



ANNUAL CONFERENCE
Ostend, Belgium

17-19 SEPTEMBER 2025



BOOK OF ABSTRACTS

WELCOME

Dear participants,

The European Marine Science Educators Association is delighted to welcome you to the vibrant coastal city of Ostend.

Every year, the EMSEA Annual Conference brings together educators, scientists, policymakers, and advocates from across Europe and beyond. We invite you to share ideas, forge collaborations, and celebrate our collective efforts toward an ocean literate society.

We thank our hosts, partners, and sponsors who made this gathering possible, and most of all—you for being part of our community.

Enjoy the conference, and enjoy Ostend!

Warm regards,

The EMSEA Organising Committee

Endorsed By



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

Organizers and Partners



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CONFERENCE PARTNERS



The Flanders Marine Institute (Dutch: Vlaams Instituut voor de Zee, VLIZ) is a scientific institution dedicated to marine research. Established in 1999 and headquartered in Ostend, Flanders (Belgium), VLIZ gathers and disseminates ocean knowledge, promotes marine sciences, supports policy-making, fosters innovative solutions, and manages marine data. The institute collaborates closely with scientific institutions, governments, and industry on both national and international levels.

VLIZ's mission is to advance scientific knowledge of marine ecosystems. Its scope covers global seas and estuaries, with a specific focus on the Southern North Sea and the Flemish coast. The institute ensures this knowledge is widely accessible to support the sustainable management of marine resources. VLIZ collects, analyzes, and shares marine data, supporting both scientific research and marine policy. The institute explores innovative pathways, such as developing monitoring systems and marine robotics. Its motto aptly reflects this mission: "VLIZ, pioneer in marine knowledge."

VLIZ conducts multidisciplinary research with significant societal relevance and impact. Its research adheres to the principles of Open Science and emphasizes collaboration. The Climate-Ocean-Biodiversity nexus is central to VLIZ's research, focusing on two thematic pillars: Ocean and Human Health and Climate Change in Shallow Coastal Zones.

VLIZ manages several key databases, including the World Register of Marine Species (WoRMS), an authoritative repository of taxonomic information on all marine species worldwide. The institute provides access to marine data through platforms like EMODnet (European Marine Observation and Data Network). And VLIZ operates advanced research infrastructure, including the research vessel Simon Stevin, the workboat Abbé Mann, and a fleet of marine robots.

In addition to research, VLIZ actively engages a broad range of stakeholders, including scientists, policymakers, businesses, governments, educators, and the general public. The institute offers training opportunities, internships, and collaboration programs with universities and research institutions. VLIZ also raises awareness about marine and climate issues through public events and educational initiatives. It is one of the pioneers of the Ocean Literacy movement in Europe and an active promoter of marine citizen science.

VLIZ collaborates with various national and international organizations and institutions. It is a key player in international networks focused on marine sciences, providing expertise in marine data use, technology development, and knowledge sharing.



The European Marine Observation and Data Network (EMODnet), is the European Union (EU) public marine data service for in situ (field) data, managed by the EC Directorate-General Maritime Affairs and Fisheries (EC DG MARE). EMODnet works with thousands of data collection efforts across the EU and beyond to assemble, connect and transform these data from raw data into harmonised layers, maps and products at European scale.

The EMODnet Portal (emodnet.ec.europa.eu) serves as a single access point to all EMODnet services, offering easy and free access to a wealth of marine data, metadata, and data products to over 160,000 annual users. Covering seven disciplinary themes—bathymetry, biology, geology, physics, chemistry, seabed habitats and human activities—EMODnet spans the entire marine environment, from coastal zones to the deep sea. It also supports the Blue Economy operations by providing data and information—from vessel density and offshore platform sitings, to hosting EU Member State Maritime Spatial Plans.

In collaboration with over 130 partners, EMODnet aggregates data into Findable, Accessible, Interoperable, and Reusable (FAIR) pan-European data layers, with data and accompanying metadata harmonized according to EU (e.g., INSPIRE) and International (e.g., ISO) standards. Its vast expert network of Europe's leading institutes in marine data management—namely national centres for oceanographic, hydrographic and geological data—produces unique data products, such as EUSeaMap, a broad-scale seabed habitat map, the EU Digital Terrain Model for harmonized bathymetry, and the Marine Litter Database. EMODnet's public Data Ingestion service enables broader data contributions, including from citizen science initiatives.

As a core EU public marine data service, EMODnet also plays a key role as the in situ marine data component of the European Digital Twin of the Ocean—a new digital toolbox for ocean forecasting and decision-support. Together with Copernicus Marine Service, EMODnet provides the foundational data and infrastructure that power this innovative platform.

EMODnet serves a diverse user community, including stakeholders from the Blue Economy, national authorities and administrators, research and academia, non-governmental organizations, and society. It actively contributes to key EU policies such as the Marine Strategy Framework Directive (MSFD) and the Maritime Spatial Planning Directive (MSPD).

By providing accessible marine knowledge, EMODnet supports sustainable marine management and conservation across Europe and beyond. It also empowers ocean literacy by providing marine data for the EC online communication tool, the European Atlas of the Seas, a platform for education, outreach, and ocean literacy, including teaching resources that is used by the EU4Ocean Ocean Literacy initiative.



EuroGOOS is the European component of the Global Ocean Observing System (GOOS), operating under the Intergovernmental Oceanographic Commission of UNESCO. Established in 1994, EuroGOOS currently unites 48 members from 19 countries, including governmental agencies, research institutions, and companies. Beyond its membership, EuroGOOS engages a wider community of over 140 organisations through its regional oceanographic systems, networks of observing platforms, and expert working groups. By fostering broad collaboration, it drives the development of sustained and coordinated operational oceanography across Europe.

Image credit: Vanessa Cardin, OGS

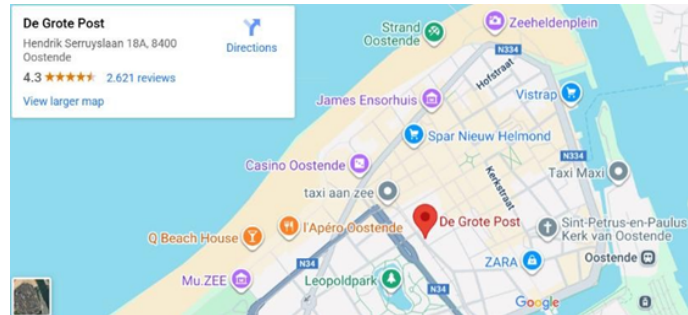


CONFERENCE VENUE

Address

Hendrik Serruyslaan 18A
8400 Oostende, Belgium
+32 59 56 85 00

<https://www.degrotepost.be/>



Location

The conference will take place at De Grote Post in Ostend, Belgium. De Grote Post is centrally located, just a short 10-minute walk from Ostend's railway station, the beach, and many restaurants. Its position makes it easy for participants to explore the city before or after the day's sessions.

De Grote Post is one of Ostend's architectural treasures. Built in the 1950s by Gaston Eysselinck, it originally served as the city's central post office which handled thousands of parcels and letters every day. Today, it remains one of the most iconic examples of modernist architecture in Belgium. Its striking façade and spacious interiors reflect the optimism of the post-war era, while its transformation into a cultural and conference center has given it a vibrant new life.

Since its opening in 2012, De Grote Post has become a hub for the arts, performance, and knowledge exchange, hosting over 250 events each year. Its theatres and meeting rooms are venues for concerts, lectures, festivals, and conferences, making it a lively meeting point for locals and international visitors alike.

Facilities available:

- Free WiFi is available throughout the building and in all rooms (no password needed)
- Cloakroom is free of charge and located on the ground floor
- The venue has wheelchair-friendly access and lifts

KEYNOTE SPEAKER

Frank Schweikert

Journalist, biologist, speaker -

for the protection of our ocean and the mitigation of climate change

Frank Schweikert is a journalist, biologist, entrepreneur, diver, and sailor. He is deeply committed to protecting the ocean and our natural life-support systems. At the age of 14, he began working as a reporter and photographer for the daily newspaper *Badische Neueste Nachrichten*, later serving as an editor for psychological defense in the German Armed Forces, and subsequently as an author and presenter for ARD, Deutschlandfunk, as well as various private broadcasters and news agencies. His work with SWF3 program director Peter Stockinger—who discovered talents such as Frank Plasberg and Anke Engelke—significantly shaped his journalistic path.



His friendship with the international law expert, ecologist, and publicist Elisabeth Mann Borgese—the youngest daughter of Thomas Mann, who would have turned 100 in 2018—transformed him into an activist for a healthy ocean as the “common heritage of mankind.” Nobel Peace Prize laureate Prof. Dr. Hartmut Graßl, a leading figure in the IPCC, encouraged him early on to take a stand against advancing climate change. He also had the opportunity to personally meet ocean legends Hans Hass and Jacques-Yves Cousteau.

He was particularly inspired by the documentaries of ocean exploration pioneer Jacques-Yves Cousteau. Since 1992, Schweikert has operated Europe's only sailing research and media vessel—the *ALDEBARAN*—which has an exemplary low ecological footprint. The ship has since become a legendary communication bridge between the ocean and society. In 2005, Schweikert initiated the national ocean competition “Research at Sea” for student teams, which has received multiple awards. Research expeditions with renowned marine scientists investigating climate change off the Central American coast and the international ocean conference series “More than Water – Oceans and Global Responsibility,” which he initiated, motivated him to co-found the German Ocean Foundation with Frank Otto in 2015.

In addition to his board role at the German Ocean Foundation, Schweikert is a founding member and board member of the German Marine Litter Association, deputy board member of the German Society for Marine Research (DGM), and initiated Europe's largest innovation network for measuring plastic pollution in aquatic environments in 2015. He was a member of the extended board of the EU Mission on Climate Adaptation and Societal Transformation, is an associate member of the German Chapter of the Club of Rome, serves on the Supervisory Board of the Desertec Foundation, and is an honorary member of the Rotary Club Passport ECO Planet. In April 2024, Frank Schweikert was appointed to the EU Mission Board for Oceans and Waters, where he now advocates internationally for the protection of our ocean. Also in 2024, Frank Schweikert was included in the Table.Media ESG 100 list of leading entrepreneurs committed to environmental, sustainability, and social issues.

Contact: Deutsche Meeresstiftung/German Ocean Foundation, Grimm 12, D-20457 Hamburg
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EVENT PROGRAMME

Wednesday 17 September

09.00 – 09.30

Welcome speeches

The Organising Committee

Sandra Castañer, Policy Officer, DG MARE - European Commission

Sigi Gruber, Senior Advisor, European Commission

Kate Larkin, head EMODNET

09.30 – 11.00

Session 1: Future of Ocean Literacy

Oral presentations and guided panel discussion with speakers

Moderated by Craig Strang, Emeritus Associate Director Lawrence Hall of Science, University of California, Berkeley, USA

The Pioneering Role of VLIZ in Advancing Ocean Literacy in Europe

Seys J., D'Haese B., Tavernier I., Flanders Marine Institute

Shaping the future of science and society through ocean literacy

Eparkhina D., EuroGOOS, Belgium, and EuroGOOS Ocean Literacy Working Group

Developing national Ocean Literacy Strategies for restoring human-ocean relationships

McKinley, E., Cardiff University

Blue Prescriptions for Human Wellbeing

Thomson-Alberts, F., Ocean Conservation Trust, UK

11.00 – 11.30 | Coffee break

11.30 – 12.00

Keynote

Europe's Leadership in the Century of the Ocean

Frank Schweikert, German Ocean Foundation & Mission Ocean Board

12.00 – 13.15

Session 2: Ocean Literacy and Blue Economy

The Sustainable Blue Economy Partnership – Innovative Ocean Literacy for a Sustainable Blue Economy

Aubert G., JPI Oceans, Belgium, Caballero I., JPI Oceans, Belgium, Natalia Ospina-Alvarez, AIR Centre, Portugal, Majbritt Bolton-Warberg, Marine Institute, Italy, Zorgno M., Ministry for Universities and Research, Italy

Advancing ocean literacy through regenerative sea farming in Danish coastal communities
Espersen, B. S, Havhøst, Denmark and Strange, K., Havhøst, Denmark

Innovative Methods in Ocean Literacy and the Blue Economy: Higher Education Practices from the University of Gdańsk

Dmochowska B., University of Gdańsk, Poland, Łądkowska H., University of Gdańsk, Poland.

Promoting Ocean Literacy in Indigenous Communities

Langan J. University of Manitoba, Winnipeg, Canada.

From Sea to Plate: Choose Responsibly with SEA2SEE MOOC

Zorrilla-Pujana J. SUBMON, Spain, Corbera M. SUBMON, Spain.

13.15 – 14.15 | Networking lunch and poster session

14.15 – 14.45

Session 3: Blue Schools

European Blue Schools - joint presentation:

- Introduction - Dominika Wojcieszek, EMSEA, Network European Blue Schools
- *From Classroom to Coastline: SHORE's Open Calls Catalysing Student Innovation in Ocean Literacy* - Lund S., Baltic Living Lab (SHORE)
- *Probleu Catalogue Of Teaching Aids On Ocean And Water Literacy: A New Collaborative Platform For Educators* - Gennadi Lessin, Plymouth Marine Laboratory, UK, Bonfill Molina, E., CSIC, Spain, O'Driscoll, B., Plymouth Marine Laboratory, UK, Khan, M., Plymouth Marine Laboratory, UK, Kenworthy, A., Plymouth Marine Laboratory, UK, Thompson, M., Plymouth Marine Laboratory, UK, Simis, S., Plymouth Marine Laboratory, UK and Flynn, K., Plymouth Marine Laboratory, UK
- *Experimenting Blue Education In Croatia: Future-Proofing The Blue Generation* - Melita Mokos, University of Zadar, Department of Ecology, Agronomy and Aquaculture, Croatia, Zubak Čížmek I., University of Zadar, Department of Ecology, Agronomy and Aquaculture, Croatia, Radeka I., University of Zadar, Department of Pedagogy, Cindrić M., University of Zadar, Department of Teachers and Preschool Teachers Education, Klarica Karamarko I., University of Zadar, Department of Teachers and Preschool Teachers Education, Nikolaus V., Education and Teacher Training Agency, Croatia
- *Weaving regional and local Blue Schools Networks: The Case of Spain, the Balearic Islands and Catalonia* - Eli Bonfill, Institut de Ciències del Mar (ICM-CSIC), Esteva, C., Teege, S., SeaTeach, Turó, M. and Simon, C., Institut de Ciències del Mar (ICM-CSIC), Spain

14.45 – 15.45

Session 4: Ocean Literacy and Education

Transversal Blue School Experimentation and Leverage Mechanisms Bigot L., Office Français de la Biodiversité, France, Simon C., Institut de Ciències del Mar - CSIC, Spain, Morisseau F., Office Français de la Biodiversité, France.

BLUE.ED Austria – Building the Blue Education Network in Austria

Trautendorf, P. JPI Oceans Belgium / Sustainable Ocean Alliance Austria) Hollerer, A. RESTORESEAS, Austria, Frade, P.R. Natural History Museum Vienna, Austria

The Role of Maritime Museums in Increasing Ocean Literacy

Boon-Williams, L. National Maritime Museum UK / International Congress of Maritime Museums

Educating for Impact: Ocean Literacy in Journalism and Communication University Courses to Foster Coastal Resilience

Galatsopoulou, F., Kenterelidou, C. Aristotle University of Thessaloniki, Greece

15.45 – 16.15 | Break

16.15 – 17.30 | Panel Blue Narratives: Shaping Public Perception of the Sea. How do we portray the sea

Klaudie Bartelink, producer 'North Sea Untamed', Dutch Maritime Productions

Jochem Bukman, climate psychologist, Stichting Klimaatpsychologie

Jan Seys, head Communication, Flanders Marine Institute

18.00 – 19.30 | reception at the City Hall of Ostend with welcome by the mayor John Crombez

Thursday 18 September

09.00 – 09.15 | Welcome address by organising committee

09.15 – 10.45

Session 5: Ocean Literacy and Education

Mapping ocean literacy educational journeys: a review of OL educational research

Bastos E., University of Bath

Ripples - a wave of change on ocean literacy

Frias, J., Atlantic Technological University, Ireland, Burke, N., Galway Atlantaquaria, Ireland,

Nash, R., Atlantic Technological University, Ireland

Building Coastal Climate Resilience through Governance & Ocean Literacy: A Community Approach in Cala Millor (Mallorca)

Aida Pericàs-Palou, Aina G. Gómez, Llúcia Ribot Lacosta, Rosa Rodríguez Gómez, Joaquín Tintoré Subirana, Balearic Islands Coastal Observing and Forecasting System, SOCIB, Palma.

Lluís Gómez-Pujol, University of Balearic Islands, Palma, Balearic Islands, Spain.

Empowering Ocean Literacy through Marine Sensor-Based and DIY Learning: The EduSens and EduBlue Experiences in the Canary Islands

Martin-Imholz S., PLOCAN, Spain, Holgado-Montes T., PLOCAN, Spain and Moran-Ramirez O., Cabildo GC, Spain.

Beach School Explorations: Fostering Marine Awareness and Inquiry in Early Childhood Settings

Burke, N., Galway Atlantaquaria, Ireland, Melia, R., Fahy, C., Skilington, M. , Atlantic Technological University, Ireland, Doran, G., Ryan, C. Galway Childcare Committee, Ireland

Plankton Ecosystems: Art-Science Practices for Ocean Literacy

Riikka Tauriainen, EcoArtLab, Bern Academy of the Arts and University of Bern, Switzerland and Marta Musso, Possea and DTU Aqua, Denmark

10.45 – 11.15 | Coffee break

11.15 – 13.15 | Parallel Workshops

Room 1

11:15 - 12:15

Ocean literacy through public engagement: practical strategies for overcoming barriers
Verstraeten S. and Fontana M., KOI Public Engagement, Belgium

12:15-13:15

Understanding the "why" as well as the "what": Co-designing qualitative ocean literacy questions

Fauville, G., University of Gothenburg, Sweden and McKinley, E., Cardiff University, United Kingdom

Room 2

11:15 - 12:15

Learn how to easily create amazing maps with the European Atlas of the Seas

Van Isacker N., EMODnet Secretariat, Belgium and Collart T., EMODnet Secretariat, Belgium

12:15-13:15

Effectively using 360 videos (VR) in the classroom

Daniels E., Utrecht University, Atkins J., Utrecht University, Huizer T, Arctic Explorer, The Netherlands.

Room 3

11:15 - 12:15

Empowering engagement with excluded communities

Thomson-Alberts, F., Ocean Conservation Trust, UK and Pandeva, R., Thalassophile Project, UK.

Engaging Schools to become Blue Schools, Practical Approaches for Educators
Copejans E., Wojcieszek D., EMSEA, Lund S., SHORE, Living Labs Network, Sonerud A.
Stromstad gymnasium

13.15 – 14.15 | Networking lunch and poster session

14.15 – 15.00

Session 6: Ocean Literacy at the North & Baltic Sea

Addressing the Missing Link: Utilizing Ocean Literacy to Advocate for National Parks at Land, Coast and Sea
Ffion Mitchell-Langford, Campaign for National Parks and Natasha Bradshaw, Independent Researcher ECOP.

How to Lobby for a Win-Win-Win for Nature, Climate and Society in the North Sea
Vanden Eede S., WWF Belgium, Tilkin S., Natuarpunt, Bonhage A., Bond Beter Leefmilieu, Grietens E., Bond Beter Leefmilieu, Burgelman S., 4Sea coalition

Setting Sail for Ocean Literacy
Alun Morgan, University of Plymouth, UK

15.00 – 16.15

Session 7: Ocean Literacy and Advocacy

Developing Youth Ocean Leadership and Advocacy Skills
Lheureux, G., Nausicaa, France; Gin, I., Nausicaa, France

Genesis: Climate Engagement on Scotland's Rural West Coast
Leng, M., Scottish Association for Marine Science; Miller, A., Scottish Association for Marine Science

Bridging the Science-Policy Gap in Ocean Governance through Knowledge Brokerage
Bubenzer, A., OceanECO, Austria/Italy

Embedding Community in Ocean Literacy Strategy: From Community-Led Co-Design to Strategic Development at the Marine Conservation Society
Taylor, C., Marine Conservation Society

Activism as a Key Dimension of Ocean Literacy: The Work of the Irish Ocean Literacy Network to Build Awareness and Support Coastal Communities Across the Island of Ireland
Marra, M. V., Galway Atlantaquaria & Irish Ocean Literacy Network, Ireland; McKinley, E., Cardiff University, United Kingdom; McIlvenny, H., Irish Ocean Literacy Network, Ireland; O'Kinneide, M., Irish Ocean Literacy Network, Ireland; McCann, C., Irish Ocean Literacy Network & The Sea Collective, Ireland; Griffin, D., Fair Seas, Ireland

16.15 – 16.45 | Break

16.45 – 18.00

Open space and regional breakout meetings

Regional groups
North Sea group
Open topics

18.00 – 18.20 | Closing remarks

19:00 - 22:00 | Conference dinner and silent auction fundraiser at "De Cierk"

De Cierk
Maritiem Plein 10 8400 Ostend

Friday 19 September

09.45 – 12.30

Meeting point for ALL @De Cierk

Workshops and Group Tours @VLIZ and @Cierk

10.00 - 11.00 group 1 Visit@VLIZ - group 2 Workshop@Cierk
11.00 - 11.15 walk from/to VLIZ-Cierk
11.15 - 12.15 group 2 Visit@VLIZ - group 1 Workshop@Cierk

Visit @VLIZ

Flanders Marine Institute (VLIZ)
Marine Station Ostend MSO, Slipwaykaai 4, 8400 Oostende
(not at VLIZ main building)

During the guided tour at Flanders Marine Institute (VLIZ), you will visit two of our unique facilities: the Sea Experience Lab and the Marine Robotics Centre

Sea Experience Lab

Housed in a renovated historic bunker on the Marine Station Ostend (MSO) site, the Sea Experience Lab is designed to make the invisible visible. In collaboration with an artist collective studio we developed an art installation, Uncertain Tides, which invites visitors to reflect on the complexity of climate change and biodiversity loss in our oceans.

Marine Robotics Centre

The Marine Robotics Centre (MRC) serves as a state-of-the-art hub for marine technology. It is at the forefront of developing and deploying Marine Autonomous Systems (MAS). These robotic platforms enable detailed observations in remote, challenging, and vast marine environments, helping to fill critical data gaps in ocean and climate research.

Workshops@Cierk

De Cierk

Maritiem Plein 10 8400 Ostend

BlueLightS A Framework to strengthen Blue Education in Europe

Copejans E. Wojcieszek D., EMSEA

Living labs for a smarter North Sea: cocreating ocean literacy with communities

Proust M., Nausicaa, France, Gin I., Nausicaa, France, Catarino A., VLIZ, Belgium, Couchene L.,

Nausicaa, France, Knor A., Hamburg University, Germany, Montier M. Nausicaa, France,

Nitschke T., VLIZ, Belgium, Koen Vervoort, ENoLL

12.30 – 13.30 | Lunch break (lunch not provided)

13.30 – 17.30

Plenary Workshop

Refining the Ocean Literacy Principles

McKinley E Cardiff University, United Kingdom, Bridge N. Ocean Conservation Trust , Copejans

E. EMSEA, Craig Strang, Emeritus Associate Director Lawrence Hall of Science, University of California, Berkeley, USA

ORAL PRESENTATIONS ABSTRACT LIST

No.	First Author	Title
<i>Session 1: Future of Ocean Literacy</i>		
O01	Thomson-Alberts F.	Blue Prescriptions For Human Wellbeing
O02	Seys J.	The Pioneering Role Of VLIZ In Advancing Ocean Literacy In Europe
O03	Eparkhina D.	Shaping The Future Of Science And Society Through Ocean Literacy
O04	McKinley E.	Developing National Ocean Literacy Strategies For Restoring Human-Ocean Relationships
<i>Session 2: Ocean Literacy and Blue Economy</i>		
O05	Aubert G.	The Sustainable Blue Economy Partnership - Innovative Ocean Literacy For A Sustainable Blue Economy
O06	Dmochowska B.	Innovative Methods In Ocean Literacy And The Blue Economy: Higher Education Practices From The University Of Gdańsk
O07	Zorrilla-Pujana J.	From Sea To Plate: Choose Responsibly With Sea2see Mooc
O08	Langan J.	Promoting Ocean Literacy In Indigenous Communities
O09	Espersen B.S.	Advancing Ocean Literacy Through Regenerative Sea Farming In Danish Coastal Communities
<i>Session 3: Blue Schools</i>		
O10	Makocka J.	From Classroom To Coastline: Shore's Open Calls Catalysing Student Innovation In Ocean Literacy
O11	Lessin G.	Probleu Catalogue Of Teaching Aids On Ocean And Water Literacy: A New Collaborative Platform For Educators
O12	Mokos M.	Experimenting Blue Education In Croatia: Future-Proofing The Blue Generation
O13	Bonfill E.	Weaving Regional And Local Blue Schools Networks: The Case Of Spain, The Balearic Islands And Catalonia
<i>Session 4+5: Ocean Literacy and Education</i>		
O14	Bigot L.	Transversal Blue School Experimentation And Leverage Mechanisms

O15	Pericàs-Palou A.	Building Coastal Climate Resilience Through Governance & Ocean Literacy: A Community Approach In Cala Millor (Mallorca)
O16	Martin-Imholz S.	Empowering Ocean Literacy Through Marine Sensor-Based And Diy Learning: The Edusen And Edubluu Experiences In The Canary Islands
O17	Burke N.	Beach School Explorations: Fostering Marine Awareness And Inquiry In Early Childhood Settings
O18	Tauriainen R.	Plankton Ecosystems: Art-Science Practices For Ocean Literacy
O19	Boon-Williams L.	The Role Of Maritime Museums In Increasing Ocean Literacy
O20	Frias J.	Ripples - A Wave Of Change On Ocean Literacy
O21	Bastos E.	How Has Something As Vast As The Ocean Gone Missing From The Curriculum?
O22	Trautendorf P.	Blue.Ed Austria – Building The Blue Education Network In Austria
O23	Galatsopoulou F.	Educating For Impact: Ocean Literacy In Journalism And Communication University Courses To Foster Coastal Resilience
Session 6: Ocean Literacy at the North and Baltic Sea		
O24	Mitchell-Langford F.	Addressing The Missing Link: Utilizing Ocean Literacy To Advocate For National Parks At Land, Coast And Sea
O25	Vanden Eede S.	How To Lobby For A Win-Win-Win For Nature, Climate And Society In The North Sea
O26	Alun M.	Setting Sail For Ocean Literacy
Session 7: Ocean Literacy and Advocacy		
O27	Leng M.	Genesis: Climate Engagement On Scotland's Rural West Coast
O28	Bubenzer A.	Bridging The Science-Policy Gap In Ocean Governance Through Knowledge Brokerage
O29	Lheureux G.	Developing Youth Ocean Leadership And Advocacy Skills
O30	Marra M.	Activism As A Key Dimension Of Ocean Literacy: The Work Of The Irish Ocean Literacy Network To Build Awareness And Support Coastal Communities Across The Island Of Ireland
O31	Taylor C.	Embedding Community In Ocean Literacy Strategy: From

		Community-Led Co-Design To Strategic Development At The Marine Conservation Society
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BLUE PRESCRIPTIONS FOR HUMAN WELLBEING

Thomson-Alberts F.¹

¹Ocean Conservation Trust, UK

The Ocean and human wellbeing are intertwined deeply with each other, with exposure to blue spaces proven to have a host of benefits to people's mental wellbeing. The Blue Mind Theory describes the relationship between the Ocean and humans' wellbeing. Being in, on or around the Ocean can have restorative benefits for our mental health and wellbeing. The Blue Mind Hub (BMH) is an Ocean Conservation Trust (OCT) initiative that uses Blue Mind Theory to encourage Ocean empathy, with a recognition of an individual's role in the health of the Ocean, and the role of the Ocean in their physical and mental health.

