



Application of the
**European Scientific
Diving Committee (ESDC)**
to become a panel of the
Marine Board - ESF



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Rationale

Scientific diving is an indispensable research tool that supports a wide range of aquatic science disciplines as well as underwater archaeology and European water body management (Fischer 2006, Sayer 2007_a) throughout most global environments (Lang & Sayer 2007; Sayer 2007_a; Sayer *et al.* 2007_a). In addition to surface operated sampling from European research vessels, medium and deep water landers, and the application of remotely operated (ROV) and autonomous underwater vehicles (AUV), scientific diving is an essential tool that supports cutting-edge aquatic sciences world wide both in marine and freshwater environments (Féral 2007_{a, b & c}, Fischer *et. al* 2007, Lang 2007; Sayer 2007_{a & b}; Sayer *et al.* 2007_a). Diver-supported aquatic research allows for high-quality, highly-selective, accurately-repeated and ecologically-compatible research (Bussmann *et al.* 2007, Keskinen & Arponen 2007, Kuklinski 2007, Sayer 2007_a, Schröder & Krone, 2007). Today, scientific diving is considered an essential tool for many research projects, predominantly in depth ranges of between 0 and 50m water depth but with the technical capability of now going deeper and longer (Lang & Smith 2006; Sayer 2006).

Diving is an investigative tool that is employed widely throughout Europe in support of a large number of high-quality marine research programmes over a wide range of scientific disciplines (Sayer 2007_a). It acts as a cost-effective and versatile vehicular platform that can deliver sustainable collection, quantitative observation and *in situ* measurement, both for biotic and abiotic targets. Often diving supports especially complex experimental work, sometimes in restrictive environments (e.g. under ice, in caves, around reefs), and presents the scientist the opportunity for direct access to their work under water. Furthermore, scientific diving is an indispensable tool for research in coastal water bodies which, according to the latest IPCC-report (2007), are the most vulnerable marine environments to the effects of global warming. There is a clear need for the development of “intelligent monitoring systems” which, in coastal water bodies, can be achieved much more efficiently and cost effectively by combining scientific skills and capabilities under water with technologies such as ROV, AUV or landers.

Scientific diving throughout the world has an extremely good safety record (Carter *et al.*, 2005; Lang, 2005; Sayer 2005; Sayer & Barrington 2005; Dardeau & McDonald 2007; Sayer *et al.* 2007_b). However, through its very nature, many national legislators view occupational scientific diving as carrying a higher than normal risk (Sayer 2004; Sayer & Forbes 2007). Because of this, many countries insist on scientific divers having varying levels of training and qualifications in order to dive as part of their work. Although these qualifications have many commonalities between nations it has been evident for some time that national consideration may impede the ability to use scientific diving easily between all nations that may partner pan-European research programmes. As well as imposing financial penalties on programmes wishing to engage in trans-national diving research programmes, different

national approaches may now infringe European Union working directives (e.g. Directive EC/2005/36).

These issues were foreseen and in the late 1980s scientists who were using diving in their research sought to initiate the harmonization of the rules and procedures for scientific diving in Europe. This resulted¹ in the development of two European scientific diving standards: that of European Scientific Diver (ESD) and of Advanced European Scientific Diver (AESD). However, because of several administrative constraints, these two proposed international standards were never adopted officially as European standards for scientific diving. Even without official recognition, the quality and widespread acceptance of these draft standards by much of the European scientific community has resulted in them already becoming adopted within the health and safety legislation of some EU countries (to date: DE, FI, FR, SE, UK) and in some European standards (e.g. see page 3 of EN ISO 19493).

