

France

Except for underwater archaeology (see below), for all occupational scientific diving activities, training providers must be agreed by certification bodies (currently BCS; <http://www.bcs-certification.com/index.php/nos-expertises/hyperbare/>) accredited by the French Committee for Accreditation (fulfils the requirements of the standard NF EN ISO/CEI 17065, 2012). List of certified training organizations for occupational scientific diving activities updated to 27/09/2024 (only the main training site is mentioned below):

- Groupe de Recherche Archéologique Sous-Marine, 35 Anse du Pharo, 13007 Marseille (B 0, I, II)
- EPIR, Port de l'île Rousse, BP 141, 20220 ILE ROUSSE (B 0, I, II)
- LYCEE DE LA MER PAUL BOUSQUET, 112 rue des Cormorans, 34200 SETE (B 0, I)
- ECOLE NATIONALE DES SCAPHANDRIERS, 1196 Boulevard de la Mer, 83600 FREJUS (B 0, I, II, III)
- SNOTRA, 6 chemin de Sues, 13760 Saint Cannat (B 0, I, II)
- ANDROMEDE PLONGEE BIO, 7 place Cassan, Carnon plage, 34130 MAUGIO (B 0, I, II)
- ANODIA AQUADOMIA, 51 Avenue André Zenatti, Résidence Herold's Palace , 13009 MARSEILLE (B 0, I, II, III)
- CAP TREBEURDEN, Siège social: CENTRE ACTIVITES PLONGEE, 54 Corniche de Goas Treiz, 22560 TREBEURDEN (B 0, I, II, III)
- ARIMAIR Plongée, 400 rue Alain Colas, 29470 Plougastel-Daoulas (B 0, I, II, III)
- ASSOCIATION FORMATION SUBAQUATIQUE (AFS), 1 rue des Algues, 50110 TOURLAVILLE (B 0, I, II)
- UNDER THE POLE, 1 Rue des Senneurs, 29900 CONCARNEAU (B 0, I, II, III)
- DCI - Défense Conseil International - CIFPM, Centre Formation Plongée Militaire BAT R, Quai Ouest, Darse PEM Nord, 83430 SAINT MANDRIER S/MER (B 0, I, II, III)

NB: currently, university diplomas (DU) in scientific diving in marine and freshwater environments can be delivered within the framework of continuing education (Univ. Perpignan via Domitia-UPVD, univ. La Rochelle, Sorbonne university). In some cases, there is a partnership between the university organizing the DU and a certified training organization, leading, if the DU is obtained, to the issue of a CAH Class 0 or I mention B (ex. partnership between UPVD and the Lycée de la Mer Paul Bousquet, (Sète)).

Name of the training program is **CAH** Certificat d'Aptitude à l'Hyperbarie (CAH) mention B "techniques, sciences, pêche, aquaculture, médias et autres interventions), with 4 classes:

- 0: max 12m, HSE approved
- I: max 30m, HSE and IDSA approved
- II: max 50m, HSE approved
- III: beyond 50m

CAHs are valid 5 years; their renewal requires a refresher course in a certified training organization (1 to 2 days). Refresher training for the CAH is organized in the year preceding the expiration date of the certificate.

NB: Divers holding a valid CAH mention A (civil engineering) are entitled to participate in projects using occupational scientific diving.

Training objectives are:

1. to use his/her own equipment
2. to behave appropriately and master technical surface skills
3. to immerse and surface safely
4. to control ventilation when diving
5. to respond appropriately to the usual situations
6. to cite the basic theoretical principles
7. to move independently at - 12 meters
8. to master his/her autonomy at - 30 meters
9. to master his/her autonomy at - 50 meters
10. to master his/her autonomy beyond - 50 meters
11. to manage the collective equipment
12. to know the diving environment
13. to master mixed-gas diving

General topics

- theoretical knowledge of the regulatory provisions (Distinguish the fields of application of the different mentions (A, B, C, D), apply regulatory provisions to hyperbaric interventions, apply regulations related to the environment of interventions)
- theoretical knowledge related to professional activity (State the physical principles of hyperbarics, distinguish and prevent the physiological effects of hyperbaric exposure, apply the laws of physics relating to diving, prevent diving accidents and know how to react to them)
- materials and equipments (List means of collective protection, personal protective equipment and work equipment, cite the principles of equipment operation, maintenance and regulations, use collective and personal equipment related to different types of diving)
- organization of operations (using documents contributing to the protection and monitoring of workers, assessing risks, setting up, preparing and checking diving equipment, determining the composition of a diving team, adapting operations to environmental conditions)
- different intervention procedures (normal situation, degraded situation, emergency situation)

Class 0 (- 12 m)

- Control of intervention procedures down to - 12 m (find your bearings on the surface and underwater with and without instrument, carry out simple interventions down to - 12 m in compliance with current safety regulations)
- Freediving (Master the technique for operations down to -10 m maximum, apply freediving and rescue procedures)

Class I (- 30 m)

- Same as Class 0, but down to - 30 m, - 10 m for freediving, master the intervention procedures with gas-mixtures other than air

Class II (- 50 m)

- be able to orient oneself on the surface and underwater using the environment and instruments to find one's way, master the techniques to perform interventions down to -50 m in compliance with current safety regulations, master the intervention procedures with gas-mixtures other than air

Class III (>- 50 m)

- Orientation with instruments on the surface and underwater, master the techniques enabling operations to be carried out beyond - 50 m in compliance with current safety regulations, master the intervention procedures for binary and ternary gas-mixtures, master communication codes specific to deep technical intervention

That training program is **mandatory** for anyone working in a hyperbaric environment, including all scientists. The required entry level is equivalent to CMAS 3 stars (preferably) or CMAS 2 stars if the applicant has significant diving experience proven by its logbook. The applicant must present a valid professional diving medical examination.

Minimum duration of training has also been defined:

- Class 0 (- 12 m) 24 hours
- Class I (- 30 m) 49 hours
- Class II (- 50 m) 70 hours
- Class III (>- 50 m) 70 hours

The cost for the training programs are generally paid by the research units or by continuing education (CNRS, universities, IRD, etc.). The cost varies according to the training center and the certificate being prepared:

- refresher training: 400-1000 €
- B0: 1800-2500 €
- B1: 2400-3300 €
- BII: 3400-4400 €
- BIII: 3500-6500 €

Trainees are required to bring their personal diving equipment except tank, weight belt, and regulators. CCR is subject to a specific training (not included in the CAH training).

On completion of the training course, CAH competence is awarded by the certified training organization (independent of the research and teaching sectors).

Contact for more information: CNPS (Comité National de la Plongée Scientifique), Gérard Thouzeau, email gerard.thouzeau@univ-brest.fr