The BMH works with health and wellbeing professionals across Plymouth, UK, to support individuals living with poor mental health. Professionals include social prescribers, psychiatrists, mental health workers and GP surgeries. Individuals will reach out to professionals through support services, who then refer to the OCT for BMH activities. Social prescribing offers community-based interventions to support those with poor mental health, reducing pressure on local care services, and improving people's long-term health. Through this programme, the OCT have taken people who are prescribed onto a series of Ocean based activities, from snorkelling, coastal walking and boat trips, to improve their wellbeing. These sessions are free to participants, with travel bursaries being offered to all to break barriers that may prevent people from coming.

Participants complete surveys prior to engaging with any BMH activities, at the end of each session, and at the end of the 8-week programme. The Warwick Edinburgh Mental Wellbeing Scale, UCL Wellbeing Measures toolkit and OCT generic learning outcomes are assessed throughout the programme of activities, measure impact of Ocean based activities on individual wellbeing. Since 2023, 27 individuals have taken part in BMH activities. Using the Warwick Edinburgh Mental Wellbeing scale, the mean score prior to the programme was 38.8 with a standard deviation of 11 (the mean score for the general UK population is 51.0 with a standard deviation of 7), indicating low wellbeing within the group. At the end of the 8-week programme, the mean score was 51.2, with a standard deviation of 11, indicating an improvement in wellbeing back to general population levels. The UCL Wellbeing Measures toolkit was used to evaluate each of the sessions over the 8-week programme, with individuals rating agreement with statements. An average score across the programme was 4.05/5, indicating positive agreement with how the activities linked to individual's wellbeing. These improvements in individuals' wellbeing throughout the course of BMH activities shows the importance of the Ocean for human health and wellbeing, and how blue prescriptions can be used alongside other medical interventions to support those living with poor mental health.

O02

THE PIONEERING ROLE OF VLIZ IN ADVANCING OCEAN LITERACY IN EUROPE

Seys J.¹, D'Haese B.¹, Tavernier I.¹

¹Flanders Marine Institute

Over the past two decades, Ocean Literacy (OL) has become a central component of the global conversation on ocean and climate awareness. The Flanders Marine Institute (VLIZ) has positioned itself as one of the leading institutions in Europe in promoting Ocean Literacy, with a particular focus on education, research, and policy-making. Since the early 2000s, VLIZ has actively contributed to the development of Ocean Literacy, not only sharing scientific insights but also playing a pioneering role in connecting various stakeholders—ranging from scientists and policymakers to the broader public.

This presentation provides a comprehensive overview of VLIZ's contribution to the Ocean Literacy movement in Europe, beginning with Tom Hoeberigs' (2006) work on the importance of Ocean Literacy. The presentation highlights VLIZ's role in organizing the First Conference on Ocean Literacy in Europe (2012) and the subsequent CommOCEAN conference (2016), both of which marked key milestones in the European Ocean Literacy movement. These events not only strengthened scientific communication but also helped to develop a unified European approach to ocean awareness.

In addition to organizing key conferences, VLIZ has played an active role in developing educational programs and promoting the integration of ocean sciences into educational curricula. The institute has launched several initiatives focused on training scientists in communication, developing best practices for ocean education, and fostering collaborations with aquariums and other educational centers. VLIZ has also contributed to baseline studies and research on the effectiveness of Ocean Literacy initiatives in Europe.

Through close collaboration with European networks such as EMSEA, EurOcean, and JPI Oceans, VLIZ has helped strengthen policy-making around Ocean Literacy, assisting in the creation of frameworks that integrate ocean sciences into European education and research agendas. The institute has positioned itself as a key player in global and European initiatives to promote a holistic approach to Ocean Literacy, spreading scientific knowledge while raising public awareness of the urgency of ocean and climate issues.

This presentation not only highlights VLIZ's achievements over the past years but also looks ahead to the future of Ocean Literacy in Europe. It reflects on the dreams and ambitions expressed in 2012 during the First Conference on OL in Europe, examining the steps still needed to realize a sustainable and integrated approach to Ocean Literacy in Europe.

By offering both a retrospective of past efforts and a forward-looking perspective on future challenges and opportunities, this presentation provides valuable insights into the continued development of Ocean Literacy in Europe.

SHAPING THE FUTURE OF SCIENCE AND SOCIETY THROUGH OCEAN LITERACY

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As environmental challenges become increasingly urgent, from climate disruption to pollution and loss of biodiversity, Ocean Literacy is expanding beyond traditional educational frameworks. It is evolving as an enabler of mutual dialogue with stakeholders, shifting from a one-way transmission of knowledge to a dynamic exchange of ideas, experiences, and values. This evolution is reshaping both societal and scientific paradigms.

Ocean Literacy is no longer only about educating the public. It is about connecting with society, learning from each other, listening, interacting, collaborating, and co-creating knowledge. This approach encourages greater accountability and openness in the scientific community, supporting co-design, responsiveness to societal needs, and more effective science-to-policy transfer.

This transformation is central to the UN Ocean Decade project “Scientists for Ocean Literacy”, which aims to embed citizen engagement at the heart of scientific institutions. To enrich marine science organisations with Ocean Literacy methods and approaches, we offer the following recommendations:

1. Foster innovative Ocean observation strategies: Prioritising innovative and inclusive approaches to Ocean observation is essential for addressing the complexity of marine systems. Linking Ocean knowledge with science-to-policy initiatives ensures observations are both relevant and actionable. Ocean Literacy enhances this process by engaging diverse stakeholders, including through citizen science.
2. Increase public engagement: Oceanographic, environmental, and meteorological agencies should actively engage with the public, policymakers, and the economy through Ocean Literacy. These efforts bridge the gap between marine research and society, fostering understanding and support for sustainable practices.
3. Focus on diversity and inclusivity: Ocean Literacy should reach all people, including underserved communities such as those with disabilities or those in hospitals and prisons. Partnerships with education, health, and social services, and co-design with communities, are essential to building inclusive approaches.
4. Leverage digital tools: Online platforms and digital learning tools are vital for expanding Ocean Literacy. These resources should be used alongside hands-on activities to maximise engagement and effectiveness.

5. Foster partnerships: Collaborations across science, education, art, social sciences, and other fields enrich Ocean Literacy initiatives. These partnerships enable exchange of knowledge, creativity, and best practices across disciplines and countries.

6. Strengthen national and regional collaboration: Stronger national synergies are needed to engage both coastal and inland communities. Collaborating across regions enhances the consistency and reach of Ocean Literacy, driving broader societal impact and supporting more robust and aligned marine knowledge systems.

7. Expand funding and resources: Ocean Literacy is often underfunded. Sustainable support will strengthen programmes, attract new talent to marine science, and improve data collection and knowledge systems.

8. Enhance impact monitoring: Improved evaluation of Ocean Literacy activities, including indirect or “spillover” impacts, will help refine methods and demonstrate societal value.

Implementing these recommendations will help marine science organisations leverage Ocean Literacy as a powerful tool for strengthening knowledge systems and mainstreaming ocean stewardship. By embracing mutual learning, inclusivity, and cross-sector collaboration, science can create deeper connections with citizens. The future of Ocean Literacy in science is a lighthouse that will guide us toward the ocean as both a source of knowledge, respect, and shared humanity, cared for by all.

DEVELOPING NATIONAL OCEAN LITERACY STRATEGIES FOR RESTORING HUMAN-OCEAN RELATIONSHIPS

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Once a concept firmly grounded in formal education, ocean literacy has undergone a rapid evolution. Most simply defined as ‘having an understanding of your influence on the ocean and the ocean’s influence on you’, the term ‘ocean literacy’ has been expanded to include multiple aspects of human-ocean relationships. Crucially, since 2020 and in part due to its position as a mechanism for restoration within the UN Ocean Decade (Challenge 10), the importance of understanding ocean literacy at various scales and contexts is increasingly highlighted, including through our own national assessments. This talk presents work carried out in Wales and England to build on this and develop strategic thinking for supporting ocean literacy across the UK.

In 2022, the Wales Coasts and Seas Partnership (CaSP Cymru) identified the need to enhance and foster ocean literacy across Wales as one of three key priorities. During 2022, workshops bringing together over 200 marine and coastal practitioners from across Wales co-identified steps needed to build ocean literacy and develop a vision and strategy for Wales. The Ocean Literacy Strategy for Wales (Y Mor a Ni) was officially launched in January 2024 – the first of its kind in the UK and Europe. Using the work in Wales as a foundation, the Diverse Marine Values project is undertaking a similar co-design process to develop an Ocean Literacy Strategy for England. Following a series of workshops in Spring 2025, this talk will highlight the priorities co-identified by England’s ocean literacy research and practitioner community.

Drawing insights from this strategic work happening across the UK, this talk will present key lessons learned from these collaborative, co-development processes and how these could be applied in other contexts.

THE SUSTAINABLE BLUE ECONOMY PARTNERSHIP - INNOVATIVE OCEAN LITERACY FOR A SUSTAINABLE BLUE ECONOMY

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The transition to a sustainable blue economy requires more than technological advancements and policy alignment – it requires a profound understanding from stakeholders of their role in it. The Sustainable Blue Economy Partnership (the Partnership) recognises Ocean Literacy (OL) as a cross-cutting enabler supporting this transition, as it equips stakeholders with the knowledge and tools necessary to make informed decisions. To foster this transformation, the Partnership has developed diverse and innovative methodologies to embed OL into its co-funded projects, ensuring that research findings resonate beyond the scientific community, and to highlighting the value of a 'sustainable blue economy' literacy for relevant stakeholders, beyond an educational approach.

This oral presentation will showcase the Partnership's multi-faceted approach to OL, demonstrating how tailored formats and methodologies enhance awareness, foster collaboration, and drive sustainable innovation within blue economy sectors. These activities include:

- Podcasts and Blue Economy short videos: designed to make complex scientific topics accessible, these media formats translate research insights into engaging and digestible content aimed at a broad audience around blue economy keywords which are centred on the Partnership's co-funded projects, such as aquaculture, blue biotechnology and coastal resilience.
- OL training for co-funded projects: to maximise their impact, the Partnership provides dedicated training sessions for its co-funded projects, equipping them with the skills to integrate OL principles into their work and communicate findings effectively.
- World Café sessions in regional blue economy workshops: these interactive sessions bring together researchers, industry representatives, policymakers, and local communities of different European sea basins to facilitate open dialogue and knowledge co-creation, ensuring that OL is embedded within regional and sector-specific blue economy initiatives.
- Integration of OL in future Partnership funding calls: acknowledging that research projects play a crucial role in advancing OL, the Partnership actively encourages applicants to incorporate OL and citizen science activities in their proposals. Projects can then enhance their societal impact, engage stakeholders more effectively, and contribute to wider knowledge-sharing efforts.
- Ocean Literacy Toolkit: the Partnership has developed a comprehensive toolkit compiling external publications, learning tools, and its own resources on OL. Designed to inform and

empower stakeholders, this publication can serve as a go-to guide for integrating OL into blue economy strategies and initiatives.

- Ocean Literacy for Businesses: to understand the perspectives of ocean businesses on sustainability practices, the Partnership ran a survey, which resulted in a report with its conclusions and recommendations. The Partnership will organise a workshop on OL for business, in collaboration with EU4Ocean and EMSEA, to foster engagement between industry, academia, and policymakers and the integration of OL in ocean businesses' activities.

Through these initiatives, the Partnership is fostering a culture of informed decision-making in the blue economy, where researchers, industries, and policymakers are empowered to align economic activities with ocean sustainability. This presentation will highlight the Partnership's OL strategy and explore how innovative communication, capacity building, and stakeholder engagement approaches can accelerate the transition towards a truly sustainable blue economy. A Q&A session will be held at the end of the presentation to allow for interaction with the audience.

INNOVATIVE METHODS IN OCEAN LITERACY AND THE BLUE ECONOMY: HIGHER EDUCATION PRACTICES FROM THE UNIVERSITY OF GDAŃSK

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The blue economy is rapidly emerging as a pillar of sustainable development, calling for a new generation of professionals equipped with transdisciplinary knowledge, practical skills, and a systems-thinking mindset. To address this need, the University of Gdańsk (Poland), in collaboration with international partners from two EU-funded projects: AquaLoop (Interreg South Baltic) and Blue BioTechpreneurs (BBT) (EMFAF) has implemented a range of educational innovations focused on experiential, digital, and entrepreneurial learning.

A central methodology used across these initiatives is challenge-based, experiential learning, where students engage directly with real-world sustainability challenges in marine and aquatic contexts. Through pilot-based laboratory work and study visits centered on sustainable and circular solutions in aquatic food production (e.g., aquaculture and aquaponics), participants in the AquaLoop cross-border student exchange program gain valuable hands-on experience. Similarly, in the BBT Nordic and Baltic Hackathons, part of the Blue Bio Techpreneurs hackathon series, students work intensively in international, interdisciplinary teams to address practical problems faced by the blue biotechnology sector.

A key feature of these initiatives is interdisciplinary and international collaboration. In AquaLoop, students from universities in Gdańsk, Klaipėda, and Rostock form diverse teams, learning to navigate cultural differences while integrating knowledge from marine biology, environmental science, and market-oriented approaches. The BBT hackathon series brings together young minds from across Europe, and beyond, who share their diverse experiences, backgrounds, and perspectives. This cooperative model fosters a comprehensive understanding of ocean sustainability and enhances competencies relevant to the blue economy.

Entrepreneurial education is another core pillar supported by the projects, drawing on methodologies such as design thinking, innovation management, and close mentorship from industry professionals. In this context, the BBT hackathons play a crucial role. These intensive, practice-oriented events help students transform scientific and technical insights into practical, market-ready solutions while also developing essential soft skills, including creativity, leadership, and stakeholder engagement.

To promote broad access and digital inclusion, the BBT Massive Open Online Course (MOOC) offers flexible, modular learning opportunities to a global audience. The first module, "Introduction to Blue Bioeconomy Entrepreneurship", now available on the Future Learn

platform, provides foundational knowledge and supports lifelong learning for students and early-career professionals.

Together, the methodologies introduced through the AquaLoop and BBT projects form a holistic and transferable pedagogical model aligned with the goals of the European Green Deal and the United Nations Decade of Ocean Science for Sustainable Development. These innovative approaches help the University of Gdańsk and its project partners cultivate a new generation of ocean-literate, innovation-ready graduates—while providing a replicable framework for institutions aiming to strengthen ocean literacy and blue economy education.

FROM SEA TO PLATE: CHOOSE RESPONSIBLY WITH SEA2SEE MOOC

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Seafood literacy is fundamental to the rise and adaptation to the sustainable blue economy, empowering individuals and stakeholders to make informed choices that balance responsible choices, economic opportunities, and marine ecosystem sustainability. This presentation introduces the SEA2SEE project's Massive Open Online Course (MOOC), a comprehensive educational initiative designed to enhance seafood literacy, foster responsible consumption, and provide a deeper look into seafood production practices. Co-developed by a multidisciplinary consortium, the MOOC is structured into five thematic modules covering ocean literacy, fisheries, aquaculture, seafood traceability, and consumer engagement. The course emphasises the interconnectedness of ocean ecosystems and economic activities by integrating scientific knowledge, industry insights, and practical examples. This immersive approach educates and looks for consumer engagement and provides resources for the general public to spread the voice about seafood literacy, encouraging responsible decision-making. The SEA2SEE MOOC exemplifies how targeted education and digital tools can enhance public understanding, build trust, and align consumer behaviour with the principles of a sustainable blue economy.

PROMOTING OCEAN LITERACY IN INDIGENOUS COMMUNITIES

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The convergence between ocean literacy education and blue economy development creates space to merge traditional Indigenous wisdom with contemporary scientific knowledge of the ocean. Ocean literacy serves as an essential sustainability element because it describes the understanding of ocean system roles in Earth systems and essential ocean services. Ocean literacy stands out as a significant concept in North Sea and Baltic Sea regions yet the North Sea and Baltic Sea areas represent a gap in its implementation within Indigenous communities. The presentation investigates how Indigenous knowledge influences ocean literacy development for blue economy initiatives. The blue economy promotes sustainable ocean resource utilization for economic expansion alongside job generation and sustainable livelihoods thus complementing ocean literacy objectives which enhance human understanding of ocean systems and their importance to well-being.

This research examines how Indigenous communities in North Sea and Baltic Sea areas work together with ocean literacy programs to understand their ocean interactions and perceptions. The study demonstrates the importance of inclusive ocean literacy education and advocacy through a comparison between traditional ecological knowledge (TEK) and scientific methods. The research employs an integrative methodology to support policy reforms which will enable Indigenous peoples to participate in blue economy initiatives focused on environmental conservation and sustainable fisheries management and resource management.

The presentation will also discuss the process of connecting traditional knowledge to contemporary ocean science. The presentation will explore the development of collaborative educational initiatives that merge Indigenous perspectives with capacity development and advocacy for sustainable ocean management. The research findings will expand existing knowledge about ocean literacy especially in Indigenous educational frameworks and future directions for the blue economy.

The presentation demonstrates how Indigenous knowledge enables communities to establish leadership roles in ocean protection alongside economic growth and sustainability by demonstrating ocean literacy's role in creating beneficial policies for marine life and human populations. The research will present a future plan for interdisciplinary collaborations which support ocean preservation and blue economy targets.

ADVANCING OCEAN LITERACY THROUGH REGENERATIVE SEA FARMING IN DANISH COASTAL COMMUNITIES

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In response to growing environmental concerns and the urgent need to strengthen ocean literacy among youth, the Danish nonprofit organization Havhøst has developed Haven i Havet (“The Garden in the Sea”)—a national education initiative that connects formal and informal learning environments through hands-on regenerative ocean farming activities.

Launched in 2021 and now expanding into its second phase (Haven i Havet 2.0), the project builds on a strong foundation: over 6,000 lower-secondary students from across Denmark have already participated in outdoor learning sessions in local maritime gardens, understanding mussels, oysters, and seaweed while learning about ecosystem services, sustainability, and food systems. These marine species not only serve as healthy, local food sources—they also purify the water and support biodiversity, making them ideal tools for experiential environmental education.

Haven i Havet 2.0 aims to further scale this model by engaging 11,500 students from public schools, chef programs, and upper secondary schools over a three-year period. Eight new regional partners will join the existing network of educational maritime gardens, transforming them into accessible hubs for ocean literacy and sustainability learning.

The project’s pedagogical framework is rooted in Education for Sustainable Development (ESD) and emphasizes critical thinking, inquiry-based science education, and place-based learning. Each learning site provides hands-on STEM experiences that link marine science to everyday life, empowering students to act as informed citizens of their local coastal environments.

To support the cross-sectoral nature of ocean literacy, Haven i Havet integrates digital learning tools such as explainer videos and a citizen science platform where students can input and visualize environmental data—deepening their understanding of ecological processes while contributing to a national knowledge base.

Follow-up research conducted by the Danish School of Education (DPU) employs design-based research methods to evaluate student learning outcomes, engagement, and ability to translate STEM knowledge into sustainable actions.

The Haven i Havet initiative is part of a broader educational strategy by Havhøst to connect more people with the ocean. Across all of its projects, Havhøst works to cultivate ocean engagement and foster marine citizenship through regenerative sea farming. This includes

the project HavLivRet, which specifically targets Danish Sea Scouts (søspejdere), equipping them with the tools, knowledge, and experience to become ocean-literate citizens through practice-based learning in regenerative aquaculture.

The initiative has garnered widespread support from municipalities, educators, youth organizations, and national stakeholders, including science centers, cultural institutions, and local food networks. It is a compelling example of how regenerative aquaculture can serve not only as a climate and biodiversity solution, but also as a framework for interdisciplinary, transformative learning and civic empowerment.

By combining education, sustainability, and local engagement, Haven i Havet and its sister projects demonstrate how small-scale regenerative sea farming can create big ripples—in classrooms, communities, and coastal ecosystems alike.

FROM CLASSROOM TO COASTLINE: SHORE'S OPEN CALLS CATALYSING STUDENT INNOVATION IN OCEAN LITERACY

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The SHORE project - Empower students as the agents of change – is dedicated to increasing ocean literacy by engaging students and teachers from across Europe and beyond to implement the EU Mission Ocean's objectives through blue projects funded by SHORE projects and its dedicated Open Calls. Recognizing the critical need to foster a generation deeply equipped with knowledge about oceans and waters, during SHORE implementation, project provided grants to empower students to become an agent of change through its 3 Open Calls, funding nearly 100 schools' projects of a total value of nearly 1 million euro.

A SHORE's great success lies in its core activity and 3 implemented Open Calls for school projects, encouraging innovative and hands-on "blue projects" that directly engage students with ocean and water-related themes. By providing financial support, SHORE project enabled schools to move beyond traditional classroom learning and implement impactful, real-world activities that foster a deeper understanding of ocean literacy and ramp up the accreditation of the Network of European Blue Schools established under the EU4Ocean coalition.

The SHORE project offers a compelling model for effectively integrating ocean and water literacy into school curricula. By providing grants and recognition such as "Ocean Ambassador of the Year" for the best project, SHORE is empowering students to become agents of change contributing significantly to the goals of the EU Mission "Restore our Ocean and Waters by 2030."

The presentation during the EMSEA conference will spotlight the SHORE project's key milestones, achievements and its contribution to the advancement of ocean literacy among students from primary and secondary schools. The presentation will be supported by real examples of case studies and results from SHORE-funded projects. These projects are diverse and student-driven, ranging from investigating local water quality and biodiversity to developing sustainable solutions for marine pollution and exploring the cultural significance of coastal environments. The session will present different approaches of integrating student-led projects about ocean literacy into regular education models as well as showcase how different members of the school ecosystem are included in proposed activities.

SHORE is a Mission Ocean and Waters project funded by the EU's Horizon Europe research and innovation programme.

PROBLEU CATALOGUE OF TEACHING AIDS ON OCEAN AND WATER LITERACY: A NEW COLLABORATIVE PLATFORM FOR EDUCATORS

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The ProBleu Catalogue of Teaching Aids on Ocean and Water Literacy (<https://probleu.pml.space>) represents an innovative approach to advancing ocean and water literacy in school communities across Europe and beyond. Launched in December 2024, this freely accessible online platform provides a collaborative repository where educators can both discover and contribute teaching materials focused on ocean and water literacy. The catalogue hosts a diverse and growing collection of resources including slides, worksheets, videos, dynamic simulations, and links to external online materials that align with the seven Ocean Literacy Principles, while advancing all ten dimensions of Ocean Literacy for marine and inland water environments.

The teaching materials for the catalogue are provided by the EU project ProBleu, by schools funded through the project, as well as by organisations and initiatives that have a mission to advance ocean literacy and responsible stewardship of the oceans. A key innovation of the platform is its multilingual support, automatically translating editable resources into all 24 official EU languages, thereby enhancing accessibility and inclusion.

The catalogue emphasises Open Schooling methodologies, encouraging wider community engagement in ocean literacy education. The platform further fosters innovative approaches towards learning about the functioning of aquatic systems through dynamic simulation models that allow students to perform digital experiments to explore complex processes like acidification and climate change. Finally, a selection of "Virtual Journeys" offer students insight into the work of scientists while showcasing diverse role models to challenge stereotypes in STEM fields.

The ProBleu Catalogue supports educators in developing ocean and water literacy within formal educational settings, while promoting stewardship, sustainable practices, and cultural connections to aquatic environments. We invite EMSEA members, and everybody interested in advancing ocean literacy, to contribute to this growing educational resource.

EXPERIMENTING BLUE EDUCATION IN CROATIA: FUTURE-PROOFING THE BLUE GENERATION

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BlueLightS is one of the three projects (together with ProBleu and SHORE), under the EU Mission 'Restore our ocean and waters by 2030', which is committed to increasing ocean literacy and fostering environmental stewardship within school communities, thus mainstreaming blue education in Europe. This project aims to strengthen the knowledge and skills of students and teachers to deliver 'blue' resilience and sustainability, which includes both marine and freshwater environments and ecosystems.

Croatia is a country with over 1000 islands, islets and cliffs, over 6000 km of coastline, and a marine surface over 31,000 km². This indicates the country's strong connection to the Adriatic Sea and its strong orientation towards the sea through a variety of economic activities, but also through culture and tradition. While living in times of great coastal pressure, climate change, ocean acidification, etc., there is a need to bring the knowledge about the ocean-human relationship to the education community, including current and future students and teachers.

