



Actioning the Ocean Decade Challenge 10 White Paper: A Theory of Change

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Abstract

This contribution serves as a perspective piece that helps to illuminate and situate the chapters across this three-volume publication in relation to one of the Ocean Decade's primary objectives—to connect people and the Ocean. Along with providing a high-level summary of the Ocean Decade Challenge 10 White Paper that was developed through the Ocean Decade Vision 2030 process, this perspective piece explores how the White Paper recommendations can be put into action using a theory of change framework. Challenge 10 focuses on restoring society's relationship with the Ocean by addressing the human behaviors that drive Ocean threats and positioning Ocean Literacy as a key societal outcome. Emphasizing the need for interdisciplinary collaboration and inclusive engagement across sectors, a working theory of change is proposed, structured around four key drivers—Knowledge Systems,

Communications, Education, and Cultural Connections—each contributing to a shift in how people value and interact with the Ocean. By outlining a practical foundation for advancing Ocean-positive behaviours, this perspective piece aims to provide a useful lens to apply and help connect the tangible initiatives captured in this important and timely publication. Collectively, these initiatives are helping to create the conditions and opportunities to help inspire and build an Ocean-literate society.

Keywords

Ocean Literacy (OL) · Societal-Ocean connections · Marine social sciences · Human-Ocean relationships · Behaviour change

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2.1 Introduction: Vision 2030 Process

The United Nations Decade of Ocean Science for Sustainable Development (hereafter, 'Ocean Decade') provides a collaborative framework and critical opportunity for the global community to rally behind a core mission—transformative Ocean science solutions, connecting people and the Ocean.

Three years into the Ocean Decade, the Vision 2030 process was launched with the aim to achieve a common and tangible measure of success for each of the 10 Ocean Decade Challenges. This ambition-setting process, coordinated by

IOC-UNESCO and led by 10 Working Groups of diverse experts across geographies, cultures, generations, and genders, began in June 2023. It culminated with the presentation of the White Papers at the Ocean Decade Conference in Barcelona in April 2024, followed by their publication in June (UNESCO 2024).

Collectively, the White Papers helped to identify existing research and gaps; infrastructure, capacity, and resource needs; achievable (rather than aspirational) recommendations and priority activities; and indicators to help measure progress between now and 2030. The White Paper process, although helpful toward these mentioned ends, leaves more to be done on the scales of inclusion, adaptive and distributed leadership, and operational mechanisms and resources to achieve transformative outcomes.

2.2 Situating Challenge 10

The 10 Ocean Decade Challenges collectively focus on addressing the critical issues facing the Ocean. As outlined across the set of White Papers, there exists a clear and causal link between human behaviour and the future health of the Ocean: If we continue to behave as we do on a global scale, there will be catastrophic consequences. Challenge 10 is fundamental to operationalizing the changes and scale of local, regional, and ultimately global action needed across society to avoid this fate. Challenge 10 bridges the science solutions (Challenges 1–6), and the data, technology, infrastructure, and capacity needs (Challenges 7–9) with *society*.

At the onset of the Ocean Decade, Challenge 10 was initially framed as *changing humanity's relationship with the Ocean*. The White Paper (Glithero et al. 2024) shifted this framing to *Restoring society's relationship with the Ocean*. Challenge 10 requires clear recognition that current 'threats' to the Ocean are a direct result of human behaviour. Although existing tools of science, technology, and communication allow us to understand the Ocean in finer detail than ever before and to share that understanding widely, knowledge generation, data sharing, and information exchange alone are not enough.

These efforts, despite their important contributions, cannot solely drive the societal transformations required to achieve Ocean sustainability and climate mitigation. The Ocean community, in its broadest and most inclusive form (e.g., scientists, governments, businesses, educators, communicators, fishers, community groups, artists), needs to inspire and generate the motivation, capability, and opportunity for people across all aspects of society to make decisions and behave in ways that ensure a healthy Ocean, sustaining all life—present and future. If threats to the Ocean are a people problem, restoring our interdependent relationship requires people-driven solutions.

Together, across geographies and generations, knowledge systems and cultures, sectors and scales, commitment to tangible actions is needed to help close the knowledge-action gap. Such actions can provide opportunities for society to discover meaningful connections with the Ocean and deepen peoples' understanding of the vital role the Ocean plays in our lives. They can also foster emotional connections that motivate action and create intentional opportunities for capacity exchange, strengthening community-driven engagement. Ultimately this approach can lead to sustained actions that benefit people and planet.

