Vision 2030
White Paper

Challenge 10
Change humanity’s relationship with the ocean

Zero Draft - January 2024
The Decade Coordination Unit of IOC/UNESCO extends its sincere appreciation to the co-chairs and members of the Working Group for their leadership and commitment in the process of drafting and authoring the draft White Paper. The draft White Paper is a foundation for diverse stakeholders to provide comments and suggestions, and its contents will be refined and complemented following the public review process. A revised version of the White Paper will be presented and discussed at the 2024 Ocean Decade Conference in Barcelona, before being finalized and published as part of UNESCO’s Ocean Decade Series of publications.
VISION 2030 WHITE PAPER

ZERO DRAFT – JANUARY 2024

CHALLENGE 10: CHANGE HUMANITY’S RELATIONSHIP WITH THE OCEAN

Ensure that the multiple values and services of the ocean for human wellbeing, culture, and sustainable development are widely understood, and identify and overcome barriers to behaviour change required for a step change in humanity’s relationship with the ocean.
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Forthcoming (see Appendix A for working group members and supporting experts)
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<tr>
<th>Acronyms</th>
<th>Description</th>
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<tbody>
<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>AMEA</td>
<td>Asia Marine Educators Association</td>
</tr>
<tr>
<td>CaNOE</td>
<td>Canadian Network for Ocean Education</td>
</tr>
<tr>
<td>COLC</td>
<td>Canadian Ocean Literacy Coalition</td>
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<td>DCU</td>
<td>Decade Coordinating Unit</td>
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<tr>
<td>ECOP</td>
<td>Early Career Ocean Professionals</td>
</tr>
<tr>
<td>EMSEA</td>
<td>European Marine Science Educators Association</td>
</tr>
<tr>
<td>IPMEN</td>
<td>International Pacific Marine Educators Network</td>
</tr>
<tr>
<td>MCEN</td>
<td>Marine and Coastal Educators Network</td>
</tr>
<tr>
<td>NMEA</td>
<td>National Marine Educators Association</td>
</tr>
<tr>
<td>OLRC</td>
<td>Ocean Literacy Research Community</td>
</tr>
<tr>
<td>RELATO</td>
<td>Latin-American Marine Educators Network for the Ocean</td>
</tr>
<tr>
<td>SMART</td>
<td>Specific, Measurable, Achievable, Relevant, Time-bound</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<tr>
<td>UNOD</td>
<td>United Nations Ocean Decade</td>
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</tbody>
</table>
1. Executive summary

*Overview of the Ocean Decade Challenge - forthcoming after review process*

*Key findings and recommendations - forthcoming after review process*

2. Introduction

2.1. Background and context of the Challenge

“We are at a crucial turning point in the history of our relationship with the ocean. We know more about it than ever before, and we also know that without significant change its future, and ours, looks bleak.” - Asha de Vos, Sri Lankan marine biologist

The United Nations Decade of Ocean Science has a core focus to generate knowledge and data to support sustainable development. However, major societal transformations are needed to create a sustainable and equitable future. Additional data and knowledge are not sufficient (Pecl, 2022). Facilitating inclusive access and use of available science and innovations is required. Catalysing the motivation, capabilities, and opportunities needed to enable pro-ocean behaviours at local and global scales is equally essential to ensuring a healthy ocean for current and future generations.

The aim of Challenge 10 is to “ensure that the multiple values and services of the ocean for human well-being, culture, and sustainable development are widely understood, and identify and overcome barriers to behaviour change required for a step change in humanity’s relationship with the ocean.”

What does this mean? In what ways can we be in a relationship with a non-human entity? Many people around the world feel a strong bond with nature, they are part of it and it is part of them; there is no distinction. The singular, shared global ocean stands as a testament to this fundamental interconnection. The ocean is not a separate entity, but an indispensable extension of ourselves and our societies.

Indigenous peoples emphasize our relationship with the ocean in reciprocity – the practice of exchange for mutual benefit. We also need to collectively move beyond ‘sustainability’ and build toward (or restore) abundance. Reciprocity and abundance are essential not only to the United Nations Ocean Decade (UNOD) call for the “science we need for the ocean we want”, but also to ensure the ‘ocean we need for the future we want’.

Fortunately, we do not need to start from scratch. Many positive behavioural shifts are already in motion and not all relationships with the ocean need to change. Indigenous and coastal communities practicing conservation-based economies are modelling actions, behaviour, and solutions that reflect well-balanced human-ocean relationships.
Recognizing the ocean as a living ecosystem, with its own rights, is imperative. It is our collective responsibility to manage our behaviours in ways that are in the best interest of the ocean, which in turn will provide for humanity and all living beings for generations to come.

The Challenge 10 White Paper is based upon the understanding that we must fully honour and embrace our relationship with the ocean, and that we need to look beyond conventional scientific methods. The ocean (inclusive of all water bodies and waterways, as all water is connected) must become inextricably linked with our sense of self, our sense of place, and our collective well-being. To restore humanity’s relationship with the ocean, there must be intention and commitment beyond data and good science communication. Behaviour change requires personal, emotional, and cultural connections with the ocean. These societal connections will collectively drive the motivation, build the capabilities, and generate the opportunities and access that will enable individuals and communities to contribute to and act on science.

2.1.1. Integration, synergies and interdependencies with other Challenges

White papers 1 through 9 clearly articulate the causal link between human behaviour and the future health of the ocean: if we continue to behave as we do at a global scale, there will be catastrophic consequences. Challenge 10 is fundamental to operationalizing the changes and scale of global action needed across society to avoid this fate.

Challenge 10 focuses on enabling our progress toward becoming a global society that better understands, values, and cares for the ocean (i.e., an ocean literate society). We identify four key drivers that are foundational to restoring humanity’s relationship with the ocean – knowledge systems, communications, education, and cultural connections. Fortifying these key drivers through sustained collaboration across every scale (local, regional, global) will strengthen pro-ocean behaviours and social foundations, enhancing both ocean health and human well-being. Figure 1 provides a conceptual framework for Challenge 10.
Ultimately, Challenge 10 is about **people** (determining what makes us move beyond ‘knowing that we need to act’ to actually taking action), **relationships** (with each other and with the ocean), and **balance** (to attain reciprocity and abundance). It emphasizes that physical science and data must work hand-in-hand with societal needs and socio-cultural sources of inspiration, motivation, and innovation. Furthermore, Challenge 10 calls for “*Etuaptmumk*” (two-eyed seeing), a concept developed by Mi’kmaq Elders Albert and Murdena Marshall (Bartlett et al., 2012; Iwama et al., 2009), as a basis towards integrative science that enables us to see the strengths of Indigenous knowledge systems through one lens, and the strengths of Western knowledge systems through the other, and to learn to use both eyes together for the benefit of humanity and the planet.

