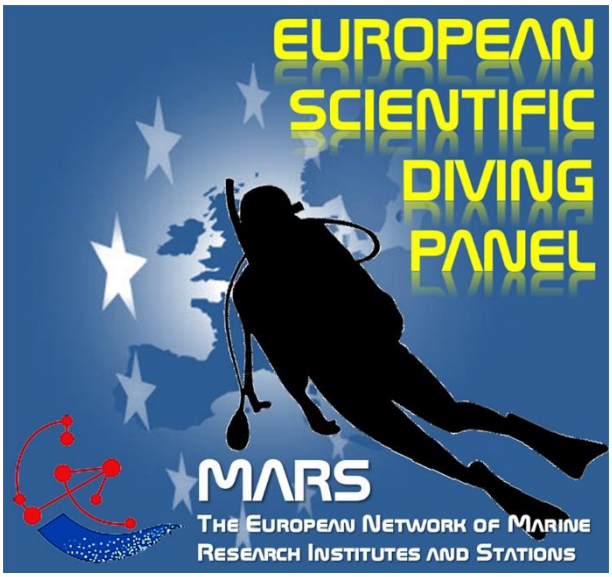
COMMON PRACTICES FOR RECOGNITION OF EUROPEAN COMPETENCY LEVELS FOR SCIENTIFIC DIVING AT WORK

European **S**cientific **D**iver **(ESD) A**dvanced
European **S**cientific **D**iver **(AESD)**



Consultation Document 1
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This consultation document is a product of the European Scientific Diving Panel (ESDP) which receives initial organizational support from the ESF Marine Board, then from the MARSnetwork. The information and advice provided herein does not necessarily reflect the broader opinion of all Marine Board or MARS member organizations. The document is designed to provide general guidelines on European Competency Levels for Scientific Diving at Work. While the document aims to promote the best interests of safety and the advancement of scientific diving in Europe, the responsibility for safe and legal diving operations lies entirely with the user of this information.

1 - PREFACE

The common practices for recognition of European competency levels for scientific diving at work as set out in this document have the following aims and objectives:

1.1 RATIONAL

Diving at work in support of science is regulated at national levels in many different ways across Europe. In accordance with **EU directive 2005/36/EC**, there is a requirement for an established methodology **to facilitate the recognition of original professional qualifications by other member states**. The EU also encourages **harmonization of work health and safety laws** in its member states through **Directive 89/391/EEC** as well as the **free movement of workers (TFEU 2007: Article 45 (Ex. Art. 39 TEC)**. This consultation document outlines a framework whereby competence levels achieved by an individual diver while at work or under training in their own country can be recognized by another EU Member State.

1.2 AIMS

To **create a framework** on which **competencies for scientific diving** recognized in different Member States under different training routes and differing levels of national legislation can be **translated** easily and effectively in order to **facilitate greater participation by scientists in diving-based pan- European research programmes**.

1.3 OBJECTIVES

Diving is a highly-productive, cost-effective research tool that supports underwater research through efficient and targeted sampling, quantitative survey, quantitative observation, making in situ measurement, undertaking impact studies, performing ecological analyses, evaluating new techniques, mapping underwater areas, profiling subtidal geology/geochemistry, and accurate deployment/retrieval of underwater apparatus.

The achievement of a common working framework will:

a. highlight and improve the **quality of science** achieved through the use of diving as an effective **research tool**;
b. raise the potential for **diving-based, multi-disciplinary** pan-European research programs;
c. create a **European research community united through the use of diving** as a research tool;
d. create **European forum for discussion and dissemination of advances in diving technologies and procedures** that would enhance scientific progress while maintaining and improving safe working practices.

1.4 TOOLS

The **European Scientific Diver (ESD)** and **Advanced European Scientific Diver (AESD) qualifications** recognize the current level of competency of an individual diving at work in their own country. These certified levels of competency then permit organizations in other Member States to recognize that level within their own national regulations. The ESD and AESD qualifications are, therefore, approved by national scientific diving committees that themselves are recognized by national regulating bodies.

The **European Scientific Diving Panel (ESDP) of the Marine Board of the European Science Foundation** is made up of representatives of Member State national scientific diving committees. As such, it **monitors the implementation of the ESD and AESD scheme and collates activity**; approval and adoption of the scheme can only be achieved through the national scientific diving committees.