As a part of the BlueLightS project, Croatia is one of the nine experimentation countries that will take actions to enhance the status of blue education in their respective countries. In Croatia, the presence of blue education components is very scarce, and there are almost no opportunities for both in-service and pre-service teachers to receive training in marine and freshwater topics. However, many non-formal blue education initiatives offer different activities related to blue education, but these are poorly connected to the formal education system.

In this presentation we will present experimentation activities in Croatia: a) increasing opportunities for teachers to engage in blue education by creating opportunities for lifelong learning and training (teacher training certified by the national Education and Teacher Training Agency), b) developing educational resources in the native language, and c) promoting opportunities for blue education for pre-service teachers as a part of their university education, d) mapping existing blue education initiatives in, both formal and non-formal education and exploring ways to connect them; e) enabling communication between key stakeholders related to blue education and building stronger connections between formal and non-formal education stakeholders, f) connecting different blue

education initiatives with teachers, g) promoting blue education at different online and in-person national events.

This experimentation will increase visibility of blue education and contribute to its mainstreaming in Croatia.

WEAVING REGIONAL AND LOCAL BLUE SCHOOLS NETWORKS: THE CASE OF SPAIN, THE BALEARIC ISLANDS AND CATALONIA

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In the framework of the EU's Blue Schools initiative, the Global Blue Schools initiative by IOC-UNESCO, and the broader goals of ocean literacy promoted by the UN Ocean Decade, schools are playing a central role in fostering ocean-engaged and environmentally responsible citizens. While the establishment of individual Blue Schools constitutes a significant step toward fostering ocean- and water-literate societies, the development of collaborative networks at national and regional scales is essential to consolidate practices, share resources, and amplify educational impact.

We present the development of the Spanish Network of Blue Schools, as well as two of its pioneering regional nodes: the Balearic and Catalan Networks of Blue Schools. We will explore how these networks emerged, how they are coordinated, and how they adapt the Blue Schools model to their specific socio-environmental and linguistic contexts, in a country with several regional educational systems.

By showcasing concrete examples of interdisciplinary or innovative school projects, partnerships, and teacher training programmes, the presentation will highlight how local networks empower educators and students to connect more deeply with marine and water issues relevant to their communities.

We will also reflect on the challenges of sustaining and scaling these networks, including the need for institutional backing, funding, and long-term vision. We conclude by considering the potential of these regional networks as scalable and replicable models for enhancing the translocal and international coherence of the Blue Schools movement in Europe and beyond.

TRANSVERSAL BLUE SCHOOL EXPERIMENTATION AND LEVERAGE MECHANISMS

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The French Office Français de la Biodiversité (OFB) has been successfully developing the Educational Marine Areas (EMA) methodology for over 12 years, as the more than 1200 schools participating in the program demonstrates it. In the framework of BlueLightS European project, it tries to export and adapt this methodology. In this contribution, we will present the experiment that is being conducted in Catalonia (Spain) as a collaboration between the OFB, the Spanish Institut de Ciències Marines (ICM-CSIC) and the Catalan Escoles Verdes, a regional educational body.

The EMAs is a cross-cutting methodology based on outschooling, where students actively lead their learning at every stage of the project. Its goal is not only to introduce "blue" concepts, but also to empower students as citizens engaged in preserving blue and green ecosystems. Guided by their teachers and an environmental education organization, pupils define the boundaries of a local natural area. Through a student council, they plan and carry out actions throughout the year. In doing so, they develop curriculum-based skills, explore their surroundings, and take an active role in managing a shared space. This civic approach is built on three pillars:

- Knowledge: Gaining scientific, practical, and civic insights into biodiversity and its challenges.
- Living: Reconnecting with nature through frequent visits and experiential learning.
- Passing On: Sharing and preserving local heritage through dialogue with peers, adults, and the community.

In order to be exportable, the methodology has to adapt to the regional educational framework and to be supported by a network of entities to make it autonomously durable. In this presentation, we will explain all the actors that are being involved, and the lessons learned after the first year of experimentation.

The EMAs have been tested in different contexts in Catalonia: a couple of primary schools are located in a natural park area, which allows to benefit from specific educators dedicated to work in the park. The last school which is implied in the project is a secondary school located in a coastal town, but it does not benefit from a natural park infrastructure. Secondary schools have a completely different dynamics which obliges to adapt the project to their specificity. In the case of this school, the partners have created ties with a variety of entities, such as the harbour or local government.

We will end the presentation by talking about opportunities and difficulties on how to make this methodology viable in a long term, and how it contributes to make the schools bluer.

BUILDING COASTAL CLIMATE RESILIENCE THROUGH GOVERNANCE & OCEAN LITERACY: A COMMUNITY APPROACH IN CALA MILLOR (MALLORCA)

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The adaptation of urban beaches to climate change is a major challenge for coastal communities worldwide. Addressing this issue requires the integration of scientific knowledge through the development of context-sensitive solutions, along with coordinated cross-sector efforts. In light of these factors, Marine Research Infrastructures -such as SOCIB- provide a solid hub to drive innovation, foster interdisciplinary collaboration, and generate the data and tools that, together with society engagement and governance, support effective coastal adaptation strategies. Considering this approach, SOCIB contributes to the LIFE AdaptCalaMillor project, promoting long-term climate change adaptation at the urban beach of Cala Millor (Mallorca). The project bridges science, local communities, public authorities, and the private sector to co-develop solutions based on scientific knowledge and local contexts, while fostering ocean literacy and raising awareness of the ocean-climate change connection. In this process, the communities in the two municipalities where Cala Millor is located play a key role. Citizens are engaged in the future selection of adaptation strategies through local associations and the educational community. Four key steps are established for the engagement: mapping interested sectors, understanding perceptions, training participants, and selecting adaptation measures.

Firstly, local associations and councils collaborated to create a contact database with 32 social entities. From this list, active local associations, schools, and high schools were prioritized for the engagement process. Secondly, a perception study on the effects of climate change was conducted to understand their needs and concerns. This involved surveys of 955 students and teachers from six educational centers and 38 semi-structured interviews with nine local associations. The study identified several knowledge gaps to be addressed. Thirdly, based on these findings and a science-based multirisk assessment at Cala Millor, an awareness program was developed. A total of 717 students and 42 teachers from the six educational centers participated in 38 workshops. Additionally, 90 members from local associations attended six specific sessions. To support these efforts, a range of innovative and creative resources were designed: the illustrated story *Jumping the Waves* (in Spanish, *Saltar las Olas*); the interactive game *Kahoot! Climate Change and How to Adapt Our Coasts*; the teaching units *Let's Take Care of Our Beaches by Adapting Them to Climate Change*, tailored for upper

primary and lower secondary school students; the workshop guide *Cala Millor Through Time*; and a historical photographic record of 84 images from 1939 to 2024. These resources have been pivotal in promoting critical thinking, understanding the coastal environment, and raising climate change awareness in a creative and relatable way. Finally, the adaptation measures will be selected through participatory strategies and guided transect walks led by experts across the climate-affected area. These methods will include visual designs of future prioritized measures implemented at Cala Millor, making the anticipated impacts of adaptation easier to understand. To date, activities have received positive evaluations from participants, confirming their effectiveness. This validation boosts the project's commitment, establishing guidelines for future replication in other coastal regions, driving transformation and integrated adaptation while promoting climate change awareness and ocean literacy within local communities.

EMPOWERING OCEAN LITERACY THROUGH MARINE SENSOR-BASED AND DIY LEARNING: THE EDUSEN AND EDUBLUE EXPERIENCES IN THE CANARY ISLANDS

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The Oceanic Platform of the Canary Islands (PLOCAN) has launched two pioneering education initiatives, EduBlue and EduSen, designed to foster ocean literacy and environmental awareness through marine sensor-based and do-it-yourself (DIY) learning, scientific exploration, and sensor technology. Both projects aim to inspire secondary school students and educators by connecting them directly with marine science and sustainability challenges relevant to their local context.

EduBlue currently engages 375 students and 22 teachers across 15 secondary schools in Gran Canaria. The project centers on the hands-on construction of floating solar and offshore wind platform kits, integrated with green hydrogen production systems and underwater hydrophones. Students assemble electrolyzers and semi-submersible structures and also use CO₂ sensors to compare emissions from renewable and fossil energy sources. They also record underwater acoustic data with low-cost hydrophones to study the noise impact of energy systems on marine life. This DIY approach enables students to understand the mechanics and environmental implications of marine renewable energy, promoting creativity, technical skills, and environmental responsibility. Their results are documented in scientific posters and presented at a Junior Marine Congress.

EduSen currently targets 250 students and 15 teachers across 10 secondary schools in Gran Canaria, focusing on coastal oceanography and marine biodiversity. The core of EduSen is a DIY exploration of ocean sensing: students build and operate Arduino-compatible marine sensor kits and the open-source PlanktoScope. This low-cost microscope and sensing toolkit allows students to collect and analyze water samples, observe plankton biodiversity, and measure essential ocean variables. Through field excursions, sensor integration, and data visualization, students engage in real-world marine science while developing programming, electronics, and environmental analysis skills. The project empowers students as creators of their own scientific instruments and contributors to citizen science. Their results are documented in scientific posters and presented at a Junior Marine Congress.

Both projects follow a structured methodology that includes teacher training, student-led experimentation, interdisciplinary learning, and public outreach. Supported by Education and Youth Department of the Gran Canaria Island Council, The Oceanic Platform of the Canary Islands (PLOCAN) and H2Green initiative, EduBlue and EduSen exemplify how low-cost and

replicable DIY tools can democratize access to ocean science education.

Preliminary evaluations show increased student interest in STEM fields, greater environmental awareness, and improved confidence among teachers in addressing ocean-related topics. Final congress events serve as platforms for student-led science communication and community engagement.

By leveraging DIY innovation and local engagement, EduBlue and EduSen offer replicable models for advancing ocean literacy and building a new generation of environmentally responsible, technically skilled citizens. We would like to share this experience at EMSEA to inspire broader application across Europe and support the goals of the UN Decade of Ocean Science for Sustainable Development.

BEACH SCHOOL EXPLORATIONS: FOSTERING MARINE AWARENESS AND INQUIRY IN EARLY CHILDHOOD SETTINGS

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This ethnographic mixed-methods study, initially piloted in 2018/2019, aimed to ignite early years educators' interest in ocean literacy and explore how this could be shared with young children in Early Years and School-Age Childcare (SAC) settings in Galway, Ireland. In early 2020, due to the COVID-19 pandemic, an eLearning programme—Exploring the Shores—and an accompanying resource guide were developed.

Structured around the principles of ocean literacy, the teaching approach was based on child focused experiential learning, the local coastal environment, and the well-being of children. Pathways to nature connectedness were also integral to the methodology, as the sensory aspects, emotional connections, meaning, beauty of the spaces and their inhabitants and compassion for the natural world were also considered. During the 2023–2024 and 2024–2025 academic years, 25 BA Early Childhood Education and Care (ECEC) students at Atlantic Technological University (ATU) engaged with the Beach School eLearning programme and accompanying lecture content.

Year One (2023–2024):

Nine ECEC students brought the seashore into early years settings using an inquiry-based learning approach. They shared and applied their knowledge through play-based experiences, scaffolding children's learning as they explored their wonderings and inquiries about the ocean and shore life. A total of 30 students, children, and families visited Galway Atlantaquaria, followed by a beach play day involving 50 participants.

Year Two (2024–2025):

With funding from the National Technological University Transformation and Recovery and Resilience (NTUTORR) programme, the project expanded. This phase included the purchase of digital cameras and microscopes for children. Sixteen students engaged with the eLearning programme, while scientists from Galway Atlantaquaria collaborated with three ECEC settings, reaching 66 children. Additionally, 20 students visited the Atlantaquaria, followed by an Exploring the Shores play day for approximately 150 children and their families. This event was co-facilitated by marine scientists, ATU lecturers, Galway Childcare Committee staff, and BA ECEC students.

Student and parent surveys were conducted, and children used digital cameras to express their interests, perspectives and voice. A student focus group (n=16) evaluated the student

learning outcomes of the project. Initial findings from parents indicated increased awareness of the beach as a learning and play environment. Children's feedback revealed a strong commitment to protecting marine life, particularly through litter prevention. Student feedback emphasized the need for enhanced ocean literacy to empower educators to confidently share marine knowledge with children and families.

Ethical protocols, including adult consent and child assent, were followed throughout the project. This presentation will outline the project's learnings and future vision for embedding ocean literacy within ECEC settings in Ireland, as we continue to be inspired by the words of Vladimir Ryabinin, Executive Secretary of UNESCO's Intergovernmental Oceanographic Commission, when he said 'Our future is in the ocean. We want young people to become friends of the ocean as soon as possible.'

PLANKTON ECOSYSTEMS: ART-SCIENCE PRACTICES FOR OCEAN LITERACY

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The presentation introduces "Plankton Ecosystems", a participatory art-science project developed by artist-researcher Riikka Tauriainen in collaboration with marine biologist Marta Musso (Possea and DTU Aqua) at the EcoArtLab. The project explores plankton diversity and its role in regulating aquatic and climatic systems through collaborative and situated approaches. Combining artistic research, community science, and transdisciplinary exchange, "Plankton Ecosystems" fosters ocean literacy through experiential and sensory engagement.

Plankton, though largely invisible to the human eye, form the basis of the marine food web and play a critical role in global climate systems. Yet, their presence and significance remain largely unknown outside of scientific discourse. "Plankton Ecosystems" engages this gap by shaping a new narrative around these microscopic life forms, not merely as data points but as agents within complex aquatic networks. The project takes a non-anthropocentric and relational perspective, asking what it means to see, sense, and think with plankton, and how this can inform more responsible and imaginative relations with the ocean.

Ocean literacy is understood here not only as knowledge acquisition but as an embodied, affective, and situated practice. A key methodological focus lies in how sensory experiences of water – diving, listening through hydrophones, microscopic observation – can bridge imagination, scientific understanding, and emotional engagement.

Educationally, the project operates across hybrid learning spaces: an interdisciplinary study group, public workshops, art-science think tanks, a workbook and a film. These formats invite diverse audiences from children to students, researchers, artists and citizen scientists to engage directly with the tools and techniques of both artistic and scientific inquiry. Citizen science tools like the Curiosity Microscope and PlankoScope are used not only to make plankton visible but to foster multispecies awareness and eco-political reflection on the rights of aquatic life.

Plankton Ecosystems centers on co-creating situated knowledge and transferable methods, fostering ecological literacy that is cognitive, embodied, poetic, and participatory. Ultimately, the presentation discusses how ocean literacy can be reimagined through transdisciplinary collaborations that blend artistic research, sensory experience, and community science – inviting affective learning, plural knowledges, and renewed human-aquatic relations.

Riikka Tauriainen (she/they) is a visual artist whose installations, films, and sculptures address ecology, ocean literacy, and gender politics. Born in Finland and based in Zurich, she holds a

Master of Fine Arts from the Zurich University of the Arts. She is a doctoral candidate at the Institute of Art History at the University of Bern and works as a researcher at EcoArtLab on practice-based collaborations at the Bern Academy of the Arts. In 2025, she is working as a visiting PhD student at DTU Aqua in Copenhagen.

Marta Musso (she/her) is a marine biologist and illustrator working on ocean literacy and science communication, with a focus on plankton. She received the IOC-UNESCO Donna del Mare award for her outreach project Possea – post from the sea, a mobile initiative aboard a vintage post van. She co-developed Young Blue Minds, a platform connecting young ocean experts across disciplines. In 2022, she spoke at TEDxBergamo about oxygen and phytoplankton. Marta is currently pursuing an MSc in Ocean Engineering at DTU, where she also works as a research assistant on jellyfish and plankton distribution in the Baltic Sea as part of the Centre for Gelatinous Plankton Ecology & Evolution

THE ROLE OF MARITIME MUSEUMS IN INCREASING OCEAN LITERACY

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Traditionally Maritime museums have presented the ocean as a resource to be exploited, or merely a highway on which ships travel.

In a time of Climate and Ecological emergency what role do maritime museums have to play in increasing ocean literacy? How can historical collections be utilized in order to learn from the past and increase audiences' understanding of the challenges facing us today?

This paper will explore case studies both from the National Maritime Museum (NMM) in Greenwich (the authors institution) and the work of the International Congress of Maritime Museums (ICMM) in increasing ocean literacy capacity of its members.

NMM is currently undergoing a transformative project to put the ocean at the heart of the museum – renaming its main atrium space 'Ocean Court' (opening June 2025) with a greater interpretive focus on ocean literacy related topics. World Ocean Day is a key festival day for the museum to celebrate the ocean and provide a platform for scientists and ocean advocates.

ICMM is increasingly taking the lead in supporting its members to embed ocean literacy into their practice including by offering training, resources and coordinating shared events.

RIPPLES - A WAVE OF CHANGE ON OCEAN LITERACY

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Ocean literacy—the ability to understand the ocean's influence on us and our influence on it—is fundamental to the development of sustainable visions of the future. Although ocean literacy started from educators and scientists coming together to explore new ways of bringing ocean knowledge into academic curricula, outside of school environments the general public might not have access to important relevant information that fosters deeper oceanic connections. The advent of artificial intelligence and new ways of communicating are taking us, as a species, away from nature. This is where the Waves of Change project comes in, as it addresses these knowledge and logistic gaps by creating opportunities and synergies between marine science and diverse forms of artistic expression. In 2025, Waves of Change facilitated two unique activities, a one-day immersive scientific cruise on board of the research vessel RV Tom Crean in Galway Bay, and a subsequent one-month art residency at Watershed Studios, also in the West of Ireland. Both experiences, combined with expert masterclasses and a trip to local aquarium in Salthill, enabled artists to be submerged in the ocean, in both its beauty and concerns. Artists were given direct access to scientific practices and knowledge through papers, reports and talks with marine researchers in different fields, including the staff in the local aquarium that provided us with a tour of the species focused on the ocean literacy principles.

The art residence concluded with the exhibition of resulting artwork developed during March, in Ripples, an art showcase that vividly translated complex ocean science into accessible experiences through diverse mediums such as video installations, ceramics, sculpture, photography, and illustration. The showcase had 150 visitors, including researchers, educators and artists, demonstrating how art can bridge emotional and intellectual barriers, while enhancing public understanding of critical marine issues such as biodiversity loss, ocean pollution and climate change. The model for the integration of art and science can be easily replicated for future European initiatives, and the messages and testimonials from artists can significantly contribute to foster meaningful societal change, and to inspire hope and innovative approaches to ocean education and policy engagement across Europe.

HOW HAS SOMETHING AS VAST AS THE OCEAN GONE MISSING FROM THE CURRICULUM?

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At present, ocean topics are largely absent from school curricula worldwide, meaning education systems are failing to fulfil their role of preparing learners to lead informed adult lives understanding the ecological, economic, social and cultural role the ocean plays in their everyday lives. However, chronic overexploitation of marine resources, pollution and habitat destruction is undermining the ocean's capacity to continue fulfilling its important role. It is therefore urgent that the lack of ocean learning is addressed so that everyone is provided with the opportunity to lead lives aware of how the ocean supports all life and impacts human and planetary wellbeing.

Recent studies reveal the stark sparsity of coverage of ocean topics in curricula. For example, the ocean is poorly present in school curricula in Nova Scotia (McPherson et al., 2018), Brazil (Pazoto et al., 2022), Fiji (Lal 2017,) India and the USA (Chang et al., 2021), failing to make the most of the resources of some of these regions. Similarly, school textbooks indicate missed opportunities for teaching and learning about the ocean in Greece and Croatia, where limited inclusion of ocean topics create gaps in the construction of knowledge and thus perpetuate misconceptions (e.g. Ezgeta-Bali? and Bali? 2024).

The current United Nations Decade of Ocean Science for Sustainable Development (2021-2030) is working towards spearheading scientific development and societal engagement to support sustainable development of the ocean, acknowledging a transformation is needed in society's relationship with the ocean. Education is the tool through which citizens become equipped with the knowledge and skills to participate in society and that societal norms and values are enshrined; so improving public understanding of the ocean through education remains pivotal to achieve global commitments to sustainable development of the ocean (Kelly et al., 2021). However, public understanding of issues related to the ocean remain low (e.g. O'Halloran and Silver, 2022), including that of teachers and students (e.g. Koulouri et al., 2022). Addressing this remains a significant barrier to improving society's relationship with the ocean.

But how has something as vast as the ocean become so absent from school curricula, and therefore so removed from everyday histories? This paper seeks to explore what drivers might be at play justifying the alienation of ocean topics in education and support education stakeholders in their challenge to develop a 'blue curriculum' that prepares upcoming generations for global challenges concerning the ocean. Acknowledging colonial heritage, westernisation in education, as well as the sidelining and loss of marine cultural heritage (Henderson, 2019), this paper explores how the once mystified and respected Ocean became

commodified and rarely touched upon in the curricula. By following lineages of mythology, art and history, and tracing patterns in cultural expressions of the human-ocean relationship over time, this paper hopes to reveal how these journeys may have shaped how we teach and learn about the ocean, while offering insight on how we may wish to continue future developments of the 'blue curricula' we urgently need.

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BLUE.ED AUSTRIA – BUILDING THE BLUE EDUCATION NETWORK IN AUSTRIA

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Austria is home to a passionate and diverse range of NGOs and educators engaged in marine conservation. Despite their achievements in reaching schools, engaging the public, and advocating for the ocean, these efforts remain largely unconnected. Awareness of marine issues is still limited, and their relevance for a landlocked country is often questioned.

To shift perceptions and reach policymakers and the public, we launched BLUE.ED Austria, a network that unites marine conservation NGOs and educators across the country. Our aim is to pool expertise, strengthen each other's work, and expand blue education across both formal and non-formal learning settings. Our bold vision is that marine conservation should become as deeply rooted in the Austrian mindset as the protection of our forests.

We are currently working with Maremundi, Sharkproject Austria, Sustainable Ocean Alliance Austria, MERA, Meererschule Pula, Kids Save Ocean, Reef Rescue and Seen Blue. Many of these organisations are part of international networks, giving us access to high-quality materials that we plan to adapt for the Austrian context.

This comes at a crucial moment as Austria prepares to sign the BBNJ Agreement in 2025 and the European Ocean Pact is being launched. Our first goal is to develop a national roadmap for ocean literacy by autumn 2025, outlining clear steps for integrating marine topics into Austria's education system.

Rather than developing materials from scratch, we aim to localise existing ones. Our approach, rooted in Blue Education, highlights the connection between rivers, lakes and the ocean, making marine issues locally relevant. River clean-ups and citizen science projects will support hands-on engagement and foster a deeper connection to nature. Importantly, we also seek to highlight the ocean's role as a space that enables our globalised world, including history, global trade, international politics and security. Ocean literacy should therefore extend beyond the biology classroom and be integrated across multiple subjects.

Art and storytelling are central to our mission. With support from an intersectional network that also includes filmmakers, app developers, educators and museums, such as the Natural History Museum, we want marine education to be creative, inclusive and inspiring. Furthermore, we are working closely with student councils, universities of teacher education,

and other educational stakeholders. With MareMundi and Meeresschule Pula, two Austrian-led marine biology stations in Croatia, we are fostering cross-border connections with communities in Croatia and Slovenia.

The initiative is co- led by Anna Hollerer, ecologist, environmental educator and photographer. She is expanding the Jeanne 002, a school workshop on wheels developed by the RESTORESEAS project in cooperation with the Natural History Museum Vienna and Ars Electronica, by creating ATOLL, a network to support teachers in fostering ocean literacy across Austria.

Paul Trautendorfer, science-policy advisor at JPI Oceans and member of the Sustainable Ocean Alliance Austria, contributes strong links to research and policy. He co-develops the BlueList, a directory of Austrian marine experts, and supports the creation of the Oceans Hub Austria, a new coordination platform for marine and maritime research backed by the Ministries of Education and Agriculture.

EDUCATING FOR IMPACT: OCEAN LITERACY IN JOURNALISM AND COMMUNICATION UNIVERSITY COURSES TO FOSTER COASTAL RESILIENCE

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The need for ocean literacy has never been more urgent. As coastal areas face increasing environmental pressures due to climate crisis, over-tourism, and unsustainable development, there is a growing demand for education and informed public engagement that fosters awareness, resilience, and action.

This presentation focuses on a case study of the integration of the COASTALPRO online training programme into the undergraduate course Sustainable Tourism and Media at the School of Journalism and Communications, Aristotle University of Thessaloniki, Greece. This initiative aims to educate future media professionals and communicators not only on the principles of sustainable tourism but also on their role as advocates for the preservation and sustainable development of coastal and marine environments.

COASTALPRO is an EU-funded online training programme that promotes sustainable local entrepreneurship and environmental stewardship in coastal areas, with a special focus on engaging youth. The training provides interdisciplinary content and practical tools for understanding the challenges and opportunities related to sustainable coastal tourism and climate adaptation. By integrating these modules into a Higher Education-level Media Course, students are exposed to a real-world learning context where ocean literacy is framed not as an abstract concept but as a concrete skillset linked to communication, strategic storytelling, and public engagement while connecting local challenges to global sustainability narratives.

The integration of COASTALPRO into the curriculum follows a blended learning approach and a flipped-classroom methodology, combining online self-paced gamified learning modules with short video lectures, case studies, and quizzes, with collaborative in-class hands-on activities, and student-led projects. Students engage in digital storytelling, media campaigns, and strategic communication activities, allowing them to translate knowledge into practice. They are encouraged to examine local coastal-related issues and develop media content that raises awareness and proposes actionable solutions. This hands-on, participatory model enables students to see themselves as agents of change, capable of inspiring public discourse and socially responsible actions and supporting local efforts toward sustainability. Furthermore, this approach reinforces the role of journalism, communication and media education in promoting environmental and ocean literacy. By sharpening students' communication skills through the lens of sustainability and local engagement, they are empowered to advocate for long-term change, both within their communities and the

broader public sphere. The course also promotes transdisciplinary thinking by bridging communication and journalism studies with environmental science, tourism studies, and regional development.

