



SHORE

Empower students as the agents of change

D2.5 TEACHERS ROUTES **for** **BLUE SCHOOL and CURRICULA**

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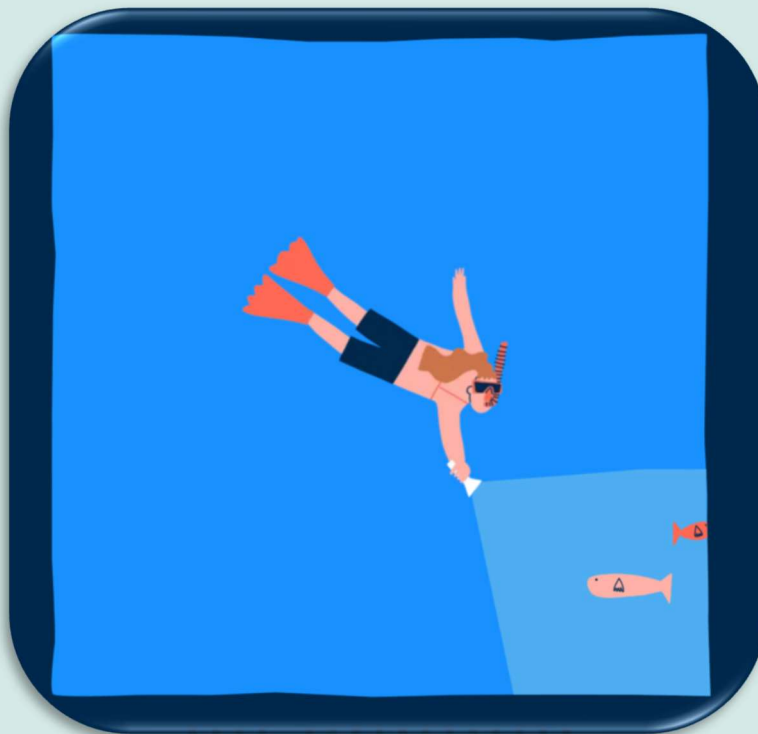
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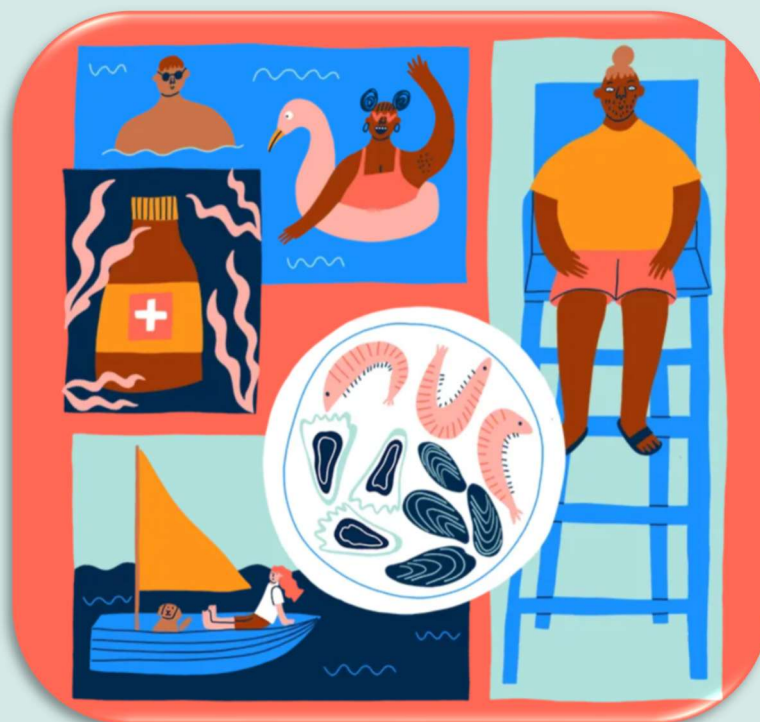
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List of acronyms

Acronym	Full name
EC	European Commission
EU	European Union
SHORE	SHORE: EmpOweR Students as the agents of cHangE
DG-MARE	DG for Maritime Affairs and Fisheries
CH	Country HUBs
MOSE	Italian: Modulo Sperimentale Elettromeccanico, lit./'Experimental Electromechanical Module'
NGO	Non-profit Organisation
EMSEA	European Marine Science Educators Association (EMSEA).
JPI Oceans	Joint Programming Initiative Healthy and Productive Seas and Oceans
ERRIN	The European Regions Research and Innovation Network
MOOC	Massive Open Online Courses
UNESCO	The United Nations Educational, Scientific and Cultural Organization



TEACHERS ROUTES for BLUE SCHOOL and CURRICULA

1. INTRODUCTION

The European Union defines Blue Economy as “all economic activities related to oceans, seas, and coasts” which covers a wide range of interlinked established and emerging sectors. As water is a vital need, home for many living things, the largest carbon sink, a transport corridor, a global resource and many more, without healthy waters, there will be no life on earth. Today, marine and freshwater ecosystems are rapidly degrading and efforts to protect them have not been sufficiently effective according to the implementation of the Marine Strategy Framework Directive Report (2008/56/EC) in 2020. As a result of human activity, the degradation in marine ecosystems is threatening European citizens’ and societies’ health, well-being, and prosperity and it is urgent to act to fulfill its EU Green Deal and Mission Restore Our Ocean and Waters by 2030 objectives.



To support the Mission Ocean, it is **essential to empower and engage citizens to take action and drive the transitions through deliberative democracy, social innovation, citizen science and awareness campaigns** and following the ECOSOC (Economic and Social Council) Youth Forum on “Youth taking action to implement the 2030 Agenda”, young people must be recognized as the agents of change whose contributions will bring benefits both to themselves and society. Currently, a global effort is underway to deliver the 2030 promise -by mobilizing more governments, civil society -, and businesses and calling on

all people to make the Global Goals their own. Even if there is progress being made, overall, the aims and goals are not yet performed at the scale required. **SHORE** Project aims to tackle these issues with coordinating activities and engaging the communities first on local then international level and mobilizing all sectors of society for a “Decade of Action” and for the implementation of the Sustainable Development Goals.

