

2013 AAUS Standards Revisions Summary October, 2013

Overview

Since 2011, AAUS has been working with International Training (ITI) and Willis Insurance to provide a mechanism for AAUS to develop a recognized AAUS Certification Program. Updates on this project were presented at the 2012 Symposium in Monterey and in various *E-Slate* postings. A portion of this initiative required AAUS to implement some changes to our previous standards. In 2012, the ad-hoc certification committee worked with the standards committee and our partners at ITI to revise the AAUS standards, a draft of which was conditionally approved by the Board of Directors in February 2013. At the same time, the revised standards proposal was made available on the AAUS website for a 60-day review and comment period during which questions and concerns from the membership were addressed. Following membership review, a final draft of the standards revision was reviewed and approved by Board of Directors in May 2013.

The revisions/changes to the AAUS standards are mandatory for AAUS Members who choose to participate in the newly launched AAUS Certification Program. These revisions/changes will eventually become mandatory for all members at a date/time to be determined by the AAUS Standards committee.

Revisions to Sections 3.0 and 9.0 were minimal and are listed on the following pages [Highlighted/Bracketed] for simple reference. Revisions to Sections 4.0 and 5.0 are significant and are presented on the following pages with rationale presented below.

Sections 4.0/5.0 Rationale

The AAUS community had long struggled with the content and format of Sec. 4.0 and various attempts had been made to clarify, revise, or even eliminate this portion of the AAUS standard. Intended to serve as the training, qualification/certification, and equivalency/proficiency standard for non-divers, and/or certified divers entering an AAUS scientific diver program, the section met neither current industry standards, nor the needs of the AAUS community, and was widely believed to be essentially unused for entry-level diver training by most OMs. Following independent review of the current AAUS standards, request for changes to Section 5.0 were minimal; however, it was requested that Sec. 4.0 be significantly revised to more closely resemble the minimum standards presented in the WRSTC/ISO standards for entry-level diver certification. A summary of the process and changes is presented below; full details are presented on the following pages.

Section 4.0- Entry Level Training Requirements- In lieu of writing/promulgating AAUS specific standards for entry-level divers, AAUS has incorporated, by reference, the standards for entry-level diver training as defined by the WRSTC and/or ISO. AAUS programs who wish to train entry-level divers may do so using one of the following options:

- a) under the auspices and standards of an internationally recognized diver training agency.
- b) under the auspices of AAUS using the minimum guidelines presented by the most current version of the WRSTC and/or ISO entry-level diver standards.

Section 5.0- Scientific Diver Training- This section describes the minimum training and performance standards for AAUS Scientific Divers, and where applicable, incorporates elements previously described in Sec.4.0. As much as practicable, the content and language of the previous standard has been preserved.

SECTION 3.0 EQUIPMENT

3.10 General Policy

All equipment shall meet standards as determined by the Diving Safety Officer and the Diving Control Board. All equipment shall be regularly examined by the person using them, [and serviced according to manufacturer recommendations.] Equipment that is subjected to extreme usage under adverse conditions should require more frequent testing and maintenance.

SECTION 9.0 DECOMPRESSION

9.1 Minimum Experience and Training Requirements

c) Minimum Training shall include the following:

1. A minimum of 6 hours of classroom training to ensure theoretical knowledge to include: physics and physiology of decompression; decompression planning and procedures; gas management; equipment configurations; decompression method, emergency procedures, [omitted decompression].

7. Divers shall demonstrate to the satisfaction of the DSO or the DSO's [qualified] designee proficiency in planning and executing required decompression dives appropriate to the conditions in which diving operations are to be conducted.

9.30 Minimum Operational Requirements

k) If a period of more than 6 months has elapsed since the last ~~mixed-gas~~ ['decompression'] dive, a series of progressive workup dives to return the diver(s) to proficiency status prior to the start of project diving operations are recommended.

SECTION 4.0- ENTRY LEVEL DIVER TRAINING

Training and certification as an entry-level diver is a prerequisite to AAUS Scientific Diver Training. In lieu of writing/promulgating AAUS specific standards for entry-level divers, AAUS references here, the standards for entry-level diver training as defined by the WRSTC and/or ISO. AAUS programs who wish to train entry-level divers may do so using one of the following options:

- a) under the auspices and standards of an internationally recognized diver training agency.
- b) under the auspices of AAUS using the minimum guidelines presented by the most current version of the RSTC/WRSTC and/or ISO entry-level diver standards.

