Promoting Ocean Literacy- an education policy brief

With the support of

#EU4Ocean
#Youth4Ocean
#EUBlueSchools

unesco
Intergovernmental Oceanographic Commission

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Published in 2025 by the United Nations Educational,
Scientific and Cultural Organization,
7, place de Fontenoy, 75352 Paris 07 SP, France

The publication should be cited as follows:
UNESCO-IOC (2025). *Promoting Ocean Literacy – an education policy brief*, UNESCO, Paris (*IOC Policy Brief no 1*)

Authors: Ana Vitória Tereza Magalhães (UNESCO-IOC),
Hugo Labate (UNESCO-IBE),
Francesca Santoro (UNESCO-IOC)

Contributors: Olga Mashkina, Géraldine Fauville, Kogie Govender, Tsuyoshi Sasaki, Rita Borges, Evy Copejans, Pilar Muñoz, Victoria Alis, Ronaldo Christofoletti.

Revision: Jack Coulton

Cover design: Giorgia Revelli
Graphic design: Giorgia Revelli
Printed in Printed in Venice

(IOC/POL/2025/1 Rev.)

Promoting Ocean Literacy- an education policy brief

Publication team:

Authors:
Hugo Labate,
International Bureau of Education of UNESCO (UNESCO-IBE)
Ana Vitória Tereza de Magalhães,
Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC)
Francesca Santoro,
Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC)

Revision and collaborators:
Jack Coulton, Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC)
Raquel Costa, Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC)
Géraldine Fauville, University of Gothenburg, Sweden
Kogie Govender, South African Environmental Observation Network (SAEON)
Tsuyoshi Sasaki, Tokyo University of Marine Science and Technology, Department of Marine Policy and Culture
Rita Borges, Oceano Azul Foundation
Evy Copejans, Network of European Blue Schools
Pilar Muñoz, UNESCO-IOC Ocean Literacy Group of Experts
Victoria Alis, Ministry of Agriculture, Climate Change & Environment
Italian Ministry of Education and Merit
Ronaldo Christofoletti, Federal University of São Paulo (UNIFESP)

Editorial Design:
Giorgia Revelli

Acknowledgements

We would like to express our gratitude to all the contributing partners, as well as the reviewers and everyone who generously supported the development of this policy brief. Your expertise, insight, and knowledge were instrumental in creating this resource, which aims to promote the integration of Ocean Literacy into school curricula around the world.

We also value the support and collaboration of the International Bureau of Education of UNESCO (UNESCO-IBE), whose contributions were crucial to bringing this publication to life, and the EU4Ocean community for their valuable input.

This guide was made possible with the financial backing of the European Commission.

The UNESCO-IOC extends its heartfelt thanks for the ongoing support and dedication of all those involved in the creation of this material.

Promoting Ocean Literacy- an education policy brief

Index

What is Ocean Literacy?

Ocean Literacy (OL) has been traditionally defined as an understanding of the ocean's influence on people and their influence on the ocean.[1] The concept represents a dynamic and multidimensional framework that can be adapted to address environmental and societal challenges[2] incorporating systems thinking, interdisciplinary learning, and civic engagement, reflecting its growing importance in preparing citizens, schools and students to navigate global challenges. Ocean Literacy is expanding its scope to align with modern educational priorities, providing a pathway to integrate blue education, sustainability, climate literacy, and global interconnectivity into curricula, empowering students and educators alike.

UNESCO-IOC and the UN Ocean Decade

The Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC), founded in 1960, works with its 150 Member States to advance international cooperation in marine science, coordinating programmes in capacity development, ocean observation and services, ocean science, tsunami warning and Ocean Literacy.

In 2017, the United Nations General Assembly mandated UNESCO-IOC to coordinate the implementation of the UN Decade of Ocean Science for Sustainable Development (2021-2030). The "Ocean Decade" is a 10-year framework to produce and apply ocean science to manage our planet's marine resources sustainably. It identifies a series of 10 Challenges which must be tackled in order to achieve this overall goal.

Ocean Literacy is crucial to answering the Challenges of the Ocean Decade, particularly Challenge 10: to restore society's relationship with the ocean. To ensure a deeper understanding of the ocean's profound connections to global challenges from climate change to food security, human health, and economic stability, and inspire collective action to safeguard it, Ocean Literacy is a vital tool. It fosters collaborative efforts on a global scale to contribute to the co-design and co-delivery of solutions to the problems the marine ecosystem faces, and promotes a common understanding of these issues among citizens worldwide.

[1] Schoedinger, S., Cava, F., Strang, C., & Tuddenham, P. (2005, September). Ocean literacy through science standards. In Proceedings of OCEANS 2005 MTS/IEEE (pp. 736-740). IEEE.

[2] Adapted from McKinley, E., Burdon, D., & Shellock, R. J. (2023). The evolution of ocean literacy: A new framework for the United Nations Ocean Decade and beyond. Marine Pollution Bulletin, 186, 114467.

A new Blue Curriculum

In 2022, UNESCO-IOC, in collaboration with the International Bureau of Education (UNESCO-IBE) launched the "Blue Curriculum" Toolkit. This document was designed to support policy-makers, curriculum developers and educational authorities in incorporating Ocean Literacy into national curriculum frameworks. The initiative garnered significant attention among the educational community, leading to the foundation of a Blue Schools network which is now active in 22 countries, encompassing 1261 schools, 2240 teachers and 8400 students.[3]

These integrated efforts serve as a pathway to integrate ocean-connected learning and social practices, supporting curriculum developers and the broader education community to foster a more sustainable relationship between humanity and the ocean. They also underscore the importance of ocean health as a fundamental aspect of children's human rights, recognizing that ocean degradation directly jeopardizes their future well-being.[4] By embedding children's rights into Ocean Literacy frameworks, future generations are supported with the knowledge and tools to act for sustainability, democracy, and justice.[5]

Innovative approaches to teaching and learning imply rethinking the role of educators and students, increasing the spaces for interaction and collaboration between them, facilitating the customization of learning experiences to suit different contexts, and increasing the variety of pedagogical experiences to cater for the diverse expectations and needs of students.

The recently published Venice Declaration for Ocean Literacy in Action[6] calls on governments to develop a "solid and adaptable Ocean Literacy framework" for both formal and non-formal educational systems, engaging all stakeholders—from students to educators and policymakers. The Blue Thread initiative, which seeks to unite initiatives acting following the principles of the Venice Declaration, UNESCO-IOC recognizes and celebrates individuals, organizations, and businesses who are advocating for this sort of action.

Mainstreaming Ocean Literacy into national curricula will require relevant, context-specific and coherent educational policies to be designed by ministries and local governments, and supported by a cross-sector, multi-stakeholder engagement process. This process must support capacity building, educational agendas, economic priorities, heritage practices and commitments to incorporate Ocean Literacy into local and regional policies.[7]

[3] UNESCO Data collection with Blue Schools focal points in April 2024.

[4] Strand, M., Shields, S., Morgera, E., McGarry, D., SN, A. M., Brown, L., & Snow, B. (2023). Protecting Children's Rights to Development and Culture by Re-Imagining "Ocean Literacies".