1.5 EUROPEAN RECOGNITION OF DIVING COMPETENCY LEVELS

The **goals of the European Competency levels for Scientific Diving** are:

a. to harmonize standards of competence for scientific diving, gained by training, experience or both, and in doing so assure the mobility of fully trained scientific divers.
b. to establish a common format against which competence levels can be assessed.
c. to facilitate continued professional development through harmonized standards for scientific diver training.

2 - EUROPEAN COMPETENCY LEVELS FOR SCIENTIFIC DIVING

There are two different levels of recognition, **both of which are occupational**.

1. The **European Scientific Diver** (**ESD**);
2. The **Advanced European Scientific Diver** (**AESD**).

Both awards represent a minimum agreed training and attestation of competence which promote scientists to move freely throughout EU countries in order to co-operate on and participate in sub-aquatic research projects involving diving using SCUBA. The equivalence is issued following certification by authorized national agencies. Depth and breathing gas limitations may apply.

The ESD and AESD do not include any regulations such as insurance, medical examinations, employment rules, safety rules, diving limits, rules for recognition of national scientific diving schools, etc. These are covered by national law and European Directives. Neither do the ESD and AESD take account of any specialty requirements by employers. They simply **define the minimum basic training of a scientific diver as needed for mobility and as a basic training level on which the employer can build further training modules**.

National laws and regulations may regulate training but the minimum competency levels must be maintained.

Scientific diving training for these awards can be given by either one or a combination of more than one of the following:

a. a taught course.
b. a supervised program of continuous training and assessment carried out in a nationally recognized institution.
c. diving activities under the auspices of a nationally recognized diving training organization:

In all these cases, all dives must be logged and certified in the candidate's personal log. Any scientific dives must be further certified by the person responsible for diving safety at the scientific research institute for which they were undertaken.

A minimum of 18 years of age is required.

Both the ESD and AESD competency can be issued to members of permanent staff, contract staff, research students, technicians, and trainees or students of nationally recognized research institutions. The issuing institutions should be members of the national scientific diving authorities that are represented on the ESDP - statutory members (see Annex 1).

A scientific diver who satisfies these requirements will gain either a certificate an ESD or an AESD competency that is valid for five years (or for a period in balance with national laws). The competency certificate must then be renewed every five years by making an application to the issuing authority. Holders of these certificates must comply with all national and local rules concerning third party insurance, medical fitness, safety at work and scientific diving activities when diving in a host member country when they are engaged in scientific diving activities. The competency certificate only indicates the training level, and not the current level of diving competence.

2.1 The Advanced European Scientific Diver (AESD)

An Advanced European Scientific Diver is a diver capable of organizing a scientific diving team. He/she may attain this level by either a course or by in-field training and experience under suitable supervision or by a combination of these two methods.

The AESD must:

2.1.1 Show proof of theoretical knowledge and a comprehensive understanding of:

- 2.1.1.1 Diving physics and physiology, the causes and effects of diving related illnesses and disorders and their management.
- 2.1.1.2 The specific problems associated with diving to and beyond 30m, calculations of air requirements, correct use of decompression tables.
- 2.1.1.3 Equipment, including personal dive computers and guidelines as to their safe use.
- 2.1.1.4 Emergency procedures and diving casualty management.
- 2.1.1.5 The principles and practice of dive planning and the selection and assessment of divers.
- 2.1.1.6 Legal aspects and responsibilities relevant to scientific diving in Europe and elsewhere.
- 2.1.1.7 Dive project planning.

2.1.2 Be fully competent with/in:

- 2.1.2.1 Diving first aid, including CPR and oxygen administration to diving casualties.
- 2.1.2.2 Rescue techniques and management of casualties.
- 2.1.2.3 The use and user maintenance of appropriate diving equipment, such as dry suits and full face masks.
- 2.1.2.4 Basic small boat handling, and electronic navigation.
- 2.1.2.5 Supervision of diving operations.