We know that the ocean is a complex and interconnected system. But human societies are complex too. We must consider the multi-faceted nature of our relationship with the ocean and the constantly shifting dimensions of our political, economic, societal, and
cultural operating environment. This requires a balanced ‘whole-of-society’ approach, to avoid over focusing on one element to the detriment of another. Figure 2 illustrates one Indigenous framework for societal balance, adapted for UNOD Challenge 10.

![Societal Balance Framework for Challenge 10. Adapted by Indigenous knowledge holder Ken Paul (2023).](image)

2.2. Overview of current work

The rapidly growing field of ocean literacy is central to operationalizing Challenge 10 and to UNOD’s legacy. Crucially, ocean literacy is not solely about teaching children in schools. Education (cradle to career, and beyond; formal and informal) is an important driver, whereas ocean literacy is an outcome – a society that understands and values the vital role the ocean plays in our lives and behaves in ways that ensures its health and abundance.

A recent global systematic review of ocean literacy (Shellock et al, in prep) affirms that research to date has focused on i) definitions and concepts, ii) ocean education design and programming, iii) evaluating people’s ocean literacy, and iv) approaches to increasing
ocean literacy levels. Parallel to this work, the global Ocean Literacy Research Community (OLRC) – launched at the initial UNOD laboratory in July 2021 – points to an increasing research emphasis on public perceptions ocean research\(^1\), marine citizenship and identity\(^2\), expanding dimensions of ocean literacy\(^3\), emotive science communications through immersive technology\(^4\), social-ecological participatory action research\(^5\), and ocean literacy as a policy tool (e.g., the impact of ocean policy interventions on ocean literacy, and how ocean literacy can be effectively incorporated into decision-making processes\(^6\)).

Foundational work has been done over the past five years to generate strategies for media and users to help create a sense of collective public responsibility for ocean health (e.g., “We Are Ocean Report”; “Heartwired to Love the Ocean”; and “Turning the Tide”). In addition, literature reviews (e.g., Stoll-Kleemann, 2019) on behavioural sciences, such as social, environmental, and emotional psychology, that help inform sustainable ocean-related incentives and behaviour are critical to better understanding and operationalizing Challenge 10. Equally vital are the collective outputs and recommendations outlined by recent large-scale, multi-institutional, interdisciplinary, people-centred and ambition-setting research initiatives (i.e., Future Seas, ResponSEAble, Sea Change, etc). These expanding areas of research illuminate the dynamic intersection of ocean literacy with natural ocean sciences, marine social sciences, behavioural science, environmental psychology, science communications, and social-based marketing.

### 2.3. Importance and relevance of the Challenge for sustainable development

Influencing human behaviour at all scales and across all of society is key to achieving sustainable management of ocean resources. However, our collective responsibility extends beyond ‘sustainable ocean management’ to managing our behaviours in ways that serve the interests of the ocean. Challenge 10 is pivotal to driving these changes due to its explicit focus on human behaviour and its recognition of the ocean as a living ecosystem with its own rights.

The existing tools of science, technology, and communications allow us to understand the ocean in finer detail than ever before and to share that understanding widely. Now we need to promote connection, understanding, and action—an ambitious undertaking that requires international cooperation at a scale never seen before, and for countries to

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\(^{1}\) e.g., Gelrich et al., 2014; Jefferson et al., 2021; McRuer et al., 2024 (in prep)

\(^{2}\) e.g., Buchan, 2021

\(^{3}\) e.g., Brennan at al, 2019; McKinley et al., 2023

\(^{4}\) e.g., Breves & Schramm, 2021; Calil et al., 2021

\(^{5}\) e.g., Eelderink, 2021; Perz et al., 2021; Reed et al., 2018

\(^{6}\) e.g., Paredes-Coral et al., 2021
commit to specific actions that provide opportunities for society to discover meaningful connections with the ocean, build knowledge and understanding of its impact on our lives, and mobilize behaviour change.

### 2.4. Methodology for strategic ambition setting

To set our strategic ambition we began by examining the key barriers, enablers, and motivators with the potential to have the most impact on ‘changing (restoring) humanity's relationship with the ocean’, shown in table 1.

**Table 1: Pro-ocean Behaviour: Barriers, Enablers, and Motivations**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Enablers</th>
<th>Motivators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropocentrism</td>
<td>Community engagement</td>
<td>Marine citizenship</td>
</tr>
<tr>
<td>Short-term thinking</td>
<td>Indigenous knowledge systems</td>
<td>Empathy and Altruism</td>
</tr>
<tr>
<td>Cognitive biases</td>
<td>Future-oriented policies</td>
<td>Collectivism</td>
</tr>
<tr>
<td>Disconnect from nature</td>
<td>Environmental education</td>
<td>Communication and storytelling</td>
</tr>
<tr>
<td>Materialism and consumerism</td>
<td>Economic incentives</td>
<td>Cultural and societal norms</td>
</tr>
<tr>
<td>Competing priorities</td>
<td>Collaboration, partnerships, and shared resources</td>
<td>Accessing the ocean for all</td>
</tr>
<tr>
<td>Misinformation</td>
<td>Media and entertainment</td>
<td>Valuing ecosystem services</td>
</tr>
</tbody>
</table>

Additional factors to consider included:

- Large-scale societal drivers of change (e.g., governance, economy)
- Scale - individual behaviour versus organizational/institutional versus societal
Timescale - will the ambition be achievable by 2030? Will it be as relevant in 2030?

Indigenous Knowledge Systems - how can they be meaningfully integrated?

Working group members created "2030 imaginative sketches," which were consolidated into a shortlist of interrelated strategic ambitions and frameworks to help shape the underpinnings of Challenge 10. From there, an initial curated list of users alongside their needs/priorities was developed (see Appendix B). The working group then examined relevant research across diverse fields (see Appendix C). This work was synthesized to refine our preliminary report.

We then began a six-week socializing process with our respective networks and other target expert groups to gather input and feedback, including 13 ‘peer workshops’ involving over 600 individuals (see Appendix D). From this effort, an initial draft of this paper was generated.

3. Strategic ambition setting

3.1. Definition of the strategic ambition for the Challenge

Our strategic ambition is a shared vision of what success in 2030 looks like, acknowledging that there are multiple ways to achieve that future.

