Mobility of scientists using SCUBA diving in Europe
A challenge faced by the European scientific diving panel – ESDP
Heraklion – November 28th, 2018

Report by Jean-Pierre Féral
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Scientific Diving (SD):
The purpose of SD is the undertaking and delivery of underwater science

It is needed:
• to support research and education
• for the protection and conservation of the natural and cultural environment

It is neither recreational nor commercial diving

SD exists in a health and safety framework that involves certified scientific divers, diving officers, scientific project leaders, heads of laboratories, administrators and legislators.
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• where the effects of the climate changes will be the greatest, and then
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→ to be rapidly and efficiently managed
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• accurate deployment/retrieval of underwater apparatus.

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SD mitigates or solves difficulties related to:

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• **POSITIONING** of the objects studied
  → GPS gives an accuracy of 2 - 3 m (better with a differential GPS)
  → centimetric positioning may be obtained in 20 - 30 sec with an “aqua-metre” which is manipulated in → **SCUBA diving**
Diving equipment considerations

Very cold water diving
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- **Closed Circuit Rebreather (CCR)** can further extend bottom time conserving safety factor unchanged (specific formation needed for a given CCR)
- Operation to a depth of 100 m using different gas mixtures: Trimix \([\text{He} + \text{O}_2 + \text{N}_2]\) / Heliox \([\text{He} + \text{O}_2]\) / Heliair \([\text{He} + \text{air}]\). Even deeper operation could be undertaken
Why a European organization is needed?

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That’s the challenge taken up by the
A brief history of Scientific Diving in Europe

1972
- Brussels workshop
- Standards’ first draft

1974
- Elba training course

2000
- Brussels workshop
- Banyuls-sur-Mer workshop

October 2008
- Application to become a panel of the European Scientific Diving Panel

2008-2017
- Application of the ESDC to become an ESF-MB panel
ESDC members which applied to be a panel of the ESF Marine Board
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http://ssd.imbe.fr
ESDP : European Scientific Diving Panel

The European Scientific Diving Panel (ESDP) acts as an operational platform to advance underwater scientific excellence and to promote and implement a practical support framework for scientific diving-related activities.

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

The aims of the ESDP are to maintain and further develop 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 while continuing to advance collectively the available underwater techniques and technologies.

- encouraging international mobility in the European scientific diving community.
- promoting safety in scientific diving across Europe
- advancing underwater scientific excellence in Europe

- NEWS, click here to go
- SD purpose
- SD aligned European Standards
- SD membership
- Brief history of the European Scientific Diving Panel
- Contact

ESDP documents
ESDP meeting minutes
ESDP presentations
ESDP database
for the recognition of national licences for scientific diving in European countries
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4- By organizing workshops and web mediated discussions, the ESD panel helps to spread the best practice of diving and working under water, allowing technical progress and synergy which will make it possible to write common proposals and answer international calls.
In addition to the organizational aspect of its activity, ESDP is a focused and technical panel which delivers concrete outputs in the form of European scientific diving standards and consultation documents on the following topics:

- Common Practices and EU Competency levels
- Delivery of science through diving
- Scientific Diving from large Research vessels
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ESDP is currently working on:

- Scientific Diving medical examinations in Europe, USA and New Zealand - lead M. Sayer, UK
- Scientific Diving requirements facilitating safe mobility of scientific divers within Europe - lead J.-P. Féral, FR
- The benefit and use of rebreathers in Scientific Diving - lead A. Norro, BE
ESDP also highlights the usefulness of SD as a feasible, cost effective and safe tool for research (dissemination activities):

A recent survey carried out at a European scale demonstrated that from 2011-2015 over 60 articles published in journals with **ISI Impact Factor of 5 or higher** (covering disciplines like Ecology, Climate Change / Ocean Acidification, Science-based Archaeology, Geochemistry, Polar Biology, Conservation Biology and Genomics) have been **based on indispensable SD activities**.

Such initiative will be repeated in the near future.
To be a European Marine Board panel made it possible and catalysed the action

→ To pursue and develop the ESDP action through the MARS network

Interacting with the American Academy of Underwater Sciences (AAUS) and the National Association of Marine Laboratories (NAML)
What do we expect of becoming a panel of the MARS network?

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5- To keep an OFFICIAL STATUS in order to make it possible for the ESDP to approach other organizations for funding.
ESDP contribution to the MARS network activity

ESDP may reinforce several MARS major axes such as ➔

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- Contribute to the organisation of symposia, workshops, capacity building and specific training
The purpose of Scientific Diving (SD) is to facilitate research through safe and professional underwater operations. SD supports professional research and education as well as the collection, conservation, and monitoring of the natural and cultural environment. SD is a highly productive, cost-effective research tool. It is neither recreational nor commercial diving. It provides the technical capability to be an "intelligent monitoring system", greatly extending the possibilities of ship supported/deployed monitoring techniques. Scientific diving exists in a health and safety framework that involves certified scientific divers, diving officers, scientific project leaders, heads of laboratories, administrators, and legislators. The most of SD throughout Europe is done in connection with marine research institutes and stations.

The European Scientific Diving Panel
The European Scientific Diving Panel (ESDP) is the European platform for the active promotion of scientific diving as a research tool in Europe.
Thank you for your attention

The European MARS core group of marine station directors, at UNESCO headquarters, Paris in 1991

From left to right: G. Bernardi (Naples, IT), P. Lasserre (Roscoff, FR), E. Bonsdorff, (Abo, FI), F. Buchholz (Helgoland, DE), J.-P. Féral (Banyuls, FR), C. Heip (Yerseke, NL), S. Hawkins (Plymouth, UK), and A. Eleftheriou (Crete, GR)