1.1 ABOUT US: SHORE

“A journey of a thousand miles must begin with the first step. - Lao Tzu-”

The **SHORE Project** aims to **engage youth in European policies, and lifestyle with the help of local life-changing projects** integrated into the curriculum of schools to achieve both at the grassroots and international level, mobilization of teachers, schools, students, and their families. To equip **communities with relevant knowledge and skills** with a sense of excitement for individuals to understand the importance of the ocean to their lives and realize how their individual actions affect the marine environment with community activities, exhibitions, school projects and online interaction platforms.

The main objective of SHORE is to enhance the ocean literacy of primary and secondary school students and educators with a multidimensional perspective and international coordination & cooperation, to equip them with the necessary skills and knowledge to become eco-citizens. It is aimed to fund up to 100 projects in 36 months in total and each school project can receive up to 10,000 Euro funding.

The specific objective of SHORE is to expand and broaden the ocean and water literacy knowledge/programmes among children and youth, teachers and schools (primary and secondary schools) in cooperation with the Network of European Blue Schools and **EU4Ocean coalition**.

The project SHORE is a pioneering initiative aimed at improving ocean literacy among primary and secondary school students and educators. The recognition of the Blue Economy by the European Union underlines the interconnectedness of various economic activities related to oceans, seas and coasts and highlights their vital role in sustaining life on Earth. The urgency to address the degradation of marine and freshwater ecosystems is aligned with the wider objectives of the EU Green Deal and the Mission to Restore Our Ocean and Waters by 2030.

Therefore, **SHORE** will act as a bridge between research and education communities to increase the professional development of educators first, for them to teach ocean-related information in an informal way to foster lifelong learning of the present and future generations and have an impact first locally then on a global level.



2. FEATURES OF A BLUE SCHOOL AND HOW TO PROCEED TOWARDS IT

The concept of Blue School comes from the need for involvement of schools in the environment and sustainable development for the education of its pupils/students in order to make them aware and be proud of their cultural heritage around the sea which could be used as a source of ideas for job creation (diversification of professional and entrepreneurial opportunities), economic growth and social cohesion (equal access to marine resources in order to cover basic needs such as health, security and employment). The idea is therefore to introduce the blue economy into school education in order to build a generation based upon environmental sensitivity and empathy, inspired by local cultural heritage, linking marine life to economic growth and employment.¹

2.1 What is a Blue School



European Blue Schools bring the ocean into the classroom. On the journey to becoming a European Blue School, teachers and pupils will improve their understanding of the ocean and develop a sense of responsibility towards our shared planet. Creating awareness and a feeling of responsibility for our ocean (so-called Ocean Literacy)

encourages students to become more active and responsible European and global citizens. The program challenges schools to *Find the Blue* and explore their connections to the ocean while creating networks all across Europe. The Network of European Blue Schools is an initiative of the European Commission, supported by DG MARE and was developed by the EU4Ocean Coalition partners.²

2.2 What to do to become a Blue School?

A blue school is a school turned towards its local sea, ocean and its coastline. It must develop an educational project as a whole establishment, on the functioning of its infrastructure, and on the commitment of the teaching teams and the participation of the students. This means that the school implements sustainable practices (sorting and recycling of waste, reduction of greenhouse gasses, saving of renewable energies, etc.), in connection, or in partnership, with

¹<http://www.blue-schools.eu/wp-content/uploads/2021/03/Blue-Schools-Concept-EN.pdf>

² https://maritime-forum.ec.europa.eu/theme/ocean-literacy-and-blue-skills/ocean-literacy/network-blue-schools/how-develop-project_en

the local ecosystem of the maritime economy through a specific school program (integrated into each of the different subjects) composed of recreational activities and educational outings on the environment and its preservation, the enhancement of local cultures, know-how and marine heritage and the employment in this sector. A blue school educates its students (secondary level – between 12 and 16 years old) on sustainable development and encourages them to be involved in the society as an interested citizen on sustainability issues and by the participation in the development of local agendas to build a responsible future. ³

3. ANALYZING THE REGIONS:

3.1 SHORE Regions

SHORE will cover five different regional areas including **Baltic Sea, Black Sea, Mediterranean Sea, Rhine, and Danube River Area**, and will offer different project grants in total of three different call periods for schools in the region. The regional areas are selected according to the Mission Implementation Plan, Lighthouse Areas and topics about ocean literacy that the open calls will be about can be seen in the Figure below.



Figure 1: SHORE - Open Call # Target Areas

The target countries in the mentioned regions are as follows:

- **Baltic Sea Area:** Germany, Poland, Estonia, Latvia, Lithuania, Denmark, Sweden, Finland;
- **Black Sea Area:** Romania, Bulgaria, Ukraine, Georgia, Türkiye;

³ <http://www.blue-schools.eu/wp-content/uploads/2021/03/Blue-Schools-Concept-EN.pdf>

- **Mediterranean Sea Area:** Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain, African countries (Algeria, Egypt, Libya, Morocco, Tunisia), Balkan countries (Albania, Montenegro, Bosnia and Herzegovina), Israel, Jordan, Lebanon, Türkiye;
- **Danube River Area:** Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia, Ukraine;
- **Rhine River Area:** Austria, Belgium, France, Germany, Luxembourg, The Netherlands.