“Minimum Course Content for Open Water Diver Certification”- World Recreational Scuba Training Council (WRSTC), www.wrstc.com.

“Safety related minimum requirements for the training of recreational scuba divers -- Part 2: Level 2 -- Autonomous diver”. ISO 24801-2:2007- International Organization for Standardization (ISO)- www.iso.org.

SECTION 5.00 SCIENTIFIC DIVER TRAINING

This section describes the training and performance standards for AAUS Scientific Divers. These standards represent the minimum required level of knowledge and skills presented in a generalized format. Individual diving programs are encouraged to expand upon and augment these requirements, develop or utilize appropriate educational materials, and optimize instructional programs to suit and reflect their specific needs.

5.10 Prerequisites

Administrative-The applicant/candidate must complete all administrative and legal documentation required by the Organizational Member.

Diver Certification- The applicant/ candidate must, at minimum, show documented proof of entry-level diver certification from an internationally recognized training agency. As an alternative, AAUS OMs who wish to train and certify entry-level divers under AAUS auspices may do so under the guidelines presented in Section 4.0.

Medical Examination- The applicant/candidate must be medically qualified for diving as described in Section 6.0 of the AAUS Standards for Scientific Diving.

Swimming/Watermanship Evaluation- The applicant/candidate must demonstrate the following in the presence of the Diving Safety Officer, instructor, or other approved examiner. All tests are to be performed without swim aids, however, where exposure protection is needed, the applicant must be appropriately weighted to provide for neutral buoyancy.

- a) Swim underwater for a distance of 25 yards/meters without surfacing.
- b) Swim 400 yards/meters in less than 12 minutes.
- c) Tread water for 10 minutes, or 2 minutes without the use of hands.
- d) Transport a passive person of equal size a distance of 25 yards/meters in the water.

5.20 Training

The diver must complete theoretical aspects and practical training for a minimum cumulative time of 100 hours. Theoretical aspects shall include principles and activities appropriate to the intended area of scientific study.

Theoretical Training/ Knowledge Development

Required Topics:

1. Diving Emergency Care Training
 - Cardiopulmonary Resuscitation (CPR)
 - Standard or Basic First Aid
 - Recognition of DCS and AGE
 - Accident Management
 - Field Neurological Exam
 - Oxygen Administration

2. Dive Rescue
3. Dive Physics
4. Dive Physiology
5. Dive Environments
6. Decompression Theory and its Application
7. AAUS Scientific Diving Regulations and History
 - Scientific Dive Planning
 - Coordination with other Agencies
 - Appropriate Governmental Regulations
8. Scientific Method
9. Data Gathering Techniques (Only Items specific to area of study required)
 - Transect Sampling (Quadrating)
 - Transecting
 - Mapping
 - Coring
 - Photography
 - Tagging
 - Collecting
 - Animal Handling
 - Archaeology
 - Common Biota
 - Organism Identification
 - Behavior
 - Ecology
 - Site Selection, Location, and Re-location
 - Specialized Equipment for data gathering
 - HazMat Training
 - HP Cylinders
 - Chemical Hygiene, Laboratory Safety (Use Of Chemicals)

Suggested Topics:

10. Specific Dive Modes (methods of gas delivery)
 - Open Circuit
 - Hooka
 - Surface Supplied diving
11. Small Boat Operation
12. Rebreathers
 - Closed
 - Semi-closed
13. Specialized Breathing Gas
 - Nitrox
 - Mixed Gas
14. Specialized Environments and Conditions
 - Blue Water Diving,
 - Ice and Polar Diving (Cold Water Diving)
 - Zero Visibility Diving
 - Polluted Water Diving
 - Saturation Diving

- Decompression Diving
 - Overhead Environments
 - Aquarium Diving
 - Night Diving
 - Kelp Diving
 - Strong Current Diving (Live-boating)
 - Potential Entanglement
15. Specialized Diving Equipment
- Full face mask
 - Dry Suit
 - Communications

Practical Training/ Skill Development

Confined Water Evaluation

At the completion of training, the trainee must satisfy the Diving Safety Officer or the instructor of their ability to perform the following, as a minimum, in a pool or in sheltered water:

- a) Enter water with full equipment.
- b) Clear face mask.
- c) Demonstrate air sharing, including both buddy breathing and the use of alternate air source, as both donor and recipient, with and without a face mask.
- d) Demonstrate ability to alternate between snorkel and scuba while kicking.
- e) Demonstrate understanding of underwater signs and signals.
- f) Demonstrate simulated in-water mouth-to-mouth resuscitation.
- g) Rescue and transport, as a diver, a passive simulated victim of an accident.
- h) Demonstrate ability to remove and replace equipment while submerged.
- i) Demonstrate watermanship ability, which is acceptable to the instructor.

