



## Science Diver in the Blue Economy Era - International Conference

20-21 April 2023 – Valletta, Malta

### **ABOUT BENEFITS OF COURSES FOR SCIENTIFIC DIVERS IN BULGARIA, TOPIC TRENDS, CONSECUTIVE METHODOLOGY CHANGES, SOCIAL DEMAND AND INVESTIGATIONS OF WATER HABITATS BY SCIENTIFIC DIVING METHODS**

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### **ABSTRACT**

Teaching in regular scientific diving courses in Bulgaria started nine years ago. First such course was carried out in August 2014, based on CMAS standards. The motivation was called forth by the local social demand, arising parallel to the global interest. The initial efforts were aided by descent traditions in the subject.

The courses were organized by Bulgarian Association for Under Water Activities, Bulgarian under water scientific panel and Institute of Oceanology – Bulgarian Academy of Science (IO-BAS). Several lecturers were from Sofia University (SU), Institute of Biodiversity and Ecosystem Research – BAS (IBER-BAS), Centre for Underwater Archaeology (CUA) and Military Medical Academy (MMA) participated.

The classes were provided at cape Maslen nos – (Black sea) at the field base of the institute of Oceanology. Initially the main goals of the scientific diving courses were:

- To teach the participants to work safety during different types of underwater scientific activities.
- To highlight some of the specifics problems, and to upgrade constantly level of the teaching in the courses. Also to insert some new ideas for the next courses.

The main scientific area and levels in what participants have lectures and practical exercises were Hydrobiology, Underwater Archeology, Hydrology and Hydrochemistry, Underwater photography, Underwater scientific investigations in caves, very important parts were on Medical aspects and potential problems and threats for scientific SCUBA divers.

Hydrobiological lectures and exercises were separate on several topics:

- Types of classification of the water basins and the inhabiting communities.
- Pelagic communities and types of investigations.
- Benthic communities and types of investigations.
- Typical examples of invasive organisms in Black sea and main environmental problems in the Black Sea.



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– Some equipment and methods for underwater scientific Biological work – their advantages and disadvantages.

Archeological lectures and exercises were focused on two topics

- The specific methods of under water work on ship wrecks,
- Specifics of work to submerge settlements, buildings, etc.

Hydrology and Hydrochemistry classes were focused on specifics of the water in different parts of Black sea.

In the Underwater photography classes the focus was pointed on the document scientific photography during the scientific diving activities in Hydrobiology, Archeology, Cave diving investigations, and documentation of different type of underwater objects.

The topics of cave science classes were on the ways for formation of different type of caves and especially on the marine karst and volcanic caves and caverns at the Black sea coast. The exercises were provide in two under water caves situated nearby.

The medical under water activities classes were carried out at the same place and the practical part was provided in the bay of Maslen nos.

During the courses' implementation, of the topics were specified, developed and the methodology was improved.

Recently, the Science DIVER Project initiative, coordinated locally by Marine Cluster – Bulgaria, provided a chance for producing universal training divers' qualification at EU level. BNAUA and IO-BAS's efforts were allowed to associate to the Project' pilot training programme. Additional topics were included to the material, and methodics were restructured according to upcoming trends in standartisation.