3.2 Country HUBs (CHs) and Analysis

The implementation of **SHORE** activities and the coordination of the national networks of schools will be supported by the Country Hubs. The Country Hubs are selected according to their expertise in sustainable and climate education, and already have a wide range of networks among the schools within their area and working in the framework of current initiatives. They have been selected with the idea of creating links within their regional area. With the support of the Country Hubs, an **effective support mechanism that will provide guidance, training, improvements and recommendations will be set in place** to the actors involved (teachers, museum educators, outreach groups and citizens)

There are seven Country HUBs serving in **Austria, Estonia, Hungary, Italy, Poland, Romania** and **Türkiye**. As each Country Hub analysed its region by conducting a Base Analysis as part of the project, the Teacher's Guide and the training modules reflect the findings and suggestions of each CH for a sustainable and future-oriented commitment to ocean literacy in their respective country.

Austria



Austria/Vienna: While local efforts have established a solid foundation for ocean literacy, the global perspective remains a critical aspect that SHORE is uniquely able to approach. Efforts to help the wider society in Austria truly realize the importance of the ocean and our global water system could be significantly boosted in the short-to-medium term by pursuing two approaches: On the one hand, internationalization enables cross-thematic networking while simultaneously promoting global interconnections. On the other, providing ready-made educational materials for everyday school activities will offer the support many teachers need.

The international consortium, dedicated educators and a range of local and global stakeholders in global initiatives make SHORE a powerful force in promoting ocean literacy. For the future, SHORE's commitment to a holistic and global approach in Austria may have a lasting impact in how the oceans are perceived, understood and will be protected.

Estonia



Despite being a country that has only indirect access to the oceans, through the Baltic and the Sound, Estonia still recognizes the importance of fostering ocean literacy among its citizens. The unique geographical context of Estonia, situated on the eastern coast of the Baltic Sea, provides an opportunity to emphasize the interconnectedness of inland waters and the larger marine ecosystem. Although ocean education is not mandatory in the current curriculum, the Estonian Country Hub aims to collaborate with schools and teachers to enhance the existing educational framework.

In Estonia, environmental education is a key component of the curriculum, covering topics related to climate change, biodiversity, and sustainability. The SHORE project will play a crucial part in expanding the scope of these educational efforts, offering additional resources and guidance to educators. Through collaboration with local schools, the Estonian Country Hub seeks to empower students to become active participants in the protection of water resources.

Hungary



Nowadays, the protection of our oceans and other natural waters is among the leading priorities worldwide, but ocean literacy among the population has room for a lot of improvement. In our opinion, learning about “blue” topics should start at school, because the necessary resources are already available in these institutions, and the young target group can be reached with relative ease there. Teachers play a big role in spreading knowledge, so it is very important that they receive adequate support, even from outside the school.

The SHORE project aims to provide guidance to educators and schools regarding the blue curriculum. The goal is to increase the available teaching materials, and to facilitate the development and implementation of school projects.

The Budapest University of Technology and Economics, as the head of the Hungarian CH, supports the work of teachers in the Danube and Rhone region, the participation of schools in the SHORE project, and the efforts to join to the Blue School Network. These activities, as well as the development of relations with comparable entities in other countries, will greatly promote the active participation of our citizens in the protection of our waters in the future.

Italy





As the Italian Country Hub, the University of Padova is dedicated to supporting proactive schools, some of which are already implementing water-related projects which can benefit from SHORE. The overall goal is to empower the Italian youth in taking action in the preservation of various precious characteristics of the Italian coastline and the Mediterranean. The CH is home to a wide range of marine research initiatives reflecting the wide range of distinctive features of Italian coasts, and interaction of people with the sea.

Italy is a country with marked environmental contrasts, and this is also evident in the context of water literacy. Positioned in the center of the Mediterranean, it has, since Antiquity, been actively engaged with the sea in terms of meeting primary needs of the population, supporting industry, and providing transportation routes. However, Italy suffers from a very unequal access to the sea affecting the number of schools enrolled in the Network of European Blue Schools. Indeed, the low number of Blue schools in the country is probably related to the rarity and limited scope of active programs about ocean literacy at the national level. On the other hand, Italy can rely on a strong net of NGOs and blue economy actors and stimulate a very dynamic educational system. In this context, teachers and schools have a relatively large space and significant freedom in developing projects. Against this background the SHORE project presents a major opportunity to effectively boost ocean literacy of the youth population primed to include the sea in their understanding of the world, and to provide the tools required from any agent of change.

Poland



Currently in Poland, 'ocean education' does not entail a separate, mandatory block of classes in schools, only the content is. The topics are usually covered in other courses including, among others, geography, biology, Polish language, various inter-subject pathways, often at the discretion of the teacher. According to the Ministry of Education, the requirements and content specified in the core curriculum are comprehensive and allow teachers to address the most relevant topics in this area. Regardless, schools have the opportunity to organize additional educational activities on topics such as climate and environmental protection, including those that correspond to the special interests of students. In Poland, the students' awareness about climate change is at a very low level, and as a result, they do not effectively undertake activities to explore and efforts to tackle this problem. Thus, one would not be very off-the-mark to claim that, in the eyes of young people, this topic is neither cognitively important nor pragmatically relevant. In Poland most of the schools in the Blue Schools Network is situated at the coastal area of Baltic Sea. Polish Country Hub is represented by WSB University which, together with a group of experts and dedicated teachers, will promote ocean literacy among students and other teachers, focus on promoting ocean literacy among students and increasing the number of Blue Schools in other parts of Poland as well. Through active endeavors under the SHORE project, Polish Country Hub aims to provide guidance to educators, teachers and schools



regarding the blue curricula, by showing them alternative ways to educate students and promote ocean literacy with special focus on participatory approach and involvement of local communities.

Romania



In an era where the health of the global ecosystem is intricately tied to our understanding of our world's vast and mysterious oceans, the blue activities take center stage as a pioneering initiative to enhance ocean literacy in the blue education institutions. The Romanian Country Hub is represented by Mare Nostrum NGO situated along the Black Sea coastline and has been dedicated to fostering a positive shift in mentalities and behaviors for the past 30 years, all aimed at conserving and enhancing the marine environment.