[5] Adapted from Strand, M., Shields, S., Morgera, E., McGarry, D., SN, A. M., Brown, L., & Snow, B. (2023). Protecting Children's Rights to Development and Culture by Re-Imagining "Ocean Literacies". The International Journal of Children's Rights, 31(4), 941-975.

[6] https://unesdoc.unesco.org/ark:/48223/pf0000390297

[7] Adapted from https://unesdoc.unesco.org/ark:/48223/pf0000380544

This policy brief aims to support an enlarged understanding of Ocean Literacy by reflecting on recent developments while mapping innovative and disruptive practices. Governmental agencies for education may consider the challenges and opportunities presented, and support the implementation of relevant policies. This may go alongside a wider dialogue with other ministries and public agencies with a mandate that directly concerns the ocean, such as those for the economy and labour.

A robust set of Ocean Literacy policies should help to:

- **Rethink the learning process and identify educational pathways that can improve public understanding of the ocean's role vital in sustaining all life on Earth.**

1

- **Prepare society to address the challenges to ocean health which are essential for its future.**

2

Ocean Literacy has a key role to play in the future of teaching around sustainability, driving critical debate and transformative change across the education sector. While a number of initiatives are already underway, there is a pressing need to harmonize learning opportunities, address the detrimental effects of limited ocean knowledge among citizens, and improve teaching and learning strategies.

CHALLENGES

SECTION 1

SECTION 1
CHALLENGES

Reviewing educational policies to incorporate Ocean Literacy requires a comprehensive understanding of the systemic nature of education, which is defined by multiple interconnected factors. Key considerations include:

- **What are curricula offering students in terms of ocean-related content?**
- **What is the current level of training that teachers have regarding Ocean Literacy and strategies for teaching students about the ocean?**
- **What sort of learning materials, media and immersive learning experiences are available to students?**
- **How is improved knowledge of the ocean mainstreamed into social discussions outside of school?**

1 The curriculum challenge

2 The teaching challenge

3 The resources challenge

4 The mainstreaming challenge

A preliminary study[8] conducted in 2024 evaluated the integration of ocean-related content in the curricula of nine countries (**Chile, Costa Rica, France, Italy, Japan, Portugal, the Seychelles, Spain and Sweden**), using as sources:

National Curriculum Frameworks (NCF)	**Education Sector Plans (ESP)**	**Subject-Specific Curricula or Syllabuses (S)**
A	**B**	**C**

The analysis focused on the end of lower secondary education, examining ocean-related content in official educational documents. This approach provided a foundation for further in-depth studies to expand these findings.

[8] Study conducted from January to June 2024 by UNESCO-IOC in cooperation with UNESCO-IBE on ocean mentions into the curricula.

The selected documents were analyzed to identify ocean-related content through a set of keywords organized into thematic clusters. Two clusters were defined with terms that are directly related to the ocean, another by more generic terms and another with more specific terms. In addition, five other indirectly-related clusters were considered as they provide context to ocean-related themes:

Environment,
Ecology and Biodiversity,
Sustainability,
Climate Change,
Disaster Risk.

The frequency of each keyword was considered as well as the context of each appearance, according to the curricular theme, i.e. whether they appeared in the context of natural sciences, social sciences, or other subjects. Several findings can be highlighted:

Finding # 1

- **The educational policy documents of the nine sample countries make limited references to ocean-related topics. Even where such content is present, explicit mentions of the ocean are scarce.**

Finding # 2

- **The greatest emphasis is found in references to terms within the thematic clusters of "Environment" and "Sustainability" and secondarily to "Ecology and Biodiversity" and "Climate Change."**

Finding # 3

- **Ocean-related terms are most often found in relation to the environment or its environmental characteristics. Almost no references to other specific characteristics are found.**

Finding # 4

- **Ocean-related terms are mostly found in documents relating to social science, citizenship, and physical education, and are virtually absent in the natural sciences.**

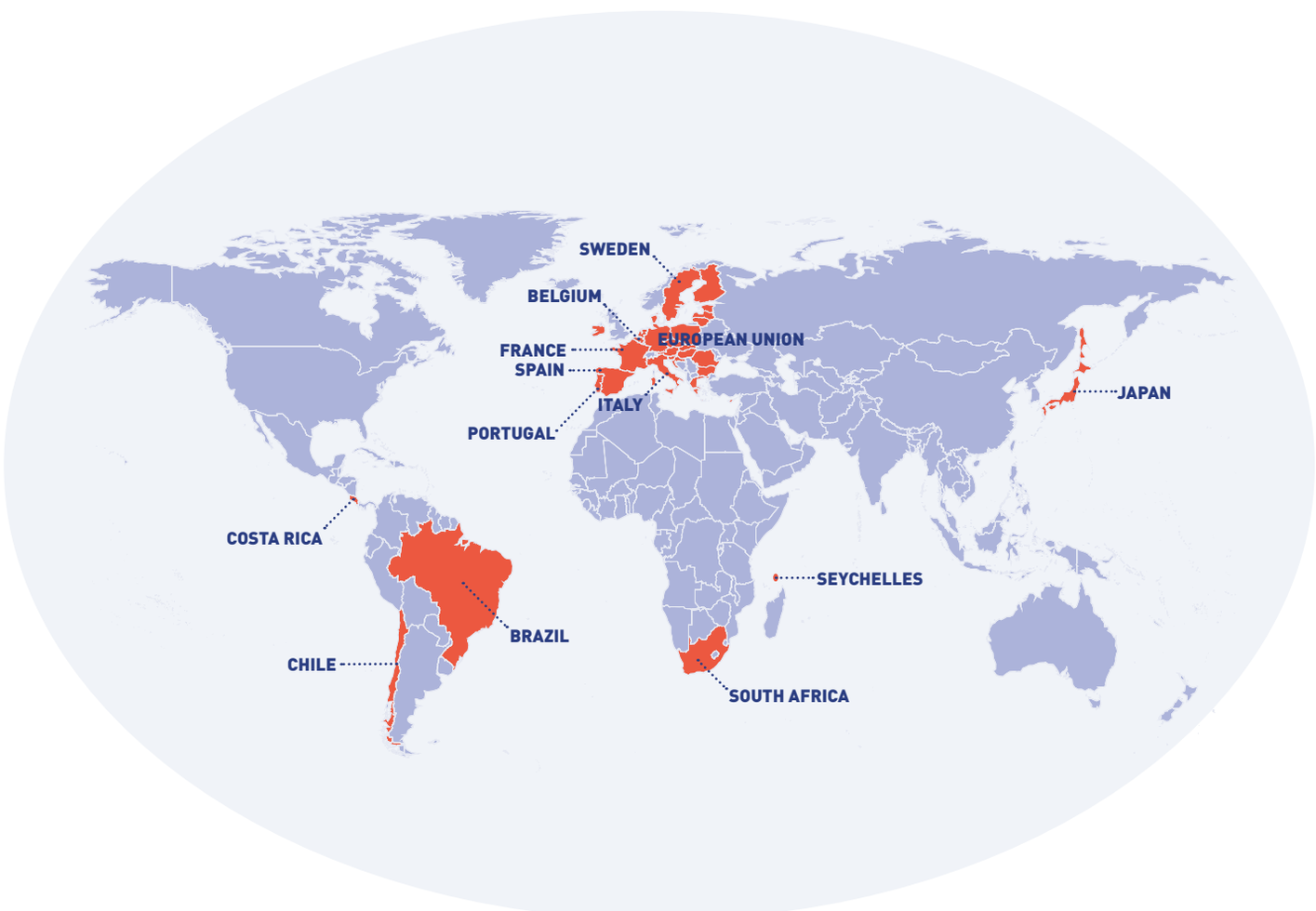
Sources related to teaching practices, and the use and production of learning materials are quite scarce. Where they do exist, they are mostly related to local experiences that cannot be extrapolated to other contexts. It would be interesting to collect efforts on the production of knowledge that can help inform evidence-based policy-making.

