100% oxygen above water is preferred to in-water air procedures for omitted decompression.

B. Ascent Rates

7. Ascent rates shall be controlled at 30 fsw/min from 60' and not exceed 60 fsw/min from depth.
8. A stop in the 10-30 fsw zone for 3-5 min is required on every dive.
9. Dry suits shall have a hands-free exhaust valve.
10. A buoyancy compensator is required with dry suit use for ascent control and emergency flotation. BCs shall have a reliable rapid exhaust valve which can be operated in a horizontal swimming position.

C. Dive Profiles

11. Multi-day repetitive diving requires that a non-diving day be scheduled after 6 consecutive diving days.
12. Reverse dive profiles are not prohibited for no-decompression dives less than 130 fsw (40 msw) with depth differentials less than 40 fsw (12 msw).

D. Nitrox

13. A PO₂ of 1.6 atm is the maximum limit for nitrox use
14. Standard scuba equipment is approved for use with nitrox up to 40% oxygen content.
15. Oxygen analysis of the breathing gas is to be performed by the blender and/or dispenser and verified by the diver using a controlled-flow sampling device.

References:

- Lang, M.A. and R.W. Hamilton (eds.). 1989. *Proc. of the AAUS Dive Computer Workshop*. USC Catalina Marine Science Center. USC Sea Grant Publ. USCSG-TR-01-89. 231 p.
- Lang, M.A. and G.H. Egstrom (eds.). 1990. *Proc. of the AAUS Biomechanics of Safe Ascents Workshop*. Woods Hole, MA. American Academy of Underwater Sciences Publ. AAUSDSP-BSA-01-90. 220p.
- Lang, M.A. and J.R. Stewart (eds.). 1992. *Proc. of the AAUS Polar Diving Workshop*. La Jolla, CA. American Academy of Underwater Sciences Publ. AAUSDSP-PDW-01-92. 100 p.
- Lang, M.A. and R.D. Vann (eds.). 1992. *Proc. of the AAUS Repetitive Diving Workshop*. Duke University, NC. American Academy of Underwater Sciences Publ. AAUSDSP-RDW-02-92. 339 p.
- Lang, M.A. and C.E. Lehner (eds.) 2000. *Proc. of the Reverse Dive Profiles Workshop*. Smithsonian Institution, Washington, DC. 295 p.
- Lang, M.A. (ed.) 2000. *Proc. of the DAN Nitrox Workshop*. Divers Alert Network, Durham, NC. 197 p.