Besides the challenges and obstacles faced in advancing ocean literacy education in Romania, there are numerous avenues through which awareness, education, and environmentally conscious behaviors can be introduced and promoted. Achieving long-term success will require embracing creative ways and securing the involvement of a diverse range of stakeholders. We aim to offer guidance, training, enhancements, and recommendations to various stakeholders including teachers, museum educators, outreach groups, and citizens. The primary rationale for establishing the country hubs is to enhance SHORE's influence by collaborating with regional and local stakeholders, guiding schools in project implementation, and efficiently executing dissemination and communication activities in the Black Sea and Danube regions.

One way SHORE can make a significant impact is through its connection with the Black Sea, particularly via Romanian schools. This association is pivotal as it sets the stage for the future rollout of a comprehensive 'Blue Schools' initiative, which aims to enhance Ocean Literacy within the classroom environment. Also, we will promote education and training in the fields of marine sciences, we will advance Ocean Literacy in Romania in general and the Black Sea and Danube regions in particular, and will raise educators' awareness of ocean issues and the need for a sustainable future for our coasts and seas. Another benefit of these efforts will be the improved quality of marine sciences education.

Türkiye:



Surrounded by seas on three sides, Türkiye presents a unique geographical context for SHORE's efforts. Leveraging the efforts of an international consortium, committed educators, and engagement with numerous local and global stakeholders, SHORE emerges as a formidable advocate for promoting ocean literacy in Türkiye. By adopting a holistic and global approach, SHORE aims to have a lasting impact on how the oceans are perceived, understood, and ultimately protected in Türkiye's context.



4. TRAINING METHODOLOGY

It is vital to engage youth to drive meaningful changes and safeguard the Earth. Education, including schools, plays a critical role in this effort. SHORE will focus on getting students, teachers, and schools involved in advancing Mission Ocean objectives by boosting ocean literacy through collaborative activities and projects. The objectives of the cooperation with schools are;

- Increasing awareness among students and teachers about sea-related issues and their connection to environmental preservation.
- Encouraging ocean education, environmental awareness, and promoting activities related to the blue economy.
- Advocating for inclusion of sea literacy and sustainable sea management in educational systems.
- Empowering students to drive change and promote sustainable practices related to the sea.
- Looking for guidance and assistance in integrating relevant sea topics into school curricula and communities.

These engaging activities can help students deepen their understanding of the marine environment while fostering their curiosity, creativity, and appreciation for the sea.

It is important to notice that, to utilize modern, innovative teaching methods for both student groups to engage their interest and enhance learning outcomes. Employing technological and digital tools, along with the methods outlined in educational training methodologies, and generating digital outputs during activities are highly recommended approaches.



4.1 Primary Schools

Primary education lays the groundwork for a lasting passion for learning and equips students with essential skills to succeed academically and socially throughout their lives. The social and emotional skills developed during this stage serve as the foundation for maintaining healthy relationships and emotional wellness in the future.

Considering the primary school specifications, it is recommended to focus more on play-based and interactive activities. At this stage, teachers are expected to select the appropriate applications based on students' individual traits, awareness levels and learning styles.

Although the final decision will be made by the educator; methods such as Personalized Education, Collaborative Learning, Flipped Classroom, Inquiry-Based Learning, Montessori, Project-Based Learning, Student-Centered/Constructivist Approach, and Teacher-Centered Instruction can be counted among the recommended methods for primary school students.

4.2 Secondary Schools



Secondary education has a significant impact on students' lives, offering a variety of subjects and extracurricular activities for them to discover and pursue their interests and passions. It allows students to explore their interests and potential career paths. Moreover, it utilizes formal teaching methods to foster critical thinking and independent learning, prompting students to engage with diverse groups and navigate complex social scenarios.

For secondary school students it is highly recommended to utilize interactive, exploratory applications that facilitate communication with Mission Ocean stakeholders, allow for assessment, and encourage hands-on experience.

Flipped classroom, Experimental Learning, Real-Life Learning, Work Experience, Student exchange, Collaborative Learning, Game based Learning, Project Based Learning, Problem-based learning, Web based learning, Learning by searching, Effective class discussion methodologies are recommended for secondary schools.

5. ROAD MAP/A LESSON PLAN

5.1 Sea-based activities

Topic: Sea-Based Activities				
Content		Goals :	Skills:	Subjects:
• Fisheries and Aquaculture • Coastal Tourism • Marine and River Transport and Shipping • Biotechnology • Water Sports		• Preserve the environment • Sustain food quality • Maintain fish welfare • Cost efficiency • Tailormade solutions • Space efficient systems • High levels of hygiene • Efficient freezing time	• Information and communication • Creative and critical thinking • Scientific and technological knowledge • Reasoning and problem solving • Environment • Interpersonal relationship	Biology Geology Chemistry Science Social sciences
Target Audience: primary and secondary school students			Duration: 3 hours of activity	
Material:				
Description			Strategies:	
The main goal of this lesson is to develop students' own judgment and evaluation mechanism by doing research on the title they choose. Students will choose one of the five topics and conduct research on this topic. Each child will present their work on the topic they have chosen using a free method (short video, presentation, painting, music, interview recording, photography, etc.).			Students will be encouraged to share the information they have obtained as a result of their research in the way they think best expresses themselves. With this method, students are enabled to learn from their peers, from their own perspectives, in a perspective that is easily understandable and reflects daily life.	
Assessment	Feedback from students, the outputs of the student group works			
Comments	Teachers' diversification of topic selection and avoidance of repetition on the same topic will increase the flow and impact of the lesson.			
examples	• Aquaculture is a controlled rearing system of fish which offers opportunities and substantial challenges. It is limited to high-yielding species with a commercial value, and it uses a lot of feed and necessitates close husbandry. Improvements are planned through the better understanding of fish welfare, life cycle, physiology, threats and genetic background to make aquaculture part of sustainable development.			



