



Marine and  
Inland Waters  
Research Symposium  
former Panhellenic Symposium on Oceanography & Fisheries  
**2022**

PROCEEDINGS

---

AKS Porto Heli Conference Center, Porto Heli, Argolida, Greece  
**16-19 September 2022**



Supported by the  
HCMR Researchers Association and the  
Panhellenic Association of the HCMR Employees



Under the auspices of the  
Hellenic Centre for Marine Research

**PROCEEDINGS**  
**of the Marine and Inland Waters Research Symposium 2022**  
former Panhellenic Symposium on Oceanography & Fisheries

---

AKS Porto Heli Conference Center, Porto Heli, Argolida, Greece  
**16-19 September 2022**

HCMR Researchers Association & Panhellenic Union of HCMR Employees  
Under the auspices of the Hellenic Centre for Marine Research  
Anavyssos 2022

A MÉTIER-BASED CHARACTERISATION OF LONGLINE FISHERIES IN GREECE: PRELIMINARY RESULTS .....	237
<i>Politikos D., Brodersen M.M., Apostolidis C., Giannakopoulos G. and Vassilopoulou V.</i>	
USE OF AIS DATA TO ASSESS BOTTOM TRAWL FISHING EFFORT IN INTERNATIONAL WATERS OF THE AEGEAN SEA.....	243
<i>Vlachaki A., Chamilaki M. and Trygonis V.</i>	
BOTTLENOSE DOLPHIN DEPREDATION IMPACTS ON THE THERMAIKOS GULF GILLNET FISHERY BASED ON EXPERIMENTAL FISHING AND QUESTIONNAIRE DATA .....	247
<i>Garagouni M., Mouchlianitis F., Avgerinou G., Minos G. and Ganias K.</i>	

**SPECIAL SESSION:  
MEDITERRANEAN SEA (AND FRESH WATER) LITERACY IN THE ERA OF  
2030 AGENDA FOR SUSTAINABLE DEVELOPMENT AND DECADE OF OCEAN  
SCIENCE FOR SUSTAINABLE DEVELOPMENT (2021-2030)**

MAPPING THE OCEAN LITERACY MOVEMENT: EXPERIENCES FROM THE PAST, PRESENT INITIATIVES, AND FUTURE EXPECTATIONS .....	255
<i>Mogias A., Koulouri P., Cheimonopoulou M., Realdon G., Previati M. and Mocos M.</i>	
THE BLUE CHALLENGE FRAMEWORK: A GUIDE FOR THE DEVELOPMENT AND IMPLEMENTATION OF BLUE CHALLENGES AT SCHOOLS.....	261
<i>Alvisi F., Merlino S., Pascucci A., Koulouri P., Mogias A., Scheurle C. and Baldrighi E.</i>	
A BLUE PEDAGOGICAL INITIATIVE FOR HIGH SCHOOL STUDENTS AND EDUCATORS IN MEDITERRANEAN REGION .....	267
<i>Andriopoulou A., Berhaut M., Conte F., Giakoumi S., Garau Fernández M., González Troya S. De Fátima, Campins Marroig R.p., Giusto G., Labbe C., Messina C., Santic D. and Tsabaris C.</i>	
EMSEA EDUCATIONAL ACTIVITIES PROMOTING OCEAN LITERACY IN THE MEDITERRANEAN REGION .....	271
<i>Cheimonopoulou M., Mocos M., Realdon G., Koulouri P., Mogias A. and Previati M.</i>	
SCIENTISTS FOR OCEAN LITERACY - EMPOWERING SCIENTISTS AS OCEAN ADVOCATES IN THE UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT 2021-2030.....	277
<i>Eparhina D., Koulouri P., Uyarra M.C. and Pomaro A.</i>	
A CITIZEN SCIENCE STUDY ON MARINE MAMMALS IN PAGASITIKOS GULF (GREECE); PRELIMINARY RESULTS .....	281
<i>Akritopoulou E., Koitsanou E., Dimou E., Mpanias I., Oikonomidou Z., Komnenou A., Exadactylos A. and Gkafas G.A.</i>	
IMPLEMENTING OPEN SCHOOLING FOR POLYMER PLASTICS SCIENTIFIC LITERACY .....	287
<i>Garedaki E., Panselinas G., Kartsonakis E. and Koulouri P.</i>	
ATHENS WATER FORUM AS A PARADIGM SHIFT FOR PUBLIC AWARENESS .....	293
<i>Apostolopoulou K., Cauchi N., Katsouras G., Polychniatou V., Samios S., Lytras E. and Sachinis G.</i>	