Initial evaluation results and feedback from students reveal increased awareness of coastal-related issues, a stronger sense of responsibility toward the environment, and a desire to remain engaged in advocacy beyond the academic setting.

This case study demonstrates how higher education via participatory approaches can play a transformative role in equipping the next generation of communicators with the knowledge, values, and practical tools needed to raise awareness and drive sustainable change in coastal areas—contributing to a more informed, resilient, and active civil society.

ADDRESSING THE MISSING LINK: UTILIZING OCEAN LITERACY TO ADVOCATE FOR NATIONAL PARKS AT LAND, COAST AND SEA

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In the UK's 1949 National Parks and Access to the Countryside Act, no-one thought about including the ocean. Subsequently, the UK designated over 370 Marine Protected Areas (MPAs) across British seas. The designation landscape has become complicated, with effective MPA policies and management challenged by overlapping and complex designations, competing stakeholder activities & interests, intersecting regulatory jurisdictions, declining resources and a lack of understanding and experience of our marine environment. Societally, these challenges are compounded by the disproportionate levels of deprivation experienced across coastal communities. According to the UK Office of Statistics (2024), half of coastal towns in England and Wales are deprived, compared to 30% of in-land towns. There is a growing recognition in the UK of the transformative potential of National Marine Parks in supporting environmental recovery and tackling social injustices at our coast (Ocean Conservation Trust, 2023).

Since the original designation of Protected Landscapes and MPAs in the UK, the concept of Ocean Literacy has emerged, and continues to evolve and grow in its application to national policy and decision-making. Building upon the National Marine Park vision co-developed in the UK (Blue Marine Foundation, 2021) the anticipated National Park legislative reforms (UK Government, 2024) and recommended next steps for Ocean Literacy research and practice (Shellock et al., 2024), the UK is presented with an exciting opportunity to deploy ocean literacy as a means of reimagining and updating National Park policy and practice to include our seascape and grow national levels of Ocean Literacy across the dimensions (McKinley, Burdon & Shellock, 2023).

The key objectives of Campaign for National Park's National Marine Parks Project, a national multi-sectoral marine advocacy initiative, are to; grow political support, nurture public interest and appetite, and better understand the potential benefits National Marine Parks could afford coastal communities and existing conservation targets. This talk will highlight novel research findings and lessons learned to-date on the role of Ocean Literacy and the UK's emerging National Ocean Literacy Strategies as critical advocacy tools in driving forward practice & policy change to enable National Parks at land, coast and sea in the UK.

HOW TO LOBBY FOR A WIN-WIN-WIN FOR NATURE, CLIMATE AND SOCIETY IN THE NORTH SEA

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A North Sea full of life both above and below water, sufficient renewable energy and more mature dunes on the beach. This vision of the future makes the Belgian environmental movement join forces as the 4Sea coalition. Since 2019, we lobby together for a strong North Sea policy, combining a strong nature and climate policy. This way, the Belgian part of the North Sea can contribute to the biodiversity and climate goals.

Science-based policy decisions take into account the latest scientific knowledge to maximise opportunities for nature conservation and restoration. Belgium has an environmental monitoring programme spanning the entire Belgian part of the North Sea. Based on the extensive data stored in the Belgian Marine Data Centre, Belgium developed marine biological valuation maps, showing the intrinsic biodiversity value of subzones within the Belgian part of the North Sea (2006; 2025) and within the Belgian coastal zone (2014).

At sea, there is great need for overview. Good, ecosystem-based marine spatial planning can deliver this, facilitating the necessary transition to renewable energy in a cross-border offshore and onshore network, as well as the protection and restoration of marine biodiversity. Within that context, 4Sea developed an integrated plan for nature and energy for the Belgian part of the North Sea, alongside a coastal vision that focuses on coastal connectivity and dune restoration.

Based on the findings of more than 10 years of scientific research of the effects of the installation of wind turbines on the marine ecosystem (WinMon.BE) and of the EDEN2000 project (Exploring options for a nature-proof Development of offshore wind farms inside a Natura 2000 area), 4Sea is convinced that further development of offshore wind energy can and must go together with the protection, strengthening and restoration of the marine environment and marine biodiversity. In the Belgian part of the North Sea, we strive for optimisation and customisation, always starting from the biodiversity values to be protected, a critical step towards measures to solve the climate and biodiversity crises. To prioritize nature in offshore wind farms and fully adopt a nature inclusive, circular design of offshore wind farms, 4Sea co-signed a letter of intent with two crucial offshore wind stakeholders. Since June 2021, the Belgian Offshore Platform, an association of investors and owners of wind farms in the Belgian part of the North Sea, and 4Sea work together to maximize the protection, enhancement and restoration of the biodiversity values of the North Sea. Since June 2023, 4Sea also works together with SeaCoop, the Belgian renewable energy

community founded by 33 citizen cooperatives for renewable energy, all of which are members of REScoop Flanders or REScoop Wallonia.

In short, 4Sea wants more wind energy and more nature protection and restoration for a climate-neutral and nature-friendly North Sea. Together with our partners, we are convinced that achieving these goals is a win-win-win: nature, climate and society all benefit!

SETTING SAIL FOR OCEAN LITERACY

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This paper/presentation discusses the potential contribution of learning theory and praxes in promoting ocean literacy, marine identity, and marine citizenship. These are advocated as important social dimensions of the changes and outcomes required to promote sustainability and resilience of marine environments and, by extension, terrestrial environments, across a range of scales from local to planetary. This is because the factors that compromise marine resilience are largely anthropogenic, and a consequence of the negative outcomes of human disassociation from the ocean. From another perspective, the paper/presentation is equally concerned with how to promote personal resilience and ocean stewardship as positive personal and social outcomes exhibited by people, especially young people. A synergy is noted between outdoor adventurous education and inquiry-based science learning in marine contexts, with sail training being identified as particularly effective as a marine-oriented experiential learning approach and context. These insights are exemplified through a case study of sail training programmes developed and operated in the UK and surrounding waters by the Pelican of London. Preliminary findings from trainee questionnaires support the contention that sail training is a powerful vehicle for personal growth across the range of learning dimensions (upward, outward, inward, and downward personal growth). Feedback also indicates the development of ocean literacy, marine identity, and marine citizenship amongst some participating trainees which, together, promote personal resilience and a commitment to marine stewardship (advocates of and active agents for promoting ocean sustainability).

GENESIS: CLIMATE ENGAGEMENT ON SCOTLAND'S RURAL WEST COAST

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The Genesis project empowers young people in Scotland's remote coastal and island communities to explore climate change and cetacean conservation. By fostering intergenerational dialogue, the project encourages youth to engage with marine science, through stories around climate and conservation, and advocate for ocean protection.

Scotland's Hebridean waters are home to 23 cetacean species, playing a crucial role in the marine ecosystem. Whales contribute to carbon sequestration through the 'whale pump,' which helps mitigate climate change. However, historical whaling, pollution, and climate change have severely reduced cetacean populations, threatening biodiversity and ocean health.

The Genesis project brings children and elders from rural, coastal populations together to examine how climate change affects their communities and marine life. Through workshops, storytelling, and creative projects, young participants envision the future of their environment and the cetaceans they coexist with.

SAMS (Scottish Association for Marine Science) partnered with local organisations to deliver educational sessions about Hebridean cetaceans, their ecological significance, and the threats they face. Participants documented environmental changes witnessed over generations to understand how attitudes towards these topics have changed over time, to predict future impacts on their communities and marine ecosystems. This youth-driven exploration fosters awareness and inspires action for conservation.

Working with upper primary school students (P5-6), their teachers, and elders, Genesis engaged three west coast communities: Tiree in the Inner Hebrides, Barra in the Outer Hebrides, and Lochneil near Oban. These locations were chosen due to their cultural and economic ties to the marine environment and their vulnerability to climate change.

To strengthen community ties and ensure accessibility, island champions were appointed in each location. These local representatives facilitated engagement, organised events, and helped bridge communication between SAMS and local people.

Genesis adopted diverse formats to reach different audiences, including school workshops, community events, and online marine science seminars. This multi-faceted approach ensured broad participation and deepened connections between youth, older generations and marine conservation and research.

A key objective was to rebuild trust between coastal communities, scientists, and policymakers. Historically and recently, marine conservation policies have strained local relationships. By prioritising listening, co-design and collaboration, Genesis created a space for young people to voice concerns and share insights about their environment.

The project culminated in a final event in Oban, where pupils presented their work to community champions and the Scottish Government attendees from the Climate Engagement Fund. Through creative challenges and discussions with elders, our young participants were encouraged to explore marine conservation and climate beyond the classroom. This event empowered them to represent their communities, strengthening their role as advocates for climate action and ocean stewardship.

Genesis has laid a strong foundation for continued collaboration between young people, scientists, conservation groups and the rest of their communities. It has also helped environmental organisations engage with rural communities that are often overlooked in marine policy discussions. By inspiring youth to take an active role in protecting their environment, Genesis has ensured that the next generation will be equipped to address the challenges of climate change and marine conservation.

BRIDGING THE SCIENCE-POLICY GAP IN OCEAN GOVERNANCE THROUGH KNOWLEDGE BROKERAGE

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This presentation explores innovative approaches to bridging the persistent gap between scientific research and policymaking, with a specific focus on ocean-related policy development. As global environmental challenges grow increasingly urgent—ranging from climate change adaptation to the ongoing debate around Seabed Mining (SBM)—the disconnect between scientific insights and policy implementation remains a critical barrier to effective and sustainable governance. This presentation proposes "Knowledge Brokerage" as a key mechanism to close this gap and introduces the "Ocean Policy Maker Toolkit" as a practical, digital prototype designed to support evidence-based decision-making.

The science-policy interface is shaped by distinct logics and objectives. While the scientific community is driven by the pursuit of knowledge, policymakers must make timely decisions based on societal values, resource constraints, and political realities. This divergence often leads to a breakdown in communication and mutual understanding, resulting in scientific findings that are underutilized or misinterpreted in policy contexts. These dynamics were particularly evident during the COVID-19 pandemic and continue to play out in high-stakes areas such as ocean conservation and marine resource governance.

The presentation will further analyze how geopolitical factors, socio-economic pressures, and the rapid advancement of research and communication technologies contribute to the complexity of policymaking. These evolving contexts make the science-policy gap not just a technical challenge but also a deeply political one. Contributing factors to this divide include limited access to policy-relevant research, insufficient understanding of political processes among researchers, ineffective communication strategies, a lack of societal engagement, and asymmetries in power and influence. Moreover, questions around the epistemology and legitimacy of scientific knowledge often shape whether and how research is taken up in political decision-making.

To address these challenges, the presentation advocates for the integration of Knowledge Brokerage into ocean policy processes. Knowledge brokers act as intermediaries who facilitate the translation of scientific knowledge into forms that are relevant, accessible, and usable by policymakers. They help to align the production of knowledge with policy needs, promote mutual understanding, and build trust across the science-policy divide.

As a practical example, the "Ocean Policy Maker Toolkit" will be introduced. This digital resource is designed to support policy actors by offering a suite of tools including a knowledge brief, a case study, communication guidelines, and a structured coaching phase.

Together, these components aim to demonstrate how brokerage mechanisms can be operationalized in real-world settings to enhance the uptake of scientific knowledge in policy design and implementation.

Ultimately, this presentation aims to contribute to the ongoing dialogue about how to make ocean governance more inclusive, informed, and responsive. By showcasing the potential of Knowledge Brokerage and introducing a functional prototype, it offers concrete steps toward a more integrated and effective science-policy interface.

DEVELOPING YOUTH OCEAN LEADERSHIP AND ADVOCACY SKILLS

Lheureux G.¹, Gin I.¹

¹Nausicaa, France

While the state of the ocean calls for the mobilisation of all, young people remain largely unheard in international environmental negotiations while they will be the ones who will face the long-term consequences of ocean degradation and while they constitute more than 56% of the global population.

This lack of youth representation in international environmental negotiations comes from multiple factors — including their lack of knowledge about the ocean's critical role in regulating the planet's sustainability, limited understanding of global decision-making processes and a general lack of opportunities offered to young people to participate. Every opportunity to speak up is therefore precious, and why it is essential to equip youth with the knowledge, skills, and confidence needed to make their voices heard and their impact count.

The Youth Ocean Leadership and Advocacy (YOLA) comprehensive framework bridges these gaps by empowering the youth to engage in policy discussions, advocate for ocean stronger protection, and drive local and global change. The framework is made up of 8 modules the content of which is developed with experts in the field:

1. Introduction to Advocacy
2. Overview of the Advocacy Landscape
3. Research & Evidence Gathering
4. Strategic Communication & Storytelling
5. Public speaking training
6. Building a Campaign Plan
7. Engaging Media & Social Networks
8. Networking & Coalition Building.

The module content has been put in place in the pilot Citizen of the Ocean Summit in March 2025 in France. It will be tested again in the second pilot site in Poland in 2026 and during youth advocacy interventions at international events, to be finally adapted into multilingual online training modules to reach a wider audience. The youth participants are not merely recipients of the training, but also co-designers, contributing insights and suggestions to improve and refine it.

YOLA framework, co-funded by the Erasmus + programme, unites several partners, each bringing complementary expertise: Nausicaa aquarium, France, Ghent University, Belgium, Institute of Oceanology of Polish Academy of Sciences, Poland, EurOcean network, Portugal, and Today we have, Poland, who have partnered with Youth4Ocean Forum, ECOPS and other youth networks for the task.

This presentation will share the first results and key lessons learned from the first pilot training held at Nausicaá in March, which brought together over 50 young people from six continents. It will also reflect on the practical application of the training during the UN Ocean Conference in June. The session will open a dialogue on future development pathways — such as adapting the framework, launching new trainings with interested EMSEA members — and explore the role that marine education centres can play in supporting civil society engagement in key societal debates.

ACTIVISM AS A KEY DIMENSION OF OCEAN LITERACY: THE WORK OF THE IRISH OCEAN LITERACY NETWORK TO BUILD AWARENESS AND SUPPORT COASTAL COMMUNITIES ACROSS THE ISLAND OF IRELAND

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First established as an informal group in 2016, the Irish Ocean Literacy Network (IOLN) has since brought together like-minded individuals and organisations who believe in the importance of the ocean to the island of Ireland and its citizens. In 2023, the IOLN became a formal organisation with the vision to have, by 2030, a thriving network of ocean champions and organisations deeply engaged with local communities across the island. These communities would be “Ocean Literate” and as such actively participate in ocean conservation efforts and embrace sustainable practices, fostering a sense of ownership and care for the marine environment. In 2024, the IOLN formed four Working Groups (WGs) to guide the work required to pursue the strategic objectives for the achievement of its vision that were outlined eliciting the feedback of the membership. One of these WGs was inspired by the definition of “Activism” as one of the ten dimensions of ocean literacy described by McKinley et al. (2023). This WG aims to support communities in their efforts to become self-advocates in ocean and waters-related matters, and to facilitate their engagement with the IOLN in a process of “social learning” and collaboration. The IOLN Activism WG includes researchers and practitioners with a broad expertise and passion for community engagement. The activities of this WG are also informed by learnings from a series of regional members meetings that the IOLN initiated in 2023 in each of the four provinces of the island of Ireland (Connacht, Leinster, Munster and Ulster). These regional meetings provided a space for the IOLN team and members to come together as well as with other marine stakeholders to discuss local, regional and national priorities, thus securing opportunities to promote discussion and peer-to-peer learning. These meetings have also highlighted the variety of local challenges and opportunities faced by the coastal communities across marine spatial planning, blue economy, conservation and the perceived loss of access to resources.

The IOLN Activism WG is focusing on reviewing the scale of regional ocean activism across the island of Ireland through the deployment of a survey in 2025 which targets all ocean-focused environmental groups. This survey aims to 1) understand the types of ocean activism/activities across the island of Ireland; 2) identify common themes, motivations and challenges among groups; and 3) gather feedback on how the IOLN can support and build capacity within these groups. The survey is intended to paint a picture of current ocean activism across the island of Ireland and inform the co-development of an Ocean Activism Framework for groups and coastal communities to use and benefit from. The data can also inform the IOLN work plan over the next five years to foster increased engagement and

cooperation between IOLN members and coastal communities, identifying synergies that lead to collaborations and partnerships to help achieve the IOLN vision. This presentation will summarise the learnings from the IOLN regional members meetings since 2023, and detail for the first time key insights into the results of the activism survey.

EMBEDDING COMMUNITY IN OCEAN LITERACY STRATEGY: FROM COMMUNITY-LED CO-DESIGN TO STRATEGIC DEVELOPMENT AT THE MARINE CONSERVATION SOCIETY

Taylor C.¹

¹*Marine Conservation Society*

This talk will focus on how learnings from the community-led project Hiraeth Yn Y Môr (HYYM) have helped shaped the Marine Conservation Society's organisational ocean literacy strategy.

The beauty of ocean literacy as a framework is in its breadth; anyone and everyone is connected to the ocean in some form. This means when working with communities, ocean literacy can be applied or achieved in many ways. However, bringing together a wide variety of methods together into one strategic approach can be challenging. A strategic approach to ocean literacy is beneficial as it will streamline efforts, support consistent community engagement approaches, maximise impact, and enable better measurement of outcomes. Developing an ocean literacy strategy at the Marine Conservation Society, will help us to work with different communities according to their needs, whilst keeping an overarching thread of ocean literacy throughout all engagement work.

To ensure the development of a meaningful and effective ocean literacy strategy, the Marine Conservation Society is utilising learnings from community-led co-designed project HY YM. To be truly community-led, it is not enough to just work with communities in project delivery, communities must have the opportunities to engage in shaping high level strategies and approaches.

The HY YM project ended in March 2025, and in April 2025, the development of the Marine Conservation Society ocean literacy strategy began. During the HY YM project we worked with community members from the North Wales coastal towns of Prestatyn, Rhyl, Kinmel Bay and Towyn to increase ocean literacy amongst local people through community-led engagement and co-designed activities. These activities were split into three key themes; learning, taking action and wellness and were either nature-based, indoor or virtual. Notably, wellness activities resulted in the most positive change in ocean literacy, and virtual activities resulted in the smallest change.

100% of activity participants indicated an intention to carry out pro-ocean activity in the coming 12-month period. Growth in ocean literacy resulted in behaviour change and a commitment to taking action for the marine environment. This community-level data is now informing the organisational ocean literacy strategy, demonstrating how local insights can advocate for wider, systemic change.

While the ocean literacy strategy is still in development, we will be ready to share key elements of the first draft by September 2025. We would intend to share – the number and

type of stakeholders consulted to develop the strategy, consultation methods used, key findings from consultation and how these key findings have been integrated into the first draft of the ocean literacy strategy.

In conclusion, ocean literacy work with communities can go beyond delivery, and can be incorporated into strategic development to help shape future ocean literacy work. Through this, NGOs and communities can work together to embed ocean literacy in everyday practice to advocate for change and promote ocean literacy.

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GIONA PROJECT: A NEW MODEL TO LEARN MARINE SCIENCE

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Giona project, promoted by the IC Vezzano-Santo Stefano di Magra (Italy), is an environmental education and collaboration program between schools and research institutes that for seven years has been involving students of all ages in the province of La Spezia and the nearby Lunigiana. Born in 2018 on the occasion of the 32nd edition of the European Cetacean Society Conference, held in La Spezia, it aims to promote STEM activities such as bioacoustics, oceanography, engineering, marine biology and underwater robotics, bringing students closer to the world of research and promoting environmental awareness in the citizens of tomorrow.

Over the years, Giona project has been supported by important research centers, associations and institutions. Among the most prestigious ones there are:

- Centre for Maritime Research and Experimentation (STO-CMRE)
- Cibra University of Pavia
- Italian Navy.

It has also obtained the patronage of UNESCO for one of its events (Underwater vehicles competition)

Giona Project has organized the activities for levels of age and subjects. This kind of organization led to the division of the activities into modules according with the different age groups and levels of depth. Each module has been supported by a research center or association. The main modules are:

- Marine and terrestrial bioacoustics
 - a) Acoustic recordings with fixed and portable hydrophones and spectrographic analysis
 - b) Recording sea birds vocalizations in La Spezia harbour.
- Biology and ecology
 - a) Biology of cetaceans and physiology of vocalization production
 - b) Impact of anthropic noise on the physiology and ecology of cetofauna
 - c) Study of climate change's effects on the Mediterranean Sea cetaceans.
 - d) Sampling of plankton and microplastics in the Gulf of La Spezia with the use of the Manta Trawl towable net
- Underwater engineering
 - a) Study and use of instrumentation for physical-chemical analysis of the water column
 - b) Study of underwater vehicles for oceanographic research

- Underwater robotics

a) Participation as collaborators of the jury during international marine robotics competitions at CMRE.

b) Creation of autonomous and wire-guided underwater vehicles starting from customizable basic kits, aimed at participating in the "SeaPerch Challenge" competition.

During the years 2018-2023 Giona project has conducted, on the field:

-five Campaigns at sea on board, alternately, ships, schooners, motor boats and sailing boats to collect bioacoustic data and create spectrograms of the vocalizations of bottlenose dolphins in the Ligurian Sea, oceanographic data collection, plankton and microplastic sampling.

-two editions of the Italian SeaPerch Challenge, the construction of wire-guided underwater vehicles with a final competition at the Comsubin "Teseo Tesei" base in La Spezia.

In recent years, Giona project is also leading the younger students to love, know and respect marine life and its environment, bringing the sea to the level of art, image, color, play, with workshops aimed at arousing curiosity and interest. This is a first step, for the development of an environmental awareness in the citizen of tomorrow."

BLUE PRESCRIPTIONS FOR HUMAN WELLBEING

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The Ocean and human wellbeing are intertwined deeply with each other, with exposure to blue spaces proven to have a host of benefits to people's mental wellbeing. The Blue Mind Theory describes the relationship between the Ocean and humans' wellbeing. Being in, on or around the Ocean can have restorative benefits for our mental health and wellbeing. The Blue Mind Hub (BMH) is an Ocean Conservation Trust (OCT) initiative that uses Blue Mind Theory to encourage Ocean empathy, with a recognition of an individual's role in the health of the Ocean, and the role of the Ocean in their physical and mental health.

The BMH works with health and wellbeing professionals across Plymouth, UK, to support individuals living with poor mental health. Professionals include social prescribers, psychiatrists, mental health workers and GP surgeries. Individuals will reach out to professionals through support services, who then refer to the OCT for BMH activities. Social prescribing offers community-based interventions to support those with poor mental health, reducing pressure on local care services, and improving people's long-term health. Through this programme, the OCT have taken people who are prescribed onto a series of Ocean based activities, from snorkelling, coastal walking and boat trips, to improve their wellbeing. These sessions are free to participants, with travel bursaries being offered to all to break barriers that may prevent people from coming.

Participants complete surveys prior to engaging with any BMH activities, at the end of each session, and at the end of the 8-week programme. The Warwick Edinburgh Mental Wellbeing Scale, UCL Wellbeing Measures toolkit and OCT generic learning outcomes are assessed throughout the programme of activities, measure impact of Ocean based activities on individual wellbeing. Since 2023, 27 individuals have taken part in BMH activities. Using the Warwick Edinburgh Mental Wellbeing scale, the mean score prior to the programme was 38.8 with a standard deviation of 11 (the mean score for the general UK population is 51.0 with a standard deviation of 7), indicating low wellbeing within the group. At the end of the 8-week programme, the mean score was 51.2, with a standard deviation of 11, indicating an improvement in wellbeing back to general population levels. The UCL Wellbeing Measures toolkit was used to evaluate each of the sessions over the 8-week programme, with individuals rating agreement with statements. An average score across the programme was 4.05/5, indicating positive agreement with how the activities linked to individual's wellbeing. These improvements in individuals wellbeing throughout the course of BMH activities shows the importance of the Ocean for human health and wellbeing, and how blue prescriptions can be used alongside other medical interventions to support those living with poor mental health.

A BLUE PRINT FOR MARINE PROTECTED AREAS: A GUIDE TO SUPPORT PEOPLE IN THE ESTABLISHMENT AND MANAGEMENT OF MPAS THAT FOSTER SUSTAINABLE COMMUNITIES AND A ROBUST BLUE ECONOMY

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The "Blueprint for Marine Protected Areas" serves as a pivotal guide for the creation and effective management of MPAs, emphasising their integral role in fostering a sustainable blue economy and promoting responsible resource management. The guide provides a detailed framework that not only supports hands-on conservation of marine biodiversity but also emphasises the socio-economic benefits derived from ocean resources.

Building Ocean Literacy

Central to the Blueprint is the concept of ocean literacy, which is essential for stakeholder understanding of complex interactions within marine ecosystems and the importance of their preservation. The Blueprint aims to inform stakeholders, including policymakers, educators, and the general public, about the critical role of MPAs in maintaining ecological balance and supporting sustainable economic activities. The Blueprint highlights, using case study examples, how education ensures that individuals are equipped with the knowledge needed to make informed decisions about marine resource management, utilisation and conservation.

Sustainable Blue Economy

The Blueprint highlights the connection between MPAs and the sustainable blue economy, which encompasses economic activities that are environmentally sustainable, economically viable, and socially inclusive. MPAs are presented as key components in achieving a sustainable blue economy by protecting vital marine habitats, which in turn support fisheries, tourism, and other marine-related industries. The document outlines strategies for leveraging MPAs to enhance economic opportunities while ensuring the long-term health of marine ecosystems.

Responsible Resource Management

How to ensure effective resource management is a cornerstone of the Blueprint, advocating for practices that balance economic development with environmental stewardship. By providing guidelines for the sustainable exploitation of marine resources, it emphasises the need for adaptive management approaches that respond to changing environmental conditions and human impacts. By promoting responsible resource management, the Blueprint aims to mitigate overexploitation and degradation of marine environments, ensuring that ocean resources remain viable for future generations.

Community Engagement and Stakeholder Collaboration

The Blueprint underscores the importance of community engagement and stakeholder collaboration in the successful implementation of MPAs. It advocates for inclusive decision-making processes that involve local communities, indigenous groups, and various stakeholders in the planning and management of MPAs. This collaborative approach fosters a sense of ownership and responsibility among stakeholders, enhancing the effectiveness of long-term conservation efforts.