5.2 Biodiversity

Topic: Biodiversity			
Content ● Migration of the Species ● Damage to Coral Reefs and Riverbeds ● Microplastics Uptake by Aquatic Animals ● Erosion and Flooding ● Preserve biodiversity in waters ● Avoid alien species	Goals : ● Preserve the environment ● Protect and restore marine and freshwater ecosystems and biodiversity (in line with the EU Biodiversity Strategy 2030) ● Prevent and eliminate pollution of our ocean, seas and waters ● Make the sustainable blue economy carbon-neutral and circular ● Mitigate alien species invasion ● Understand the concept of local biodiversity	Skills: ● Information and communication ● Scientific and technological knowledge ● Reasoning and problem solving ● Environment ● Interpersonal relationship	Subjects: Biology Geology Chemistry Science Social sciences
Target Audience: primary and secondary school students		Duration: 3 weeks (each week 3 hours)	
Material:			
Description: The aim of this lesson is to increase students' awareness about marine diversity and to have information about the 2030 Biodiversity Strategy. As part of the study, students will be grouped and assigned specific titles. Each group will research the measures taken in their city and country concerning the 2030 targets relevant to their assigned title, and then present their findings		Strategies: Students are required to engage in research and experience actual initiatives to enhance their understanding and knowledge of the 2030 Biodiversity Strategy.	
Assessment	Feedback from students, the outputs of the student group works		
Comments	Teachers' information about the 2030 Biodiversity Strategy with students and providing guidance on how to access resources and information can enhance the effectiveness of their learning process.		
Examples	● Alien species in the Mediterranean Sea: The invasion of the Mediterranean Sea by the blue crab is a concerning issue. Many alien species have made their way into our rivers and seas. How did they arrive there, and what measures can be taken to mitigate the impact? ● Were you aware that the Mediterranean Sea is home to a diverse range of cetaceans, which are marine mammals including dolphins, orcas, and whales?		

5.3 Hazardous substances and marine litter

Topic: Hazardous substances and marine litter	
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Content: - Oil rigs - Heavy Metals - Plastics & Microplastics - Various Wastes from Cruise Ships - Various Wastes from Cities - Fossil fuel reserve exploration	Goals : - Preserve the environment - Space efficient systems - Prevent and eliminate pollution of our ocean, seas and waters - Make the sustainable blue economy carbon-neutral and circular - Prevent noise pollution	Skills: - Information and communication - Scientific and technological knowledge - Reasoning and problem solving - Environment - Interpersonal relationship	Subjects: Biology Geology Chemistry Science Social sciences
Target Audience: primary and secondary school students		Duration:	
Material: Oil floating on water, different plastics of different sizes and densità, ink , loud sonar sounds			
Description : The goal of this lesson is to educate students about the various risks and ongoing pressures on the marine and aquatic ecosystems, why these challenges exist, and how they can be addressed. Student groups are assigned a specific topic to explore, considering the significance of the threat, its societal relevance, and possible solutions to reduce its impact.		Strategies: Students are anticipated to show the connection between hidden, indirect repercussions of their resource consumption in daily life, emphasizing that accountability is a shared responsibility	
Assessment	Multi-level maps of interlinked activities, the richer the better		
Comments			
List of examples:	- Create artwork using litter collected from the beach - Simulate underwater environments with ambient noise (including human voices) to study how acoustic species are affected in their hunting and feeding behavior - The Venice lagoon is a unique and delicate ecosystem, home to numerous native species and a carefully maintained equilibrium. It also serves as a stopover for migrating species each year.		

5.4 Climate change

Topic: Climate Change	Sub-Topic
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Content: • Water-body acidification • Eutrophication • Rising Temperature • Droughts • Rise in Sea Levels	Goals: • Detect local/regional challenges • develop ideas and solutions • illustrate changes across time	Skills: • information and classification • interconnections • Scientific and technological knowledge	Subjects: Biology Geography Chemistry Physics Life Science History
Target Audience: Primary and secondary school students		Duration: 50 minutes	
Material: Map, Statistics			
Description: The aim of this lesson is to illustrate the impact of climate change in the (local) area. Gather (historic) public information like environmental data, statistics, weather data to demonstrate the changes occurred during time. Whereas primary school students can illustrate the impact in a colorful way, secondary school students can provide several statistics and compare them.		Strategies: Students get together in groups. Each group takes over one subtopic. These illustrations and comparisons highlight the impact of global climate change on local situations and simultaneously demonstrate the impact local occurrences have on global developments.	
Assessment	Which conclusions do the school students draw from the interconnections, how do they interpret the data and findings		
Comments	Besides collecting data, interviews with people particularly affected by the changes (e.g. farmers) could be conducted		
Examples	• The MOSE is a multi-billion euro project funded by the EU to protect the Venice Laguna from rising waters which are evermore prevalent. During specific high-risk periods, the doors are raised and keep the lagoon from overflowing with sea water. It is a marvel of engineering but also has impacts on biodiversity.		