Strategic Ambition

The overarching strategic ambition for Challenge 10 is:

_to create enabling conditions and environments to support humanity to have the motivation, capability, and opportunity to behave in ways that ensure a healthy ocean._

Key Drivers

Recognizing that diverse motivators and conditions enable human behaviour change, we identified four key drivers that 'users' can influence through individual and collective action: (1) Knowledge Systems, (2) Communications, (3) Education, and (4) Cultural Connections. We define ‘drivers’ as key factors that have a major influence on a desired outcome, and 'users' as individuals or groups actively engaged in generating the motivation, capabilities, and/or opportunities/access to support behaviour change.

Intentional efforts to harness existing science and best practice, to work across disciplines, to respect and bridge diverse ways of knowing, and to transcend societal
barriers will together help propel all Challenge 10 outcomes toward the 'ocean we need for the future we want."

In this section, we propose key actions to support each driver’s priority outcome and ask: Who will enable these key actions? What resources, tools, or infrastructure will ensure these actions are achieved? And how will we measure progress?

Progressing toward our strategic ambition requires a shared commitment to recognize existing collective resources, utilize regional hubs for culturally appropriate actions, and incorporate regular assessments, including goal-oriented S.M.A.R.T – Specific, Measurable, Achievable, Relevant, and Time-bound – decision-making. A transformative path forward is available through transdisciplinary collaboration, bridge-building, and a keen awareness that ideas alone are insufficient to motivate and enable the scale of change required. We do not need to reinvent the wheel, but to turn it differently, together.

3.2. Driver #1: Knowledge Systems

Descriptor: The need to leverage different ways of knowing about the ocean, and enable this knowledge to be used across society, has been recognized for decades. However, bridging knowledge systems and practicing transdisciplinary science has yet to be widely realized. To achieve large-scale behaviour change, full recognition of and support for social science (including anthropology, economics, geography, political science, systems science, and psychology) and Indigenous knowledge systems, alongside ocean science, is essential. Western science generally seeks to apply results and theories universally. Indigenous knowledge systems are localized and culturally based. It is vital to address this tension, as practices undertaken for millennia contain valuable ways of knowing that can aid collaborative solutions to today’s ocean challenges.

Priority Outcome: The community brought together by the UNOD recognizes and enables the co-design, co-development, and co-production of knowledge for pro-ocean behaviour change. The community champions the sharing of knowledge in multiple, diverse ways.

Users: Natural scientists, social scientists, local knowledge holders, policy makers, science communicators, educators, and artists - across generations, genders, and geographies.
Table 2: Driver #1: Knowledge Systems - Key Actions and Operational Activities

<table>
<thead>
<tr>
<th>Key Actions</th>
<th>Operational Activities</th>
</tr>
</thead>
</table>
| 1 Fund and support Indigenous Knowledge research towards effective integrative science (to help guide two-eyed seeing) | ● Acknowledge and respect different ways of knowing by holding researchers, policymakers, educators, communicators accountable for the incorporation of said diversity into ocean science agendas and policies  
● Fund proposals that include a deliverable of intentionally creating and facilitating space for Indigenous researchers, science academy, government agencies, industry, etc. to dialogue, co-develop, co-design |
| 2 A call for funding around the multidisciplinary nature of social science; dedicated funding toward behavior change research and application | ● Build on the growing field of marine social science and ocean literacy research to ascertain place-based and peer-reviewed research that informs attitudes, motivations and barriers to ocean positive behavior  
● Publish results of the studies in ways that effectively share information and encourage uptake of best practices  
● Use research results to inform communication campaigns, pedagogical best practices, organizational cultures, industry/private business agendas, etc. |
| 3 Develop ‘Knowledge to Action’ co-design/ co-development/ co-production best practices, including guidance on how to bridge sectors (science, management, policy, rights-holders, stakeholders) and different forms of knowledge | ● Ensure that UNOD calls and funding opportunities require evidence of transdisciplinary approaches  
● Make opportunities for co-design, co-development, and co-production more compelling through tiered funding approaches and models  
● Co-develop accessible curricula (post-secondary to professional) with diverse knowledge holders, to both exemplify and emphasize best practices in co-design/development/production - Circulate curricula through benefit schemes, so users are rewarded for their uptake |

Progress Indicators:
● Increased integration of marine social science, communications, and outreach approaches into ocean science initiatives.
● Increase in diversity of voices and audiences engaged in ocean issues.
Diverse ways to collect and present ocean-related data are accepted.

Ocean-related attitudes, behaviours and perceptions measurements show improvements, as measured by nationally representative ocean literacy surveys.

3.3. Driver #2: Communications

Descriptor: Strategic communication has the power to change perceptions, attitudes, and behaviours. Used in sectors from public health to peacebuilding, it is a proven path to addressing both barriers and motivations. While some communication focuses on specific campaigns or policy issues, broader ongoing public communications can generate a ‘surround sound’ effect. It can keep an issue top of mind, creating a fertile ground for more direct messaging or activation. Upskilling global ocean communicators will increase the volume and quality of ocean stories reaching more diverse and mainstream audiences.

Priority Outcome: People from different user groups are equipped with the tools, skills, and knowledge needed to communicate effectively about the values/services of the ocean to human well-being, and to create/recover emotional connections to the ocean.

Users: Campaign strategists, professional communicators and specialists, media and social media professionals, storytellers, influencers, photographers & artists

Table 3: Driver #2: Communications - Key Actions and Operational Activities

<table>
<thead>
<tr>
<th>Key Actions</th>
<th>Operational Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop professional (global) network of ocean communications experts</td>
<td>• Develop a shared theory of change for use across communications projects and galvanize the funding community behind communications projects</td>
</tr>
<tr>
<td></td>
<td>• Develop a training platform/accreditation for upskilling communicators working on ocean topics and endorsed actions</td>
</tr>
<tr>
<td></td>
<td>• Share communications packages that specifically address barriers to human behaviour change with aquariums, museums, and other public learning and gathering spaces, to distribute key messages and content about ocean science in impactful ways</td>
</tr>
<tr>
<td>2. Develop regional ocean communications</td>
<td>• Co-develop and share current best practice resources to increase capacity and confidence in impactful ocean communications</td>
</tr>
</tbody>
</table>
communities of practice

- Secure in-country journalism training to familiarize users with paramount ocean issues, with the goal of increasing local coverage and diversity of ocean science topics
- Work with local speech writers, political campaigners, and influencers to share ocean messaging and stories, and encourage cultural and political leaders to discuss ocean issues