Policy and Governance

Robust policy frameworks and governance structures are essential for the success of MPAs, as outlined in the Blueprint. The guide provides recommendations for developing policies that support the establishment and management of MPAs, including legal frameworks, enforcement mechanisms, and funding strategies. Effective governance ensures that MPAs are managed in a way that maximises their ecological, economic, and social benefits.

Conclusion

The "Blueprint for Marine Protected Areas" is a vital tool for advancing ocean literacy that supports the sustainable blue economy, and promotes responsible resource management. By providing a comprehensive framework for the establishment and management of MPAs, the document empowers stakeholders to make informed decisions that balance conservation with economic development. Through education, community engagement, and robust policy frameworks, the Blueprint aims to create a future where marine ecosystems are protected and sustainably utilised, benefiting both current and future generations.

https://www.bluemarinefoundation.com/wp-content/uploads/2023/02/Blue_MPA_2023-2.pdf

OUR WORLD FROM SPACE

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‘Our World From Space’, delivered by the Scottish Association for Marine Science (SAMS) in collaboration with the Association for Science and Discovery Centres, is an innovative outreach program that harnesses satellite technology to enhance public understanding of environmental changes. Funded by the UK Space Agency and NERC, this project is particularly focused on educating young people about how space-based observations contribute to climate research, ocean monitoring, and conservation efforts. By integrating cutting-edge space technology with local environmental knowledge, the programme encourages youth engagement in scientific discovery while strengthening their role in protecting Scotland’s marine and coastal ecosystems.

Through ‘Our World From Space,’ participants explored the transformative potential of satellite technology in marine science and environmental monitoring. The initiative highlights the ways in which satellites, space missions, and advanced remote sensing tools help track oceanic and atmospheric health on a global scale. A key component of the program includes hands-on activities and citizen science projects that enable direct interaction with real-world applications of satellite monitoring.

Featured in these activities is ‘Penguin Poo from Space’, which introduces participants to SAMS research on mapping Antarctic algae distribution via satellite imagery, fertilised by penguin poo and its subsequent impact on ice melt. To complement this study, students engaged in follow-on activities such as the ‘Walrus from Space’ citizen science program, which empowers communities to contribute to conservation efforts and nurture enthusiasm.

Another key aspect of the project is the study of the Atlantic Meridional Overturning Circulation (AMOC) and its role in global climate regulation and global current circulation. Through an engaging origami activity, participants learned about SAMS research and development of the Ellet Line, its significance in ocean monitoring, and its far-reaching effects.

The initiative also introduces the concept of ground truthing, where infrared cameras and thermometers are used to represent calibrated satellite data. This segment demonstrates how marine data collection, including the use of robotic gliders and ARGO floats, validates satellite observations. By engaging in these practical exercises, participants gain a deeper appreciation of the scientific process and the importance of accurate environmental monitoring.

Additionally, 'Our World From Space' explores the potential of algae-based bioenergy, an area of research conducted by SAMS PhD students. By examining algae as a renewable energy source, students consider its applications for both marine conservation and space station sustainability.

By offering an interactive and multidisciplinary approach, 'Our World From Space' effectively bridges the gap between space technology and marine science, exploring the diverse applications of marine robotics for environmental monitoring and the integral role of satellite research in advancing these technologies. This initiative not only enhances public understanding of satellite-based environmental monitoring but also inspires the next generation of scientists, conservationists, and climate advocates to take an active role in preserving our planet's oceans and ecosystems.

AUSTRALIA'S CHALLENGES IN SUSTAINABLE MARINA MANAGEMENT AND FUTURE OPPORTUNITIES

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Marina management plays a vital role in the development of blue tourism, delivering high-value-added services within the luxury coastal tourism sector. As a nation surrounded by vast coastlines, Australia has emerged as a global leader in yachting and marina operations. Over the past two decades, figures relating to marina demand have consistently risen, particularly due to the growing need for berthing places for superyachts. Recently, the popularity of polar yacht expeditions and increased activity in the Pacific Ocean have further expanded global yachting routes. Australia is actively responding to these changes and has demonstrated adaptability to international yachting trends.

In response to increasing global demand, the Australian government has implemented significant legal reforms, such as the Special Recreational Vessels Amendment Bill (2021), which facilitates the chartering of foreign-flagged superyachts in Australian waters. These regulatory adaptations aim to attract high-value yachting tourism and integrate Australia into global luxury maritime networks. Australian marinas are increasingly operating in alignment with the United Nations Sustainable Development Goals (SDGs), incorporating environmental, economic, and social sustainability into their management strategies.

Australia's commitment to sustainable marina development is supported by a robust framework of environmental regulations, certification systems, and knowledge-sharing mechanisms. The country has successfully adopted international programs such as the Gold Anchor Scheme, Blue Flag, and ICOMIA Clean Marina Program. These certifications set high standards in areas like waste management, water quality, energy efficiency, and customer service. Additionally, ISO 14000 environmental standards and the Fish-Friendly Marina Rating Program reinforce Australia's emphasis on marine conservation.

A unique strength of Australia lies in its vast network of protected marine environments. With six national parks and 60 marine park areas, the country offers a model of sustainable marine tourism and environmental stewardship. Managed by Parks Australia, these marine parks operate under sustainable development principles and are protected for their ecological sensitivity. Furthermore, organizations like the Great Barrier Reef Marine Park Authority and the Australian Antarctic Division function with independent status, reflecting a strong institutional commitment to conservation and the regulation of marine activity.

Despite its achievements, Australia faces multiple challenges in sustainable marina management. The effects of climate change, such as rising sea levels and extreme weather events, pose serious risks to marina infrastructure. Furthermore, balancing economic growth in coastal tourism with the need for environmental preservation, particularly in sensitive marine zones, remains an ongoing struggle. The high costs of maintaining certification and inconsistencies in implementation across regions also hinder uniform progress.

This study evaluates Australia's experience in sustainable marina management under the theme "Transforming Marina and Yachting Tourism Tomorrow by Leveraging Opportunities." Through a review of legal developments, institutional frameworks, and international practices, the paper identifies emerging opportunities in innovation, green technologies, and strategic planning. It concludes that Australia is uniquely positioned to shape the future of global yachting tourism by combining environmental leadership with a proactive policy approach and international collaboration.

SUSTAINABILITY IN MARINE SCIENCE FORMAL EDUCATION: A REVIEW OF LITERATURE

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Academic research in marine science (formal) education is limited. Based on 66 publications we provide an overview of sustainability education (SE) in marine science in formal education settings. We used a systematic review method to answer five main research questions: 1) what are the sustainability issues mentioned in relation to marine sustainability and, 2) which of those are addressed in educational interventions, 3) what are the teaching and learning methods, 4) which competencies are valued in relation to sustainability, and 5) what is the importance of SE for marine science education. The results indicate a high representation of topics on fisheries, climate change, pollution, and marine biodiversity in educational interventions. We identified a wide variety of methods for teaching about sustainability, but authors often don't include references to educational theories. Descriptors of sustainability competencies are often written in a general manner and do not specify the (marine) sustainability perspective, and there is a lack of focus on intrapersonal skills. Within the arguments as to why SE is important for marine science both the use of education as an instrument for sustainability and the intrinsic value of education are highlighted. We conclude with pathways for future research.

SEA IN SIGHT: FOSTERING OCEAN LITERACY THROUGH IMMERSIVE MUSEUM EXPERIENCES

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At Kina, our exhibition ""Sea in Sight"" invites children and families to get curious about life in the North Sea. The idea is simple: dive in, explore, and let the sea speak for itself. From climbing into a submarine to examining tiny plankton under a microscope, visitors are invited to discover the hidden world beneath the waves.

Through a mix of real specimens and interactive displays, the gallery introduces young visitors to mollusks, arthropods, echinoderms, sponges, and even microscopic plankton. These creatures not only begin the oceanic food chain but they help produce the oxygen we breathe. Larger vertebrates like fish and sea turtles help paint the broader picture of marine ecosystems and how interconnected they are.

In our largest exhibition hall, the focus shifts to the everyday life of sea organisms: how they eat, survive, protect themselves, and reproduce. Not everything that lives in the sea can swim, but everything has a story.

Our goal is to make ocean literacy feel real and relevant, especially for young audiences. "Sea in Sight" is part of the museum's broader mission to connect children with nature in meaningful ways. By making complex topics engaging and accessible, we hope to plant the seeds of awareness and care for the ocean — one curious visitor at a time.

CONSERVATION STRATEGIES FOR ELOUNDA BAY: INTEGRATING OCEAN LITERACY TO CONSERVATION OF COASTAL MARINE ECOSYSTEMS

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Coastal ecosystems are of vital importance to human society. Effective management and conservation are essential, both for the ecological services these areas provide -such as food resources, recreation, and tourism- and for their critical roles in the marine environment, including carbon storage, high biodiversity, and complex trophic relationships. However, due to their proximity to human activities, these ecosystems are subject to intense anthropogenic pressures. The scientific community plays a key role in advocating for and protecting such ecosystems, ensuring their long-term sustainability.

One of the main challenges of the UN Ocean Decade is to “restore society’s relationship with the ocean.” A way to address this is through education and raising awareness, particularly among younger generations. In response to this challenge, a set of non-formal educational activities was developed for primary and secondary school students, aiming to promote Ocean Literacy and connect them with real-world marine conservation issues.

The project focused on Elounda Bay, a semi-enclosed, shallow coastal bay in northeastern Crete, Greece. A detailed review of scientific literature and technical reports highlighted several ecological features and human-induced pressures: a) the presence of *Caulerpa prolifera* meadows, which provides complex habitats for macrobenthic fauna and fish species; b) the establishment of non-indigenous species such as *Portunus segnis*, *Pinctada radiata*, and *Siganus luridus*; and c) the bay’s role as a nursery ground for commercially valuable species like *Arca noae*, *Sepia officinalis*, and *Mullus barbatus*. At the same time, Elounda is a major tourist destination, particularly in summer, which adds seasonal pressure to its marine ecosystem.

The European-funded blue education project BlueLightS encouraged local schools to engage in marine education and join the EU Blue Schools Network. Three schools, with students aged 10–16, participated in a pilot program. The objectives were to enhance their understanding of Ocean Literacy principles -especially those related to their local marine environment- and to evaluate changes in awareness, knowledge, behavior, and attitudes. Activities included a presentation at the Hellenic Centre for Marine Research on Elounda’s marine ecosystem, guided lab visits, a field trip featuring discussions with local stakeholders (e.g., fishermen), and an interactive simulation game. In the game, student groups took on stakeholder roles, such as hotel owners, fishers, and locals, and collaboratively proposed

conservation and management measures based on their assigned perspectives. A questionnaire, administered before and after the project, assessed the students' Ocean Literacy across multiple dimensions (e.g., experience, emotions, access). Their proposed conservation measures were also compared with those suggested by experts and stakeholders.

This project serves as a case study for integrating conservation with Ocean Literacy initiatives. Results highlighted misconceptions and a lack of deep understanding among students initially but also showed shifts in knowledge and perspective following the activities, which suggest that marine education programs that actively engage students with local environmental challenges -and include interaction with real stakeholders- can foster more informed, engaged, and responsible future citizens. Such initiatives offer a promising approach to building stronger public support for coastal conservation through a more ocean-literate society.

FROM INFORMATION TO EXPERIENCE: PLAYING FOR THE FUTURE OF OCEAN LITERACY

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As ocean literacy expands to meet the demands of a rapidly changing world, there is a growing need for engagement strategies that go beyond traditional education and communication models. In this presentation, I explore the role of playing as a powerful approach to deepen public understanding of ocean science.

From this perspective, playing is not merely entertainment, but an intentional, open-ended form of exploration and learning that can be designed to foster critical reflection. This contrasts with gaming, which often relies on rewards, competition, and structured goals. While gaming can boost motivation, playing encourages curiosity, creativity, and personal connection—key qualities for engaging people with complex and urgent marine issues.

Grounded in cognitive linguistic theory, psychology, theatre, and experiential learning, this approach uses lived, playful experiences as metaphorical entry points into ocean topics, thus building bridges between citizens' everyday lives and science. Play prioritizes curiosity, experimentation, and personal meaning-making, aligning closely with the way people naturally learn and interact with complex issues. By creating immersive, low-stakes environments that encourage exploration and role-play, play empowers individuals to discover solutions and build personal connections with scientific topics.

Through case studies of science activities that have experimented with different playing strategies, and including projects I have developed, I offer practical examples of how this approach can be applied, and insights into using it to design effective science communication experiences. For example, one of the greatest communication challenges around climate change and ocean health is overcoming public apathy and feelings of helplessness. Playing can help by creating low-stakes, exploratory environments where individuals experiment with climate-related choices and visualize their impacts on ocean systems. These experiences make abstract concepts—like carbon cycles, sea-level rise, or marine biodiversity loss—tangible and actionable.

Participants in this session will gain a new perspective on how play-based, metaphor-driven experiences can transform ocean literacy initiatives. They will leave with practical ideas for designing more engaging, participatory science communication strategies that connect emotionally, foster agency, and support climate action, ensuring that ocean literacy evolves in step with the challenges and opportunities of our time.

THE GOOD, THE BAD, AND THE FUZZY? DEVELOPING CRITICAL READING SKILLS THROUGH EXPOSURE TO MICROPLASTIC RESEARCH METHODS

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Over the past two decades, the body of research concerning the sources, distribution and impacts of microplastics has grown significantly, sparking interest from industry, policymakers, and the public. However, not all microplastic research is created equal. Methods underpinning environmental microplastic monitoring have been adapted from other fields, equipment has been chosen based on its availability to the researcher, and its application determined by both the aims of the study and the challenges of the setting. This has led to rapid diversification in sampling approaches and minimal standardisation in reporting. Thus, while there has been much well-founded concern regarding the widespread observation of microplastics in the environment, variable data collection and the use of non-standard units hamper our ability to draw meaningful conclusions regarding the risks to both the environment and ourselves.

Despite ongoing debate in the scientific community regarding the harmonisation of microplastic research, media coverage often overlooks both uncertainty and lack of comparability in the literature. This has led to an uncritical focus in the microplastic discourse, overriding a more holistic understanding of both the broader body of research and the scientific method in general. The aim of the outlined study was to assess the impact of exposure to microplastic methods on participant's critical analysis of scientific literature and media reporting.

Critical reading skills, including analysis, evaluation, and commentary, are essential to both students and the wider public looking to navigate both scientific literature and media representations of environmental issues. Individuals must engage with scientific ideas, understand journalistic practices, and develop interpretation skills to assess scientific media effectively. Inquiry-based learning has proven beneficial in enhancing understanding of Earth Science subjects, helping students connect classroom learning with real-world issues and critical media analysis. To that end, a pair of workshops were designed to immerse learners in the practical elements of microplastic science before applying these experiences to build skills in both scientific experimentation and critical reading.

Prior to both workshops, participants undertook a brief survey regarding their awareness of microplastic pollution as an environmental issue and their perceptions of microplastic science. They were also provided with summaries of 2 published studies and 2 news reports to review and evaluate. Participants in workshop 1 were asked to apply the knowledge gained from their reading, selecting from a range of equipment and materials provided to devise and implement a method for extracting microplastics from 3 identical samples of microplastic-spiked sediment. Participants in workshop 2 were provided with a single, widely-used, extraction method to recover microplastics from 3 microplastic spiked sediment samples of varied organic matter content. Following their workshop, each

participant was asked to review and evaluate a second set of studies and news reports. Participants indicated surprise at the “un-scienciness” of many approaches used in microplastic research, as well as the difference in the reliability of methods as they are applied in different ecosystems and habitats. Participants also demonstrated an apparent increase in the level of criticality when assessing publication findings following participation in the workshops.

INNOVATIVE DIGITAL STRATEGIES FOR OCEAN LITERACY: A RESEARCH INFRASTRUCTURE'S APPROACH TO ENGAGING DIVERSE STAKEHOLDERS

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The Balearic Islands Coastal Observing and Forecasting System (ICTS SOCIB) has placed public communication at the heart of its mission, understanding the role of accessible, impactful science in building a more ocean-literate society. As ocean literacy continues to evolve, it is critical to explore innovative strategies that promote the integration of ocean science into the broader societal framework. In an era marked by profound behavioural shifts driven by emerging technologies and an increasingly competitive digital media landscape, it is crucial to rethink how we communicate marine science to ensure its visibility, accessibility, and societal relevance. This abstract presents SOCIB's forward-thinking 360° digital communication strategy, which aims to anticipate the future of ocean literacy by addressing challenges such as fragmented audiences, digital engagement, and the need for inclusive and actionable marine knowledge in today's rapidly evolving digital landscape.

The approach emphasizes public-interest, non-profit digital marketing principles to raise awareness and strengthen the societal value of ocean science. Through a combination of relevant content strategies and Search Engine Optimization (SEO), SOCIB enhances the visibility of marine information, ensuring that people can easily access and connect with credible ocean knowledge, in line with open science principles.

A significant innovation of this strategy is the integration of digital tools into communication planning. These tools include an open-access knowledge repository, data-driven campaign designs, and content development focused on accessibility and user experience. This approach reinforces SOCIB's goal to enhance ocean knowledge dissemination and ensure that this knowledge is meaningful and actionable, aligned with the objectives of the UN Decade of Ocean Science for Sustainable Development. SOCIB's digital communication model is broad and adaptive. It includes a redesigned corporate website, active social media engagement, thematic newsletters, and targeted campaigns aimed at diverse audiences. This 360° approach effectively connects marine data, education, and public engagement, combining storytelling, visual content, and multilingual materials to foster emotional connections with the ocean.

As digital environments continue to shape how people search for information and engage with knowledge, especially among younger, digitally native generations, the role of science communication must also evolve. These shifting behaviours demand renewed strategies and innovative, adaptive tools capable of connecting with audiences in meaningful and relevant ways. In this context, SOCIB's approach responds to a new paradigm that requires science

communication to be more interactive, user-centred, and emotionally resonant. By embracing this change, research infrastructures can play a pivotal role in building ocean literacy to meet the challenges and opportunities of the digital age.

EMPOWERING YOUTH: ADVANCING OCEAN LITERACY & THE BLUE ECONOMY THROUGH SDG 14 AND SDG 15

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The International Youth Council proposes to host a side event at EMSEA 2025, focusing on the critical role of youth in advancing Ocean Literacy and fostering a sustainable blue economy. By aligning with Sustainable Development Goals (SDG) 14—Life Below Water—and SDG 15—Life on Land, the event will highlight innovative approaches, partnerships, and initiatives led by young changemakers to ensure healthy oceans and ecosystems for future generations.

Objectives:

1. Showcase the contributions of youth-led projects in Ocean Literacy and the blue economy.
2. Discuss challenges and opportunities in engaging youth in marine science education, policy advocacy, and sustainable practices.
3. Facilitate networking and collaboration between young professionals, educators, researchers, policymakers, and organizations like VLIZ, EMODNET, and EUROGOOS.
4. Inspire actionable solutions through interactive workshops and case studies.

Format: Interactive Workshop: Engaging participants in problem-solving activities related to ocean conservation and sustainable economic practices along with short Panel Discussion followed by a Networking Session on Creating opportunities to connect and foster partnerships among attendees.

Themes:

The side event will align with EMSEA 2025's thematic focus areas:

1. Ocean Literacy & Blue Economy: Exploring youth-driven efforts to build a sustainable and inclusive marine-based economy.
2. Ocean Literacy & Education: Highlighting innovative youth-led educational initiatives to spread awareness and promote ocean stewardship.
3. Ocean Literacy & Advocacy: Empowering young advocates to influence marine policy and drive global action for ocean sustainability.
4. Future of Ocean Literacy: Envisioning youth leadership in shaping the future of marine science education and sustainable practices.
5. Ocean Literacy Research: Encouraging youth-led research and showcasing cutting-edge findings.

Expected Outcomes:

1. Increased visibility and recognition of youth-led efforts in advancing Ocean Literacy and the blue economy.
2. Strengthened collaboration between organizations and youth-driven initiatives.
3. Concrete ideas and solutions to scale up youth engagement in ocean conservation and sustainable practices.

GREEN-SCHOOLS GLOBAL CITIZENSHIP MARINE ENVIRONMENT - ENGAGING SCHOOLS NATIONWIDE IN OCEAN LITERACY & ACTION

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“Green-Schools” is the Irish branch of the international Eco-Schools programme which is coordinated by FEE (Foundation for Environmental Education). Within Ireland, Green-Schools is coordinated by An Taisce, the National Trust for Ireland, with the support of local authority partners and sponsorship from various Government department and non-governmental agencies. Approximately 87% of schools in the country are registered on the programme, with schools progressing on a two-year cycle through ten sustainability themes, so that we now have schools that have been part of the programme for over twenty years.

The Global Citizenship Marine Environment theme is the eighth Green-Schools theme and aims to support schools to tackle sources of marine litter – primarily single use plastics – within their school community and to increase ocean literacy among young people and educators across Ireland. The module provides opportunities for students to learn about a variety of marine topics through hands-on engagement, teaching resources and specialised events. Participating schools follow the Green-Schools Seven Steps programme, whereby they set up a student committee, conduct an environmental review, make an action plan, monitor and evaluate progress, link to the curriculum, inform and involve the whole school and wider community, and come up with a Green Code. Schools must work actively on Marine for two academic years, complete essential actions e.g. a clean-up, an action day and awareness survey, before applying for the Green Flag award.

A wide range of supports encourage school engagement, including regional workshops, art and writing competitions, a national conference, documentary screenings, marine biodiversity lessons, beach workshops and an annual week-long celebration of the ocean which includes live webinars and the provision of new teaching resources.

The G.C. Marine Environment theme has proven highly successful over the course of the past nine years, and has been used as a model example by other countries within the Eco-Schools network. Since its inception in 2016, 501 schools have been awarded the G.C. Marine Environment theme (as of April 2025, expected to increase to ca. 570 schools in May). The module plays a key role in ocean literacy within the Irish school environment, enabling schools to learn about their reliance on, and impact on, the ocean, regardless of their proximity to the coast, and by encouraging students to explore their personal connection to the ocean, its unique meaning and value to them. The module also engages schools in single use plastic reduction within their schools, more informed waste management and litter clean ups, supporting the aims of the OSPAR convention and Marine Strategy Framework Directive.

The module provides a best practice example of enabling local actions to tackle global issues and supporting ocean literacy through a structured, yet flexible, framework.

STEAM VOYAGE ACROSS THE OCEANS

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The STEAM Method is a modern approach to education, combining science, technology, engineering, the arts, and mathematics. Learning through action, projects, and experiments not only enhances understanding and practical application of knowledge but also fosters students' sense of agency and helps develop essential future competencies.

As part of the module “STEAM and ICT in International Classroom Projects,” students of the Biology and Nature Education program at Adam Mickiewicz University in Poznań collaboratively designed and implemented three original educational initiatives. The overarching theme of these activities was the Blue Ocean. Each module aimed to introduce students to ocean-related topics, broaden their knowledge of marine ecosystems, promote pro-environmental attitudes, build a sense of agency, and develop key competencies. The educational solutions developed by the students perfectly align with the concept of “bringing the ocean to our classroom” promoted by the European Blue School.

Each initiative posed different challenges to students:

In the project “Underwater SOS – Rebuilding Neptune’s Kingdom,” students took on the roles of researchers who had received an encrypted message from Neptune’s underwater realm. By solving science-related tasks and conducting chemistry experiments, students competed for roles as underwater city builders. They then constructed models of various oceanic buildings using recyclable materials. The project required close collaboration and encouraged creative thinking.

The next workshop, titled “In the Footsteps of the Blue Whale – Discovering the Oceans,” was a journey across the planet’s oceans, highlighting the threats whales face during migration. Students decoded messages, worked with excerpts from “The Blue Whale’s Diary,” programmed the whale’s migration route using Ozobots, created awareness campaigns, and completed mathematical challenges.

The third scenario, “Where Darkness Swallows the Blue of the Ocean,” immersed participants in the mysterious world of the ocean floor. By combining biology, mythology, and hands-on physico-chemical experiments, students explored extraordinary organisms adapted to extreme conditions. They also confronted questions such as: Could mythical sea creatures survive in the deep ocean? and Which real marine species inspired ancient legends of sea monsters?

The educational materials created as part of these projects have been made available on the European School Education Platform (ESEP), in cooperation with representatives of the Polish

European Blue School. The completed project scenarios, along with supporting resources, will also be published on the eTwinning National Support Service website, ensuring wide access to the teaching materials prepared by the students. This initiative serves as a strong example of effective collaboration between the academic community and schools in the field of environmental education and the protection of aquatic ecosystems.

STRENGTHENING OCEAN LITERACY THROUGH MEDIATION: NAUSICAÁ, A BRIDGE BETWEEN SCIENCE, EDUCATION AND SOCIETY

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As the largest public aquarium in Europe and a scientific centre, Nausicaá plays a key role in promoting ocean literacy among diverse audiences. Through its mediation team, Nausicaá has developed a range of initiatives that illustrate how science centres can complement formal education by making ocean issues accessible and actionable.

This presentation will explore how Nausicaá acts as a bridge between science, pedagogy and society by providing innovative educational formats tailored to a variety of audiences, from school children to university students and corporate stakeholders.

Three case studies carried out by Nausicaá will illustrate this multidimensional approach:

- Supporting educators: Nausicaá works with five officially mandated school teachers to co-develop educational content aligned with national curricula. This collaboration ensures that students receive scientifically rigorous and pedagogically accessible content on key topics such as climate change, the greenhouse effect, and local biodiversity, while supporting teachers who may lack the time or resources to cover these themes in depth. These teachers also facilitate monthly meetings and contribute to larger outreach efforts, such as the annual open house for educators (with 72 teachers attending in September 2024).
- Empowering young scientists through mediation: In partnership with the University of the Côte d'Opale, Nausicaá trains science Master's students (26 students) in science communication. These students deliver short-conferences to two distinct audiences: the general public (approximately 100 attendees) and middle/high school students (about 130 learners in person), allowing them to develop outreach skills while contributing to ocean education.
- Connecting innovation and society through mediation: Within the Blue Living Lab hosted by Nausicaá, the mediation team plays a key role in capturing and relaying public perceptions and expectations regarding innovations developed by private or academic partners. One of the main tools used are public surveys, shared with visitors during events such as the Blue Society Forum. Seven innovation project leaders collected between 3,000 and 10,000 responses each, providing valuable insight into the societal reception of their prototypes or solutions. By collecting such feedback and facilitating informal exchanges, mediators help align innovation with societal concerns and contribute to democratizing access to marine innovation. In parallel, Nausicaá offers awareness-raising sessions for companies, fostering an ocean-literate business community.

