

## Validation of Dive Computers: Findings and Recommendations

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### **General community-specific requirements:**

- Accept that at present decompression sickness (DCS) is the measurable negative outcome;
- Specify acceptable level of DCS risk and how it is measured;
- Define window of applicability for the dive computer (DC);
- A dive planner to support the DC is required; and,
- Equipment functionality/functional safety must be documented and verified.

### **Findings applicable to commercial diving:**

- A DC is a risk management tool. The operational risk of DCS in the recreational and scientific diving communities is no worse than previous experience with sub-no-decompression diving compared to table use, primarily as the DCs are not pushed to their model or algorithm limits. There is no evidence that multi-level dives with DCs are more risky than square dives following the same algorithm;
- Documentation of theory (i.e., logic and equations) is required – what’s in the box;
- This documentation must include methods to test the implementation of the theory in the DC;
- Use a DCS-risk indicator model to validate the algorithm, or manufacturers may produce a DC with a validated and documented algorithm;
- Specify platform technical requirements; and,
- Develop and implement a configuration control plan.

### **Recommendations**

- The workshop advocates that a validated dive computer would be a useful tool for providing real-time decompression guidance for working divers;
- A mechanism for making judgment should be part of the system; and,
- Institute a Configuration Control Board to assess conformance with validation requirements, monitor DC operational performance, and specify diver education and training.