KEY ACHIEVEMENTS AND LESSONS LEARNED

SECTION 2

SECTION 2
KEY ACHIEVEMENTS AND LESSONS LEARNED

The following micro case studies highlight positive actions undertaken by countries and offer valuable ideas for advancing Ocean Literacy policies. These examples can be seen as sources of inspiration to advance policy related to Ocean Literacy, aligning with particular national and regional contexts.



EUROPEAN UNION

Contributor: *Olga Mashkina, EU4Ocean Coordination*

A European coalition for Ocean literacy

Context

Launched in 2020 by the European Commission, the European Coalition for Ocean Literacy (**EU4Ocean**) is an inclusive, bottom-up initiative connecting European actors contributing to the Ocean Literacy movement and the sustainable management of our ocean. EU4Ocean is currently coordinated by ACTeon and a consortium of partners across Europe, in collaboration with UNESCO-IOC.

Actions and rationale

The EU4Ocean coalition promotes collaboration across Europe to share experiences and best practices in Ocean Literacy. It unites three key communities: a Platform for organisations, businesses, and professionals from a wide range of sectors; the Youth4Ocean Forum for people aged 16 to 30; and the Network of European Blue Schools. Guided by its annual Challenge of the Year, which focuses on a priority theme aligned with political and societal developments, the coalition encourages collective action among its members to effectively disseminate ocean knowledge through both existing and new initiatives.

The coalition helps members transform ideas into projects by co-creating resources, organising teacher training sessions and youth schools, and providing mentorship and visibility. For example, EU4Ocean recognises leaders in Ocean Literacy across Europe through the annual MakeEUBlue awards.

EU4Ocean also works to elevate Ocean Literacy on the European policy agenda by organising dialogues with young people, engaging local and regional authorities to integrate blue education into public policy, and supporting corporate social responsibility initiatives.

Promising aspects

With over 1000 members, EU4Ocean is a key drive of Ocean Literacy in Europe. By organising more than 20 events annually, the coalition is engaging citizens and raising awareness of Ocean Literacy across diverse communities, including the private sector, arts, science, and media, enabling a brighter future for ocean education.

SWEDEN

Contributor: *Géraldine Fauville, Associate Professor at the Department of Education, Communication and Learning, University of Gothenburg, Sweden.*

Curriculum analysis

Context

Actions and rationale

Promising aspects

In 2023, the United Nations Secretary-General's Special Envoy for the Ocean, Peter Thomson, sent a letter to all United Nations Member States to recommend that they correct the under-representation or absence of the ocean in their school curricula.

Sweden has identified Ocean Literacy as one of four focus areas concerning its contribution to the UN Ocean Decade. A multidisciplinary research team composed of researchers in Education, a high school teacher and Ocean Literacy experts analyzed the national learning goals for the subjects of Geography and Science Studies, including Biology, Physics, and Chemistry in lower secondary school, and Science Studies and Biology in upper secondary school, with particular regard to ocean-related content.

The 182 learning goals were individually coded according to five variables. The results demonstrate that (1) Ocean Literacy concepts are important to attaining over 75% of the learning goals, while (2) Ocean Literacy concepts, or even aquatic-focused words, are nearly absent due to a general vagueness in the formulation of the learning goals. We argue that the absence of explicit references to the ocean in the learning goals contributes to an "ocean blind spot" for Swedish students, one which may inhibit their general understanding of science and limit their understanding of the ocean planet they live on.

This study provides concrete evidence to stimulate discussions among Swedish educators and policymakers concerning the importance – and absence of – the ocean in the Swedish national science curriculum. As such, the work can inspire the international community of science and ocean educators and researchers to analyze and compare the presence of Ocean Literacy in the curricula of many countries. The methodology used in this project is open-access, and available to all here: https://osf.io/3cd86/?view_only=ee5123446cf5487280e640750a7fb431.

Since educational standards, curriculum frameworks and learning goals vary widely between countries, an international effort coordinated by the European Marine Science Educators Association (EMSEA) will ensure that this method can be adapted, improved, and used in as many countries as possible.

SOUTH AFRICA

Contributor: *Kogie Govender, Blue School South Africa Coordination, South African Environmental Observation Network (SAEON)*

Co-designing learning activities with educators

Blue school network in South Africa, hosted by NRF-SAEON & DSTI

Context

The Blue Schools in South Africa are hosted by the South African Environmental Observation Network (SAEON), a business unit of the National Research Foundation funded by the Department of Science, Technology and Innovation. In South Africa, the Blue Schools initiative started in 2021 as part of the All-Atlantic Cooperation for Ocean Research and Innovation (AANChOR) work package on Ocean Literacy. In 2021, workshops and activities were held online due to the COVID-19 pandemic.

Actions and rationale

The programme in South Africa was co-designed with educators to ensure inclusivity that not only enhances learning but also contributes to reflecting local cultures, geographies and community values. Annual online and in-person workshops are conducted for educators to introduce them to the programmes and support teachers in keeping learners involved.
The activities in the portfolio booklet and the research project are linked to the Curriculum and Assessment Policy Statements (CAPS) of the Department of Basic Education in South Africa, thereby enabling educators to integrate ocean-related content into their daily activities rather than see the programme as an additional activity. In South Africa, Marine Science is a subject choice for high school learners and the Blue Schools Programme has connections to this curriculum.

Learners, whether from coastal or inland communities, complete a portfolio booklet of activities on Ocean Literacy, ocean connections and marine science topics to get to understand the ocean. The first activity is an Ocean Literacy quiz that is conducted as a diagnostic test. The case studies are based on the South African context making class materials relevant to the local South African context. The second component of the Blue Schools programme is an individual research project linked to Ocean Literacy or marine sciences. Learners are assessed on their portfolio submissions and their research work. The top-performing learners, accompanied by their educators, attend a Blue Schools Conference held annually in a coastal town.