These initiatives reflect an ambition to diversify ocean education formats, audiences and delivery methods. They also highlight the need for strong interdisciplinary collaborations between educators, scientists and mediators.

Beyond their immediate impact, these initiatives can also serve as models that can be adapted by other science centres and education stakeholders. By sharing these experiences, Nausicaá seeks to contribute to the wider reflection on how science engagement institutions can act as key allies in embedding ocean literacy within both formal and informal learning ecosystems.

#FindWhereFound: OCEAN LITERACY WITH ART AND CITIZEN SCIENCE COMBINATION

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Inspired by the first Irish female botanist, Ellen Hutchins (1785-1815), UCC MaREI team, with colleagues from Portugal and Austria, has developed art-based herbarium specimens of seaweeds from coastal areas of Ireland. The name #FindWhereFound represents the idea that the viewer can find the exact place the seaweed was found. Each specimen's information is linking the exact location at which the specimen was collected with a QR Code on a digital map, which is part of the "COSEA" citizen science open app platform for collaboration of marine and coastal community projects, running on SPOTTERON. This initiative offers a hands-on ocean literacy example, bringing the viewer's curiosity about ocean life. Whenever #FindWhereFound is present in public venues (e.g. an exhibition at European Maritime Days) the initiative is accompanied by a #SeaweedPoetry activity for the public to co-create an 11-word poem. The participants are invited to make a poem guided by a self-selected seaweed herbarium specimen and a question: How do you feel when you are near an ocean or sea?

Recent seaweed art exhibition (with QR codes with information on habitat etc.) during a celebratory event of Ellen's Hutchins in Cork (Ireland) offered a first glance how such an initiative can spark reflections about the viewers' connection with the seas and ocean. We applied a short survey for the participants to reflect how the seaweed art-work and the poem writing made them think about the seas and ocean. The participants mentioned several elements, including memories, feelings, and the ability to take time and think while making the poem. As one participant reflected: "It made me connect, consider and condense your feelings towards the ocean". Additionally, participants reflected on how seaweed art-work supported the exercise. As one member noted: "The shape and appearance made me think of ancient life and deep time".

Although the research field in human-aquatic ecosystem relationships is constantly growing, there remains a significant limitation, which is a lack of creativity in how we investigate these connections. As emphasized by Jefferson et al. (2021): "[t]he ocean perceptions research community is currently not being adventurous or brave with the methods and analyses it uses, and as suggested by Overland and Sovacool (2020) needs to deliver more rigorous social science moving beyond the familiar methods and embracing the opportunities of a more diverse suite of social science methods". The reflections from the participants offered new

insights on how the emotional connection with the seas and ocean can be shared in the form of a short poem facilitated by an art-based herbarium.

References:

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ACCESS DATA AND CREATE GREAT MAPS WITH THE EUROPEAN ATLAS OF THE SEAS!

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Looking for a user-friendly, easily accessible, interactive map-based educational tool on the ocean? With a catalogue of more than 270 map layers available in 24 languages, the European Atlas of the Seas (www.european-atlas-of-the-seas.eu) can help you to easily access data on a wide range of topics, including marine sciences, pollution at sea, climate change, marine biodiversity and the blue economy!

But that's not all. You can go a step further and create your own working space in the Atlas with the 'My Maps' tool! With the new 'My Locations' and 'My Notes' tools, you can also create your own maps showing locations you have selected and annotate your maps! The new tools mark a significant step towards expanding the ways you can use the Atlas in ocean literacy and blue education.

- Personalised mapping - Tailor your map layer by adding your locations and relevant details, ensuring a fully customised map with a legend you have designed. Note that you can combine the map layer you have created with existing map layers in the Atlas and save the resulting map under 'My Maps' in the Atlas. You can, for example, use the tool to show the results of small citizen science initiatives.
- Enhanced teaching - Whether you are studying marine biodiversity, tracking pollution, or teaching about climate change impacts, you can pinpoint key locations on your map to create an engaging educational experience. You can use your map to highlight the location of field trips or case studies.
- Customised demonstrations - Combine the use of the 'My Locations' tool and the 'Measures tool' to create your own map and easily calculate distances between two locations you have marked or between your marked locations and other points of interest on the map.
- Saved time and simplified navigation - Create a map layer with locations that are directly relevant to you that you will always be able to combine with other map layers to quickly see where you are on the map and easily zoom in on your area of interest.
- Ease of Use – Teachers and students who have collected data during a field trip or a project and recorded it in a table can easily copy their data from this table into the 'My Locations' tool to create a new map layer, annotate the map with the 'My Notes' tool and visualise the result of their work.
- Possibility to update and share your maps - Once you have saved your map layer in your personal 'My Maps' space, you can further work on it to update it with additional locations or data by adding rows and columns. You can thus continuously build upon your map and show it or send it to your colleagues or students.

Dive in now and discover the multiple ways the European Atlas of the Seas can help you in your work!

The European Atlas of the Seas is an initiative of the European Commission. It is powered by the European Marine Observation and Data Network (EMODnet).

THE “TEACHBLUE” TEACHER'S EDUCATIONAL ACTIVITIES GUIDE

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The “TeachBlue” Teacher's Educational Activities Guide, a key deliverable of the Erasmus+ project “TeachBlue”*, empowers early childhood educators to bring the wonders of our ocean into the classroom through developmentally appropriate, engaging experiences. The TeachBlue Teacher's Educational Activities Guide contributes to worldwide sustainability initiatives by aligning with UNESCO's Ocean Literacy Framework, the UN Sustainable Development Goal 14 (Life Below Water), and the UN Decade of Ocean Science for Sustainable Development (2021-2030). This comprehensive resource transforms Ocean Literacy concepts into accessible learning adventures for young children aged 4-8, fostering a foundation for lifelong ocean stewardship.

The guide integrates Ocean Literacy principles into Early Childhood Education and Care (ECEC) through:

- Child-centered learning experiences that honor young children's natural curiosity and ways of learning
- Play-based discovery that makes complex ocean concepts accessible through familiar materials and activities
- Multi-sensory explorations allowing children to see, touch, create, and imagine ocean environments
- Inclusive approaches ensuring all children, regardless of background or ability, can engage with ocean learning

This guide offers educators:

- Ready-to-implement lesson plans requiring minimal preparation and using accessible materials
- Flexible teaching strategies adaptable to diverse learning environments and student needs
- Authentic assessment tools capturing young children's developing understanding through observation and documentation
- Cross-curricular connections integrating ocean concepts with language, math, art, movement, and social development

The guide is organized in 4 sections.

Section 1: Understanding Ocean Literacy

It introduces the fundamental principles of Ocean Literacy and their relevance to early childhood development, explaining key concepts in accessible language for educators new to the field.

Section 2: Ocean Literacy Competencies for Early Childhood

It outlines developmentally appropriate expectations for young learners, organized by cognitive, social-emotional, and physical domains to support whole-child development through ocean exploration.

Section 3: Authentic Assessment Approaches

It provides practical tools for observing, documenting, and celebrating children's growing understanding of ocean concepts through portfolio assessment, and observation frameworks.

Section 4: Interactive Lesson plans Collection

It is organized in seven modules aligned with the seven principles of the Ocean Literacy Framework and it features engaging lesson plans, each including learning objectives, material lists, step-by-step instructions, assessment strategies and extension ideas. The lesson plans are organized with proper timing, transitions, and a logical flow from introduction to exploration to conclusion and include classroom and outdoor activities. Through these formative experiences, teachers will cultivate not just knowledge, but a deep sense of wonder and responsibility that will sustain our oceans for generations to come.

Overall, the TeachBlue Teacher's Educational Activities Guide represents a vital investment in our shared future—one where children grow into adults who understand that the health of our oceans and the well-being of humanity are inextricably linked.

*The ""TeachBlue: An innovative Marine and Ocean Literacy Toolkit for early childhood teachers in the frames of the 14SDG - Conserve and sustainably use the oceans, seas, and marine resources"" is an Erasmus+ project funded by the European Union.

THE ROLE OF OCEAN LITERACY IN SHAPING PUBLIC PERCEPTION OF OFFSHORE WIND ENERGY

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Ocean literacy plays a vital role in addressing the complex challenges facing offshore wind energy development in the North Sea.

The EU's Green Deal stipulates that Europe must become climate neutral by 2050. With this, Europe wants to be a global leader in the fight against climate change. An important element in this roadmap is offshore wind energy. With plans to reach at least 260 GW of offshore renewable energy by 2050, the North Sea is at the centre stage of Europe's offshore wind energy development ambitions. Yet offshore wind farms pose challenges and threats to North Sea nature and biodiversity. At the same time, Europe's energy landscape is ever-evolving, and recent geopolitical shifts are causing a change in perception of renewable energy.

These challenges result in a precarious public opinion towards the development of offshore wind energy. Public opposition can delay or even halt the development of offshore wind, which has environmental and economic consequences. Nature inclusive offshore wind energy remains an important and promising factor in the fight against climate change, and delays in its development should be avoided.

Ocean literacy addresses these challenges head-on. Research has shown that a deeper understanding of ocean systems can shape public perception towards offshore wind energy. Ocean literacy addresses misinformation and can inform the public of both the benefits and risks to ocean biodiversity of offshore wind energy. Awareness and knowledge of these costs and benefits encourages mitigation strategies, such as the implementation of nature inclusive design. An ocean literate stakeholder group and public can better navigate the sea of (mis-) information currently out there.

More specifically, ocean literacy can:

- Aid industry stakeholders in developing biodiversity-friendly and nature-inclusive offshore wind farms, always starting from the biodiversity values to be protected—a critical step toward solving the climate and biodiversity crises together.
- Explain the ecological benefits of well-designed, integrated offshore wind farms, including those that implement nature inclusive design principles.

- Educate the public on the importance of offshore wind energy, highlight the opportunities of nature inclusive design, and showcase successful examples to increase public support.
- Foster cross-border collaboration by creating a shared understanding and values on marine and offshore renewable energy issues.

Ocean literacy empowers the public to actively participate in the development of offshore wind energy. This ensures that the transition towards a healthy North Sea that contributes to the EU's Green Deal aligns with societal and ecological values.

EMPOWERING CITIZENS ACROSS GENERATIONS FOR RESPONSIBLE SEAFOOD: NEW CAMPAIGN STRATEGIES FROM THE MR.GOODFISH3.0 PROJECT

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“Mr.Goodfish3.0: Co-creating Solutions for Sustainable Seafood Consumption” is a project funded under the European Union’s research & innovation programme Horizon Europe and the EU Mission “Restore our Oceans & Waters” which aspires to protect and restore the health of European oceans and freshwaters through research & innovation, citizen engagement and investments in the blue economy, with a 2030 target. The project builds on the existing European programme “Mr.Goodfish” originally launched in March 2010. In the continuity of this programme, Mr.Goodfish3.0 aims to raise awareness for responsible consumption of sea, freshwater and aquaculture products by upgrading and expanding the Mr.Goodfish app as part of an EU-wide awareness campaign.

In planning this campaign, Mr.Goodfish3.0 builds on the knowledge that promoting responsible seafood consumption requires innovative, inclusive, and science-based approaches that connect with diverse audiences. This is why the campaign will feature multiple layers adapted to different groups. In this presentation, three key activities will be introduced, each tailored to specific age groups, yet united by a common message: making informed, responsible seafood choices is an accessible and impactful way to protect the ocean.

Firstly, Mr.Goodfish3.0 will collaborate with social media influencers across Europe to reach young adults where they are most active: online. From food influencers and chefs to science educators & environmental activists, these influencers will be given full freedom to develop and share entertaining and educational content, raising awareness of the seasonal seafood recommendations promoted through the new Mr.Goodfish app.

Secondly, the project will launch an original, strategy-based collaborative board game aimed at players aged 12 and up. This game will invite players of all generations to explore together the interconnected pillars of responsible fisheries: biodiversity, economy, social fairness and health. By simulating real-world challenges and decisions, players will discover the complexity of marine resource management and the importance and impact of collective action.

Third, Mr.Goodfish3.0 will launch a campaign package with a variety of communication materials adapted to different audiences, ranging from children to chefs. The material will include scenarios for hands-on workshops and tasting sessions for children aged 5 to 11,

combining sensory learning, storytelling, and playful activities. These short sessions will be tested in five pilot sites in Northern Norway, Northern France, Cyprus, Bulgaria and Northern Poland, where they will be delivered to schools and public events. This early engagement will help foster long-term curiosity and respect for the ocean.

The resources developed by the campaign will be accessible to conference attendees: the project will look for ambassadors in all EU countries to support replication of the campaign locally, in particular with younger people but also with seafood actors & the catering sector.

This presentation will share the rationale behind the campaign design, the partnerships involved in its development, and opportunities for involvement of other projects and actors. We aim to inspire discussion and collaboration with fellow EMSEA members who are developing or seeking innovative public engagement tools for sustainable ocean action.

FROM CLOTHES TO CORALS: MICROFIBER POLLUTION, YOUTH EMPOWERMENT, AND OCEAN LITERACY THROUGH HANDS-ON EDUCATION

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Microplastic pollution is often presented as an abstract environmental threat — yet a major contributor lies in our own closets. “From Clothes to Corals” is an educational project designed for youth aged 13–16, exploring the link between synthetic textiles, microfibers, and marine ecosystem health.

The program consists of two hands-on, interdisciplinary workshops: (1) “Fiber Footprint,” focusing on sustainable clothing choices, greenwashing awareness, and practical behavior change; and (2) “Follow the Fiber” tracing microfibers from laundry to the marine food web, highlighting their impact on plankton, coral reefs, fish, and ultimately humans.

In the workshops, students engage with real fabric samples, decode eco-labels, visualize oceanic food chains, and analyze common washing products for harmful ingredients. The workshops are framed by emotional reflection and science-based action planning, supporting critical thinking and system literacy.

Originally developed within an international blended intensive program on green pedagogy, the project is currently being prepared for implementation in cooperation with NGOs. It may also be adapted for schools, youth groups, or environmental education events. The flexible structure allows for both formal and non-formal learning contexts, making it a scalable tool for promoting ocean literacy through everyday relevance. By linking scientific understanding with emotional engagement, the project helps young people connect their personal choices to global marine challenges.

VIRTUAL FIELDWORK FOR OCEANOGRAPHY: THE VIRTUAL SHIP CLASSROOM

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Fieldwork is an essential component of many higher education programs, but in marine sciences fieldwork opportunities are scarce. We have therefore designed a digital learning experience that we would like to showcase. Our virtual fieldwork is suitable for university level students and others who want to practice conducting an expedition.

Virtual fieldwork is a relatively new concept, often incorporating Virtual Reality (VR). It has the potential to offer many benefits to students, such as being more inclusive, building student skills and confidence, and increasing engagement in the topic studied. The virtual ship classroom has been designed as an authentic learning environment that reflects real-world oceanographic research practices and planning where students are empowered through choice to direct their own learning.

Students formulate a research question, plan and prepare for an expedition, and virtually measure ocean fields. The data is generated by our python tool in such a way that the output closely resembles the datafiles that are generated by the equipment onboard research vessels. This allows students to work with and interpret realistic data files while investigating a phenomenon of their own choice.

We have recently added VR in the form of 360° videos to the virtual ship classroom. We are actively investigating the added value, engagement and immersion students experience through design-based research .

We collaborated with course instructors to set intended learning goals and evaluated the virtual fieldwork (in four graduate-level classes so far) using interviews with students, instructors and teaching assistants, surveys, rubrics, and notebooks/assignments.

We find the Virtual Ship Classroom contributes positively to learning outcomes and student satisfaction, because the learning is highly student driven and perceived as authentic. The students reported high levels of engagement in class and with the learning materials. They appreciated their growth in terms of content knowledge, real world research planning skills, data analysis and collaborative problem solving. As such, we believe this type of authentic virtual fieldwork will help students develop critical 21st century skills and could be transferred to other fields of interest as well.

All material is open source and available online via: <https://virtualship.oceanparcels.org> We welcome anyone in the world to use and contribute to the Virtual Ship Classroom.

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STRENGTHENING OCEAN LITERACY IN GEORGIA THROUGH EDUCATIONAL INITIATIVES AND COMMUNITY ENGAGEMENT

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Ocean literacy plays a vital role in fostering responsible behavior and sustainable use of marine resources. In Georgia, the development of ocean literacy is still in its early stages, especially within formal education and public awareness. This study presents an overview of recent initiatives undertaken to enhance ocean literacy in the Black Sea region of Georgia, with a particular focus on the “Ocean Academy Georgia” – an educational platform launched in 2023.

The aim of the Ocean Academy is to build knowledge and awareness about marine ecosystems, the blue economy, and sustainable ocean practices among school teachers, students, and local communities. The program includes training sessions, field activities, and interactive online modules conducted in collaboration with national and international partners. In 2024, the Academy conducted two seasonal training cycles (spring and autumn), reaching over 100 educators from different regions. Participants received teaching materials, scientific resources, and an international certificate upon completion.

This abstract highlights the methodology used to structure the training content, the challenges of integrating ocean education into national curricula, and the importance of interdisciplinary collaboration. A key component of the project has been engaging youth and encouraging citizen science practices such as coastal clean-ups and biodiversity monitoring. Results indicate improved teacher confidence in delivering ocean-related topics and increased student participation in environmental initiatives.

The findings from this initiative suggest that investing in ocean literacy is essential for empowering communities, shaping future environmental leaders, and supporting sustainable marine governance in Georgia.

VOICING CHILDREN'S UNDERSTANDING OF THE HUMAN-OCEAN CONNECTION

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Children are often regarded as the saviours of the future, the source of hope to solve humanity's greatest challenges. For this, education reform is lobbied for, and agendas are drafted and enacted so that children can be provided with the knowledge, tools and agency to fulfil this greatest of roles. This is because education is the tool through which citizens become equipped with the knowledge and skills to participate in society and that societal norms and values are enshrined. So therefore, education remains pivotal for addressing one of the great challenges identified as part of the UN Decade of Ocean Science for Sustainable Development, that is to restore society's relationship with the ocean.

This paper voices children's stories-with the ocean and how these are informed by their formal ocean learning. Children are lacking opportunities to learn about the human-ocean relationship since ocean topics are absent from education curricula worldwide. However, considering the ocean's dominance as a feature on the Earth's surface, its current precarious condition, and education's formative role, there are growing calls to address the lack of ocean topics in formal education. Many accounts in the literature, however, have narrowly focused on the evaluation of levels of knowledge, despite widespread agreement that knowledge does not strictly translate to pro-environmental behaviour. The human-ocean relationship is complex and understanding how children make sense of this complexity is important to inform current and future ocean education policy. Stories are a sense making tool which humans have drawn on for millennia to make sense of their experiences and confer meaning to their lives. Additionally, through stories, animate and inanimate entities such as the ocean can come alive, enacting their potential for in-relation-with-agency. Drawing on Posthuman and New Materialist theory, this research explores how children understand the child-ocean relationship, with children invited to share their stories-with the ocean following learning in a formal education setting. These stories reveal how formal learning is integrated into children's everyday lives and how they perceive their place in-relation-with, instead of separate from, the ocean. Only by understanding how children come to understand their ocean learning can we know if education is fulfilling its role of equipping young learners with the tools they need to become the change makers the world needs them to be.

Keywords: ocean, education, children, storying research, Posthumanism, New Materialism

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BRINGING OCEAN DATA TO LIFE THROUGH STORYMAPS

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Ocean literacy is about conveying scientific facts and building meaningful connections between people and the ocean through engaging narratives and accessible data. In this context, interactive digital tools, such as ArcGIS StoryMaps, offer an innovative way to combine storytelling and ocean data visualisation to enhance public understanding and support more ocean-literate societies.

This contribution presents a case study from the OCEAN CITIZEN project that integrates biological, physical, and spatial data collected across five pilot sites. Using StoryMaps as a platform, we structured a narrative based on the bathymetric gradient, moving from shallow coastal waters to deeper environments, presenting the need to understand the ocean's 3D structure. Each depth zone reveals specific ecological communities, environmental features, and the methodologies used to explore them, such as ROV (Remotely Operated Vehicle) transects, current measurements, and animal sightings.

Integrating interactive maps, photos, and videos lets users experience the research journey almost firsthand. Moreover, the StoryMap includes specific narratives for each of the five pilot sites, highlighting local particularities while connecting them under a common thematic thread: the vertical gradient of life in the ocean.

This approach illustrates how ocean data can be made more relatable and understandable, empowering diverse audiences to engage with scientific information actively rather than passively. It also shows the potential for StoryMaps to serve as an educational tool in formal and informal settings, bridging gaps between researchers, educators, students, and the general public. It allows the combination of different types of data (biological observations, physical parameters, spatial positioning) and their presentation in an integrated, user-friendly format.

By contextualising scientific findings within immersive digital experiences, we move toward a more interdisciplinary and culturally inclusive model of ocean literacy, enhancing how we communicate complex marine data to make it more understandable for society.

TEACHERS AS MULTIPLIERS: CO-CREATING RESOURCES THROUGH BIODIVOCEAN

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The BiodivOcean project promotes ocean literacy through inclusive, cross-curricular educational approaches. Here, we present the experience and outcomes of a three-day teacher symposium designed to co-create lesson plans addressing key marine challenges such as microplastics, invasive species, and biodiversity loss. Using the hands-on tools of the VIRTUE methodology, participants develop adaptable, inclusive, and locally relevant resources that foster engagement in marine biodiversity.

A central symposium component is an immersive visit to a certified Blue School, where participants experience how ocean literacy can be embedded into formal education through projects like BiodivOcean. The sessions highlight practical pathways for integrating ocean topics across curricula, building school-community partnerships, and accessing funding to support long-term engagement.

Ultimately, it is an opportunity to share co-created educational resources, teacher insights, and strategies, including citizen science, that empower educators as multipliers of ocean literacy within the Mission Ocean framework.

YOUNG VOICES FOR THE BALTIC SEA

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Being young today can be challenging; it can be frustrating not to be taken seriously and difficult to find a way to raise one's voice. To create a forum for young individuals to be advocates for the ocean, specifically the Baltic Sea, the project "The Young Voices for the Baltic Sea" started.

Eight participants (ages 18-25) were selected, and together they had the challenge to create a platform to communicate ocean literacy regarding the Baltic Sea. As this was a chance for the group to raise their voices, they were given free rein to run the project. They had some support from us, including start-up activities and workshops. Their work resulted in a public event at Baltic Sea Science Center in Stockholm in February 2025, focusing on fisheries and sustainable lifestyles.

The project was arranged by Baltic Sea Science Center (BSSC, Stockholm) and the Marine Education Center (SMKC, Malmö), with funding from Ålandsbanken's The Baltic Sea Project and from BalticWaters.

The project is now wrapped up, but the participants of the Young Voices for the Baltic Sea are continuing their commitment on their own. They have been invited to speak about their experiences to several events, and some of the participants will attend the Youth Conference in Åhus (Sweden) as well as the 2025 UN Ocean Conference in Nice.

THE PARTICIPATION POTENTIAL IN THE CITIZEN SCIENCE PROJECT COASTSNAP IN SWEDEN

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There is almost no other environment that changes as much and as quickly as the coast. The coastal zone is naturally dynamic, but also deeply shaped by human activities, not least by climate change, leading to sea level rise and more extreme storm events. The naturally dynamic character of the coast in combination with the uncertainties of predicting the effects of climate change makes coastal research challenging. To detect changes in the coastline, such as erosion, researchers need large amounts of data over long periods of time. Part of the solution to challenges of data collection in coastal research could be citizen science. Against this background, the citizen science project CoastSnap was created in Australia in 2017. The project consists of a simple setup of a steel smartphone cradle overlooking the coastline. Passersby are invited to place their smartphone in the cradle, take a photo and upload their photo by scanning a QR-code. CoastSnap provides valuable data for coastal research whilst engaging the public in the scientific process. Last year, in 2024, three CoastSnap-stations were installed in southern Sweden on the coast of the Baltic Sea and Kattegat. The aim of this study was to evaluate CoastSnap from the potential participants' perspective. A mixed-methods approach was used, including structured interviews on-site and web surveys published in local Facebook groups. In total about 100 respondents were included in the study, covering both local inhabitants and visitors, as well as different ages. The preliminary results showed that there was little to no awareness of CoastSnap in all three study locations. When informed about the project, most respondents had positive reactions. A clear majority said that they were interested in participating in CoastSnap. Many respondents in the study were already reflecting on changes in the coastline, showing that the level of knowledge about coastal issues is high. In response to the question of what could hinder participation in CoastSnap, many factors were mentioned. Respondents mentioned inadequate information about the purpose of the project, problems concerning accessibility to the CoastSnap station and difficulty using technology due to age. The respondents that attempted participation expressed dissatisfaction with the process of uploading the pictures. I argue that there is great potential in engaging the public in CoastSnap in Sweden, but that there is a need for improved communication and outreach. To reach its full potential, recipients need more information about the purpose of CoastSnap as well as enhanced user-friendliness.

FROM OCEAN LITERACY TO BEHAVIORAL CHANGE: A STUDY ON THE IMPACT OF MARINE EDUCATION ACTIVITIES ON ENVIRONMENTAL BEHAVIOR AMONG TAIWANESE UNIVERSITY STUDENTS

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Marine citizenship among university students plays a crucial role in shaping sustainable environmental behaviors and advancing ocean literacy. This study, which consolidates findings from two separate investigations into marine citizenship and behavioral change indicators among Taiwanese university students, significantly contributes to the field. The study utilized a self-developed “Taiwan - University Student Marine Citizenship Behavior Indicators, T-USMCBI” Questionnaire to measure five dimensions: knowledge, cognition, attitude, place identity, and place attachment. The questionnaire used a four-point Likert scale and was reviewed by five experts. The average Content Validity Index (CVI) of the questionnaire was 0.84, indicating good relevance and clarity of the questionnaire items. After Confirmatory Factor Analysis (CFA) and item deletion, all four constructs showed CR values above 0.79 (up to 0.91), Average Variance Extracted (AVE) mostly above 0.5, and Cronbach's α ranged from 0.83 to 0.85, demonstrating solid construct validity and internal consistency. Data were collected from 1,256 valid responses representing various educational institutions across Taiwan.