2.3 Ocean Literacy: A Societal Outcome

Ocean Literacy, when positioned as a societal outcome—a society that better understands, values, and cares for the Ocean—is critical to situating Challenge 10 and achieving Ocean Decade goals. Ocean Literacy, as a collective goal, provides a unifying perspective that bridges diverse fields and professional communities. Previously, Ocean research, marine education, and strategic Ocean communications operated in parallel silos. However, as illustrated by the diverse chapter topics and expertise in this three-volume publication, achieving Ocean sustainability and fostering an Ocean-connected society requires a collaborative effort among many essential actors, including but not limited to scientists, social science

researchers, Indigenous knowledge holders, educators, communication experts, public and private sector leaders, policymakers, artists, and cultural influencers. Together, these contributors help contextualize human-Ocean relationships and inspire integrated solutions across science, policy, and society (McRuer et al. 2025). The unification of diverse actors to foster collective action does not require everyone to use or identify with the term ‘Ocean Literacy;’ rather, to recognize the pursuit of a shared outcome.

In striving toward an Ocean-literate society, Working Group 10 drew on the above fields and professional communities to co-identify four integral ‘drivers’ that have a major influence on this aim: (1) Knowledge Systems, (2) Communications, (3) Education, and (4) Cultural Connections. The White Paper proposes key recommendations and operational activities to support each driver’s strategic aim; and explores the following questions: Who will enable these key recommendations? What resources, tools, or infrastructure will ensure these recommendations

and activities (or variations of) are achieved? How will we measure progress? Building on the White Paper’s recommendations and proposed activities, we offer a working model of a theory of change below.

2.4 Actioning Challenge 10: A Theory of Change

A theory of change is a means of illustrating how and why a given set of interventions within a particular context (i.e., 4 drivers of Challenge 10 White Paper) can lead to a desired change. For each driver we use the following logic model: If [actors/‘users’] do [operational activities] then [driver] results in [strategic aim], contributing to [societal outcome]. Such a framework helps to illuminate and make sure that all drivers are working towards the same desired outcome—a society that makes decisions and behaves in ways that ensures a healthy Ocean. Figure 2.1 below outlines a working theory of change for two driv-

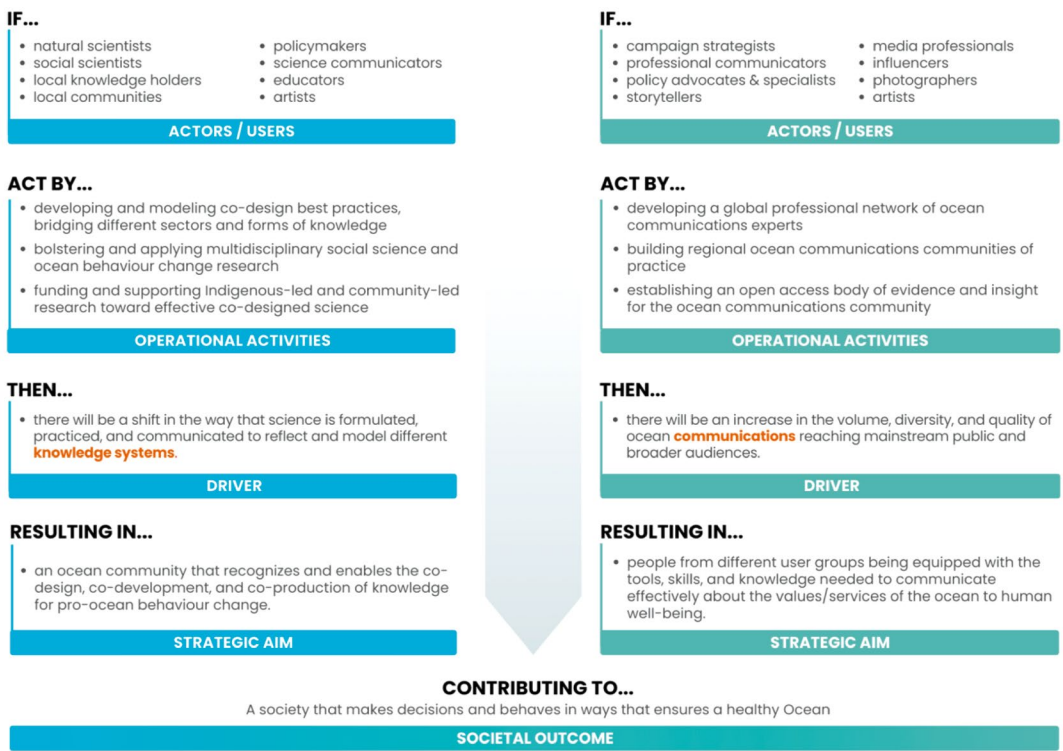


Fig. 2.1 A Theory of Change for two Challenge 10 Drivers–Knowledge Systems and Communications

