

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

**European Scientific Diver (ESD) Advanced**  
**European Scientific Diver (AESD)**



## **Consultation Document 1 (rev. 1)**

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This consultation document is a product of the European Scientific Diving Panel (ESDP) which receives organizational support from the Marine Board. The information and advice provided herein does not necessarily reflect the broader opinion of all Marine Board 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**. This 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** recognised 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 programmes;
- c. create a **European research community united through the use of diving** as a research tool;
- d. create a **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** recognise the current level of competency of an individual diving at work in their own country. These certified levels of competency then permit organisations in other Member States to recognise that level within their own national regulations. The ESD and AESD qualifications are, therefore, approved by national scientific diving committees that themselves are recognised 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 harmonise 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 harmonised standards for scientific diver training.

## **2 - EUROPEAN COMPETENCY LEVELS FOR SCIENTIFIC DIVING**

There are two different levels of recognition, both of which are professional.

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 authorised 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 speciality 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 programme of continuous training and assessment carried out in a nationally recognised institution;
- c. diving activities under the auspices of a nationally recognised diving training organisation:

In all of 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.

Certificates providing equivalence to the ESD and AESD reference levels (the so-called standards) are issued to members of permanent staff, contract staff, research students, technicians, and trainees or students of nationally recognised research institutions. The issuing institutions must be members of the national scientific diving bodies represented at the ESDP (*see Annex 1*).

A scientific diver who meets these requirements will obtain either a certificate corresponding either to the ESD or AESD reference level that is valid for a period as stipulated in the national legislation of the Member State of which they are a national. The ESD and AESD reference levels only indicates the training level, and not the current level of diving competency..

## **2.1 The Advanced European Scientific Diver (AESD)**

An Advanced European Scientific Diver is **a diver capable of organising 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 utilising 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 utilising 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 20 dives deeper than 20m of which 10 dives deeper than 29m.
  - 2.1.4.3 12 dives in the last 12 months, including at least 6 with a scientific task of work.
  - 2.1.4.4 20 dives in adverse conditions, such as currents, cold water, or moving water.
  - 2.1.4.5 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 recognised research institution, such as listed above.
  - 2.2.4.2 15 dives deeper than 15m of which of 5 dives deeper than 25m.
  - 2.2.4.3 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: Recognised National Authorities for Scientific Diving at Work in Europe (as of April 2017)**

Harmonisation of scientific diving competencies has to be recognised 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.

<b>MEMBER STATE</b>	<b>COMPETENT NATIONAL AUTHORITY</b>	<b>NATIONAL STATUS</b>	<b>NATIONAL REPRESENTATIVE AND ESDP MEMBER</b>
<b>Belgium</b>	Belgian Working Group on Scientific Diving	The working group has been created at the Belgian Federal level under the Federal Public Service Belgian science policy.	Alain Norro alain.norro@naturalsciences.be
<b>Bulgaria</b>	Scientific Diving Commission at the Bulgarian National Association for Underwater Activities (BNAUA)	-	Dimitar Berov dimitar.berov@gmail.com
<b>Croatia</b>	KZRH, Kordinacija znanstvenih ronilaca Hrvatske, CSDC, <i>Coordination of Scientific Divers of Croatia</i> <a href="http://csdcroatia.wixsite.com/csdc">http://csdcroatia.wixsite.com/csdc</a>	The KZRH is a legal association, with its statute and it has all the legal documents that Croatian law for non-governmental organizations is requiring	Donat Petricioli donatpetricioli@gmail.com
<b>Finland</b>	Suomen tutkimussukelluksen ohjausyhdistys <i>Finnish Scientific Diving Steering Association (FSDSA)</i> <a href="http://tutkimussukellus.net">http://tutkimussukellus.net</a>	The FSDSC is recognized by the Finnish Examination Board for Professional Diving (Ministry of Education)	Jouni Leinikki jouni.leinikki@alleco.fi
<b>France</b>	Comité National de la Plongée Scientifique (CNPS) <i>National Committee for Scientific Diving</i> <a href="http://www.imbe.fr/comite-national-de-la-plongee.html">http://www.imbe.fr/comite-national-de-la-plongee.html</a>	The CNPS is the national authority to represent occupational scientific diving in France. Training and activities are outlined by the law (Ministry of Labour).	Jean-Pierre Féral jean-pierre.feral@imbe.fr
<b>Germany</b>	Kommission Forschungstauchen Deutschland (KFT) <i>German Commission for Scientific Diving</i> <a href="http://www.forschungstauchen-deutschland.de">http://www.forschungstauchen-deutschland.de</a>	The KFT is the single authority recognised by the German Statutory Accident Insurance (German Government body responsible for occupational health and safety)	Philipp Fischer philipp.fischer@awi.de

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<b>Greece</b>	Hellenic Centre for Marine Research (HCMR)	HCMR is permitted by national legislation to self-regulate its diving activities.	Thanos Dailianis thanosd@hcmr.gr
<b>Italy</b>	Associazione Italiana Operatori Scientifici Subacquei (AIOSS) <i>Italian Association of Scientific Divers</i>	Labour association. Code of practices approved by Ministry of Labour	Massimo Ponti massimo.ponti@unibo.it
<b>Norway</b>	Norwegian Scientific Divers	Scientific diving in Norway is regulated by the Norwegian Labour Inspection Authority, under the national regulations for professional diving.	Mats Waldey mats.walday@niva.no
<b>Portugal</b>	Portuguese Scientific Diving Association (APorMC)	Non-profit organization that aims to promote the use of diving as a scientific tool.	Pedro Neves nevesdiver@gmail.com
<b>Sweden</b>	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.	Maria Asplund maria.asplund@bioenv.gu.se
<b>UK</b>	UK Scientific Diving Supervisory Committee (SDSC) <a href="http://www.uk-sdsc.com">http://www.uk-sdsc.com</a>	The SDSC is the single authority recognised by the UK Health and Safety Executive to represent the Scientific and Archaeological diving industry sector	Martin Sayer mdjs@sams.ac.uk