3. Build an open access body of evidence and insight for the ocean communications community

- Contribute to the growing field of marine social science and ocean literacy research, by helping to inform, guide, and shape regional research through evidence-based insights of the communications community
- Publish results of the studies to share information and improve the body of knowledge
- Use baseline public perception ocean research results to create evidence-based campaigns and communications strategies
- Share bodies of research and evidence against which to measure impact and progress, with resources on measuring behaviour change, and language translation capabilities (AI) for use across multiple countries
- Create a press release distribution platform focused on ocean topics, e.g., Eurkea Alert in the United States, which is a science-based news distribution service

Progress Indicators:

- Increased and sustained volume of ocean-related stories in global media, across a range of geographies, themes, and platforms
- Increased confidence and capacity of storytellers to take an evidence-based approach to communications, including monitoring and evaluation of impact
- Increased volume and availability of research and insight to enhance the impact and efficacy of ocean communications

3.4. Driver #3: Education

Descriptor: Education can be a powerful instrument of social change. For decades, education research\(^7\) regarding the environment has identified the need for ecological learning to be place-based, relational, and experiential. Increasingly, and more urgently,

\(^7\) e.g., Cajete, 1994; Orr, 2004; Sterling, 2001
sustainability education, climate education, global citizenship, and reconciliation education are becoming important areas of pedagogical focus. This trend needs to be prioritized in national curricula with place-based foundations, and include ocean citizenship and learning. Education is a long-term, generational driver; learning is also lifelong. We need opportunities for everyone to learn about the ocean through intentional practices across formal, informal, and non-formal avenues.

**Priority Outcome:** Formal education in schools, colleges and universities, as well as informal and non-formal experiential learning (e.g., citizen science, museums, aquariums, and multimedia), is used to build connection (physical and emotional), deepen ocean understanding, and motivate community action.

**Users:** Teachers, curriculum specialists, community educators/practitioners, ocean literacy networks, marine educator networks, zoo/aquarium/science centre networks, environmental education networks

*Table 4: Driver #3: Education - Key Actions and Operational Activities*

<table>
<thead>
<tr>
<th>Key Actions</th>
<th>Operational Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop professional (global) network of marine education/ocean-climate education experts (formal, informal, and non-formal educators)</td>
<td>● Draw and build on the talent pool from existing and emerging regional networks of marine educators (e.g., NMEA, EMSEA, IPMEN, COLC and CaNOE, AMEA, RELATO, MCEN, etc.)&lt;br&gt;● Develop international best practices for ocean education to support its integration into broader climate and sustainability education as part of national curricula with place-based foundations (advancing UNESCO circular letter 2951)&lt;br&gt;● Support countries to co-develop teacher training and educator professional development certification programmes&lt;br&gt;● Galvanize a funding community behind ocean-climate education to support work of regional networks (listed above) and regional/national Blue Schools Networks (see #2 below)&lt;br&gt;● Support educators in informal education (aquariums, zoos, museums, science centres, etc.) to develop the skills and resources necessary to include the ocean across multiple platforms, languages, and places</td>
</tr>
</tbody>
</table>
2. **Develop a Global Blue Schools Network (building off success of the All-Atlantic and European Blue Schools Networks)**

- Co-develop and share resources to increase teacher capacity and confidence in teaching about the ocean-climate with diverse learners in locally relevant, culturally appropriate ways
- Incentivize (through resource access, funding, professional development opportunities, ECOP fund allocation, etc.) consultation and collaboration among scientists, Indigenous knowledge holders, and local community specialists to co-develop accurate and effective curricula, resources, and experiences
- Understand ocean literacy levels amongst students and educators by co-developing an adaptive longitudinal assessment tool that measures knowledge, values, and behaviours

3. **Establish a global ocean education information integration platform**

- Provide funds for the co-design of an open-access, user friendly platform—by educators, for educators—to support access to live ocean data sets, alongside ocean-based resources for all curriculum subject areas, ages, and abilities

**Progress Indicators:**

- Increased number of countries incorporating marine education into national curriculum frameworks
- Increased number of individuals in the professional (global) network of marine education / ocean-climate education experts, and stronger regional networks
- Increased number of accredited teacher certification/education professional development courses related to ocean literacy, and more teachers/educators certified
- Increased number and quality of resources, best practices on the open access platform, and users
- Increased number of students and teachers in the global and national Blue Schools Networks

3.5. **Driver #4: Cultural Connections**

**Descriptor:** Cultural connections with the ocean refer to the knowledge, actions, and relationships people have with the ocean space. Many cultures rely explicitly on the ocean. For Indigenous coastal communities and mariners navigating the sea, the ever-changing weather and sea conditions are fundamental to their survival and identity. Hundreds of years of intergenerational observation and experience means that small-
scale fishers feel part of the ecosystem and understand the balance needed for a sustainable future. These examples demonstrate the importance of reciprocity and resilience as cultural connections evolve.

**Priority Outcome:** Cultural and community leaders engage with and showcase the ocean in a wide range of forms, enhancing the ocean’s meaningful presence in mainstream culture. Multiple types of positive ocean connection are understood, celebrated, and respected – and where possible restored and/or replicated – by diverse globalized communities.

**Users:** Community and cultural leaders, artists, storytellers, and diverse ocean change advocates, practitioners, and decision-makers

**Table 5:** Driver #4: Cultural Connections - Key Actions and Operational Activities

<table>
<thead>
<tr>
<th>Key Actions</th>
<th>Operational Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Compile a global body of evidence (contextual, place-based knowledge)</td>
<td>● Secure sustained funding to bring together a dedicated working group to begin research and compilation of evidence of cultural connection as a driver of pro-ocean behaviours</td>
</tr>
<tr>
<td>that makes the case for cultural engagement as an enabler of behaviour</td>
<td>● Create a best practices dossier and training materials to showcase how to create opportunities and solutions across education, communications, policy, governance, business etc., that are inclusive of diverse place-based perspectives across all collaboration initiatives (and their stages)</td>
</tr>
<tr>
<td>that supports human-ocean health</td>
<td></td>
</tr>
<tr>
<td>2. Communicate, bridge, and amplify existing (and forthcoming) efforts</td>
<td>● Establish initiatives alongside UNOD Programmes to design a framework for selecting communities and projects that show best practice activities and initiatives regarding cultural connections, heritage, language, and place-based innovations for human-ocean health</td>
</tr>
<tr>
<td>focused on cultural heritage and connection initiatives, such as the</td>
<td>● Twin communities from different (global) locations to build communities of best practice embedded within the culture of the local community</td>
</tr>
<tr>
<td>Cultural Heritage Framework Programme and endorsed Decade Actions</td>
<td></td>
</tr>
</tbody>
</table>

**Progress Indicators:**

- Increased presence of ocean health as a central focus across a range of funding, communications, education, policy, governance, business, industry, and community endeavours
Increase in globally relevant and accessible best practice guidance, uptake, and practice

4. Milestones and Indicators: Toward Operationalizing Challenge 10

At their core, all the UNOD Challenges, and in particular Challenge 10, are about human behaviour. The following overarching milestones represent significant developments or events that signal and ensure collective progress is being made on the strategic ambition, drivers, and key actions outlined in this paper. Working groups were encouraged by the Decade Coordinating Unit (DCU) to consider a set of 10 milestones (see Appendix E). Although all 10 milestones are reflected in the key actions and operational activities specific to the drivers outlined in section 3, only select milestones are highlighted below. (NB: The order of milestones is non-sequential, in accordance with DCU guidelines.)