5.5 Sustainable use of water resources

Topic: Sustainable use of water resources	Sub-Topic
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Content: • Renewable Marine and Water Energy • Nuclear power plants on shores • Drinking water • Food from sea and water	Goals: • Understanding the importance of the relation between water and energy • Understanding the importance of achieving "clean water and sanitation for all"	Skills: • Information and communication • Scientific and technological knowledge • Reasoning and problem solving • Environment	Subjects: Energy Economy Life Science Science
Target Audience: Primary and secondary school students		Duration: 1 hours a day for 2 weeks	
Material:			
Description: The aim of the lesson is to increase students' awareness about sustainable use of water sources. Students who will attend the course will be grouped and each group will be asked to choose one of the 4 titles mentioned above. The groups will be asked to prepare an awareness project on the topic they choose. The project will consist of a maximum of two activities. One week will be given for the preparation of the project and one week for its implementation. Each group will promote its own topic for one week. At the end of one week, the group with the most effective promotion will be chosen by the students.		Strategies Project based learning Group study/team work Research, analysis and promotion	
Assessment	Assessment will be done by the students votes		
Comments			
Examples:	- Ricciclriamo: reuse of sea urchin shells from markets to make high-calcium feed complements, and biofilms in patches to help wound healing - Some algaeas are edible and are exploited to create a variety of daily-use products. - Crops of the sea: Some innovating programs are using air bells to grow ground vegetables under the sea in perfect conditions, without pesticides or synthetic fertilizers		



6. LEARNING RESOURCES

There are numerous resources available to enhance your ocean literacy skills or use it in your classroom. Here are some helpful links where you can find examples:

6.1 Platforms



Web address: <https://missionoceanwaters.eu/#/>

With a 2030 target, the EU Mission "Restore our Ocean and Waters" aims to protect and restore the health of our ocean and waters through research and innovation, citizen engagement and blue investments. The Mission's new approach will address the ocean and waters as one and play a key role in achieving climate neutrality and restoring nature.



Web address: <https://marine.copernicus.eu/>

Provides free and open marine data and services to enable marine policy implementation, support Blue growth and scientific innovation



Web address: <https://www.emsea.eu>

EMSEA is a membership organisation, representing academia, researchers, NGO's, companies, formal (schools) and informal (science) education institutes, engaged to increase ocean literacy in society.



Web address: <https://www.blue-schools.eu>

The top priority of Blue Schools is to introduce the principle of the blue economy into school education in order to build a new generation sensitive to environmental issues, maritime heritage and sustainable economic development. It will raise awareness and help students to build a sustainable future in coastal areas and encourage them to participate actively in society and to engage with local stakeholders.



Web address: <https://www.jpi-oceans.eu>

The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) is a pan-European platform that increases the efficiency and impact of research and innovation for sustainably healthy and productive seas and oceans.



Web address: <https://errin.eu>

The European Regions Research and Innovation Network (**ERRIN**) is a well-known Brussels-based platform that gathers around 120 regional organisations from more than 20 European countries. Established in 2001, ERRIN supports members to enhance their regional and local research and innovation capacities and further develop their R&I ecosystems.



Web address: <https://noc.ac.uk/>

"Ocean Science in Action" (OSA) aims to build a unique collection of open access online educational and capacity development video resources dedicated to the innovative marine technologies and how they are used to tackle the challenges of sustainable management of marine ecosystems.



Web address: <https://crowdhelix.com/helices/mission-oceans>

Increasing the awareness of ocean literacy among society, with a specific focus on empowering students as agents of change



Web address: <https://bluemissionbanos.eu>

BlueMissionBANOS inspires, engages and supports stakeholders across the Baltic and North Sea to reach a carbon-neutral & circular blue economy



Web address: <https://www.unesco.org>

Ocean literacy is defined as an understanding of the ocean's influence on you, and your influence on the ocean. Ocean literacy is a way not only to increase the awareness of the public about the ocean, but it is as an approach to encourage all citizens and stakeholders to have a more responsible and informed behaviour towards the ocean and its resources.

6.2 Digital Resources

MOOC: “Bring the Ocean into Your School”

The European Schoolnet developed a MOOC aiming to *“inspire and guide participants in crafting their unique “Find the Blue” project. Participants will learn how to identify ocean topics, develop school projects in collaboration with local partners, and work towards achieving a European Blue School certification”*

Target group: all interested with a special focus on primary and secondary school teachers

Duration: approximately 16 hours to complete the MOOC

Structure: 4 modules:

- Module 1: Navigating Ocean Literacy
- Module 2: Building Ocean Knowledge with European Blue Schools
- Module 3: Becoming European Blue Schools: The Find the Blue Challenge
- Module 4: Ocean Literacy in Action



<https://www.seasmartschool.com>

The organization is offering free resources to educators that make learning about ocean conservation hands-on, fun and accessible to all learners! The resources are created by experienced environmental educators.

Topics:

- Differentiated Kindergarten to Grade 12 lesson plans
- BC Curriculum connections
- Presentation slides
- Educational videos
- Extension resources



Blue Wonder

https://feature.undp.org/blue-wonder/?gad_source=1&gclid=Cj0KCQiA5-uuBhDzARIsAAa21T-8IOpCOS2jHU55AH0LUqKFOB7iINVvJ9lme272JywKNdcYt9mdxGY0aAhFaEALw_wcB



Schmidt Ocean Institute

<https://schmidt-ocean.org/>

Schmidt Ocean Institute is a 501(c)(3) private non-profit operating foundation established in March 2009 to advance oceanographic research, discovery, and knowledge, and catalyze sharing of information about the oceans.

Topics:

- Marine Geochemistry & the Southern Ocean
- NEMO (NOAA enrichment in Marine Sciences and Oceanography)
- Exploring Deep-Ocean Coloring Book
- Science Scope Article (Engage Your Students in Ocean Exploration Science)
- Ocean Portal: Educator's Corner

7. JOIN the MOVEMENT

7.1. Application Process for SHORE Open Calls

The SHORE – Open Calls # aims to support student and schools-led projects that can:

- contribute to the achievement of the objectives under the **EU Mission Restore Our Ocean and Waters by 2030**, among others through development and implementation of innovative solutions and products contributing to those objectives;
- reinforce and contribute to the [EU4Ocean coalition](#) and its European Network of Blue Schools.