Open Water Evaluation

The trainee must satisfy an instructor, approved by the Diving Safety Officer, of their ability to perform at least the following in open water:

- a) Surface dive to a depth of 10 feet in open water without scuba.
- b) Demonstrate proficiency in air sharing as both donor and receiver.
- c) Enter and leave open water or surf, or leave and board a diving vessel, while wearing scuba gear.
- d) Kick on the surface 400 yards while wearing scuba gear, but not breathing from the scuba unit.
- e) Demonstrate judgment adequate for safe diving.
- f) Demonstrate, where appropriate, the ability to maneuver efficiently in the environment, at and below the surface.
- g) Complete a simulated emergency swimming ascent.
- h) Demonstrate clearing of mask and regulator while submerged.
- i) Demonstrate ability to achieve and maintain neutral buoyancy while submerged.
- j) Demonstrate techniques of self-rescue and buddy rescue.
- k) Navigate underwater.

- 1) Plan and execute a dive.

Checkout Dive/ Additional Experience

Practical training must include an Open Water checkout dive(s), with evaluation of the skills listed in Open Water Evaluation, with the DSO or qualified delegate followed by at least 11 ocean or open water dives in a variety of dive sites and diving conditions, for a cumulative bottom time of 6 hours. Dives following the checkout dive must be supervised by a certified Scientific Diver with experience in the type of diving planned, with the knowledge and permission of the DSO.

5.30 Examinations

Written- Before completing training, the trainee must pass a written examination that demonstrates knowledge of at least the following:

1. Function, care, use, and maintenance of diving equipment.
2. Physics and physiology of diving.
3. Diving regulations and precautions.
4. Near-shore currents and waves.
5. Dangerous marine animals.
6. Emergency procedures, including buoyant ascent and ascent by air sharing.
7. Currently accepted decompression procedures.
8. Demonstrate the proper use of dive tables.
9. Underwater communications.
10. Aspects of freshwater and altitude diving.
11. Hazards of breath-hold diving and ascents.
12. Planning and supervision of diving operations.
13. Diving hazards.
14. Cause, symptoms, treatment, and prevention of the following: near drowning, air embolism, carbon dioxide excess, squeezes, oxygen poisoning, nitrogen narcosis, exhaustion and panic, respiratory fatigue, motion sickness, decompression sickness, hypothermia, and hypoxia/anoxia.
15. Suggested topics (from Sec. 4.2) at the DSO's discretion.

Equipment- the trainee will be subject to examination/review of:

1. Personal diving equipment
2. Task specific equipment

5.40 Diver Permits/ Certifications

AAUS requires that no person shall engage in scientific diving unless that person is authorized by an organizational member pursuant to the provisions of this standard. Only a person diving under the auspices of the organizational member that subscribes to the practices of AAUS is eligible for a scientific diver certification.

Scientific Diver-In-Training Permit

This is a permit to dive, usable only while it is current and for the purpose intended. This permit signifies that a diver has completed and been certified as at least an entry level diver through an internationally recognized certifying agency or scientific diving program, and has the knowledge skills

and experience necessary to continue training as a scientific diver under supervision, as approved by the DSO.

Scientific Diver Certification

This permit signifies a diver has completed all requirements in Section 4.0 and is authorized by the AAUS OM to engage in scientific diving without supervision, as approved by the DSO. Submission of documents and participation in aptitude examinations does not automatically result in certification. The applicant must convince the Diving Safety Officer and members of the DCB that they are sufficiently skilled and proficient to be certified. This skill will be acknowledged by the signature of the Diving Safety Officer. Any applicant who does not possess the necessary judgment, under diving conditions, for the safety of the diver and their partner, may be denied organizational member scientific diving privileges.

