

Ocean Literacy in Coastal Communities

Promoting understanding, fostering a sense of responsibility, driving behavioural change



School engagement



Art made from collected litter



Workshops

Interactive experiences



Gamification



Underwater educational gardens



Participatory restoration activities

Ocean literacy skills

Lasting behavioural change



Knowledge Gap





Key Message

- Engage communities through education, citizen science, and creative activities to reduce marine litter.
- Integrate ocean literacy into ecotourism and local initiatives to promote conservation and sustainable action.

Policy Relevance

International policies

- EU Zero Pollution Action Plan
- G20/G7 Action Plans on Marine Litter
- UN Sustainable Development Goal 14 – Life Below Water (Agenda 2030)

National policy

- Portuguese national plan for marine litter (Plano Nacional para o Lixo Marinho)
- Portugal national strategy for environmental education 2020-2030 (Estratégia Nacional de Educação Ambiental)



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What is the Challenge

Ocean literacy, the understanding of how the ocean affects us and how our actions impact the ocean, is essential when creating lasting behavioural change. By developing ocean literacy skills, individuals gain the knowledge, awareness, and critical thinking needed to make the responsible choices that protect coastal ecosystems. Through hands-on learning, creative expression, and community engagement, people learn to connect their daily habits with the health of the ocean, fostering a sense of responsibility.

Strengthening these skills transforms awareness into action, empowering citizens to contribute to cleaner coasts, healthier waters, and a more sustainable future.

An Innovative Solution

This solution places ocean literacy at the heart of behavioural change, linking local and scientific knowledge, creativity, and community participation to tackle climate change related challenges.

It moves beyond reliance on singular awareness campaigns or response-based clean-up actions, and works to empower people with an understanding of ocean systems and their role within them.

The solution centres on delivering hands-on educational experiences, which include:

- 1. Participatory restoration activities,**
- 2. Underwater gardens for education and exploration,**
- 3. Art made from collected litter, and**
- 4. Interactive digital and online tools to explore and learn about the ocean environment.**

Through these highly interactive experiences, participants learn to connect everyday choices with ocean health. The approach transforms learning into meaningful action, empowering citizens, especially youth, to become ocean-literate change-makers who influence their peers, families, and communities. By combining science, education, and the arts, the solution redefines how we engage society in protecting the ocean.

The Benefits the solution produces

- Empowered citizenry with strengthened knowledge and skills to understand our oceans.
- Increased awareness of the sources, impacts, and solutions to marine litter.
- Empowered communities, with the understanding and ownership, need to protect their coastal environment.
- New responsible communities of practice, willing to consider and deliver creative restoration.
- Long-term behavioural change that supports a healthier ocean.



How developed is the solution

The solution has been tested and validated in real-life environments (SRL-8), through Living Labs in the Atlantic and Arctic involving schools, municipalities, the tourism actors, NGOs, and researchers. Ocean literacy activities, including educational materials, art workshops, and digital mini-games, and ecotourism-based citizen science, demonstrated strong engagement and measurable improvements in awareness and pro-environmental behaviour. With proven tools, partnerships and frameworks in place, the solution is ready for wider adoption and replication in other coastal communities.



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Where could also be applied to?

This approach can be replicated in other coastal and river basin regions globally. It is adaptable to different cultural, environmental and educational settings, making it suitable for schools, community organisations, ecotourism and citizen science initiatives working toward cleaner waters.

Area characteristics	Intention for applying this solution
Communities that experience problems with marine litter or pollution	Ocean literacy can be adapted to formal education, informal settings (aquariums, museums, public campaigns), community initiatives, ecotourism and citizen science to reach diverse audiences.
Communities that are impacted by ecosystem and biodiversity loss	Integrated into formal education, community programs and engagement initiatives, it helps to tackle a wide range of challenges.
Communities facing negative climate change impacts	Ocean literacy can be applied across formal education, informal venues, community initiatives, and corporate training, making it a versatile tool for reaching diverse audiences and addressing various challenges.
Communities that want to develop sustainable economies	By incorporating ocean literacy into schools, museums, public campaigns, community programs, ecotourism, and corporate training, it can effectively engage different audiences and respond to multiple challenges, create new sustainable environmental values and livelihoods.
Communities that want to protect and restore marine ecosystems	As ocean literacy can be adapted to formal education (schools), informal settings (aquariums, museums, public campaigns) and community-based initiatives, ecotourism, citizen science initiatives and corporate training it can be used to address various challenges and audiences, creating new environmental values and community of practice.
Communities that want to address challenges related to human behaviour and policy	By promoting responsible decision-making and connecting scientists with citizens, NGOs and policymakers, ocean literacy can be used to address such challenges



Who is this relevant to?

- Educators
- Schools
- NGOs
- Policy makers

What do you need to have in place:

- **Strong partnerships and collaboration:** It is worth building on existing networks with schools, teachers, local authorities, NGOs, researchers, and community organizations to provide access, guidance, and coordination. The activities can help strengthen and embed this community of practice.
- **Availability of educational and engagement resources.** Help your teachers to teach, either creating or using existing books, digital games, presentations, leaflets, and workshop or art materials to support learning and participation.
- **Structured planning and scheduling tools.** This helps you save time and resources. For example, you can make sure you have a shared calendar in place, or build one, to align activities, avoid duplication, and maximize impact.
- **Safe and suitable locations for activities. Safety is paramount.** Make sure you have a range of safe sites available to host clean-ups, fieldwork, biodiversity surveys, and art projects, with necessary permits, safety measures, and equipment in place. Then you can focus on the educating, rather than the hazard management.
- **Training and support for educators and facilitators:** Train the trainers early and effectively to maximise delivery of interactive, hands-on sessions effectively, and spread the effort in a vibrant teaching community. Ensure they have the skills and knowledge to contribute.
- **Mechanisms for monitoring, feedback, and community engagement:** This will enable you to track outcomes, encourage participation, and continuously improve activities.