2.1.3 Be fully competent with:

- 2.1.3.1 Search methods, such as those utilizing free swimming and towed divers together with remote methods suitable for a various range of surface and sub-surface situations.
- 2.1.3.2 Survey methods, both surface and sub-surface, capable of accurately locating and marking objects and sites.
- 2.1.3.3 The basic use of airbags and airlifts for controlled lifts, excavations and sampling.
- 2.1.3.4 Basic rigging and rope work, including the construction and deployment of transects and search grids.
- 2.1.3.5 Underwater navigation methods using suitable techniques.
- 2.1.3.6 Recording techniques.
- 2.1.3.7 Roped/tethered diver techniques and various types of underwater communication systems such as those utilizing visual, aural, physical and electronic methods.
- 2.1.3.8 Sampling techniques appropriate to the scientific discipline being pursued.

2.1.4 Show proof of having undertaken 100 open water dives, to include a minimum of:

- 2.1.4.1 50 dives with a scientific task of work, such as listed above.
- 2.1.4.2 10 dives between 20m and 29m.
- 2.1.4.3 10 dives deeper than 29m.
- 2.1.4.4 12 dives in the last 12 months, including at least 6 with a scientific task of work.
- 2.1.4.5 20 dives in adverse conditions, such as currents, cold water, or moving water.
- 2.1.4.6 20 dives demonstrating dive leadership.

All evidence must be recorded in nationally acceptable logs, countersigned by suitably qualified persons. None of the above precludes the possible requirement for a practical or theoretical demonstration of any or all of the points shown.

2.2 The European Scientific Diver (ESD)

A European Scientific Diver is **a diver capable of acting as a member of a scientific diving team**. He/she may attain this level by either a course or by in-field training and experience under suitable supervision or by a combination of these two methods.

The ESD must:

2.2.1 Show proof of basic theoretical knowledge and a basic understanding of:

- 2.2.1.1 Diving physics and physiology, the causes and effects of diving related illnesses and disorders and their management.
- 2.2.1.2 The specific problems associated with diving to and beyond 20m, calculations of air requirements, correct use of decompression tables.
- 2.2.1.3 Equipment, including personal dive computers and guidelines as to their safe use.
- 2.2.1.4 Emergency procedures and diving casualty management.
- 2.2.1.5 Principles of dive planning.
- 2.2.1.6 Legal aspects and responsibilities relevant to scientific diving in Europe and elsewhere.

2.2.2 Be fully competent with/in:

- 2.2.2.1 Diving first aid, including cardio-pulmonary resuscitation (CPR) and oxygen administration to diving casualties.
- 2.2.2.2 Rescue techniques and management of casualties.
- 2.2.2.3 The use and user maintenance of appropriate diving equipment.

2.2.3 Be fully competent with:

- 2.2.3.1 Search methods.
- 2.2.3.2 Survey methods, both surface and sub-surface, capable of accurately locating and marking objects and sites.
- 2.2.3.3 The basic use of airbags and airlifts for controlled lifts, excavations and sampling.
- 2.2.3.4 Basic rigging and rope work, including the construction and deployment of transacts and search grids.
- 2.2.3.5 Underwater navigation methods using suitable techniques.
- 2.2.3.6 Recording techniques.
- 2.2.3.7 Acting as surface tender for a roped diver.
- 2.2.3.8 Sampling techniques appropriate to the scientific discipline being pursued.

2.2.4 Show proof of having undertaken 70 open water dives, to include a minimum of:

- 2.2.4.1 20 dives with a scientific task of work supervised by a recognized research institution, such as listed above.
- 2.2.4.2 10 dives between 15m and 25m.
- 2.2.4.3 5 dives greater than 25m.
- 2.2.4.4 12 dives in the last 12 months, including at least 6 with a scientific task of work.

All evidence must be recorded in nationally acceptable logs, countersigned by suitably qualified persons. None of the above precludes the possible requirement for a practical or theoretical demonstration of any or all of the points shown.

ANNEX 1: Recognized National Authorities for Scientific Diving at Work in Europe (as of October 2022)

Harmonization of scientific diving competencies has to be recognized within the legal framework of the respective member states and has to be represented by authorities with a clearly defined national status. This Annex maintains an ongoing summary assessment of acknowledged scientific diving authorities in Europe with their nominated representatives. [Blue background = Statutory member country ⇒ Scientific Diving and National Scientific Diving Committee recognized by law, as well as ESD and AESD, or equivalent. *Legal texts and official list of the agreed formation centers* available]