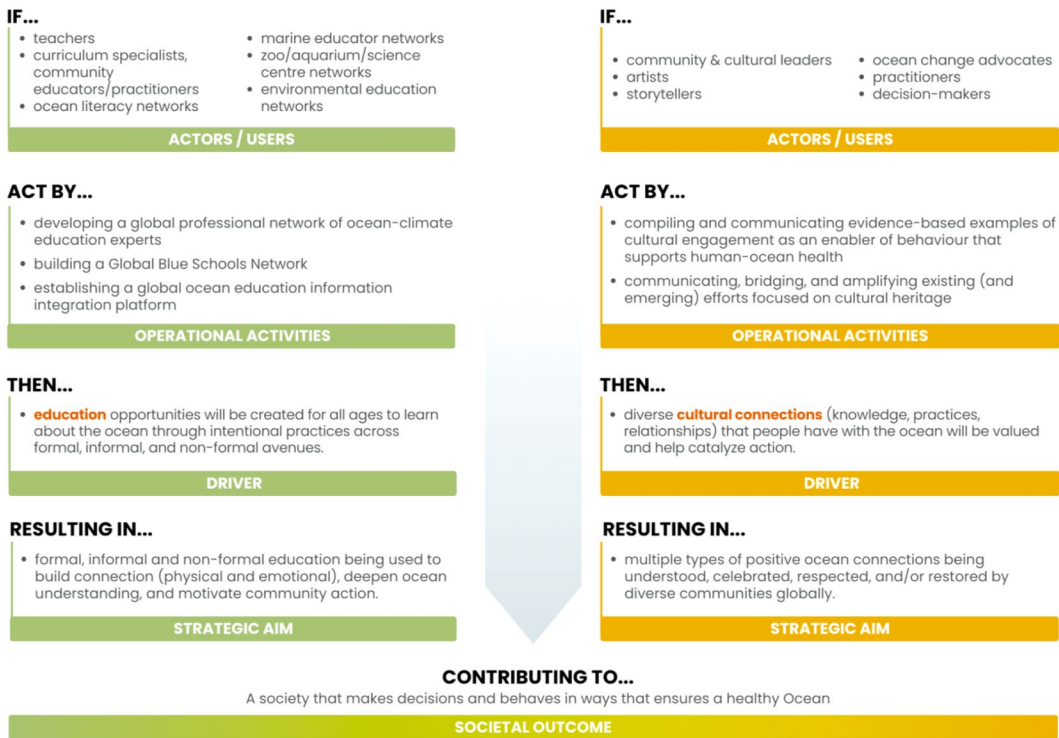


Fig. 2.2 A Theory of Change for two additional Challenge 10 Drivers—Education and Cultural Connections

ers of Challenge 10—Knowledge Systems and Communications. Figure 2.2 outlines a working theory of change for the additional two drivers—Education and Cultural Connections.

2.5 Conclusion

A theory of change model, like the one provided here, can serve as a helpful framework for collective action. Contained within this three-volume publication are tangible examples of how various actors are creating the conditions, activities, and opportunities that are contributing to the strategic aims and overall societal outcome outlined in Figs. 2.1 and 2.2.

Regular assessments, including S.M.A.R.T. (Specific, Measurable, Achievable, Relevant, and Time-bound) goals are essential for tracking and celebrating progress. However, advancing

Challenge 10 requires three important realizations by the Ocean community:

1. Understanding that there is no ‘one size fits all’ solution. Implementing the recommendations from the White Paper necessitates collaboration across sectors, regions, and cultures, each contributing locally relevant solutions while supporting global efforts.
2. Understanding that the key recommendations and operational activities outlined in the Challenge 10 White Paper were intentionally chosen based on (1) evidence-based insights; (2) existing momentum; and (3) their modeling of the multi-sectoral collaboration and transdisciplinary approaches needed to drive societal transformation. And recognizing that there is room for adaptation, elaboration, and expansion as we continue working toward common ends.
3. Understanding the importance of coalescing around the evolved definition of Ocean liter-

acy as a societal outcome, unifying and aligning diverse sectors and professional communities to work collectively toward a healthy Ocean for people and planet.