4.1. Short-term milestones (2024-2025)

Milestone 5: Inclusive Stakeholder Engagement

Indicator 5.1: Challenge 10 Theory of Change. There will be a co-developed theory of change, enabling a decentralized, collaborative, and inclusive operationalization of the drivers and key actions set out in this paper.

Milestone 7: Increased Funding for Decade Actions

Indicator 7.1: Priority Areas for Funding. There will be an exponential increase in funding and sustained support for: (a) Marine social science, ocean literacy research, and Indigenous-led research; (b) Ocean communications projects, training, and tools; (c) Ocean education to support global Blue Schools Network, regional networks of marine educators, and teacher training/educator professional development; (d) A dedicated working group to begin research and compilation of evidence of cultural connection as a driver of pro-ocean behaviours.

Milestone 3: Building Capacity for Ocean Decade Challenges

Indicator 3.1: Behaviour Change Baselines. There will be a baseline established on ocean-related attitudes, values, perceptions, and behaviour measurements through a global (yet regionally, nationally, locally adaptive) ocean literacy survey instrument, co-developed by ocean literacy and strategic ocean communications experts.

Milestone 2: Advancement in Ocean Knowledge Sharing

Indicator 2.1: Co-design, Co-development and Co-production. The UNOD will ensure that calls for co-design, co-development, and co-production (with associated funding
opportunities) require evidence of transdisciplinary approaches that include the intentional creation of space for Indigenous researchers, science academy, government agencies, industry, etc. to operationalize key actions specific to the four key drivers.

4.2. Medium-term milestones (2026-2028)

Milestone 6. Toward Societal and Environmental Impact

Indicator 6.1: Behaviour Change Research Continuance: Public perceptions ocean research baselines (e.g., as measured by ocean literacy survey instruments and other measurement tools) are augmented and circulated to capture behaviour change attributed to the key drivers. Behaviour change will be measured both in professional practices (formal users and organizations/ institutions) and in individual practice related to:

- awareness/knowledge related to the desired behaviour change
- attitudes/beliefs towards the desired behaviour change
- individuals’ willingness (motivation, capability, opportunity/accessibility) to engage
- individual behaviour, demonstrating increased engagement in the desired action(s)

Indicator 6.2: Framework development for UNOD Programmes involving cultural connections: A framework is designed for UNOD Programmes that include the selection of communities and projects showing best practice activities and initiatives regarding cultural connections, heritage, language, and place-based innovations for human-ocean health.

4.3. Long-term milestones (2029-2030+)

Milestone 6. Toward Societal and Environmental Impact–Systems Change

Indicator 6.3: Programmes and research: The UNOD will widely model a culture shift, as demonstrated through ongoing monitoring of the incorporation of multiple knowledge systems, transdisciplinary approaches, and co-design processes across key driver actions, as measured by ongoing social science research.

Indicator 6.4: Funding: The UNOD will widely model a culture shift, as demonstrated through flows of redirected philanthropic and public funding (with transparent documentation) in support of behaviour change related to the four key drivers.
Indicator 6.5: Cultural Norms: The UNOD will widely model a culture shift, as demonstrated through the ways social and cultural norms are evolving across the key drivers, in support of reciprocal, sustainable, and restorative human-ocean relationships.

Indicator 6.6: Advocacy and Public Policy: The UNOD will widely model a culture shift, as demonstrated through advocacy and policy progress toward key drivers and associated actions.
Appendices

Appendix B: Users, Goals, and Needs

Stage 1 - Long list of users, developed by Working Group:

- Policy makers
- Education
- Agriculture
- Water resources
- Transportation
- Labour and employment
- Health
- Environment
- Arts and culture
- Scientists/ science community
- Religion/spirituality
- Educators - formal and informal
- NGOs
- Funders / philanthropic community
- Institutional / Government (federal/national, provincial/territorial/state, municipalities)
- Indigenous Governance structures, communities and peoples
- Corporates/business community
- Blue economy
- Tourism
- Ocean energy
- Fisheries/aquaculture
- Artisanal livelihoods - fishers, ocean products (e.g. salt)
- Ocean Decade Challenges (all Actions, WGs)
- Media, culture & influencers
- Sports
- Zoos and aquariums, science centres, public libraries
- Children/youth = tomorrow’s decision make

Stage 2 - Refining the list of users:

Q1) Who can make the most impact in overcoming barriers to behavior change? Who are the real movers/influencers/users?

Q2) What is needed by each of these priority users and influencers to drive behavior and systems change?
Priority user groups’ goals and needs are cross-cutting:

- Clear/consistent understanding of values/services of the Ocean
- Enabling environment for co-design, co-development, and actioning of ‘science’ (where this is the culture shift towards a ‘new’ science)
  - Science/Knowledge - all forms
  - ‘Knowledge to Action’ co-design/co-development guidance/best practices
    - Including how to bridge different forms of Knowledge
    - How to include all user groups
- ‘Spaces’ (ample opportunities) for partnering/collaborating (sharing, storytelling, building)
- Strategies, frameworks, tools (etc.) for communicating (e.g., the values/services/barriers & challenges and emerging solutions)
  - Funding for all of the above
- Understanding of the true value and role of Ocean Literacy to meeting desired outcomes (Ocean Decade Outcomes)

Table: Collective Working Group feedback on identified priority users

<table>
<thead>
<tr>
<th>Priority Users</th>
<th>What is the end goal for this user group by the end of the Decade?</th>
<th>Priority Users / Influencers Needs</th>
</tr>
</thead>
</table>
| Scientists     | • Genuine collaboration between natural and social scientists, at the start of a project.  
                 • Research is co-designed with society right from the beginning of the process. Research impact is clearly articulated at all stages of the project (to account for changes).  
                 • Academia values multiple roles of scientists – journal publications are only one measure of success / impact. | • Incentives for scientists need to change, we need a mindset change in academia.  
• Scientists need to be supported to change their approach to designing research projects with a recognition that researchable questions produced out of a dialogue process with others, including non-scientists, often generate more interesting questions.  
• Young scientists need to be supported to engage in multi-dimensional / trans-disciplinary research, which values societal impact and communication. |
- Societal impact is seen as a critical ‘currency’ in science and all scientists embrace a social contract – with humility and transparency.
- More expansive definition of “science” and shared data