In doing so, SHORE aims to engage students, teachers and other actors from the school ecosystem and the wider community to co-design, co-develop and co-implement projects that can contribute to expand and broaden ocean & water literacy.

The SHORE – Open Call # is open to proposals that address at least one topic and subtopic of the open call.

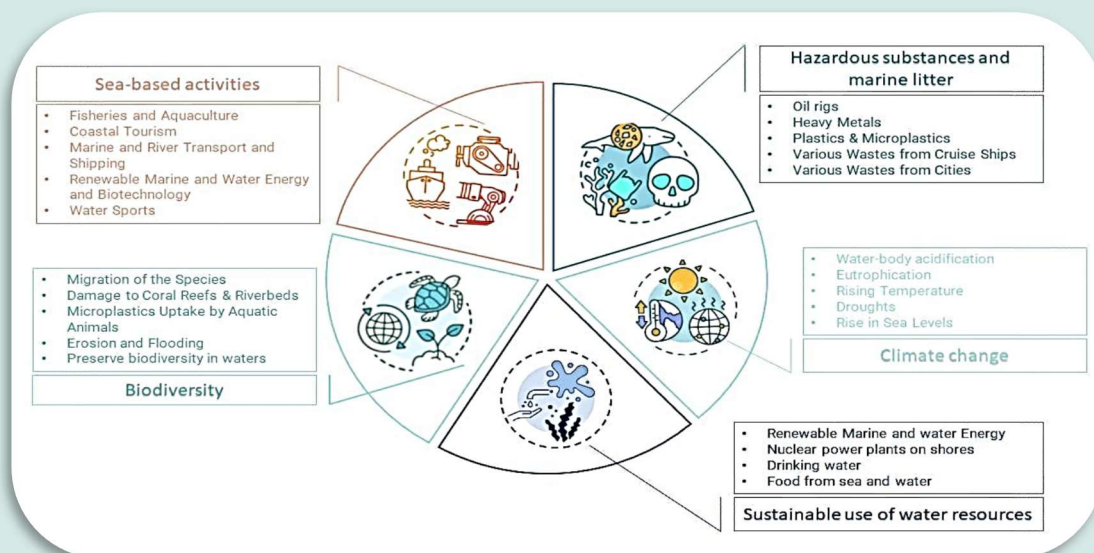


Figure 2: Topics and subtopics of SHORE

Applicants should select the most relevant topic and subtopic in line with their proposed activities, the regional context and local environmental challenges. In case more than one topic is relevant, applicants are encouraged to choose the one more suitable for proposed activities.

For more information visit <https://shoreproject.eu/open-calls/>.

7.2. Development of project ideas for mission ocean

The mission of the SHORE project is to engage students in exploring and understanding the marine environment through diverse activities.

The SHORE - Open Calls # are open to proposals which include different types of activities aimed to mobilise primary and secondary schools' students and/or teachers of the school(s). Applicants are advised to choose at least one activity from a fixed list:

Table 6: A list of the different types of activities

Activity	Description and examples
workshops	Interactive meetings in which a group of students can meet to discuss questions, brainstorm ideas, identify problems, and develop solutions. Examples of workshops to be led: sustainability action, impacts of climate change, exploring biodiversity, endangered species, sustainable transport, reducing carbon footprint, renewable energy, water conservation, etc.
meetings	Gatherings of students that share a common purpose. Examples: presentation the outcomes of the project, etc
trainings	Trainings can be used to develop and embed skills in students, teachers and parents on different issues related to the ocean and water literacy projects. These include interactive sessions to help learners practice and be effective in their role, supporting lifelong learning. Examples: training on waste management, energy use, pollution, biodiversity, etc.
exhibitions	The aim of an exhibition is to showcase innovative solutions to environmental issues tackled by the blue project and is designed to empower students and visitors to develop their own creative solutions and become advocates for ocean and water literacy. Examples: humorous original drawings, contemporary photographs, artworks made from recycled materials, from litter, fashion shows, etc.
conferences	The purpose of a conference is to provide a platform for students to present their work, talents, and ideas to a wider audience which can include students and teachers from other schools, representatives of local communities, parents, etc. Examples: conferences covering topics related to oceans and rivers, marine science, conservation, education, etc.
meetNtalks	These kinds of meetings aim to provide quality information, advice, and guidance. Students can organise inspiring meetNtalks to present the hot topic of their project, create interactive discussions and make use of networking opportunities.

competitions	Competitions are available to students of all ages and come in a slew of different structures and styles. Examples: Students create their own work of art, prose, poetry, or film/photography that interprets a topic as climate heroes, in the wild, recycling, food chain, etc.
virtual educational activities	Virtual educational activities are learning experiences that take place in online or digital environments. They leverage technology to facilitate teaching and engagement, allowing students to access educational content, interact with instructors, and collaborate with peers remotely. Examples: online courses, webinars, virtual field trips, video lectures, interactive simulations, virtual labs, etc.
field trips	A field trip is one of the tools that can be used to provide every student with real-world experiences. When students leave the classroom, they see the connections between what is happening at school and in the 'real-world'. Examples of field trips: to a recycling centre, alternative energy plant, science labs, watch a show with a specific theme related to ocean and water literacy, etc.
local expeditions	These expeditions might be focused on regional and local issues: national parks in the region, botanical gardens, maritime museums, planetarium, zoos or conservation centres, farms, aquariums, fish hatchery, etc.
technical trips	The technical trips are the ones that can be taken to a recycling centre, garbage processing facility, ecological cleanup site, manufacturing plants, science labs, research institutes, etc.
boat activities	These kinds of activities introduce participants to the natural environment of the sea/river, through an educational, on-the-water experience. Examples of activities that can be organised on a boat: observe marine life, bird watching, observe the beach landslides and erosion, etc.
virtual laboratories	Adopting virtual labs represents a step forward in engaging students through active participation. They can be in touch with the latest innovative lab technologies, lab experiments and simulations.
laboratory trips	Laboratory trips to a science laboratory from a research institute/university can substantiate the information received during classes where students can gain hands-on experience