Since the publication of the 2000 draft standards, there have been an increasing number of aquatic-aligned EU-projects on world-wide relevant topics like global climate change and biodiversity but also an increasing number of international relevant archaeological projects with respect to the UNESCO world heritage program. This increase in diving-supported research has highlighted the need to develop a harmonised capability for scientific diving within the EU. Doing so will become increasingly important in order to facilitate scientific excellence in diving-supported programmes within the EU-research framework. In addition, it will establish an organisational structure within the developing European Research Area (ERA) similar to other already established equivalent organizations, such as AAUS (USA), or AMSA-ANZSDA (Australia and New Zealand). In all circumstances, it is essential to ensure that all advances in scientific endeavour are achieved within acceptable safety levels.

For these reasons, in 2007, the EU-member states Belgium, Finland, France, Germany, Italy, Poland, Sweden, and United Kingdom started a new EU-wide initiative to establish a topic focused pan-European platform to advance diving-supported science. As well as promoting and enhancing scientific excellence, the initiative also sought to establish harmonized rules and guidelines. Based on two international workshops in Berlin and Bremerhaven (Germany) in 2007, the **European Scientific Diving Committee (ESDC)** was established and formally constituted in October 2007 in Bremerhaven with the following main objectives:

1. To advance underwater scientific excellence in Europe through:
 - organising conferences, workshops, courses and publications where scientific diving is promoted as a research tool;
 - facilitating an annual meeting to initiate synergies, present national status and development reports, and enhance advances in dive technologies and procedures;
 - encouraging European funded research networks that employ scientific diving;
 - the continual improvement and extension of the methodology of diver-supported research beyond actual state-of-the-art methods and to seek out and validate new technologies which will underpin future gains in knowledge;
 - the identification of potential synergies and gaps with other scientific techniques through networks, such as OFEG or ERVO, making use of the existing research to turn knowledge into value added products and services.
2. To promote scientific diving across Europe through:
 - facilitating a pan-European framework that encourages sectorial best practice;

¹ Interim ESDC meeting, 24 oct. 2000, Banyuls-sur-Mer, France with BE, DE, FI, FR, NL, SE attending.

- advising on the establishment of national scientific diving committees where they do not exist.
3. To encourage international mobility in the European scientific diving community through the implementation of a practical support framework by:
- promoting the widespread recognition of the ESD and AESD as the minimum standards for scientific diving by assuring their acceptance as primary qualifications;
 - organising training on specific scientific and technological topics;
 - facilitating, promoting and maintaining communication with and between national scientific diving organisations;
 - the development and maintenance of a European database of scientific divers, activities and expertise as well as infrastructure support;
 - facilitating the development of partnerships within and outside Europe in the field of diving supported science;
 - continuous information exchange between the Marine Board and the proposed Marine Board panel ESDC.

The structure and organisation of the ESDC

As of January 2008, the following persons have been nominated as the representatives of their countries: Alain Norro (Belgium), Jouni Leinikki/Juha Flinkman (Finland), Jean-Pierre Féral (France), Philipp Fischer (Germany), Giorgio Caramanna (Italy), Barbara Swerpel (Poland), Roger Lindblom (Sweden) and Martin Sayer (United Kingdom). J.-P. Féral has been appointed as the chairman of the committee, and P. Fischer and M. Sayer as deputy chairmen.

The ESDC is working toward a format whereby the status of membership is indicative of the present structure that supports scientific diving at the national level. The three different levels of membership: full members, associated members, and committed members.

1. **Full members (FM):** FM must have implemented the ESD and AESD qualifications as the primary standards for scientific diving in their country. FM must accept ESD/AESD certificates from other states on a full reciprocal basis. FM must have in place a committee that represents their national scientific diving community and has a recognised status with a national authority that has responsibility for scientific diving.
2. **Associated members (AM):** AM must have in place a committee that will represent their national scientific diving community. AM must be supported by, or seeking support from, a relevant national authority and must demonstrate that there is an intention to implement the ESD and AESD qualifications as the primary standards for scientific diving in their country.
3. **Committed members (CM):** CM should demonstrate the support of their national scientific diving community and the intention and mechanism to develop a national committee that will represent their scientific diving community. CM should furthermore demonstrate an implementation framework by which the ESD and AESD qualifications can become assured standards for scientific diving in their country and recognised by relevant national authorities.