- The curriculum for training science needs to change to enable the above.
- More expansive thinking – less side-blinder on processing of issues; connection and collaboration outside of their own research or institution. (Talking about modern western science.)

| Policymakers | Policymakers have access to the science they require on how ocean health relates to their specific policy issue (eg briefing docs).
| POLICY-MAKERS |
| Policymakers make policy decisions that take into consideration the vital role of ocean health across a broad spectrum of policy decisions.
| Policymakers make ocean positive decisions in response to demonstrable public support for actions that protect the ocean.
| Strength of human connection to the ocean is such that policymakers use ocean action as a campaigning platform at key political moments.
| Policy makers understand and value the role of the ocean in human life and recognise the impact of their decisions on the functioning of the ocean.
| Understanding of the role of our one-water system/ all connected to ocean to human everyday life as well as issues of intersectionality involving human rights

- Up to date nationally representative studies demonstrating high levels of support for ocean positive decisions, that can be used as internal advocating data.
- Designated ‘ocean consultants’ who can work with governments to ‘translate ocean science’ to show salience of ocean health across a variety of ministries, departments etc.
- More effective communication between scientists and policy makers
- Compulsory ocean literacy training for all decision makers in governments around the world!
- Ample time “in the field” with youth, scientists and native/indigenous peoples. Ample time listening to educators who have applied successfully project-based/progressive education.
<table>
<thead>
<tr>
<th>Funders</th>
<th>Educators</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Funders understand and value the role that ocean literacy, social science and communication play in achieving global ocean health targets.</td>
<td>● All educators can incorporate marine / ocean examples into their lessons – across all disciplines and topics.</td>
</tr>
<tr>
<td>● There is an increase in the percentage of blue funding directed towards projects based on these disciplines.</td>
<td>● All formal education systems include elements of ocean literacy (as appropriate) in the curriculum.</td>
</tr>
<tr>
<td>● There is a commitment to include social science/outreach etc in all future funding proposals frameworks.</td>
<td>● At all levels – from administrations to teachers: (1) Prioritize as core curriculum necessary skill building for the next generation of decision makers, including and especially empathetic leadership and sustainable food growing; (2) Holistic curricula prioritizing the connection of all on planet Earth – all life and elements – as well as causal connections tying in humanitarian issues, and collaborating with local tribes/native peoples teaching TEK; (3) Reconnect youth with their natural environment, moving away from only text book learning within four walls; (4) Project-based learning with core issue to resolve being a thematic real-world issue; (5) and more. Children who connect with nature and come to love it will grow to protect it.</td>
</tr>
<tr>
<td>● Funders evaluate research proposals through multiple metrics including societal impact. Time frames for projects include awareness of the increased time required for genuine collaboration with communities.</td>
<td>● A foundational 'Ocean Literacy' component is included in all educator training – pre-service and in-service.</td>
</tr>
<tr>
<td>● Invest in more than “ocean science” understanding that to shift the paradigm investment must be made into a new, meaningful approach to education and into our children the next generation of leaders; new technology with attached ROI will not shift the paradigm to create a healthy and safe world for future generations.</td>
<td>● Ocean topics need to be included in the design of curriculums and text books.</td>
</tr>
<tr>
<td>● Ensure funders have easy access to data and case studies that demonstrate improved human relationship with the ocean having positive impact on ocean health (making the scientific case).</td>
<td>● High level interventions are needed with leaders in education throughout the world.</td>
</tr>
<tr>
<td>● Identify what science and data gaps exist in ‘making the case’ at present and provide recommendations for studies to fill this gap.</td>
<td>● Time, space and money – the government’s true commitment – to utilize project-based, collaborative learning models and teach the science behind human impact on our ocean, waterways and climate. Support to prioritize teaching empathetic leadership skills and issues of intersectionality, including training.</td>
</tr>
<tr>
<td>● Ensure funders understand what data (both qual and quiant) can be gathered around future projects to contribute evidence to progress towards global ocean health through better human relationship with the ocean (building the scientific base).</td>
<td>● Funding agencies need to change the way projects are evaluated and timelines are revised.</td>
</tr>
<tr>
<td>● Ample time “in the field” with youth and native/indigenous peoples. Ample time listening to educators who have applied successfully project-based/progressive education.</td>
<td>● Ample time &quot;in the field&quot; with youth and native/indigenous peoples. Ample time listening to educators who have applied successfully project-based/progressive education.</td>
</tr>
<tr>
<td>Media, Communication Experts</td>
<td>Culture, arts, religion/spirituality</td>
</tr>
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</tr>
<tr>
<td>● Ocean health has a sustained presence in the media landscape that links the ocean to a range of other salient issues (climate, wellbeing, food security, culture etc).</td>
<td>● Ocean issues have a meaningful presence in mainstream culture, connecting with large audiences.</td>
</tr>
<tr>
<td>● Ocean communications campaigns are 'professionalised' – ie use data to target specific audiences, with tested products/messages/messengers and measurable impact.</td>
<td>● Artists, cultural influencers, spiritual leaders etc engage with the ocean in a wide range of forms that showcase a breadth of understanding of the ways in which we connect with the sea (ie not just another scavenged beach plastic bit of art work.</td>
</tr>
<tr>
<td>● Through a diversity of platforms and formats, ocean stories become a part of mainstream culture.</td>
<td>● Writers, artists, musicians etc engage with ocean to generate positive impact among audiences (and are aware of risks of repeating damaging ocean tropes, spreading ‘blue fear’ etc)</td>