5.50 Depth Certifications

Depth Certifications and Progression to Next Depth Level

A certified diver diving under the auspices of the organizational member may progress to the next depth level after successfully completing the required dives for the next level. Under these circumstances the diver may exceed their depth limit. Dives shall be planned and executed under close supervision of a diver certified to this depth, with the knowledge and permission of the DSO.

- a) Certification to 30 Foot Depth - Initial permit level, approved upon the successful completion of training listed in Section 4.00 and 5.30.
- b) Certification to 60 Foot Depth - A diver holding a 30 foot certificate may be certified to a depth of 60 feet after successfully completing, under supervision, 12 logged training dives to depths between 31 and 60 feet, for a minimum total time of 4 hours.
- c) Certification to 100 Foot Depth - A diver holding a 60 foot certificate may be certified to a depth of 100 feet after successfully completing, 4 dives to depths between 61 and 100 feet. The diver shall also demonstrate proficiency in the use of the appropriate Dive Tables.
- d) Certification to 130 Foot Depth - A diver holding a 100 foot certificate may be certified to a depth of 130 feet after successfully completing, 4 dives to depths between 100 and 130 feet. The diver shall also demonstrate proficiency in the use of the appropriate Dive Tables.
- e) Certification to 150 Foot Depth - A diver holding a 130 foot certificate may be certified to a depth of 150 feet after successfully completing, 4 dives to depths between 130 and 150 feet. The diver must also demonstrate knowledge of the special problems of deep diving, and of special safety requirements.
- f) Certification to 190 Foot Depth - A diver holding a 150 foot certificate may be certified to a depth of 190 feet after successfully completing, 4 dives to depths between 150 and 190 feet. The diver must also demonstrate knowledge of the special problems of deep diving, and of special safety requirements.

Diving on air is not permitted beyond a depth of 190 feet.

5.60 Continuation of Certificate

Minimum Activity to Maintain Certification

During any 12-month period, each certified scientific diver must log a minimum of 12 dives. At least one dive must be logged near the maximum depth of the diver's certification during each 6-month period. Divers certified to 150 feet or deeper may satisfy these requirements with dives to 130 feet or over. Failure to meet these requirements may be cause for revocation or restriction of certification.

Re-qualification of Depth Certificate

Once the initial certification requirements of Section 5.30 are met, divers whose depth certification has lapsed due to lack of activity may be re-qualified by procedures adopted by the organization's DCB.

Medical Examination

All certified scientific divers shall pass a medical examination at the intervals specified in Section 6.0. After each major illness or injury, as described in Section 6.0, a certified scientific diver shall receive clearance to return to diving from a physician before resuming diving activities.

Emergency Care Training.

The scientific diver must provide proof of training in the following:

- Adult CPR (must be current).
- Emergency oxygen administration (must be current)
- First aid for diving accidents (must be current)

5.70 Revocation of Certification

A diving certificate may be revoked or restricted for cause by the Diving Safety Officer or the DCB. Violations of regulations set forth in this standard, or other governmental subdivisions not in conflict with this standard, may be considered cause. Diving Safety Officer shall inform the diver in writing of the reason(s) for revocation. The diver will be given the opportunity to present their case in writing for reconsideration and/or re-certification. All such written statements and requests, as identified in this section, are formal documents, which will become part of the diver's file.

5.80 Recertification

If a diver's certificate expires or is revoked, they may be re-certified after complying with such conditions as the Diving Safety Officer or the DCB may impose. The diver shall be given an opportunity to present their case to the DCB before conditions for re-certification are stipulated.

5.90 Waiver of Requirements/Temporary Diver

A temporary diver permit constitutes a waiver of the requirements of Section 5.0 and is issued only following a demonstration of the required proficiency in diving. It is valid only for a limited time, as determined by the Diving Safety Officer. This permit is not to be construed as a mechanism to circumvent existing standards set forth in this standard.

Requirements of Section 5.0 may be waived by the Diving Safety Officer if the person in question has demonstrated proficiency in diving and can contribute measurably to a planned

dive. A statement of the temporary diver's qualifications shall be submitted to the Diving Safety Officer as a part of the dive plan. Temporary permits shall be restricted to the planned diving operation and shall comply with all other policies, regulations, and standards of this standard, including medical requirements.