MEMBER STATE	COMPETENT NATIONAL AUTHORITY	NATIONAL STATUS	NATIONAL REPRESENTATIVE AND ESDP MEMBER
Belgium	Belgian Working Group on Scientific Diving https://www.belspo.be/belspo/research/coop_diving_en.stm	The WG has been created at the Belgian Federal level under the Federal Public Service Belgian science policy	Alain Norro a.norro@mumm.ac.be
Bulgaria	Bulgarian National Association of Underwater Activity (BNAUA) http://www.bnaua.org/?q=en/node/51	*OSD is not recognized by law*	Dimitar Berov dimitar.berov@gmail.com
Croatia	KZRH, Kordinacija znanstvenih ronilaca Hrvatske, CSDC, *Coordination of Scientific Divers of Croatia* http://csdcroatia.wixsite.com/csdc	KZRH is a legal non-governmental organization *OSD is not recognized by law*	Donat Petricioli donatpetricioli@gmail.com
Cyprus	*Candidate member*	*OSD is not recognized by law*	Louis Hadjiaoannou louis.hadjioannou@cmmi.blue
Finland	Suomen tutkimussukelluksen ohjausyhdistys *Finnish Scientific Diving Steering Association (FSDSA)* http://tutkimussukellus.net	The FSDSC is recognized by the Finnish Examination Board for Professional Diving (Ministry of Education)	Jouni Leinikki jouni.leinikki@alleco.fi
France	Comité National de la Plongée Scientifique (CNPS) *National Committee for Scientific Diving* http://www.imbe.fr/comite-national-de-la-plongee.html	The CNPS is the national authority to represent occupational scientific diving in France. Training and activities are outlined by the law (Ministry of Labor).	Jean-Pierre Féral jean-pierre.feral@imbe.fr
Germany	Kommission Forschungstauchen Deutschland (KFT) *German Commission for Scientific Diving* http://www.forschungstauchen-deutschland.de	The KFT is the single authority recognized by the German Statutory Accident Insurance (German Government body responsible for occupational health and safety)	Philipp Fischer philipp.fischer@awi.de
Gibraltar	Gibraltar Scientific Diving Committee (GSDC) *Candidate member*	Department of Environment, Sustainability, Climate Change (DESCCH) *OSD is not recognized by law*	Clive Crisp clive.crisp@gibraltar.gov.gi
Greece	*Candidate member*	Hellenic Centre for Marine Research (HCMR) *OSD is not recognized by law*	Wanda Plaiti wanda@hcmr.gr
Italy	Associazione Italiana Operatori Scientifici Subacquei (AIOSS) *Italian Association of Scientific Divers* http://www.aioss.info/default_e.asp	Non-profit association (Code of practices approved by Ministry of Labor) *OSD is not recognized by law*	Massimo Ponti massimo.ponti@unibo.it
Netherlands	The Dutch Scientific Diving Platform (DSTP) https://www.dutchscientificdiving.nl/en/dutchscientificdiving.htm *Candidate member*	*OSD is not recognized by law*	Tinka Murk tinka.murk@wur.nl

Norway	Norske Vitenskapelige Dykkere *Norwegian Scientific Divers* http://scientificdivers.no/	Norwegian Labor Inspection Authority	Pernilla M. Carlsson pernilla.carlsson@niva.no
Poland	Polish Committee on Scientific Diving (PCSD) *Candidate member*	*OSD is recognized by law (since 2003)*	Piotr Balazy balazy@iopan.pl
Portugal	Associação Portuguesa de Mergulho Científico (APorMC) *Portuguese Scientific Diving Association* https://apormc.wordpress.com/	Non-profit organization that aims to promote the use of diving as a scientific tool *OSD is not recognized by law*	Diogo Paulo ccmardiving@ualg.pt
Slovenia	*Candidate member*	*OSD is not recognized by law*	Borut Mavrič borut.mavric@nib.si
Sweden	Swedish Scientific Diving Committee (SSDC)	The SSDC is recognized by the Swedish Armed Forces (vocational certificate issuer) as the single organization representing scientific diving in Sweden	Gunnar Cervin gunnar.cervin@marine.gu.se
The United Kingdom	UK Scientific Diving Supervisory Committee (SDSC) http://www.uk-sdsc.com	The SDSC is the single authority recognized by the UK Health and Safety Executive to represent the Scientific and Archaeological diving industry sector	Martin Sayer martin.sayer@tritoniascientific.co.uk