</tr>
<tr>
<td>● The media are able to report accurately and effectively on marine / ocean issues.</td>
<td>● Religious leaders are all able to articulate the value of ocean care.</td>
</tr>
<tr>
<td>● Communication experts share their knowledge, skills and resources. This will save on duplication of efforts and support especially those in countries with fewer resources.</td>
<td>● An Ocean Manifesto for all religions.</td>
</tr>
<tr>
<td>● Movement building and awareness raising are protecting our one-water system including ocean, collaborating in goal globally; commitment to sharing accurate information including issues of intersectionality.</td>
<td>● Generate a user guide for cultural influencers on how they can meaningfully engage in the ocean, including social science and behavioural studies that show impacts of different narratives/representations of ocean.</td>
</tr>
<tr>
<td>● Ensure communicators understand how ocean stories connect to a range of other issues (using studies on how to connect with different audiences).</td>
<td>● Generate art-science co-creation and ensure adequate funding for the science side of art-science collaborations (often missed out).</td>
</tr>
<tr>
<td>● Need for baseline data to track attitudes, perceptions and ocean related attitudes across nat rep samples, to monitor progress and identify strategic target audiences for campaigns, which can be shared across ocean comms community</td>
<td>● Develop body of evidence that makes the case for cultural engagement as vehicle for generating ocean friendly behaviours (and ultimately positive ocean health)</td>
</tr>
<tr>
<td>● Ensure communications budgets have adequate monitoring, evaluation and testing resources allocated to build an (open access) body of evidence and insight for ocean community</td>
<td>● Creative ways to reach religious leaders are needed.</td>
</tr>
<tr>
<td>● Communication experts needs to use research and best practice guidelines in communication</td>
<td>● We need to recognise people’s spiritual connection to nature and the ocean in ocean literacy work.</td>
</tr>
<tr>
<td>● Relationships of trust are built up between the media, scientists and other ocean knowledge holders.</td>
<td></td>
</tr>
<tr>
<td>Cultural values of the ocean are recognised and appreciated / celebrated.</td>
<td>A system that fosters matriarchal values and supports this shift. What our children/youth absorb becomes the community of the future. Educators, policy makers and funders hold responsibility here.</td>
</tr>
<tr>
<td>Build into community an understanding we are all connected to each other and our shared one-water system and adopt said understanding as core philosophy extending to all mantras, expressions, convenings.</td>
<td></td>
</tr>
<tr>
<td>Industry &amp; Businesses</td>
<td>Industry and business understand and make decisions that value ocean health.</td>
</tr>
<tr>
<td></td>
<td>Industry and business understand consumers value a healthy ocean, and engage in and publicise their ‘blue’ behaviour in the same way they do as green.</td>
</tr>
<tr>
<td></td>
<td>Industry and business engage their consume base in ocean positive action/campaigns etc</td>
</tr>
<tr>
<td></td>
<td>Industry leaders realise the financial impact of overexploitation of marine resources and other human impacts on ocean health.</td>
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<tr>
<td></td>
<td>Encourage shareholders to take collective action against businesses abusing the ocean.</td>
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<tr>
<td></td>
<td>Adopt a new and different definition of success, moving away from short-term profit focus at all costs including exploitation and destruction toward a long-term plan involving less exploitation and sustainable development.</td>
</tr>
<tr>
<td>Scientific framework to understand what ‘good ocean action’ looks like from business/industry perspective.</td>
<td></td>
</tr>
<tr>
<td>Identify and engage with leaders whose businesses use / abuse the ocean.</td>
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</tr>
<tr>
<td>The government to regulate for the people, not against the people, by ensuring industries and businesses do not benefit from activities or lack thereof that harm our ocean, waterways and climate and the humanitarian issues that arise therefrom. Gov’t should provide incentive to protect and operate truly sustainably.</td>
<td></td>
</tr>
<tr>
<td>Non Government Organisations</td>
<td>There is a growing number of ocean focused, not for profit knowledge / conservation / education institutions outside universities and research institutes. These are not constrained by academia and have more flexibility in research and impact.</td>
</tr>
<tr>
<td>We need to decrease competition for limited resources and call for greater collaboration. NGOS in the ocean space need to communicate with each other more effectively, determine areas of expertise and share. This will enable greater reach and impact.</td>
<td></td>
</tr>
<tr>
<td>Children/Youth/Next Gen Decision Makers</td>
<td>All NGOs operating in the marine space work together, pool resources and expertise for collective impact, and wide and broad reach.</td>
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<tr>
<td><strong>Children/Youth/Next Gen Decision Makers</strong></td>
<td>● Understand: (1) that all water is connected on Earth, (2) the world’s water problems they are inheriting, (3) how the world’s water challenges affect climate, food growing, and humans, (4) that there are solutions and that they can connect in purpose and effectively collaborate in solving the issues they are inheriting.</td>
</tr>
<tr>
<td></td>
<td>● Needs: inclusion, investment in all forms, active listening, and actual care. They are consistently left out of the equation all together, always have been, and we have watched for decades and centuries priorities be monetary success oriented and ignorance in the importance of caring for our environment by leaders. If those leaders had learned early on how to be empathetic and informed leaders, were connected to nature in their learning, and their passion as youth being in and with their natural environment prioritized, then we would likely see more leaders today acting for the protection of our natural environment, not actively against it nor seeking individual wealth to extent leaders do today. To not listen to youth and exclude them is demoralizing, and eventually they may give up in trying to achieve something different and better.</td>
</tr>
</tbody>
</table>
Appendix C: Relevant research across diverse fields of study