Promising aspects

The first day of the annual Conference starts with a field trip in which learners go on a boat trip and participate in a surfing lesson. For many learners, this is their first physical contact with the ocean. The field trip concludes with an intertidal rocky shore study where learners collect data, becoming marine scientists. The evening programme consists of a coding programme in Python using marine observational data from Argo Floats. On the second day of the Conference the learners present their projects, with the three best projects being awarded with a prize.

During the Conference, educators and learners share their insights and reflections on the Blue Schools programme to highlight the new skills that learners have gained, e.g. data collection, analysis and visualisation, enhanced computer skills and critical thinking skills.

The programme promotes Ocean Literacy to ensure that beneficiaries understand the significance of the ocean and commit to sustainable behaviors. It generates enthusiasm for marine sciences both inland and in coastal regions, encouraging more learners to study marine science in high school.

JAPAN

Contributor: *Tsuyoshi Sasaki, Tokyo University of Marine Science and Technology · Department of Marine Policy and Culture*

Fostering global competency

Context

Global competency encompasses three dimensions necessary for building productive and respectful relationships with people from diverse cultures: knowledge and understanding, skills (such as critical thinking), and attitudes, following Matsuo (2017)[9], who analyzed nine key OECD member countries and identified knowledge, critical thinking skills, scientific thinking skills, and social and moral competencies as essential components. The Japanese government, in the 2017 revision of curriculum guidelines, set forth three major goals corresponding to these areas: knowledge and skills, scientific inquiry skills, motivation to learn and human competences.[10]

Actions and rationale

The goals of Japan's curriculum revision are complemented by UNESCO-IOC's OL framework, as it incorporates knowledge and awareness, nature-connectedness, values and attitudes, and competencies, with the aspect of nature-connectedness being particularly notable.

Promising aspects

Research in middle schools indicates that Ocean Literacy initiatives strengthen connections with nature, enhance competence and autonomy, and foster student motivation to engage with the ocean. This approach is believed to enhance relational values and support the cultivation of attitudes linked to Global Competency and Japan's national educational goals.

[9] https://www.nier.go.jp/kankou_kiyou/146/b02.pdf

[10] Ministry of Education, Culture, Sports, Science and Technology: Junior High School Curriculum Guidelines (Announced in 2017) https://www.mext.go.jp/content/20230120-mxt_kyoiku02-100002604_02.pdf

© Nonchanon/Shutterstock.com*

PORTUGAL

Contributor: *Rita Borges, Oceano Azul Foundation*

Civil society and government joint programme

Context

Educating a Blue Generation is a pilot programme developed by the Oceano Azul Foundation and *Oceanário de Lisboa* in partnership with the Portuguese Ministry of Education. It allows for the inclusion of Ocean Literacy in the Portuguese primary education curriculum.

Actions and rationale

More than 1300 teachers from more than 270 primary schools have received certified training and educational resources aligned with the existing essential learnings on ocean-related topics in the main national and international curricular frameworks.

Topics include marine sciences, but also the crucial role of the ocean in climate regulation and other marine ecosystem services, the sustainable blue economy, the law of the sea, and the historical relationship and cultural connections between humankind and the ocean, among others.

Besides teacher training, the programme also mobilises students for ocean action in collaboration with local NGOs and initiatives that promote an emotional connection and intergenerational dialogue, as well as student inclusion in democratic, participatory ocean advocacy processes.

The collaboration and involvement of the Portuguese Ministry of Education has been crucial to the programme's success, as well as the involvement of other stakeholders such as municipalities and teacher training centres. Equally important was a strong commitment to the quality of the training and tools, the investment in the graphic quality of the materials and their usefulness in helping teachers in their daily practice.

A four-year external evaluation procedure was key to enabling improvements, to attest the quality of the programme, and to evaluate its impact. In particular, this evaluated the development of key principles, values and cross-cutting skills among learners, so that they may become more informed, responsible and ocean-conscious citizens. These results led to a commitment from the Ministry of Education, Science and Innovation to scale up the programme across all Portuguese primary schools and to formally include the ocean in the curriculum.

Promising aspects

This is an example of a programme implemented by a civil society organization that has evolved into a public educational policy. By considering teachers as major agents of change, the programme empowers them with strategies to include ocean-related content across various subjects, and within the scope of curricular flexibility, using a multidisciplinary and holistic approach to our relationship with the ocean.

BELGIUM (FLANDERS)

Contributor: *Evy Copejans, Network of European Blue Schools*

Collaboration of research institutes

Context

Flanders has been at the forefront of Blue Education for nearly two decades, starting with a mandate from the Flemish Government that designated the Flanders Marine Institute[11] (VLIZ) as a central hub for ocean education. Early research highlighted the absence of ocean topics in the Biology and Geography curricula, prompting VLIZ to collaborate with educational stakeholders to raise awareness and advocate for Ocean Literacy. This culminated in a series of national and international conferences and projects, positioning Ocean Literacy as a strategic goal for educational reform.