Key components of implementation:

Strong Partnerships and Collaboration

Building on existing networks with schools, teachers, local authorities, NGOs, researchers, and community organizations fosters access, coordination, and guidance. This collaboration strengthens a community of practice, creating long-term value and ongoing engagement.

Community-Centered Approach

Engage local citizens and community groups early through a citizen consultation and co-definition phase. This ensures activities are aligned with community-identified needs and priorities. A co-creation process with universities, schools, municipalities, and local actors guarantees continuous validation and improvement of efforts.

Comprehensive Educational Resources

Support teachers with a diverse range of resources, whether digital tools, books, games, or workshop materials. Consider a co-created pedagogical plan that integrates inputs from researchers, educators, artists, and community members, ensuring well-rounded learning experiences.

Structured Planning and Scheduling

Effective planning is essential. Use tools like shared calendars to align activities, minimize duplication, and maximize impact. Streamlined planning helps save time and resources, ensuring smooth coordination.

Safe, Suitable Locations

Safety is paramount. Identify and secure safe locations for activities such as clean-ups, fieldwork, surveys, or art projects, with necessary safety measures, permits, and equipment. This allows you to focus on education and engagement, not hazard management.



Ongoing Training and Support for Educators

Provide early and effective training for educators to equip them with the skills necessary for interactive, hands-on sessions. Continuous support ensures they can effectively deliver dynamic, engaging content and contribute to a vibrant teaching community.

Collaboration Across Disciplines

Promote integration across creative, scientific, and civic perspectives throughout the learning and engagement process. This interdisciplinary approach enhances the depth and richness of activities.

Feedback and Monitoring Mechanisms

Regularly collect feedback from teachers, students, and community members to assess outcomes, foster participation, and continuously improve activities. Monitoring ensures that initiatives remain relevant and impactful.

Integration of Existing Initiatives

Map and promote ongoing activities in the area, integrating them into the broader framework of your efforts. This ensures that existing ocean literacy or environmental activities are aligned, coordinated, and built upon.



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Monitoring your success

No solution is perfectly suited to a new region, so it is important to be aware of how your ocean literacy adventure is being received and identify ways to quickly tailor it to your community. Here are some key areas you can choose to monitor, along with ideas on how to do so.

Indicator to monitor	Approaches to measure
Citizen awareness levels	Gather feedback via surveys, forms, interviews and discussions; track over time
Engagement level	Measure frequency & quality of interactions
Retention rate	Identify the percentages of participants that continue engaging
Influence impact	Track instances where stakeholder input directly contributed to changes.
Ocean Literacy level	Gather pre/post intervention data
Behavioural change intention	Gather pre/post intervention data on the issue you are trying to tackle (e.g. reduction of marine litter)
User experience indicators	Useful for digital tools, gather information on how the users find the tool, perhaps asking them to offer improvement suggestions.



Costs and Timeframes

	Approximate cost	Cost range*	Approximate timeframe
Piloting the change	Direct expenses for materials, equipment, and logistics, and indirect costs related to planning, coordination, monitoring, and reporting throughout the pilot implementation.	Low-Medium	One to two years
Facilitating collaboration	Direct and indirect expenses for planning and facilitating multi-sector workshops, stakeholder mapping, logistics, materials, reporting, and follow-up to ensure actionable outcomes and policy alignment.	Low-Medium	Half a year – one year
Teaching through nature	Direct and indirect expenses for co-creating materials and activities with schools, integrating ocean literacy into curricula, providing materials and equipment, coordinating activities, and monitoring educational outcomes.	Medium	One-two years
Making restoration investible	Direct and indirect expenses for assessing restoration opportunities, developing business models, engaging investors, and monitoring outcomes.	Medium	One-two years
Mapping the future	Direct and indirect expenses for planning, monitoring, and coordinating initiatives to build ocean literacy and restoration capacity.	Low-Medium	Half-one year

**Cost ranges are relative to each other within this blueprint document, and have been developed by looking at the demonstration sites the activities were undertaken in. Please contact the authors for more information on how they could translate in your region.*



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The challenges you may encounter

Activity	Challenge 1	Challenge 2
Piloting the change	Lack of cooperation from school	Limited time in existing curricula to integrate ocean literacy content
Facilitating collaboration	Difficulty aligning goals and priorities among diverse stakeholders	Limited coordination and long-term commitment among partners
Teaching through nature	High costs and logistical constraints of field-based activities	Safety concerns and liability issues during outdoor and marine-based activities
Making restoration investible	Uncertainty about economic returns from restoration projects	Limited access to funding or investors willing to support community-led initiatives
Mapping the future	Inadequate integration of traditional/local knowledge into formal planning tools	Aligning stakeholders is difficult due to conflicting priorities, varying levels of technical understanding, and differing financial expectations.



Key contact who to talk to about your application idea

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Further information

- Digital mobile games for educational purposes
<https://aaappetizer.a-aagora.eu>
- Ocean Literacy book for children aged 4 to 10 years old - <https://a-aagora.eu/resources/childrens-book/>
- Books Stevenson-Jones, S., Bouchoucha, M., Daban, P., Elnagar, N., Ezgeta-Balić, D., Kakouli, C., Laranjeiro, D., Lennert, A., Levy, L., Lillebø, A., Øverjordet, I., Setsaas, L. & Verling, E. (2025). Explore the Ocean with Clio. [E-book]. A-AAGORA & CLIMAREST Projects. E-ISBN 978-989-99524



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Blueprint

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