	and observe scientific experiments or research processes in a real-world condition. Examples: visits to university research labs, government research facilities, industrial research and development centres, and science museums.
museum trips	Museums are great resources and these trips to museums must be truly impactful and lead to a deeper learning. Students should not be just information consumers, but they can play a role in improving the experience and get actively involved by thinking critically. They can look for specific objects, find their story, take photos, create their own exhibition, worksheets, etc.
technical field trips	Technical trips will give real life context to the skills students are learning, build connections between the classroom and the community. Examples: visits to science museums, different environments such as a beach/forest, farms, or just to collect different samples for a project, marine litter monitoring or observation of pollution sources.
laboratory testing and analysis of results	A science lab offers conducting controlled experiments to collect data or samples for analysis. Analysis of results includes the interpretation and evaluation of the data to draw conclusions, make inferences, or generate scientific findings. Examples: testing the composition of a water sample for pollutants, microplastic analysis, etc.

7.3 Cooperation/twinning with other blue schools

SHORE – Open Call #1 welcomes proposals submitted by schools, which are open for collaboration/twinning with other blue schools. The cooperation can already be established, or schools can intend to establish cooperation during implementation of the project. The cooperation can be established with schools from the Network of European Blue Schools and those aspiring to become accredited members of the Network of European Blue Schools.

In the proposal applicants should describe cooperation activities with other teachers and their students, designed to enable them to exchange experiences, best practices and successful stories stemming from their blue projects and ocean literacy-driven actions.

Twinning activities aim to promote shared learning among students and teachers with a focus on encouraging learning inside and outside the classroom. Also, teachers can join eTwinning (Community for schools in Europe) to run on-site or online activities with their students along with colleagues from other European countries. Examples of twinning activities include capacity building through knowledge sharing, enabling both partner schools to adopt best practices from each other, twinning visits, etc. To find suitable partners for cooperation/twinning, please refer to the [EU4Ocean Platform](#) or [eTwinning portal](#).

7.4 The European Climate Pact

SHORE – Open Calls# are open to schools which participate in climate actions and support values of the [European Climate Pact](#). The school's proposal should entail a commitment to Climate Pact Pledge leading to decarbonisation or at least to carbon neutrality of the project and school activities.

Info on the pledge is here: [European Climate Pact](#), go to take climate friendly action and make a pledge: Take individual action.

7.5 Make EUBlue Award

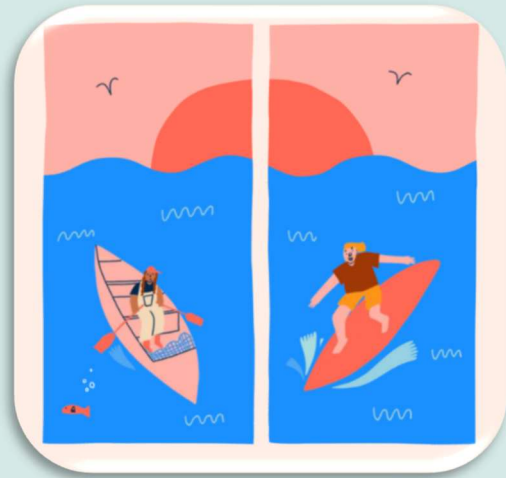
Following its success over the past 2 years, the EU4Ocean coalition announces the start of applications for its annual [MakeEUBlue Awards](#) recognising innovative and outstanding initiatives in the field of ocean literacy in Europe. The winners are to be announced at the European Maritime Day, which this year takes place on 30-31 May in Svendborg, Denmark.

Applications are open until **23 February**.



8. CONCLUSION

The “Restore our Oceans, Seas and Water by 2030” mission is a key initiative within Horizon Europe's Strategic Agenda. It focuses on safeguarding and revitalizing Europe's aquatic environments to align with both EU and global goals. The mission's Implementation Plan outlines three main objectives: protecting and rejuvenating marine and freshwater ecosystems, combating pollution, and transitioning the sustainable blue economy to be carbon-neutral and circular. To facilitate these goals, the mission emphasizes the involvement of the general public in creating and delivering innovative solutions. This inclusive approach aims to engage children and youth in developing collaborative projects that can make significant contributions by 2025 and 2030. By fostering active participation from younger generations, the mission not only raises awareness but also empowers them to play a role in shaping the future. Additionally, through comprehensive communication and outreach strategies, the project seeks to enhance ocean literacy among various stakeholder groups, including local communities and the broader public in targeted regions. Furthermore, the initiative supports the shift towards a cleaner and more sustainable blue economy by promoting inventive student projects across different sectors, such as circular economy, clean energy, biodiversity, and food systems. By establishing support structures at local and network levels, as well as providing educational resources and training opportunities, the project aims to amplify its impact within communities.



Fostering positive-impact projects, the SHORE partnership will influence local and possibly regional policies only if short-term projects are supported to evolve into long term initiatives, embedded in the mesh of the local Blue Economy and stakeholders. The SHORE project will be promoted as a grassroots movement, although possible top-down regional institutions could help reach a wider audience, and through ocean literacy, increase the engagement of local communities beyond the school system, to promote action at the hands of current and future generations of citizens.

The SHORE partnership has effectively employed a collaborative strategy to empower educators by providing insights, training, assets, and solutions. This initiative has paved the way for the process of integrating Ocean Literacy into European school curricula and marine educational policy.

Through these efforts, SHORE contributes to advancing the EU's vision for a sustainable blue economy and encourages active involvement in shaping a more environmentally friendly future...



SHORE

Empower students as the agents of change



Funded by the
European Union