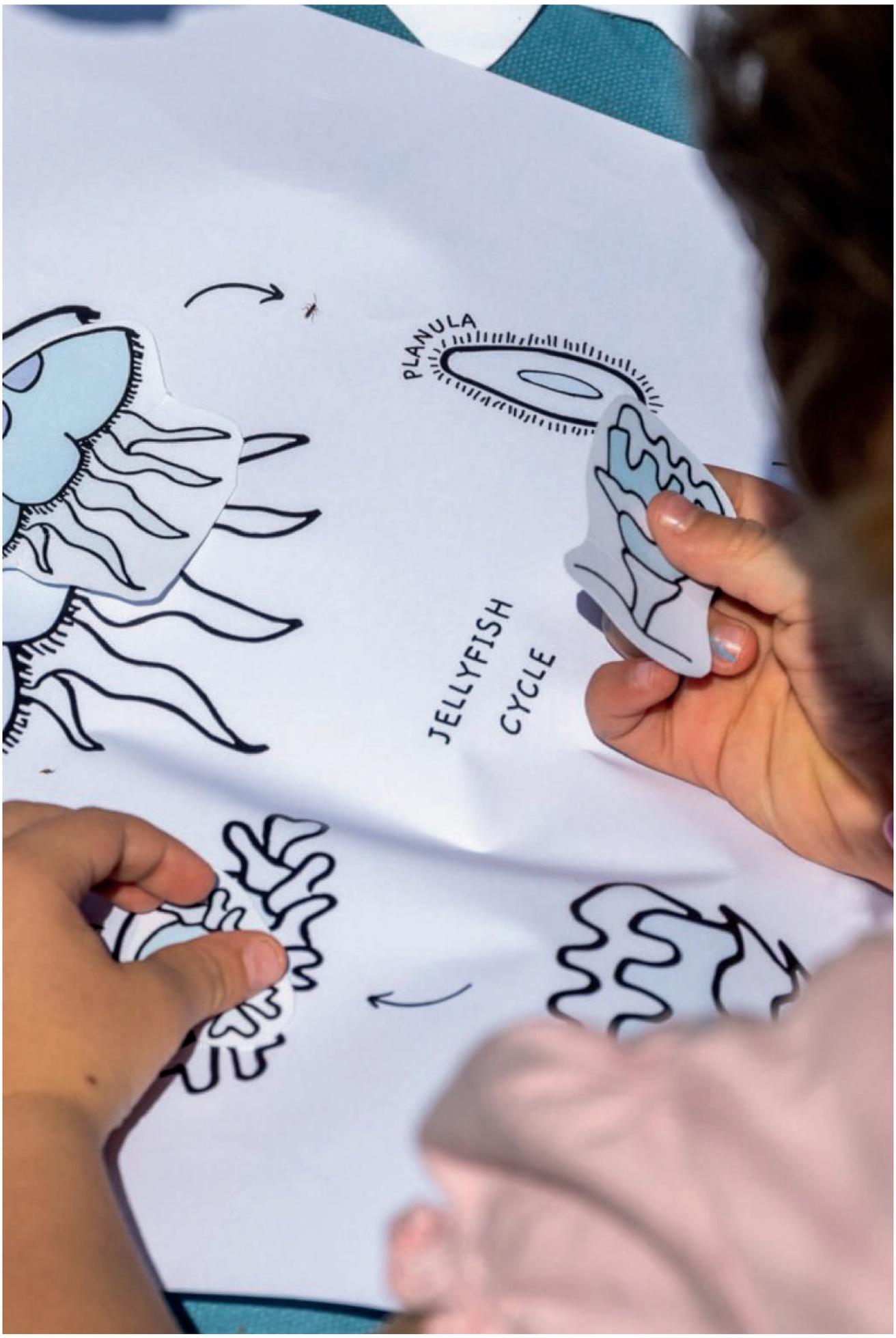
Actions and Rationale

The curriculum modernization process began in 2021, focusing first on secondary education. A significant innovation was the integration of systems thinking in geography, enabling the inclusion of essential ocean-related topics, such as ecosystem services and climate-ocean interactions. The decision to make some ocean-related topics optional stemmed from an overloaded teaching schedule, allowing motivated teachers to incorporate these themes into their lessons. Professional development sessions and supportive textbooks were implemented to provide educators with the necessary tools to teach multidisciplinary ocean concepts effectively. Notably, pioneering schools like Sint Lodewijks College and Sint Paulus School have taken proactive steps to introduce ocean science courses, demonstrating the potential for interdisciplinary learning.

Promising aspects

The experience in Flanders underscores the vital role played by a research institute such as VLIZ as a collaborative hub among education stakeholders in advancing Ocean Literacy. It has revealed the need for tailored didactic frameworks to help teachers navigate complex, multidisciplinary topics. Furthermore, the initiative highlights the significance of continuous investment in ocean education. With a sustained focus on Ocean Literacy, there is significant potential to equip the next generation to contribute effectively to sustainable marine resource management and stewardship.

11 https://www.vliz.be/en



CHILE

Contributor: *Pilar Muñoz, UNESCO-IOC Ocean Literacy Group of Experts*

A comprehensive policy framework developed by the ocean authority

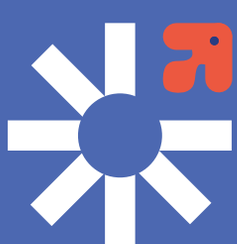
Context

Actions and rationale

Vision

Mission

Objectives arranged by sectors



Promising aspects

The National Oceanographic Committee of Chile has an Ocean Literacy Working Group that has proposed an Ocean Literacy Strategy for the country. This Ocean Literacy Strategy is based on different research projects carried out in the country that have found that most Chileans have little awareness of the ocean's importance to their lives, as well as low knowledge of the ocean in general, which is scarcely mentioned in National School Curricula.

The structure of the Strategy has been designed to allow for integration with other public policies:

"A society connected to the Chilean sea, aware of and committed to the importance of our oceanic heritage".

"Implement and manage Ocean Literacy in Chile effectively and systemically, to have a sustainable ocean that is widely known, valued, understood and protected by all sectors of Chilean society."

- **Public Policies:** Incorporate and integrate OL in the formulation of public policies, and the legal and institutional framework of the country.
- **Formal Education:** Strengthen OL training and formal marine education in schools, with a multidisciplinary and cross-cutting approach.
- **Civil Society:** Promote awareness of OL among civil society and the private sector so their actions align with the needs of a sustainable ocean.
- **Community involvement:** Develop tools for citizen participation, with community representation and access to associative networks.
- **Initiatives** under these objectives are formulated in terms of Key Performance Indicators (KPI) that are Specific, Measurable, Achievable, Relevant and time-bound, helping in the planning process.

The Strategy aims to articulate collective efforts and is intended to become a planning and management instrument so that the State of Chile can integrate it into public policy, including the National Maritime Policy first published in 2018, as well as the country's commitment to Sustainable Development Goal 14.

© Rawpixel.com/Shutterstock.com*

SEYCHELLES

Contributor: *Victoria Alis, Ministry of Agriculture, Climate Change & Environment*

Mainstreaming climate education and climate literacy into the national curriculum

Context

As part of the first cohort of awarded projects of the Youth4Climate initiative led by the United Nations Development Programme (UNDP - Rome Centre) and funded by the Government of Italy, this project aims to enhance the efforts of the Seychelles Ministry of Education to mainstream climate education into the national curriculum. Through collaboration between the climate literacy organisation ClimateScience[12] (CS), the Ministry of Education (MOE), and Seychellois youth, this project empowers schools and teachers with context-specific resources, training, and new, Seychelles- and SIDS-focused education materials for students around the world. Moreover, this project aims to be a scalable and replicable pilot for other Small Island Developing States (SIDSs).

Actions and rationale

The project

1. Applies a whole school approach, consulting the MOE, Department of Climate Change and Energy (DCCE) and schools, among other stakeholders, to produce a comprehensive report on the state of climate education in Seychelles and the needs of teachers and students in delivering cross-curriculum climate education. This report will inform which materials developed by CS may be adapted for Seychelles, how training is conducted, and what new materials are co-created.

2. Prioritizes a SIDS perspective and tailors CS' resources to Seychelles' unique context. This approach ensures that Seychellois students and teachers have relatable content which facilitates their understanding of climate change and how they can take action. In doing so, a SIDS perspective of climate change and SIDS-focused education materials are promoted both in Seychelles and globally.

3. Complements the MOE's efforts to mainstream climate education into Seychelles' national curriculum. By working in tandem with the MOE, this project aims to alleviate' the GoS' workload and enhance national capacity by collaborating with CS. Moreover, it leverages the leadership and knowledge of three Seychellois youths: Jeremy Raguain, Magali Rocamora, and Victoria Alis (two of whome were involved in drafting the Youth4Climate manifesto).

Promising aspects

While the ocean plays a key role in everyone's lives, no one is more dependent on it than the small, vulnerable and isolated island-developing states surrounded by the sea. Seychelles, like many other SIDS, is the custodian of a large marine space. Integrating a SIDS perspective of climate change and SIDS-focused education materials means putting the ocean at the centre and promoting ocean-based solutions to climate change.