With these realizations in mind, combined with a willingness and dedication to value diverse and restorative Ocean connections, we need to cultivate together the collective motivation, capability, and opportunity that enables people to take positive and measurable action to ensure a healthy Ocean. To make this vision a reality, robust science-policy frameworks rooted in *society* are essential—not only to guide our efforts and ensure accountability, but also to monitor progress over time, adapting as needed. Theory of change frameworks can help to align and propel transdisciplinary action—starting, for example, with the spearheading efforts outlined in the chapters of this three-volume publication, the cross-cutting ideas outlined in the Challenge 10 White Paper, and the dovetailing endeavours of all other Decade Challenges. Together, we can draw on and mobilize impactful and sustained human-Ocean connections that help to secure a hopeful future—one that celebrates and builds on existing bright spots of how to nurture deep understanding, value, and care for the Ocean.

2.5.1 Summary

Key concepts explored in this chapter include:

- Current ‘threats’ to the Ocean are a direct result of human behaviour.
- Ocean Literacy, simply put, is a societal outcome—a society that better understands, values, and cares for the Ocean. When positioned as such, Ocean Literacy serves a unifying role, bridging diverse fields and professional communities.
- In striving toward an Ocean-literate society, the Ocean Decade Challenge 10 White Paper identified four integral ‘drivers’ that have a major influence on this aim: (1) Knowledge Systems, (2) Communications, (3) Education, and (4) Cultural Connections.
- A theory of change can serve as a helpful framework for collective action, illuminating what actors, activities, and results contribute towards a shared desired outcome.

2.5.2 Recommended Resources

The following resources provide further insights and support on this topic:

- **Ocean Decade Vision 2030 White Papers:** <https://unesdoc.unesco.org/search/8d86cc86-b35c-44b3-9b71-4caaa779ce64>
- **Challenge 10 White Paper:** <https://unesdoc.unesco.org/ark:/48223/pf0000390126>
- Glithero, D., Bridge, N., Paul, K., & McRuer, J. (2025). Ocean Decade Challenge 10 Underscores Social Dynamics in Marine Sciences as Critical to Transforming Human-Ocean Relationships. *International Journal of Marine Science*. https://academic.oup.com/icesjms/article/82/3/fsaf030/8075033?utm_source=advanceaccess&utm_campaign=icesjms&utm_medium=email

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Nicola Bridge is the Head of Ocean Advocacy and Engagement at the Ocean Conservation Trust (OCT) with over 18 years’ experience in the field of human-centered conservation, Ocean Literacy, environmental psychology, and environmental education. Responsible for developing, leading and evaluating the Ocean Conservation Trust’s formal and informal conservation learning programmes, as well as driving advocacy campaigns to support everyone to think about the Ocean in their daily lives. She is passionate about changing the narrative about what constitutes conservation, recognising that everyone on the planet is responsible for the health of the natural world that sustains us. Nicola is also integrated into the community of Plymouth as a Trustee for Millfields Inspired, a Member of the Connect Multi Academy Trust and a board member for the Plymouth Sound National Marine Park Horizons Programme. Further afield, Nicola is a member of the Defra Ocean Literacy Working Group and a founder of the We Are Ocean network. Nicola is President of EMSEA (European Marine Science Educators Association). She is Co-Chair of an Ocean Decade Working Group, focusing on global sustainable change in human behaviour to support the health of the Ocean.



Jen McRuer, PhD, is the Research Manager of the Centre for Ocean Literacy Collaboration—a centre for Ocean Literacy collaboration, research, and innovation that is administratively based at Dalhousie University (Ocean Frontier Institute). Jen currently leads COLC’s public Ocean perceptions research both nationally and internationally—in the co-design of comparative analysis and evaluative tools such as the Ocean & Society Survey (OSS). She also co-leads the Ocean Literacy Research Community (OLRC) and is a co-author of several papers aligning with these efforts and with the broader goal encompassed by the United Nations Ocean Decade Vision 2030 Challenge 10 white paper—Restoring Society’s Relationship with the Ocean. Jen’s research and facilitation experience stems from participatory action approaches focused on biocultural diversity and sense of place. Through this lens, she has worked collaboratively with global communities to better understand and communicate social and environmental changes and solutions. Jen is from Nova Scotia, and continues to be inspired by working in, across, and with people, culture, and place.



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