The results reveal an overall marine citizenship score of 70.64 out of 100, with students scoring highest in place identity (95.86) and place attachment (94.04), followed by attitude (90.63), cognition (73.49), and knowledge (59.32). These high scores in emotional dimensions reflect the students' strong emotional connections to their local environments and unwavering support for marine conservation efforts. In contrast, the relatively low knowledge score highlights a significant gap in understanding marine-related issues. Demographic analysis revealed notable differences: male students scored higher in cognition and place attachment than females, while senior students demonstrated higher knowledge levels but lower cognition scores than juniors. Students enrolled in marine-related universities consistently outperformed their peers from general or technological universities across all dimensions except behavioral change indicators. Participation in marine leisure activities or conservation programs significantly enhanced scores in attitude, place identity, place attachment, and behavioral change indicators.

Correlation analysis provided more profound insights into the relationships between the dimensions of marine citizenship. Knowledge is negatively correlated with cognition but

positively associated with attitude and place identity. The strong positive correlation between place identity and place attachment underscores the crucial role of emotional connections in fostering pro-environmental behaviors. This finding is significant as it emphasizes the need to consider emotional factors in designing effective environmental education programs.

This study's findings underscore the need for targeted educational interventions to bridge gaps in ocean literacy. The study also highlights the potential of leveraging emotional connections to local environments to promote sustainable practices. The recommendations from this research, such as integrating experiential learning into formal education systems, fostering interdisciplinary collaborations, and utilizing digital platforms for knowledge dissemination, offer practical strategies for enhancing marine citizenship and promoting pro-environmental behaviors.

Keywords: marine citizenship, ocean literacy, pro-environmental behavior, sustainability education, university students

BRINGING THE BLUE BIOECONOMY TO LIBRARIES

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In 2024, a national library campaign was organized by the Marine Institute, during Bioeconomy Ireland Week, to highlight opportunities and solutions provided by the blue bioeconomy and its development in Ireland. Bioeconomy Ireland Week is a collaborative initiative led by Ireland's Department of Agriculture, Food and Marine, supported by the Department of Environment, Climate and Communications, state agencies and other national bioeconomy stakeholders. The week offers a unique platform to showcase how biobased solutions can drive environmental and economic sustainability across a range of sectors including fisheries, aquaculture, forestry, and agriculture.

The library campaign acted as a catalyst for bringing the bioeconomy into public libraries across Ireland. It offered a range of activities for people of all ages to discover how marine and other resources can be sustainably harnessed to benefit local communities and the environment. The campaign included:

Expert talks: Focused talks with specialists from the Marine Institute, other state agencies and local authorities, universities, businesses and community groups, targeting young people 15-18 years old and the public.

Children's workshops: School groups took part in hands-on blue bioeconomy workshops delivered by the Explorers Education Programme in selected libraries, educating them on bioeconomy, marine resources, and biobased solutions.

Book and digital displays: Books related to the bioeconomy and blue bioeconomy were featured, with accompanying digital displays to provide visual insights into the bioeconomy.

Family-friendly materials: Bookmarks, marine activity booklets, seaweed identification books (via Irish Seaweed Consultancy) and marine maps (courtesy of the INFOMAR programme) were distributed to foster awareness and engagement.

A total of 26 events across 17 counties took place during Bioeconomy Ireland Week 2024, with 585 people taking part. Through children's workshops, a total of 9 school groups were engaged with 216 children and 9 teachers attending. For older students and the public, a series of library talks took place. These included talks from a local oyster producer, seaweed researchers, a workshop on slime (!), career opportunities (Gaeltacht region – Irish speaking), ocean pollution, and fisheries.

Outcomes from the initiative included students' sharing their thoughts on what the blue bioeconomy is, pitching their group business concepts, and providing feedback on their enjoyment. Benefits to the educators involved were also assessed through one-to-one interviews. Facilitators reported an increase in their own knowledge of the Blue Bioeconomy, and methods for incorporating it into classroom based and library-based settings. Libraries expressed an interest in continuing the collaboration and expanding the children's workshops to inland counties. This presentation will look at examples of the student and facilitators learnings and explore how the initiative can be improved and expanded in 2025.

'CULTIVATING MEDITERRANEAN MARINE AWARENESS AND ENVIRONMENTAL EMPATHY THROUGH MUSIC EDUCATION: A QUALITATIVE STUDY IN FIVE GREEK-CYPRIOIOT SCHOOLS'.

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Music serves as a powerful tool for environmental awareness, transcending language barriers and fostering empathy. It simplifies complex ecological issues and strengthens cultural ties, making conservation messages more accessible. Through performances and media, music unites communities in advocacy for the environment. Recent discussions emphasize introducing environmental education from early childhood and exploring how marine identity shapes ecological responsibility.

This study explores how music education can nurture environmental empathy and marine awareness in young learners and educators. Designed collaboratively by a music educator and an early-years educator, the study involves workshops that combine interactive music-making, participatory activities, and experiential learning to engage students and teachers in sustainability efforts. These workshops also encourage partnerships between schools and environmental organizations to promote long-term commitment to marine conservation, especially in the Mediterranean region.

A qualitative research approach grounded in constructivist and constructionistic principles, is applied within authentic educational settings across five schools, including three preschools and two elementary schools. Data is gathered from 200 students and 10 teachers through private interviews, semi-structured questionnaires, informal discussions, and students' artifacts, generating a rich dataset. Thematic analysis is used to interpret participants' perspectives, emotions, and interpretations of their experiences in the workshops, capturing the diversity of their engagement.

Preliminary findings suggest that music workshops significantly enhance environmental awareness, deepen participants' marine identity, and encourage project-based learning for sustainability. It is suggested that these workshops offer educators and students meaningful opportunities to explore real-world ecological challenges, emotional connections, and develop creative solutions through music and other art forms. Guided by the principles of Inspire, Explore, Create, and Celebrate, this initiative suggests the potential of music education to foster marine environmental responsibility from an early age. The study contributes to innovative approaches for environmental sustainability education, with data collection concluding in June and further analysis to follow.

Keywords:

Ecological Protection, Sustainability, Ethical Responsibility, Climate Crisis, Music pedagogy, Constructivism and Constructionism in Early Education and Elementary, (Mediterranean) Marine Identity, Marine Empathy, Ocean Literacy.

DISCOVER YOUR BEACH BIODIVERSITY WITH MINKA CITIZEN SCIENCE OBSERVATORY!

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Involving young students with practical and hands-on citizen science can foster curiosity and a strong sense of environmental stewardship. This workshop presents an innovative approach to coastal and marine biodiversity monitoring through the MINKA citizen science observatory, designed to empower school children to actively participate in data collection and environmental awareness.

During this workshop, we will learn how to design an educational project with MINKA, and how to use the platform by doing a small biodiversity census. Participants will also explore how MINKA can be integrated into school curricula to monitor marine and coastal ecosystems, using mobile devices or digital cameras to document species and environmental changes. Also, real case studies and inspiring stories from school projects will be presented. The collaborative discussions will contribute to improving this platform for diverse educational and ecological contexts.

MINKA has been recognised as a UN Acceleration Action for SDGs due to its contributions to SDGs 11, 14, 15, and 17. It is also part of the EU Mission "Restore Our Ocean and Waters" and has been endorsed as a Decade Action, contributing to the UN Decade of Ocean Science for Sustainable Development (2021-2030) under UNESCO.

Join us to discover how young minds can contribute meaningfully - and are already doing so! - to the protection and understanding of our coastal and marine environments!

COASTAL COMMUNITIES THINKING TOOLKIT

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The 2024 Venice Declaration positions Ocean Literacy (OL) as a transversal enabler, extending its reach beyond education into urban planning, governance, and environmental stewardship. Among its key messages, it frames participatory marine planning—foundational to the sustainable blue economy—as an OL-driven practice, requiring sensitivity to the perspectives, needs, and entanglements of both human and non-human actors.

Within this expanded framework, the latest edition of the Sustainable Development of Coastal Communities (SDCC) course, organized by CIHEAM Bari, introduced a visual method to support inclusive, collaborative coastal governance—Coastal Community Thinking (CCT). While the course explores sustainable blue economy sectors, it does so from a community-based perspective—one that is often implicit and not always shared among participants with different institutional or disciplinary backgrounds. The toolkit addresses this gap by making such perspectives visible and discussable, through a shared visual-verbal language that enables trainees to map local systems, reflect on stakeholder dynamics, and surface tacit assumptions. Its hands-on format supports embodied, situated learning across cultural and technical divides, while a complementary digital layer allows for comparative reflection and synthesis over time.

Crucially, CCT is infrastructured on the premise that ocean literacy and visual literacy are interdependent, and together contribute to meaningful knowledge co-creation. The toolkit thereby fosters collective meaning-making, supporting users in exploring existing dynamics (“as-is”) and envisioning alternative futures (“to-be”). In doing so, it addresses a persistent gap in participatory coastal planning: the lack of inclusive, adaptable instruments for navigating social-ecological complexity—thus offering a grounded example of Ocean Literacy ‘in action’.

At EMSEA 2025, we present preliminary insights from the daily use of the toolkit by 20 ocean-related institutional profiles from the Global South during an intensive 8-week residential course—showing how it facilitates participatory sense-making around the lived realities and configurations of coastal communities.

EXPEDITION COASTLINE

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Introduction

In a joint effort to promote ocean literacy among young people, the Flanders Marine Institute (VLIZ), the Province of West Flanders, and Horizon Educatief joined forces to develop an innovative educational programme that integrates the principles of citizen science—specifically the Seawatch initiative—into formal education. This initiative builds on the experiences of the Ocean Action project, in which students from a French and a Flemish school managed an assigned stretch of coastline throughout an entire school year. As a follow-up, the Expedition Coastline project was launched in September 2024, aiming to actively engage young people in coastal field research. Through this programme, students' field experiences are deepened, contextualised, and linked to scientific knowledge, with the ultimate goal of supporting the sustainable development of ocean literacy in education.

Method

Classes from the third stage of primary education and the first stage of secondary education commit to carrying out three fieldwork sessions over the course of a full school year on a designated stretch of beach. These sessions are spread across different seasons. During each fieldwork session, students investigate one of three coastal ecosystems: (1) the surf zone, (2) the high tide line (including shells and litter), and (3) the groyne and surrounding soft sand, focusing on species such as sand mason worms, lugworms, and jellyfish.

Each class is divided into three groups, with each group examining a different ecosystem during every field session. By the end of the programme, all students will have explored each of the three ecosystem types. The activities are supervised by the teacher, assisted by two additional support staff.

Collected data are recorded using standardised forms tailored to the pupils' educational level. These data are then entered into the MINKA database of VLIZ. Teachers and students can access their own data through MINKA, compare them with data from other regions, and engage in classroom discussions and outreach.

In addition to the fieldwork, each class develops a 'challenge' around a chosen theme—such as pollution or biodiversity. For this, schools receive educational materials from the non-profit organisation Horizon Educatief. The teacher collaborates with local partners (e.g., municipal services or community groups such as the Propere Strandlopers) or works together within their school network to develop the project.

Finally, the school year concludes with a closing event where participating schools, in collaboration with the project partners, present their collected data and the outcome of their challenge. This event not only provides an opportunity to showcase their efforts but also serves as a stepping stone toward obtaining the 'European Blue School' label.

**TRANSMITTING PASSION FOR THE OCEAN IN MARGINALIZED AREAS:
CHALLENGES AND OPPORTUNITIES BEYOND COURAGE**

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Ocean Literacy is having a great momentum in this historical period, but this is not enough to reach the most marginalized areas sometimes. In these zones passion and efforts may not be enough to act through traditional tools and practices, something different needs to be developed and alternative pathways need to be developed to overcome physical and cultural barriers. This is the case of some recent experiences i attempted to develop, reaching communities far from the coastal zone but with the same if not greater willingness to learn about the Ocean and marine life. This contribution will be the opportunity to share insights on these experiences sharing results, achievements and gaps that still need to be filled.

KNOWLEDGE, ATTITUDES, AND PRACTICES CONCERNING PLASTIC CLEAN-UP TECHNOLOGIES IN BELGIUM

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Mismanaged and legacy plastic litter has been accumulating in the environment at increasing rates. Therefore, in the past decades, new innovations have been developed to collect and remove environmental plastic litter. Together with the benefit of physically removing plastic, these technologies may promote public awareness and engagement, as well as provide data on plastic litter categories or emission sources. Understanding the perception and knowledge of plastic clean-up technologies can contribute valuable input and insights to policymakers. Therefore, this study aims to investigate the knowledge, perception, and attitudes of various stakeholders by using a mixed-method approach. We collected cross-sectional survey data from a representative sample of 948 adults (Belgian residents). We have also acquired qualitative interview data from seven stakeholders (e.g., governmental actors) who could be associated with areas of potential deployment of plastic clean-up technologies. Our preliminary descriptive results indicate that 89% of the respondents to the survey are concerned about the problems plastic pollution might cause. Although 47% had heard about plastic clean-up technologies before taking part in the study, most of the participants (41%) indicated having “no knowledge at all” about plastic clean-up technologies. When asked where the majority of the clean-up technologies are currently deployed, 265 participants indicated inland waterways such as rivers, canals, and estuaries followed by the open ocean (255 responses). Additional results will present attitudes regarding the positive and negative impacts of these technologies on the environment in which they are deployed. Our results will offer insights into the possible associations between individual factors, such as sociodemographic traits and the knowledge and attitudes towards plastic clean-up technologies. With new regulations to reduce plastic pollution, such as the ongoing negotiations on the Global Plastics Treaty, understanding the role of various strategies, such as plastic clean-up technologies, is fundamental. This study provides a Belgian perspective on the current subjective and objective knowledge, attitudes and perception of stakeholders towards plastic clean-up technologies, which offers policymakers key insights.

EDUCATIONAL ROBOTICS AND OCEAN LITERACY: EXPLORING THE FROG'S LIFE CYCLE

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Educational robotics is a powerful learning tool that can significantly contribute to the promotion of ocean literacy, offering students hands-on, experiential opportunities to understand complex environmental systems and foster ecological awareness. This study presents a series of teaching interventions implemented in an elementary school, where 60 students from first to fourth grade participated in interdisciplinary activities that explored the life cycle of the frog through the lens of robotics and ocean literacy. The pedagogical design aimed to combine biological understanding, technological creativity, and environmental responsibility, using robotics to make abstract scientific concepts both tangible and engaging for young learners. This study was guided by two research questions:

- 1) To what extent can educational robotics promote ocean literacy among primary school students?
- 2) Can the creative quality of students' robotic artifacts serve as evidence of their conceptual understanding and imaginative engagement?

Data were collected through observational notes, student reflections, and evaluation of the robotic artifacts produced during the interventions.

Inspired by Isabel Thomas's book "Frog: A Story of Life on Earth", which narrates the evolutionary journey of the frog and the origins of life in the ocean, the interventions encouraged students to explore the frog as an amphibian—a creature that lives between land and water, reflecting the deep evolutionary connections between terrestrial and aquatic ecosystems. The book served as the narrative anchor of the project, allowing students to engage emotionally and cognitively with the idea that life on Earth began in the oceans and that amphibians like the frog are living reminders of that ancient connection.

During the intervention, students used educational robotics kits such as LEGO® Education WeDo 2.0 Core Set and LEGO® SPIKE™ Essential to construct and program robotic models representing each stage of the frog's life cycle—from egg, to tadpole, and finally to adult frog. These activities allowed them to actively explore biological processes while developing programming skills and computational thinking. More importantly, the robotic models became tools for simulating environmental transitions, such as movement between different ecosystems, and for visualizing the potential effects of ecological disruptions.

The concept of ocean literacy was woven throughout the activities. Students learned how freshwater bodies like ponds and rivers are interconnected with the global ocean system, and

how local environmental actions—such as pollution or habitat destruction—can have far-reaching impacts. Through the robotic simulations, they addressed real-world environmental challenges, gaining insights into biodiversity loss, water pollution, and the role of amphibians as bioindicators. These activities helped students build a systems-thinking approach to understanding nature, connecting local ecological knowledge with global sustainability goals.

By integrating educational robotics with storytelling and environmental science, the intervention offered a rich, multi-sensory learning experience that promoted not only knowledge acquisition but also environmental empathy and responsibility. The students' active engagement demonstrated how robotics can transcend its technical boundaries and serve as a medium for cultivating ecological consciousness and fostering a deeper appreciation for the interconnectedness of life. Ultimately, this project highlights the potential of educational robotics to be used not just as a tool for STEM education, but as a catalyst for promoting ocean literacy and inspiring young learners to become thoughtful stewards of the planet.

BRINGING OCEAN LITERACY FROM SCIENCE TO SCHOOLS - EXPERIENCES FROM A DUTCH MARINE RESEARCH INSTITUTE

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Marine education ideally reaches all groups and age levels of society, helping to develop a society of ocean literate citizens. However, educational activities of marine research institutions are usually focused on students from tertiary educational institutions, as they constitute the next cohort of researchers and research staff. Educational activities for schools are often less represented, although these constitute a great opportunity to promote ocean literacy to school children. Here, I present various approaches we use at the NIOZ Royal Netherlands Institute for Sea Research that have proven to be successful to bridge the gap between marine research and high school students: from giving presentations and offering special marine research activity days as well as short internships, to the supervision of school projects, especially as part of the NIOZ cooperation with a Dutch Blue School.

COMMUNICATING THE OCEAN FROM THE MEDITERRANEAN: SOCIB'S STRATEGY TO PROMOTE OCEAN LITERACY THROUGH EDUCATION

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The Balearic Islands Coastal Observing and Forecasting System (SOCIB) places ocean literacy at the heart of its mission, as a transformative driver across all its activities. It recognises engagement through education as a key driver for connecting marine research with society and promoting sustainability. Since its beginnings, SOCIB has developed a dynamic educational approach to engage diverse audiences through formal and informal education, with a strong focus on coastal communities in the Mediterranean.

As a unique scientific and technical infrastructure, SOCIB promotes an inclusive and creative 360° communication model that integrates ocean literacy into its practice. This includes creating multilingual didactic units aligned with school curricula, such as resources exploring climate change, coastal adaptation, and the role of science and technology in marine conservation. These materials are developed to ensure accessibility, scientific accuracy, and relevance for education and vocational training.

SOCIB also fosters direct engagement with ocean science through experiential learning. Initiatives include open days aboard its oceanographic vessel, hands-on activities at research facilities, and tailored workshops for teachers and students. Storytelling and real-world exploration are central tools to inspire young people and empower them as ocean-literate citizens.

Beyond the classroom, SOCIB develops educational games, travelling exhibitions, and creative formats such as art and photography contests. These initiatives bridge science and culture, encouraging critical thinking and a deeper emotional connection to the ocean. In parallel, SOCIB actively participates in national and European networks dedicated to advancing ocean literacy in education. Its activities are well embedded in EU-funded projects and international initiatives such as the EuroGOOS Ocean Literacy Working Group. This includes contributing to the exchange of best practices, co-designing shared methodologies, and developing common educational frameworks. In this collaborative context, SOCIB explores the use of innovative digital tools—such as ocean data visualisations and emerging technologies like ocean digital twins—to enrich learning experiences and promote understanding of complex marine systems.

This presentation will highlight SOCIB's Mediterranean-based strategy for embedding ocean literacy in education, showcasing concrete resources and lessons learned. It will also reflect on how local actions can be aligned with international frameworks, including the UN Decade of

Ocean Science for Sustainable Development. By integrating science communication, education, and public engagement, SOCIB reinforces the critical role of ocean literacy in shaping resilient, informed, and empowered coastal communities.

DEMOCRATIC PARTICIPATION FOR INFORMED AND RESPONSIBLE DECISIONS ON CLIMATE AND THE ENVIRONMENT IN CYPRUS, CRETE AND MALTA

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Children and youth are important agents of social and environmental change. They represent future decision-makers, voters and consumers whose decisions and actions will impact the environment. Beyond their direct ability to act responsibly, children and youth also have the power to influence knowledge, attitudes and behaviors of their peers, family and community thus, facilitating meaningful change.

Civic participation remains low among youth in the EU. 44% are not participating in any type of civil society organization, youth or sports club, or political party [1]. For example, Cypriot youth are the least likely to participate in such organizations (67% of youth). Over 40% of young Europeans consider that critical thinking, media and democracy are 'not taught sufficiently' in school [2]. These data demonstrate a need to raise awareness and educate children and youth regarding their rights to effective participation and strengthen their social and civic competences to fully participate in societal democratic processes. To address this issue, youth involvement in democratic processes must be strengthened through capacity-building activities that empower and mobilize them to actively and effectively engage in democratic life.

This paper draws on findings from the Resiles project examining the impact that interactive presentations have on students and their educators as a capacity building activity in the Mediterranean islands of Cyprus, Crete and Malta. It explores how these presentations enhance knowledge, shift perception, and encourage participatory behaviors related to active citizenship for the environment and sustainability, by showing ways and practical solutions on how to become more active participants in the EU's democratic life. The impact of the interactive RESiles presentations, on shifting perceptions and willingness to advocate for the environment and sustainability in changing the perceptions, is measured through a survey with ex-ante and ex-post questionnaires for students and educators.

365 students from 34 educational institutions -between the ages of 6 to 25- and 42 educators between the ages of 25 to 60- from Crete, Cyprus and Malta participated in the RESiles process. The findings of the survey showed significant increase in environmental awareness

and interest in democratic participation amongst the students and educators. After the interactive presentations, teachers were motivated to raise awareness through classroom discussions and activities, while young students shared a willingness to adopt sustainable habits. Differences emerged in age-specific preferences: Crete's older students leaned more towards NGO involvement, Cyprus' showed broader engagement for participate in activities such as tree planting and clean-ups, and Malta had a strong focus on sustainable transport and younger children's enthusiasm for environmental projects. The results highlight the potential of targeted and interactive educational interventions to foster agency for advocacy and democratic engagement.

The RESisles project- Resilient Euro-Mediterranean Islands: Democratic Participation for Informed and Responsible Decisions on Climate and the Environment-, funded through the European Education and Culture Executive Agency, aims to promote and facilitate civic participation in democratic processes concerning climate related and environmental issues, EU values and rights on the islands of Cyprus, Malta and Crete- three of the most populated and vulnerable Mediterranean islands.

[1] https://ec.europa.eu/assets/eac/youth/library/reports/flash375_en.pdf

[2] https://www.campaignplaybook.eu/how_engage_europe_youth_ahead_of_2024_european_elections

A HARMONIZED APPROACH TO DATA COLLECTION AND CONSOLIDATION IN A EUROPEAN CITIZEN SCIENCE INITIATIVE FOR BETTER DECISION MAKING AND OCEAN LITERACY

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Within the Plastic Pirates – Go Europe! project, a European-wide citizen science initiative that is currently implemented in fifteen countries, students are educated on plastic pollution in aquatic environments and use scientific methodologies to collect valuable riverine and coastal litter data in their country.

The environmental litter data of Plastic Pirates are of great value for national and European policies and regulations because the environmental status on riverbanks, in surface waters and at coasts across Europe is assessed while using standardized sampling protocols. The long-term nature of this initiative will enable the tracking of changes and the evaluation of policy effectiveness, thereby driving positive change in plastic pollution mitigation efforts. Furthermore, the project raises public awareness about plastic pollution and the connection between rivers and the ocean within the scope of the EU Mission Restore our Ocean and Waters and provides active engagement opportunities with citizens. Even at the United Nations policy level, citizens are being identified as central stakeholders in tackling plastic pollution (Oturai et al., 2023).

The project has developed standardized methodologies for riverine and coastal samplings of macro-, meso- and microlitter, so that the same data collection protocols are being applied by the students and teachers in every participating country. Moreover, experts in the participating countries implement the same data validation and verification protocol to make sure the data meet required levels of quality and are considered trustworthy.

To enable optimal analysis and (re)use of the data and hence have the desired impact on the policy level and society, it is crucial that these data are of good quality and can be widely shared among experts in a user-friendly format that meets international standards. Therefore, a solid data management procedure has been established to create one harmonized, qualitative and standardized dataset from the many individual datasets collected all over Europe. Once the harmonized data have been openly published according to best practices and the FAIR principles, it will be shared via European data systems, such as EMODnet and the European Atlas of the Seas, from where it can be used for education, research and decision making. Making the data publicly available for everyone ensures that citizens who were actively involved in data collection can also see the results of what they have contributed to.

The experience within the Plastic Pirates – Go Europe! project illustrates the potential of one common and well-established approach for data collection, validation and consolidation in (international) citizen science projects to enable more qualitative, harmonized and standardized data that can be used for decision making and education, and can therefore create an impact on society.

STRENGTHENING OCEAN LITERACY THROUGH CITIZEN SCIENCE

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As ocean literacy evolves into a dynamic research field, one of its most promising frontiers lies in the intersection between data, participation, and public engagement. The German Ocean Foundation, in collaboration with Scuba Schools International (SSI) and key partners from the water sports industry, has launched a broad-based citizen science initiative that empowers recreational divers to become contributors to marine science. At its core, this initiative harnesses everyday water sports experiences to generate biogeochemical ocean data—while simultaneously fostering a deeper understanding of and connection to the marine environment.

The project's innovative strength lies in its simplicity: Water sports enthusiasts already interact with the ocean on a physical and emotional level. With minimal additional effort, they can collect high-quality data using existing tools such as dive computers and the SSI mobile app. During each dive, anonymized measurements (including temperature, depth, pH, and geolocation) are recorded and, after harmonization and quality assurance, transferred to the European Marine Observation and Data Network (EMODnet). There, the data is openly published, visualized, and made accessible for scientists, policymakers, and citizens across Europe.