[12] https://climatescience.org/

ITALY

This contribution was extracted from the Guidelines for Teaching Civic Education, provided by the Italian Ministry of Education and Merit.

Inclusion of the ocean as intangible heritage in the civic education curriculum

Context

Actions and rationale

Promising aspects

National guidelines for Civic Education[13] emphasize the cross-curricular nature of civic education, given the plurality of learning objectives and expected competencies, which cannot be confined to a single subject or narrowly-defined subject areas. Italy's decision to designate civic education as a cross-curricular and interdisciplinary area of learning aligns with European and international documents on citizenship education. Moreover, in addition to the principle of cross-curricular teaching, it is essential to refer to experiential learning. From a methodological and pedagogical perspective, this aims to enhance hands-on activities such as workshops, case studies, and seminars based on current events, as well as student experiences of active citizenship outside of school.

These experiences contribute to the civic education curriculum, particularly through critical reflection and discussion guided by teachers, along with peer-to-peer exchanges, where students share and compare their experiences. Among the themes recently covered by national regulations, special attention is given to environmental protection. In line with Article 9 of Law No. 60 (2022) "Provisions for the Recovery of Waste in the Sea and Inland Waters and the Promotion of the Circular Economy," schools at all levels are encouraged to promote "activities aimed at raising student awareness of the importance of environmental conservation, particularly of the sea and inland waters, as well as proper waste disposal practices."

Additionally, there is a clear focus on the acknowledgement and appreciation of both tangible and intangible heritage, as seen in the learning objectives for lower secondary schools, which aim to:

- Identify the elements that constitute artistic, cultural, tangible, and intangible heritage, as well as the unique characteristics of tourism and agri-food sectors, and experiment with protection and enhancement initiatives, including active student participation.

- Understand and compare issues related to the protection of environments and landscapes at the Italian, European, and global levels, recognizing the finite nature of resources and the importance of their responsible use, while identifying and practising coherent personal behaviours.

Integrating civic education as a cross-curricular and interdisciplinary approach supports an integrated and comprehensive learning experience, ensuring students develop a wide range of competencies beyond traditional subject areas. Activities such as experiential learning through hands-on activities like workshops and seminars encourage the teaching community, as well as students, to actively engage with current events and participate in real-world citizenship experiences.

[13] https://www.miur.gov.it/documents/20182/0/Linee+guida+Educazione+civica.pdf/9ffd1e06-db57-1596-c742-216b3f42b995?t=1725710190643

BRAZIL

Contributor: *Ronaldo Christofoletti, Professor, Federal University of São Paulo (UNIFESP).*

Advancing ocean literacy policies for a sustainable society

Context

Brazil has positioned itself as a global pioneer in integrating Ocean Literacy into public education policies at all levels of government. This approach acknowledges that Ocean Literacy transcends merely knowing about the ocean; it emphasizes our interconnectedness with it, addressing climate resilience, food security, entrepreneurship, economic growth, conservation, diversity, and inclusion. Therefore, these policies complement and promote various agendas, offering a unique opportunity for decision-makers to foster policies and actions necessary for shaping a more sustainable society; an essential step in the face of the climate crisis.

Actions and rationale

Brazil was the first country to enact an Ocean Literacy Law at a Municipal level, in the city of Santos in 2021, followed by at least 20 additional municipal laws and three state laws to be concluded by the end of 2024. Currently, Brazil is leading a globally pioneering process to include Ocean Literacy in the national curriculum (Base Nacional Comum Curricular) through an extensive multilevel debate and political co-creation process.

A critical first step has been identifying stakeholders across municipalities, states, and the federal government, and fostering co-production pathways for implementing the "Blue Curriculum." This co-production process aligns Ocean Literacy with existing demands and opportunities, making it a mutually beneficial agenda for decision-makers.

The impact of local initiatives demonstrates the feasibility of such policies. For instance, the Blue School Programme has reached over 100,000 students and 1800 teachers nationwide in five years. The annual Ocean Olympiad, launched in 2021, engaged over 62,000 participants in 2024, benefiting over 300,000 people with its socio-environmental and cultural-technical projects. These examples provide decision-makers with tangible evidence of the potential and scalability of Ocean Literacy policies.

In parallel, teacher training and resource development are critical. Without proper support, the Blue Curriculum risks becoming an additional burden for educators who have not previously been trained in this domain. Training current teachers and preparing future educators is essential for the successful implementation of these policies.

Additionally, sustained communication efforts are vital to gaining public support and ensuring political momentum. Public engagement through media campaigns can highlight the ocean's role in societal well-being and its link to the climate, driving societal discourse and increasing the political appetite for Ocean Literacy policies.

Promising aspects

The process is inherently non-linear. Municipalities, state governments and the federal government approach policy development differently, and benefit from adaptive strategies that support decision-makers in finding tailored solutions. Co-production, rather than top-down implementation, has proven to be essential.

Furthermore, resilience in policy development is key, given the political transitions and shifting priorities inherent to governance. Constant monitoring and flexibility are necessary to navigate these challenges. Demonstrating good practices from diverse contexts has strengthened the foundation for broader policy adoption.

Finally, engaging society at large through consistent media coverage about the ocean's role in daily life has been critical. Public awareness and support make these policies more acceptable, providing decision-makers with the confidence to act decisively.

Brazil's experience underscores the transformative potential of Ocean Literacy policies. By leveraging existing actions and showcasing scalable success stories, decision-makers worldwide can foster impactful policies that align with broader sustainability and resilience goals.