**EU MARINE POLICIES IMPLEMENTATION INFORMATICS IN MARINE SCIENCES**

IDENTIFICATION OF STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS FOR FISHING COMMUNITIES IN THE IONIAN SEA: INTEGRATION OF STAKEHOLDERS' PERSPECTIVES STEMMING FROM RESEARCH PROJECTS .....	301
<i>Liontakis A., Pantazi M., Zikidou C.V., Ntogrammatzi A., Maniopoulou M. and Vassilopoulou V.</i>	
ASSISTING THE INTEGRATION OF MSFD & MSPD IN THE MEDITERRANEAN.....	307
<i>Paramana T., Dassenakis M., Bassan N., Dallangelo C., Raicevich S., Ronchi F., Giorgi G., Jarni K., Koren Š., Klančnik K., Pavičić M., Skejić S., Vidjak O., Papadopoulou N., Smith C., Murillas-Maza A., Uyarra M.C. Cadiou J.F., Lopez L., Alvarez I., Giannoudi L., Streftaris N. and Pagkou P.</i>	

## THE BLUE CHALLENGE FRAMEWORK: A GUIDE FOR THE DEVELOPMENT AND IMPLEMENTATION OF BLUE CHALLENGES AT SCHOOLS

Alvisi F.<sup>1</sup>, Merlino S.<sup>1</sup>, Pascucci A.<sup>2</sup>, Koulouri P.<sup>3</sup>, Mogias A.<sup>4</sup>, Scheurle C.<sup>5</sup> and Baldrighi E.<sup>6</sup>

<sup>1</sup> *Institute of Marine Sciences, National Research Council (CNR-ISMAR),*

*francesca.alvisi@bo.ismar.cnr.it; silvia.merlino@sp.ismar.cnr.it*

<sup>2</sup> *Association of Natural Science Teachers (ANISN), a.pascucci@gmail.com*

<sup>3</sup> *Institute of Marine Biology, Biotechnology & Aquaculture, Hellenic Centre for Marine Research (HCMR), yol72@hcmr.gr*

<sup>4</sup> *Department of Primary Education, Democritus University of Thrace (DUTH), amogias@eled.duth.gr*

<sup>5</sup> *Institut de la Mer de Villefranche, Sorbonne Université, carolyn.scheurle@imev-mer.fr*

<sup>6</sup> *Institute for Biological Resources and Marine Biotechnology, National Research Council (CNR-IRBIM),*

*elisa.baldrighi@irbim.cnr.it*

### Abstract

The core principles of the Erasmus+ BlueS\_Med project, namely co-construction and co-design of the Blue Challenges, interaction and proactivity, inclusiveness, and sustainability, guided the drafting of its first deliverable, The Blue Challenge Framework. This framework, based on the collection and validation of existing Ocean Literacy experiences and practices in “bringing the sea” to school, serves as guidance for the process of defining the Mediterranean Blue Challenges. Priorities, resources, and initiatives already available at the EU and international level are considered. Criteria for monitoring and evaluating the Blue Challenges to bring out their added value and benefits are proposed.