This flow of citizen-generated data into institutional research platforms highlights the dual potential of ocean data: not only to support science, but also to build data literacy and ocean literacy in parallel. Contributors can track the scientific use of their data in real time, creating a transparent feedback loop that enhances trust, motivation, and sustained engagement. This direct visibility transforms anonymous data points into meaningful participation, contributing to a growing culture of public marine stewardship.

The project enriches research particularly in shallow, nearshore areas (<20 meters), which are often underrepresented in traditional marine monitoring. The resulting datasets are valuable for improving coastal climate models, forecasting extreme weather events, and supporting habitat protection and ecosystem assessments. At the same time, the project provides a lived context for participants to understand how scientific knowledge is created, validated, and used—core competencies of ocean literacy.

By transforming users into informed contributors, and data into dialogue, this initiative demonstrates how participatory marine science can promote critical thinking, awareness, and pro-ocean behaviors. It also raises important methodological questions about the role of citizen-generated data in assessing and enhancing ocean literacy itself: Can real-time

interaction with ocean data lead to measurable changes in attitudes and decision-making?
How can we evaluate the educational value of open-access platforms for non-expert users?

This presentation will explore the design, technological integration, and sociocultural impact of the initiative, including first insights on participant motivation, learning outcomes, and feedback mechanisms. It will also discuss the interdisciplinary implications for science communication, marine education, and digital public infrastructure. Ultimately, we argue that citizen access to and engagement with ocean data is not only a tool for research—it is a transformative pathway toward more ocean-literate societies.

HOW DOES SHIP-BASED HYDROGRAPHY HELP SCIENTISTS UNDERSTAND CLIMATE CHANGE?

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Why is ship-based hydrography considered an important ocean observation system and how does it benefit society? If you are looking for friendly material to enhance Ocean Literacy and Blue Education, scientists from the Horizon Europe project EuroGO-SHIP [<https://eurogo-ship.eu/>] have collaborated on a comprehensive factsheet/poster focused on the oldest and most reliable form of ocean observation: Ship-Based Hydrography. Encompassing a range of observational techniques that involve deploying instruments in the ocean and collecting water samples at various depths to analyse ocean physical and chemical properties, ship-based hydrography is very much the nuts and bolts of ocean observation. Why is it important? We need to gain an understanding of how the ocean works to: produce better weather forecasts, protect our ocean ecosystems, support the blue economy and to gain a better understanding of how climate change influences processes in the ocean. As a member of the EU4Ocean Platform, EuroGO-SHIP developed the factsheet specifically to share with learners of all ages and for use as supplemental material in the classroom. Not only are there facts about ship-based hydrography and ocean observation, there is also interesting intel on what it's like on a research cruise, for example how scientists keep safe and healthy while at sea.

And that's not all. EuroGO-SHIP has also produced an anthology of infectious, personal blogs from scientists engaged in project tasks and activities in support of delivering quality ocean data. Their stories include adventures at sea, the importance of pan-European collaboration and mentorship, and provide a glimpse of life on a research cruise, all of which can be used to provide encouraging information for anybody interested in pursuing a career in oceanography.

The 14-partner EuroGO-SHIP project seeks to enable the European community conducting hydrographic observations at sea to provide higher quality and more sustainable data flows to a broad range of end users, more effectively. The project is working towards strengthening European capabilities to deliver world-class oceanographic science, which is key to inform policies and to meet the goals of the EU Mission "Restore our Ocean and Waters by 2030" and the wider objectives of the EU Green Deal.

NEW KNOWLEDGE AND TOOLS FOR BLUE ECONOMY AND POLICY STAKEHOLDERS TO BETTER MANAGE OUR OCEAN AND ENVIRONMENT

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The ocean carbon cycle plays a crucial role in regulating the global climate, taking up approximately 25% of the CO₂ emitted into the atmosphere and storing massive quantities of carbon in the ocean interior via a series of processes, including processes known as the biological carbon pump. Recent work suggests a much higher level of complexity in the biological carbon pump functioning than previously thought, including important roles for higher trophic level organisms and a broad range of fish associated processes. Looking to the future, humanity will become increasingly reliant on the ocean for resources via fishing, mining, and energy extraction.

OceanICU is a five-year Horizon EU funded project that seeks to gain a new understanding of the biological pump and its processes. The aim is to provide fundamental knowledge and tools to help policy makers, regulators and blue economy industry stakeholders manage and understand the impact of their actions on ocean carbon, ultimately leading to a better approach for addressing climate change in alignment with the EU Green Deal to reduce the net emissions of greenhouse gases to Zero by 2050. The OceanICU team is actively connecting with stakeholders in fishing and mining industries, as well as policy and civil society to assess their current needs of the marine space and to identify key emerging threats and trajectories which may affect interactions with the ocean carbon cycle. These findings will be used in conjunction with OceanICU's scientific discoveries to create improved models and define scenarios of interest and societal relevance that will be used to inform Decision Support Tools, giving industry the ability to forecast their actions along a more effective pathway to inform mitigation actions and influence business strategies benefitting from marine climate and extraction services.

The project is also creating educational pathways through its engagement with young stakeholders from wider society, including students in secondary school, higher education students and young professionals to develop their interest and understanding of ocean carbon and the crucial role the carbon cycle plays in regulating the global climate. Working with education collaborators, OceanICU's project outputs will be transformed into new educational resources and tools that meet the needs of teachers and educators, ultimately demonstrating an approach to connecting science to the wider society that can be replicated at a larger scale in the future. The project is also supporting Ocean Literacy through its membership in the EU4Ocean Platform, outreach at events and a series of harmonised blogs, as well as free webinars available on the website: www.ocean-icu.eu.

ENABLING OCEAN KNOWLEDGE AND FORECASTING THROUGH OPEN DATA AND ACCESS TO TOOLS ON EDITO FOR EVERYONE

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OceanICU is developing a new Decision Support Tool for ocean sustainability that will be demonstrated in this presentation.

The ocean plays a critical role in regulating the Earth's climate by absorbing and storing vast amounts of carbon, thereby helping to keep atmospheric CO₂ levels lower than they would be otherwise. Marine organisms, especially plankton, are central to this process—consuming carbon near the surface and transporting it to the deep sea when they die. This mechanism, known as the biological carbon pump, effectively locks carbon away from the atmosphere. OceanICU is a five-year Horizon EU funded project that seeks to gain a new understanding of the biological carbon pump and its processes. The aim is to provide fundamental knowledge, new data and tools to help policy makers, regulators and blue economy industry stakeholders manage and understand the impact of their actions on ocean carbon, ultimately leading to a better approach for addressing climate change in alignment with the EU Green Deal to reduce the net emissions of greenhouse gases to Zero by 2050.

Key outputs of OceanICU are in part, the creation and improvement of advanced biogeochemical models incorporating innovative data collected as part of project activities, and the integration of these models within newly developed Decision Support Tools (DSTs), which are being designed in direct consultations with blue economy industry, specifically representatives from fishing and mining communities. The tools will allow users, including Policy and Industry stakeholders, to interactively explore "what-if" scenarios, such as projected changes in ocean surface temperatures, CO₂ fluxes, and chlorophyll concentrations in response to rising global air temperatures.

Hosted on the game-changing European Digital Twin Ocean (EDITO) platform, a prototype of OceanICU's DST is now freely available to anyone wishing to see how it works and what they can learn from it. The DST enables users to select any location on the global ocean map. This triggers a series of simulations, which are followed by the modelled evolution of key ocean variables (Temperature, Chlorophyll-a and CO₂ fluxes) over the year 2022, and are plotted on a graph for visualisation alongside satellite derived measurements of the same variables to provide a baseline for assessing the model's accuracy. Interested citizens and educators can check out the DST on the EDITO Platform to see how it enables easy and efficient "what-if" scenarios for forecasting to help us better manage our ocean. Play with the prototype at [<https://ocean-icu.lab.dive.edito.eu/>]

The project is also supporting Ocean Literacy through its membership in the EU4Ocean Platform, outreach at events and a series of harmonised blogs, as well as free webinars available on the website: www.ocean-icu.eu

FROM INSPIRATION TO IMPLEMENTATION: A DEEP DIVE INTO SUCCESSFUL BLUE PROJECTS FOR OCEAN LITERACY

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The three projects, under the EU Mission ‘Restore our Ocean and Waters by 2030’, are committed to increasing ocean literacy and fostering environmental stewardship in school communities. They have run their calls between 2023-2025 funding 200+ schools. Each project had unique features tailored to different needs. ProBleu offered lots for both marine and freshwater projects and encouraged submissions of citizen science initiatives. SHORE had specific targeted regions (Mediterranean Sea, Black Sea, Baltic Sea, Danube River and Rhine River) for its projects, ensuring focused impact with the support of its Country Hubs. BlueLightS emphasized innovative approaches to resilience and sustainability, requires funded schools to join experimentation activities and participate in Community of Practice. The primary goals of these projects were to support the objectives of Mission Ocean & Waters and expand the Network of European Blue Schools (NEBS). This accreditation connects schools to a wealth of resources, information, and additional funding opportunities. What joint strategies have they implemented to engage and support schools across Europe?

This interactive workshop will offer a unique opportunity to delve into concrete examples of student-led blue projects and the communication strategies that enabled their success, highlighting best practices from SHORE, ProBleu, and BlueLightS. By showcasing how outreach campaigns contributed to the recruitment of schools across Europe, the workshop will directly address the session’s focus on innovative educational initiatives and project-based learning.

STRENGTHENING OCEAN LITERACY IN EUROPEAN SCHOOLS THROUGH COMMUNICATION AND COLLABORATION

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ProBleu is a project funded by the European Union and UKRI (2023–2026) that supports the integration of ocean and water literacy into formal education across Europe and associated countries. Its main goal is to expand the Network of European Blue Schools (NEBS) by encouraging schools to carry out project-based activities focused on marine and freshwater environments.

This poster presents how ProBleu uses communication as a tool to support education. A key element of the communication campaigns of the project is the collaboration with schools, which are not only participants but also contributors. We highlight projects led by teachers and students, whose materials are used across ProBleu's channels—such as the website, social media, and newsletters—to inspire others and create visibility for their work.

ProBleu also works to make its resources accessible. To reach more educators, we've translated core materials into 40 languages and produced over 20 short videos with volunteer local languages ambassadors. These efforts aim to reduce language barriers and increase participation across diverse regions.

During its 3 first funding calls, ProBleu received more than 500 applications and funded 35 school projects. Feedback shows that one-third of applicants learned about the project through colleagues or local contacts, which underlines the importance of building local networks and peer communication.

The poster will present examples of these outreach efforts and show how communication, when designed with and for teachers, can help strengthen ocean literacy in formal education. By focusing on schools and partners collaboration, ProBleu supports a growing Ocean literacy committed community.

PROMOTING OCEAN LITERACY IN SECONDARY STEM EDUCATION: ADDRESSING BARRIERS AND LEVERAGING VIDEOS

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It is increasingly recognised as important for young people to become ocean-literate, in order for them to make informed decisions that support sustainable practices and protect marine environments. Although schools play a vital role in promoting ocean literacy (OL), it is not prioritised in the United Kingdom's national curriculum, leaving teachers to largely rely on personal interest to incorporate it into lessons. Videos are a common resource used by teachers, as they can make complex topics, such as many marine-related topics, more tangible and engaging through a blend of audio and visuals that cater to different learning styles. However, not all educational videos achieve the desired levels of engagement or comprehension.

This MSc. Science Communication final year project explored the barriers UK secondary school STEM (science, technology, engineering, and maths) teachers encounter when trying to foster OL in their lessons, and identified specific requirements for videos that could help address these challenges. Through a thematic analysis of interviews and surveys with ten UK teachers, supported by a review of existing literature, the study identified key factors hindering the integration of OL: lack of curriculum time, limited teacher confidence or subject knowledge, low student interest, and difficulty accessing relevant, high-quality resources.

While teachers generally value the use of videos, they emphasised that videos must be directly relevant to curriculum objectives, engaging in both content and style, and conducive to active learning. Documentary-style videos featuring real-world examples were seen as especially effective for capturing students' interest, while animations were praised for simplifying abstract or complex concepts. For optimal classroom use, videos should be short, clearly structured, and scaffolded to build on students' prior knowledge without causing cognitive overload.

The findings underscore the need for more well-designed, accessible, and curriculum-aligned video resources that support teachers in integrating OL into UK secondary STEM education. By identifying practical criteria for effective video content, this research provides useful insights for science communicators, marine educators, and resource developers across Europe and beyond. It also points to future research opportunities, as well as co-creation of resources with students and educators, to enhance the role of audio-visual media in fostering meaningful ocean literacy in schools—an essential step toward supporting the goals of the UN Decade of Ocean Science for Sustainable Development.

SEAGRASS LITERACY IN PRIMARY EDUCATION ACROSS EUROPE

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The Erasmus+ KA2 project "SEAQUEST" aims to improve seagrass literacy in European primary education through research, toolkit development, teacher training, technology-based learning, and community engagement. To this aim, a State-of-the-art Report on seagrass literacy has been conducted to identify educational gaps and opportunities in seagrass literacy across European curricula.

The overall literature review revealed that to date, a significant number of Ocean Literacy initiatives have been developed and implemented at the European level. They range from educational programs focusing on ocean issues, to Ocean Literacy centers promoting hands-on activities and company-funded education programs for students, as well as public-awareness campaigns and immersive learning programs at aquariums. Accordingly, a noteworthy number of academic articles have been published concerning ocean literacy in formal education. However, literature specifically addressing seagrass literacy in primary education remains extremely limited. This gap presents an opportunity for educators and environmental groups to develop structured programs to enhance seagrass literacy.

Greece has made notable scientific contributions to Ocean Literacy, including research defining the "Principles and Concepts about Seagrasses" that seagrass-literate individuals should understand. While the Greek Ministry of Education hasn't issued official reports on seagrass literacy, educational programs, such as "Cyclades Posidonia Alert" and educational materials such as "Exploring the coastal lagoons" have been developed aiming to educate primary and secondary students on seagrass ecosystems.

In Portugal, seagrass education is often overlooked, but initiatives like "Adopt a Seagrass Meadow", "REASE", "SeagHorse", "Blue Forests Education", and "Keepers of the Sea" help fill this gap. The national Escola Azul programme also supports Ocean Literacy, with some schools focusing specifically on seagrass conservation and its ecological importance.

Denmark has no curricula specifically mentioning seagrass, although teaching materials for eelgrass (*Zostera marina*) exist. Similarly, Cyprus shows minimal representation of seagrass ecosystems in primary school curricula despite their ecological significance. However, various best practices, such as the "Mediterranean Seagrass Awareness Program" "Seagrass Field Studies" and "Citizen Science in Marine Conservation" aim to educate children about seagrass ecosystems.

In Belgium, seagrass habitats are considered extinct, but the "PLANT a Million Seagrasses" project launched in 2020 as a collaborative effort between universities, dredging companies, and research institutes to study seagrass's role in coastal protection and climate mitigation. While seagrass isn't specifically covered in Flemish curricula, ocean literacy is integrated through "World Orientation" courses. The most significant opportunity for seagrass education comes through "sea classes"—week-long coastal excursions.

Our findings indicate that seagrass literacy in European primary school curricula remains minimal despite the ecological significance of these marine habitats. This gap presents a valuable opportunity for educators, decision-makers, and environmental organizations to develop structured programs that enhance understanding of seagrass ecosystems. The established "Principles and Concepts about Seagrasses" framework could foster meaningful collaboration between scientists and education professionals to address this deficiency. We recommend developing specialized educational materials about seagrasses, implementing comprehensive training for both pre-service and in-service teachers on seagrass literacy, and strategically integrating seagrass education within existing curricula to build environmental stewardship from an early age.

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OCEAN LITERACY THROUGH PUBLIC ENGAGEMENT: PRACTICAL STRATEGIES FOR OVERCOMING BARRIERS

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¹*KOI Public Engagement, Belgium*

Promoting ocean literacy is a vital yet inherently complex undertaking—particularly in settings where educational initiatives face barriers such as limited funding, logistical difficulties, or the absence of established local partnerships. These challenges can hinder the effective communication of ocean science and sustainability issues, especially in communities where awareness and access to educational resources are already constrained. In response to these realities, this interactive workshop is designed to equip educators, communicators, and engagement professionals with practical, adaptable strategies for planning and delivering ocean-focused public engagement initiatives across a wide range of environments, including those with significant limitations. The workshop will center on active, hands-on learning, with participants engaging directly in small group activities based on real-life case studies that mirror common challenges in science outreach. These scenarios will include, for example, planning events in underserved regions, navigating logistical constraints such as restricted budgets or venue access, and developing strategies for audience engagement in the absence of pre-existing networks or local collaborators. Working collaboratively, each group will analyze its assigned case, brainstorm potential approaches, and design actionable solutions. Discussions will focus not only on overcoming logistical and organizational hurdles but also on identifying key stakeholders, building temporary or long-distance partnerships, and ensuring cultural relevance. Following these group sessions, participants will share their findings with the wider group, encouraging cross-case learning, peer feedback, and a collective exploration of best practices. The workshop draws on the organizers' extensive experience in the field of science communication and engagement—ranging from school-based programs, to exhibitions and international events such as the TREC expedition. These diverse experiences inform a workshop approach that emphasizes pragmatic, field-tested methods over abstract theory. By the conclusion of the session, participants will leave with strategies tailored to the unique demands of ocean literacy education. They will gain not only concrete ideas for adapting their work to difficult contexts, but also a stronger sense of agency and confidence to lead or support impactful public engagement efforts. Ultimately, this workshop aims to empower participants to expand and strengthen ocean literacy within their own institutions and communities, contributing to a broader, more inclusive understanding of our shared marine environment.

W02

LEARN HOW TO EASILY CREATE AMAZING MAPS WITH THE EUROPEAN ATLAS OF THE SEAS

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¹EMODnet Secretariat, Belgium

With a catalogue of more than 270 map layers available in 24 languages covering a wide diversity of marine topics, the European Atlas of the Seas (www.european-atlas-of-the-seas.eu) is a great source of information for schools and wider society across Europe. The Atlas and its Teachers Corner (<http://learn.european-atlas-of-the-seas.eu>) are continuously evolving. Participants in the workshop will be able to learn about the latest developments in the Atlas by means of a short presentation that will highlight new tools that have been released recently in the Atlas, in particular 'My Maps', 'My Locations' and 'My Notes', and how they can be used for different educational purposes. These tools significantly increase the possibilities to use the Atlas in ocean literacy activities, blue education and citizen science. Following the presentation, participants will be able to gain hands-on experience in using the new tools by testing them on practical examples with guidance of the workshop organiser. Participants are invited to take their laptop to the workshop to take part in this practical session. The workshop will end with a discussion allowing for participants to share their ideas on how the new tools can be used, provide feedback and suggestions and ask questions. The European Atlas of the Seas is an initiative of the European Commission. It is powered by the European Marine Observation and Data Network (EMODnet).

W03

EFFECTIVELY USING 360 VIDEOS (VR) IN THE CLASSROOM

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²*Arctic Explorer, the Netherlands*

In this interactive indoor workshop, participants will explore how immersive media - specifically 360° videos - can be integrated into marine science education. Virtual fieldwork is a growing concept, often delivered through Virtual Reality (VR), but the approach we suggest uses 360° footage to retain the realism and authenticity of the actual environment. We'll discuss different ways of integrating VR into the classroom using both low- and high-tech options. We use examples from Arctic Explorer (<https://www.arcticexplorer.nl>) designed for primary and middle school students and the Virtual Ship Classroom (<https://virtualship.oceanparcels.org>) designed for university students and early career researchers. For example by virtually bringing students onboard research vessels and stations, showing real-life scientific operations, and providing insight into the equipment and routines of marine researchers. These immersive, place-based experiences allow students to step directly into the shoes of scientists—observing their work up close and experiencing Arctic and oceanographic fieldwork without ever leaving the classroom. For the Virtual Ship Classroom we've evaluated the impact of the 360 videos design-based research. We've used a mixed-methods approach including surveys, interviews, and classroom observations to measure learning gains, retention, and emotional engagement. The videos have shown good contributions to both learning outcomes and student satisfaction. Though we are still investigating cognitive overload and learning gains. Early findings, however, suggest that students find the videos highly realistic and engaging, reinforcing its value as a tool for connecting learners with the marine world.

EMPOWERING ENGAGEMENT WITH EXCLUDED COMMUNITIES

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¹*Ocean Conservation Trust, UK*

²*Thalassophile Project, UK*

Ocean Literacy has evolved from operating solely on a knowledge-deficit model, to one that integrates additional dimensions such as emotions, experiences and attitudes – recognising the need for people to form individual, positive connections to the Ocean in order to want to support its health. However, accessing feelings such as awe, wonder and joy can be challenging for those with additional barriers, that limit these opportunities. Building on the themes from the 2024 conference in Zadar, this workshop has three outcomes that it hopes participants will take away: 1. Greater awareness of barriers to Ocean Literacy - participants to help identify these barriers within the workshop to create a co-designed list that integrates different cultural perspectives from across the EMSEA membership 2. Tools to support inclusion in Ocean Literacy - showcase different toolkits and techniques to make their activities inclusive and accessible, and highlight projects from across the EMSEA membership that use inclusive practices. From this, a resource pack will be created for EMSEA members to use to support inclusive activities. 3. Foster a sense of equity in Ocean Literacy - help participants understand their role as community engagers/practitioners, and how dimensions like emotions/experience can be the main outcomes of sessions they are running. Support will be given on how to measure these outcomes. The workshop will use tools such as virtual reality, animal artefacts and reflective evaluative tools to support facilitation of learning, and to inspire fun! We will also use aids to help participants develop empathy for those with barriers to accessing Ocean Literacy.

W05

UNDERSTANDING THE "WHY" AS WELL AS THE "WHAT": CO-DESIGNING QUALITATIVE OCEAN LITERACY QUESTIONS

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Over the past two decades, the Ocean Literacy research and practitioner community has developed various tools to measure its diverse dimensions (e.g., knowledge, connectedness). However, while these have evolved in recent years, there remains a historical focus on quantitative methodologies, and our community lacks a research tool for qualitative exploration of these dimensions. In this workshop, Emma and Géraldine will introduce the different frameworks that encompass various aspects of ocean literacy, highlighting a selection of data collection tools currently available. Following these initial scene setting presentations, the workshop will first invite reflections on which aspects of ocean literacy lend themselves to being explored through qualitative approaches. The workshop facilitators will then engage participants in a brainstorming session to co-design questions that could be used to explore these dimensions qualitatively. For instance, what questions would you ask to understand someone's knowledge, attitudes, emotions, or sense of connectedness to the ocean in a way that does not involve ticking a box in a questionnaire? As efforts to co-develop globally applicable tools to gather quantitative data continue, this workshop marks the initial phase of an unfunded research project aimed at creating a set of interview questions to assist future researchers in qualitatively uncovering and understanding the complexities and diversities of ocean literacy. Crucially, this workshop will contribute to filling the recognised gaps in methodologies currently used to assess ocean literacy across different audiences.

LIVING LABS FOR A SMARTER NORTH SEA: COCREATING OCEAN LITERACY WITH COMMUNITIES

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The North Sea region faces plastic pollution, coastal erosion, declining biodiversity, and climate change impacts on fisheries and maritime activities. Furthermore, it is an area that is regularly affected by storm surges, which, along a rising sea level in a changing climate, will have increasing impacts on coastal communities. As a shared sea basin, it holds key political and economic interests, making it ideal for testing innovative marine governance approaches. Bridging science, society and policy, the Living Lab approach offers a promising avenue to embed ocean literacy in local marine contexts and foster resilient, informed and engaged communities across the North Sea and other EU sea basins.

This workshop proposes to explore the Living Lab approach as a participatory framework for fostering ocean literacy and engaging stakeholders to shape sustainable marine futures at the local and regional levels. It will:

- Introduce the Living Lab methodology and its application to marine and coastal issues.
- Present concrete case studies that use the living lab approach in the North Sea context.
- Highlight how Living Labs can support local transitions through citizen-driven approaches.
- Invite participants to exchange experiences, identify replicable practices and explore collaborations across the North Sea and other European sea basins in an interactive way.

Three case studies will be presented:

1. The TREASURE project (Targeting the reduction of plastic outflow in the North Sea), co-financed by the Interreg North Sea programme, addresses plastic pollution through five Living Labs across Europe. Focusing on four thematic axes (Governance and policy, Data collection and analysis, Prevention and behaviour change, Removal of plastic waste), it applies the Living Lab model to improve public understanding of marine pollution and foster local ownership of solutions. It aims to create a Blueprint with key methods for replicating the model in other regions post-project.
2. The METAscales project (Marine extremes transforming coasts - pathways for coastal adaptation across scales) aims to increase the resilience of coastal communities to marine extremes in two pilot Living Labs along the German North Sea coast. Established in small coastal communities, they are based on transdisciplinary collaboration between scientists, regional practitioners, decision makers and local communities and consist of collaborative identification of problems, co-design of possible solutions, co-production of real-world experiments, and co-evaluation. METAscales aims to facilitate long-term societal structures

that empower the communities to deal with the impacts of climate change and strengthen ocean literacy and agency of individuals.

3. The European Network of Living Labs (TBC), an international association of certified Living Labs will bring expertise in Living Labs as enablers of cross border & cross sectoral collaborations, impactful open innovation and inclusive co-creation among citizens, government, industry, and academia, as well as the scaling of Living Lab methodologies across sectors.

Fostering dialogue among diverse stakeholders, the workshop will generate transferable ideas to adapt and replicate the Living Lab methodology. The session will facilitate peer-to-peer exchange, consolidate collaborations and collect feedback to inform the existing Living Lab approaches and the development of the TREASURE Blueprint.

W07

BLUELIGHTS A FRAMEWORK TO STRENGTHEN BLUE EDUCATION IN EUROPE

Copejans E.¹, Wojcieszek D.¹

¹EMSEA

This workshop introduces the BlueLightS Framework, a tool to help assess and advance Blue Education In Europe. Participants will explore some of its key dimensions, while discussing how it can be applied in different national contexts. The session invites feedback to refine the framework and support stronger connections between education and the ocean across Europe.