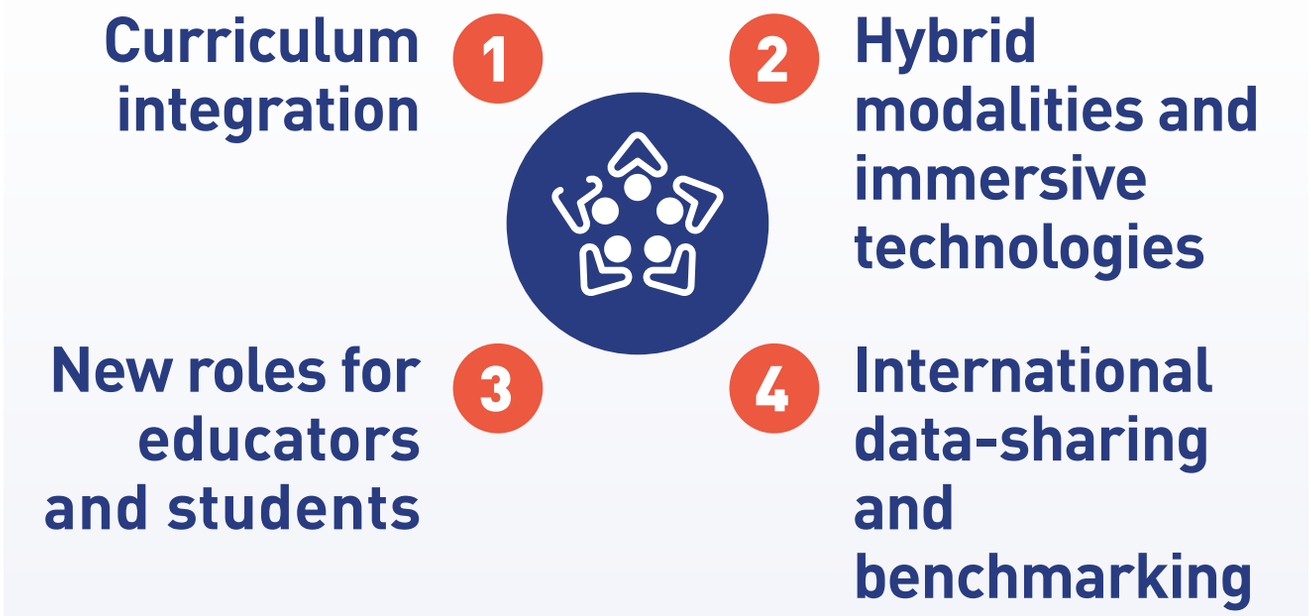
TOOLS AND STRATEGIES TO ADVANCE OCEAN LITERACY

SECTION 3

SECTION 3

TOOLS AND STRATEGIES TO ADVANCE OCEAN LITERACY

To effectively facilitate the expansion of Ocean Literacy at national and regional scales, a range of supporting elements must be considered. These must be structured cohesively; the absence or weakness of any of these elements undermines the development of sustainable courses of action.



1

Curriculum integration

An integrated Blue Curriculum which integrates a holistic and comprehensive approach to Ocean Literacy enables students to draw meaningful connections between ocean health, environmental sustainability, and human societies. By embedding ocean-related topics in various disciplines, students develop a deeper, interdisciplinary understanding of the ocean's significance for their lives and their role as active global citizens, linking diverse disciplines (science, geography, history, economics, art and literature), as well as encouraging critical thinking and positive attitudes towards the ocean.

For instance, students can use mathematics and data analysis to calculate the impact of rising sea levels on coastal communities, apply chemistry to study ocean acidification and its effects on marine life, and rely on social sciences, politics, and ocean law to explore the cultural significance of the ocean for different communities, particularly Indigenous coastal populations. These are just some examples imagined by an integrated Blue Curriculum, where project-based learning centered around ocean issues provides students with opportunities to improve their understanding of the ocean's impact on daily life, while fostering both academic and hands-on skills.

Initiatives such as the Blue Curriculum, launched by UNESCO-IOC in collaboration with UNESCO-IBE in 2022, exemplify how policy-makers, curriculum developers and educational authorities can integrate Ocean Literacy into national frameworks through a local and global approach. Such efforts, supplemented by hands-on projects such as those found across national Blue Schools hubs, pave the way for comprehensive educational programmes that integrate the ocean into curricula in a holistic and multidisciplinary manner.

2

Hybrid modalities and immersive technologies

Hybrid learning models—combining online and face-to-face instruction—have the potential to advance Ocean Literacy by offering flexibility, diverse learning experiences, and opportunities for global collaboration.

Firstly, hybrid education makes Ocean Literacy accessible to a broader audience, especially in inland regions where students have limited exposure to the marine environment. Online modules can introduce fundamental ocean concepts (such as marine ecosystems, ocean chemistry, and the impact of human activities). Meanwhile, outdoor education experiences—such as field trips, ecosystem restoration activities or visits to marine research centres—can deepen and enhance this learning.

The online component can support students to explore the ocean through virtual reality simulations: diving into coral reefs, exploring the deep sea, or simulating the effects of ocean acidification. These immersive experiences make otherwise-difficult concepts more tangible and communicable in a classroom setting. Augmented reality tools may also be used in classrooms to allow students to connect with others from around the world, facilitating intercultural dialogue and exchange.

3

New roles for educators and students

Students and teachers can collaborate with peers and experts around the world, exchanging knowledge about different marine environments as well the cultures that connect humans and the oceans globally. For example, students in coastal areas could share data or observations with students from inland regions to facilitate a better understanding of ocean issues among the latter group. In-person sessions could focus on regional water systems, encouraging students to connect global Ocean Literacy concepts with local water bodies, fisheries, or conservation efforts. Schools may invite marine scientists, oceanographers, entrepreneurs, artists and environmentalists to give lectures or lead workshops either online or in-person, providing students with access to experts from around the world. This exposure helps students to understand cutting-edge research and real-world applications of ocean science.

Furthermore, students can engage in citizen science projects related to the ocean, collecting local data (e.g. on water quality, plastic pollution, eDNA) and contributing to global research initiatives. Online platforms can connect them to larger Ocean Literacy networks, while local activities can offer hands-on experience in marine or freshwater environments. For example, students may use online platforms to raise awareness about overfishing or coral bleaching, while organizing local clean-up drives or sustainability initiatives in person. Student engagement on ocean issues may lead to advocacy campaigns or ocean conservation projects, while an inspirational approach may lead students to choose ocean-related career pathways.

These scenarios require a shift in both teaching and learning strategies, moving away from the concept of passive learning and accentuating the importance of participatory models where students engage with the ocean through real-world experiences.

4

International data-sharing and benchmarking

Data regarding Ocean Literacy can be valuable for benchmarking the performance of different initiatives around the world, and for providing information to policymakers, educators, and institutions on their strengths, weaknesses, and areas for improvement. Sharing this data may help educational systems adapt to global trends and drive a more effective, inclusive, and responsive approach.

Efforts to include Ocean Literacy in international assessments may affect the way countries develop their ocean-related strategies, as international assessments compare performance against globally-established benchmarks in order to identify shortcomings in national systems, creating urgency for curriculum reform, improved teaching training, resource allocation, and, at the same time, to highlight the more effective pedagogical approaches observed in higher-performing countries.

Including elements relative to Ocean Literacy in international assessments may garner significant public and media attention, thus stimulating public discourse around the importance of ocean-related knowledge and experience.

SUGGESTED POLICY PRIORITIES

SECTION 4


bar utveckling
saker til år 2030
r i världen
r. För alla människor!
The 2030 Agenda sustainable development goals are the most
ambitious ever adopted by countries around the world. They aim to achieve four fantastic things by 2030
Abolish extreme poverty and inequality
Promote peace and solve the climate crisis
The sustainable development goals can make this reality in all countries. For all people!
AED
1 NO POVERTY
5 GENDER EQUALITY
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
11 SUSTAINABLE CITIES AND COMMUNITIES

SECTION 4

SUGGESTED POLICY PRIORITIES

States need to plan and implement actions to:

(1) Revise curricula, as well as learning and assessment methodologies

(2) Incorporate Ocean Literacy into teacher training programmes

(3) Produce learning and teaching resources

(4) Build and share information by involving a wide range of stakeholders

Dimension (1) curriculum and methodology revision

- Adjust curricula, teaching and assessment practices by incorporating Ocean Literacy at different levels of formal schooling, with a multifaceted approach that includes hands-on, digital and multisensory learning experiences.
- Include concrete and measurable indicators/outcomes/objectives related to Ocean Literacy.
- Align curricula and assessments to ensure that students acquire knowledge and skills in the field of Ocean Literacy.