The application of this framework critically reflects on the pros and cons that Mediterranean teachers/schools consider before choosing, whether or not, to join the EU Blue Schools Network (EUBSN). Main obstacles that should be removed to facilitate the process of schools joining EUBSN were identified, while recommendations on how to eliminate them were provided. Finally, a first analysis of the resources and tools currently available at the European level was made. The EUBSN, based on this framework, is expected to encourage and help schools join in, and to consolidate an educational path to foster Ocean Literacy within the next 10 years and thus the ongoing Ocean Decade\*.

**Keywords:** Ocean Literacy, EU Blue Schools Network, Marine Education, Mediterranean Sea, Sustainable development.

### 1. Introduction

To achieve the goal of bringing Ocean Literacy (OL) into the European school system in the short and long run, teachers' involvement is necessary. In order to get and keep European teachers engaged, the EU citizens, through the DG MARE, should increasingly support them, recognize their efforts and give them something in return. Schools in the EU in general, and in some Mediterranean countries in particular, are more and more charged with additional requests, commitments, and educational activities, often without adequate investment in human and economic resources, as well as without enough time to cope with all these new overall challenges and tasks. Incentives, professional development training, educational resources, and recognition for them are therefore needed.

The Erasmus+ project entitled “Supporting the development of socially-inclusive Blue Challenges in schools in the Mediterranean Sea basin” (BlueS\_Med) aims to develop, implement, and evaluate innovative approaches to integrate ocean/marine sciences, issues and challenges into school curricula, through educational activities, in four Mediterranean countries (i.e., France, Greece, Italy, and Malta), working side by side with the teachers of 14 pilot “blue” schools. Through these projects, the pupils

consider global vs. local contexts, while it will prepare them to discuss important issues and values in such a way that they can take enlightened positions and implement thoughtful actions.

Since we have just entered the Decade for the Education for Sustainable Development dedicated to Ocean Sciences, within all the European funds planned from now on (e.g., Recovery Fund, Green Deal, Next Generation EU, etc.) we strongly suggest to dedicate funding schemes directly to schools that partner with scientific institutions and want to join the EU Blue Schools Network. Some suggestions about possible EU incentives, among others, are a) an annual funding scheme to schools that have undertaken the Blue School pathway, commensurate with their commitment (e.g., number of involved classes/pupils/teachers); b) an annual/biennial/triennial recognition (economic and/or academic) to teachers who are proactive within this path, commensurate with their commitment and innovation; c) a one-time award to the country/European Marine Regional Area that has the highest number of Blue Schools.

## 5. Acknowledgements

---

The BlueS\_Med project (“Supporting the development of socially-inclusive Blue Challenges in schools in the Mediterranean Sea basin”, <https://www.blueschoolsmed.eu/>) is supported by funding of the Erasmus+ French Agency program.

## 6. References

---

- Cappelletto, M., Santoleri, R., Evangelista, L., Galgani, F., Garcés E. *et al.*, 2021. The Mediterranean Sea we want. *Ocean and Coastal Research*, 69 (suppl), e21031.
- Copejans, E., Besançon, M., Lourenço, C., Batista, V., Soares, S. *et al.*, 2020. A wave of European Blue Schools. Handbook for teachers. European Commission, Directorate-General Maritime Affairs and Fisheries, Brussels, 104 pp.
- Eparkhina, D., Pomaro, A., Koulouri, P., Banchi, E., Canu, D. *et al.*, 2021. Ocean Literacy in European Oceanographic Agencies: EuroGOOS recommendations for the UN Decade of Ocean Science for Sustainable Development 2021-2030. EuroGOOS Policy Brief. Brussels. Belgium.
- Mokos, M., Cheimonopoulou, M. Th., Koulouri, P., Previati, M., Realdon, G. *et al.*, 2020. Mediterranean Sea Literacy: When Ocean Literacy becomes region-specific. *Mediterranean Marine Science*, 21 (3), 592-598.
- Links \* <https://www.oceandecade.org/>