Plans for the ESDC

A main goal of the ESDC for the near future is the recognition of the ESDC as the primary EU-panel for scientific diving across Europe with the responsibility for promoting associated marine underwater sciences. An EU-wide coordination of diver supported research activities that are presently mainly conducted at the national level will provide the framework for significant synergistic opportunities with concomitant enhanced quality and quantity of aquatic research across Europe. In bringing together the national member organisations for scientific diving, the ESDC will:

- share information on scientific diving across Europe by initiating regular workshops (like the 1st International Symposium on Occupational Scientific Diving, Germany 2007 and the upcoming 2nd International Symposium on Occupational Scientific Diving Finland in 2008);
- identify national and international related problems and find appropriate solutions;
- develop strategies for synergistic diver supported research across Europe;
- facilitate improved access and efficient use of scientific diving infrastructure across Europe like European research vessels qualified to support scientific diving (e.g. ERVO²), decompression chambers in European countries (www.oxynet.org) and European marine research stations (MARS-Network) equipped with appropriate facilities to support scientific diving;
- compile and publish position papers to give advice on strategic and scientific policy related to marine sciences and technology at a European level (i.e. 7th Framework Program, Green Paper on Future Maritime Policy and the European Strategy Forum on Research Infrastructures).

Besides the necessary conceptual work with respect to the development of EU-harmonised guidelines for scientific diving (e.g. for conducting scientific dive missions from European research vessels, from land based European Research Stations or in extreme environments, such as the polar regions), the ESDC shall, in particular, promote and initiate benchmark projects in the field of diver supported aquatic sciences. To achieve this, the ESDC shall be established as the recognised forum of European experts in scientific diving in order to provide a think tank based synergistic environment for prospective developments in the future of this research technique.

Based on the above goals, the ESDC will work toward initiating and supporting national but EU-open training programmes (basic and advanced skills) for scientific personnel in addition to training courses for specialised techniques in research diving. These initiatives would complement the developing policies of DG MARE.

² The ERVO group recommends that over the coming years and with a high priority, the commission may support and co-ordinate initiatives for replacing the ageing European Regional Class research fleet. Additionally, it is suggested that the EU Maritime Policy Green Paper consider initiatives that may lead to a European unified legislation regarding scientific diving from research vessels. (EU Maritime Policy Green Paper "Towards a future for the Union: A European Vision for the Oceans and Seas")

Concluding statement

In order to support and further develop diving as a valuable research tool for aquatic sciences across Europe over the next decades it is essential that the ESDC becomes recognised as part of the formal structure of the EU funding and support framework. To this end, the initiators and current representatives of the 2007 established ESDC apply for the appointment of the **ESDC as a *Marine Board panel of the European Science Foundation***.

On behalf of the interim ESDC membership:

Dr. Jean-Pierre Féral, Chairman of the ESDC, CNRS/INSU, Comité National de la Plongée Scientifique, FR.

Dr. Martin Sayer, Deputy chairman of the ESDC, SAMS/NERC, Scientific Diving Supervisory Committee, UK.

Priv. Doz. Dr. Philipp Fischer, Deputy chairman of the ESDC, AWI, Kommission Forschungstauchen Deutschland, DE.

Dr. Jouni Leinikki, committee member, Alleco Oy., Tervalampi, Suomen tutkimussukelluksen ohjauskomitea, FI.

Dr. Roger Lindblom, committee member, GU, Göteborg, SE.

Dr. Alain Norro, committee member, RBINS/MUMM, Bruxelles, BE.

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⁴ http://www.com.univ-mrs.fr/DIMAR/Scientific%20Diving/docs/bremerhaven_II_JPFeral.pdf

⁵ <http://www.com.univ-mrs.fr/DIMAR/Scientific%20Diving/docs/bremerhaven15102007.pdf>

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