Dimension (2) teacher training

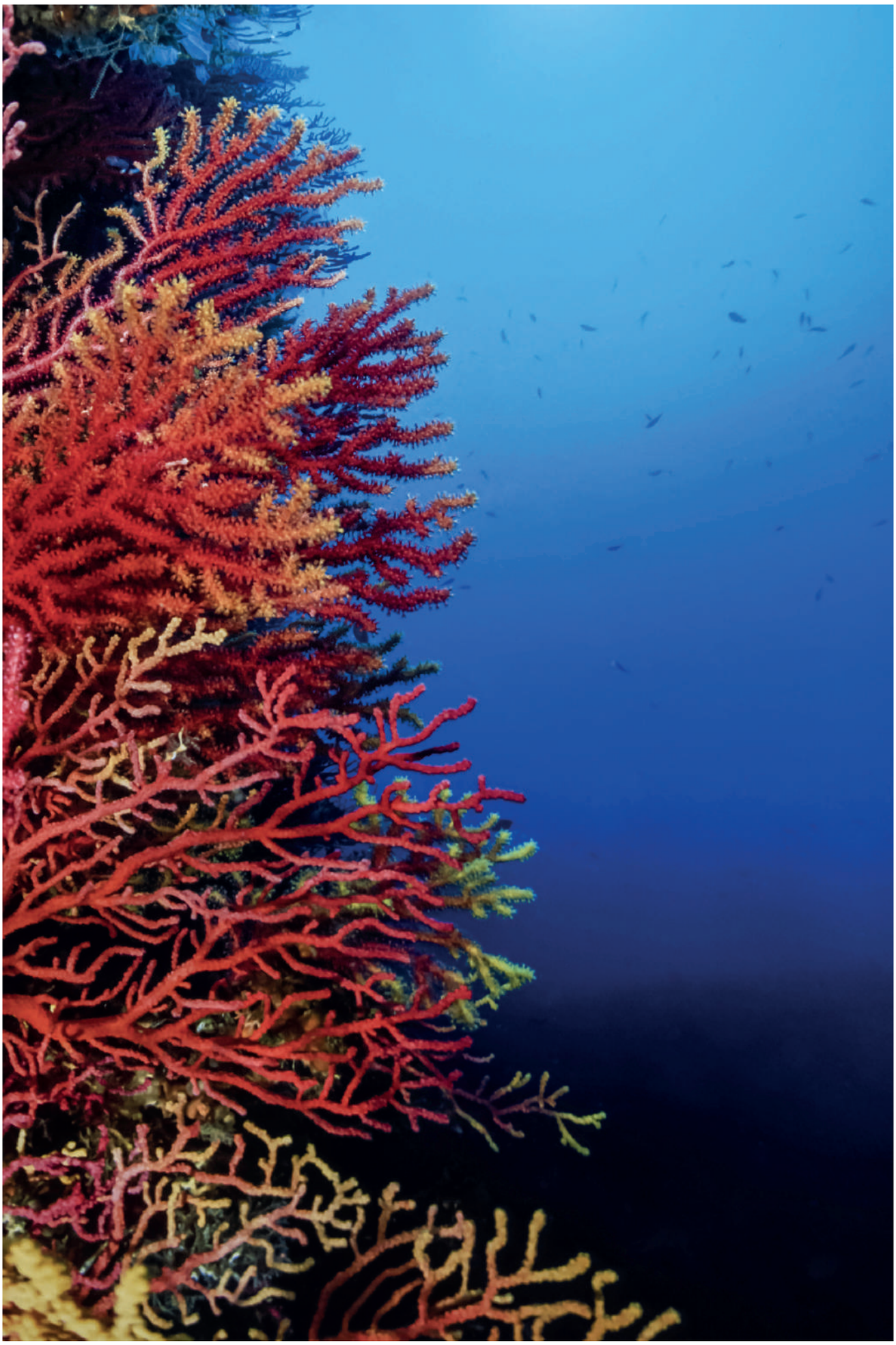
- Adapt initial and ongoing teacher training programmes to integrated Ocean Literacy and the importance of providing hands-on experiences and interdisciplinary approaches to ocean-related content to learners.
- Provide teachers with the knowledge, resources, and pedagogical tools needed to teach Ocean Literacy effectively. This can be achieved through dedicated courses or modules on ocean science, interdisciplinary connections, or broader education on sustainability.
- Both initial and ongoing training programmes should offer hands-on experiences that allow teachers to engage with Ocean Literacy in meaningful, practical ways, including field trips and fieldwork, ocean-based research projects or citizen science initiatives. Virtual reality and digital simulations can bring the marine world into classrooms far from the coast.
- Training programmes should also emphasize an assessment of student understanding of Ocean Literacy, especially where ocean-related content is explored through dynamic methodologies such as class projects and citizen science research.

Dimension (3) production of learning and teaching materials

- Procure funding to expand Ocean Literacy, sustainable ocean-climate and nature-based solutions, as well as social and technological innovation, public-private initiatives, simplified application processes, mentorship, and equitable opportunities.
- Disseminate multisensorial multimedia campaigns and bottom-up initiatives to advocate for the importance of an ocean-literate society.
- Develop curriculum guides, lesson plans and assessments aligned with national standards covering key ocean concepts and provide practical lesson plans, activities, and assessments.
- Develop local- and Indigenous-based knowledge resources regarding the ocean to show how deeper connections to marine environments can provide valuable insights for students.

Dimension (4) Involving a wide range of stakeholders

- Develop Ocean Literacy programmes aimed at the broader public (municipalities, engineers, architects, local businesses and residents) to educate them on ocean governance, ocean law, ocean health, pollution and the ocean-climate nexus.
- Develop academic and non-academic programmes to share both scientific findings and ocean-related traditional knowledge.
- Promote the development of networks such as the Blue Schools network and support the development of international partnerships.
- Develop communication strategies to raise awareness of the complex connections between ocean health, biodiversity, human well-being and climate change, and the short- and long-term impacts of human activity both as a regenerative and destructive force.



Promoting Ocean Literacy- an education policy brief

Promoting Ocean Literacy – An Education Policy Brief explores the growing importance of integrating Ocean Literacy into educational systems worldwide. With contributions from UNESCO-IBE, UNESCO-IOC, partners, and experts, this publication underscores the vital role Ocean Literacy plays in addressing global challenges such as climate change, sustainability, and ocean health. By supporting policy-makers to foster a deeper understanding of the ocean's influence on humanity and vice versa, the material highlights initiatives, such as the UNESCO-IOC's "Blue Curriculum," and provides targeted case studies from various regions. It offers guidance on mainstreaming ocean contents into curricula and policy, fostering global citizenship towards the ocean.

One Planet, One Ocean

ioc.unesco.org

With the support of

#EU4Ocean
#Youth4Ocean
#EUBlueSchools

unesco
Intergovernmental Oceanographic Commission

2021 2030 United Nations Decade of Ocean Science for Sustainable Development