Appendix D: Peer Workshops - Socializing Challenge 10

A total of 13 'peer workshops' were held that included over 600 individuals as outlined by table below.

<table>
<thead>
<tr>
<th>WG Memb er</th>
<th>Date</th>
<th>Conference / Event / Network / Community</th>
<th>Location</th>
<th># of Participants</th>
<th>Description of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG, NB</td>
<td>Oct 31</td>
<td>IOC-UNESCO Ocean Literacy Group of Experts</td>
<td>Virtual</td>
<td>20</td>
<td>Group is composed of 20 experts from diverse and relevant disciplines and interested parties reflecting the multi-stakeholder nature of ocean literacy</td>
</tr>
<tr>
<td>DG, NB</td>
<td>Oct 31</td>
<td>Ocean Literacy With All (Decade programme)</td>
<td>Virtual</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>DG, J</td>
<td>Nov 2</td>
<td>Vision 2030 Public Webinar (hosted by DCU)</td>
<td>Virtual</td>
<td>470</td>
<td></td>
</tr>
<tr>
<td>CW, DG</td>
<td>Nov 15</td>
<td>Ocean Decade Strategic Communications Group</td>
<td>Virtual</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>Nov 16</td>
<td>Ocean Conservation Trust Engagement team</td>
<td>Virtual</td>
<td>10</td>
<td>Ocean literacy practitioners</td>
</tr>
<tr>
<td>JM</td>
<td>Nov 22</td>
<td>South African and East African Ocean Literacy practitioners</td>
<td>Virtual</td>
<td>16</td>
<td>Presentation for people interested in South and East Africa</td>
</tr>
<tr>
<td>DG, NB</td>
<td>Nov 22-24</td>
<td>Decade endorsed activities associated with OLWA</td>
<td>Virtual</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>Nov 24</td>
<td>EMSEA Advisory Board</td>
<td>Virtual</td>
<td>10</td>
<td>OL experts delivering OL initiatives across Europe</td>
</tr>
<tr>
<td>RK</td>
<td>Nov 27</td>
<td>UN Decade ECOP ocean literacy task team</td>
<td>Virtual</td>
<td></td>
<td>UN Decade ECOPs = defined as early-career professionals working in ocean related fields. Several task teams focused on different Decade challenges. We connected with the Ocean Literacy task team.</td>
</tr>
<tr>
<td>NB</td>
<td>Nov 29</td>
<td>Protect Blue</td>
<td>Virtual</td>
<td>15</td>
<td>Ocean activists/ advocates/ B-corps</td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Event Details</td>
<td></td>
<td></td>
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<tr>
<td>Nov 30</td>
<td>Northeast Pacific Ocean Region - Ocean Literacy Community</td>
<td>Virtual 10 + 3 staff 30-35 participants invited; 11 confirmed attendees and 4-5 tentative (so far); ENGAGEMENT SESSION HELD with 10 participants in attendance;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec 5</td>
<td>COP28 OceanX Ocean Decade - Session on Ocean Comms/OL</td>
<td>In-person</td>
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<td></td>
</tr>
<tr>
<td>Monthly</td>
<td>U.S. Youth Advisory Council for UNOD + H2OO's Global Youth Leaders</td>
<td>Virtual 9 U.S. YAC for UNOD is made up of 53 youth from around the U.S. and Territories (including Tinian Island in CNMI/Micronesia) including youth on the frontlines and traditionally marginalized; H2OO's GYL is a global council (U.S., Uganda, Brazil, Marshall Islands, Germany...);</td>
<td></td>
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</tbody>
</table>

Collated feedback from Peer Workshops:

Along with notes taken by workshop leads, additional input was gathered via an online form and analysed by the Working Group. Results were as follows:

**Number of responses:** 37

**Location of responders:** 18 countries - Bangladesh, Cote D'Ivoire, Canada, China, France, Germany, Ghana, India, Ireland, Italy, Jersey (UK), Philippines, Portugal, Spain, Taiwan, Uganda, UK, US
Synthesis of Q1 – Q6 responses:

Q1) Is the strategic ambition clear and does it reflect where we want to be in 2030 specific to Challenge 10? (N34)

- Majority response = YES
- Only one person felt that it simply wasn’t clear

Other feedback included:

- Need more participatory language
- Difficult to measure/not specific enough
- Addition of other elements including education/values/culture

Q2) Do you agree with the 4 drivers* of pro-ocean behaviour that we have outlined (Knowledge Systems, Education, Communication, Cultural Connections)? If yes, how do you see

- Most respondents agreed with the drivers and could see how they interconnected.
Q3) Keeping the strategic ambition and drivers in mind: a) what is one key priority action that needs to happen, and is achievable, between now and 2030? (N36)

- Blue curriculum
- Reduction of greenhouse gases
- Reduction of plastic in ocean
- Ocean literacy handbook
- Elevate marginalised voices
- Educate activists
- Accessible education and resources
- Certified ocean literacy programme/global OL programme,
- Encourage people to feel that they are ocean stakeholders
- Crackdown on sewerage
- Direct engagement with local grassroots collectives
- Better links between science and science communication
- Blue champions in communities given tools
- System mapping of drivers
- Bring the ocean story to more people

Q4) What resources, tools, infrastructure or conditions are needed to ensure this priority action is achieved? (N35)

- Political support
- Blue curricular/education
● Training for stakeholders
● Financial resources
● Partnerships and collaboration
● Extend conferences etc to marginalised voices
● A team of informed researchers
● Monitoring of the 4 drivers
● Social media
● Public opinion data
● Comms toolkits
● Indigenous partners

Q5) How can this priority action be measured? Or, what indicator(s) will help measure progress on this action between now and 2030? (N34)

● The curriculum itself, the mentions to OL, number of students engaged, number of countries with BC implemented
● Reduced emissions, share of renewable energy, etc.
● Reduced plastic catch
● More MPAs
● Number of downloads of resources
● More diverse partnerships
● Landlocked communities engaged with the ocean
● Ocean health will indicate results
● Public perceptions surveys
● More people engaged with the ocean
● Collaborative/transdisciplinary conferences
Q6) Are you aware of any resources, tools and/or research initiatives that are focused on ocean-human relationship(s) and behaviour change that can help support this work? (N31)

- Blue Mind Project
- Ocean and Human Health Initiative - NIEHS
- National Academic Press
- Behaviour change models e.g. COM-B
- Heirs to Our Oceans
- Human health researchers – Institute for Systems Biology, Fred Hutchinson Centre for Cancer Research
- National Marine Aquarium, UK
- Ocean Conservation Trust
- Surfers Against Sewage
- COLC
- Blue Schools
- WAVES Framework
- Bluekelp.info
- DFO’s Stream to Sea

Q7) How can the Challenge 10 white paper be widely communicated and operationalized in meaningful ways following the Barcelona conference? (N29)

- Inform partner organisations
- Social media
- Email lists
- Websites
- Follow up surveys, newsletters
- Interactive workshops
- UNESCO channels
- Conferences
- Make it applicable to all/lay-mans language
- Publications
- Massive online campaign
Appendix E: Milestones provided by the DCU

Milestone 1: Enhanced Ocean Data Accessibility and Availability
Milestone 2: Advancement in Ocean Knowledge Sharing
Milestone 3: Building Capacity for Ocean Decade Challenges
Milestone 4: Sustainable Policy and Governance Implementation
Milestone 5: Inclusive Stakeholder Engagement
Milestone 6: Societal and Environmental Impact
Milestone 7: Increased Funding for Decade Actions
Milestone 8: Diverse and Inclusive Decade Actions
Milestone 9. Advancement in Ocean Technology and Innovation
Milestone 10: Enhanced Utilization of Ocean Science and Knowledge
References


Shellock et al., in prep [forthcoming]

Appendix A: List of Challenge 10 co-chairs, working group members, and supporting experts

Challenge 10 Co-chairs
Nicola Bridge - UK - Head of Ocean Advocacy and Engagement, Ocean Conservation Trust
Diz Glithero - Canada - Director, Canadian Ocean Literacy Coalition

Working Group Members
Paul Anderson - UK - Dean, School of Design, Royal College of Art
Achare Aymaba* - Cameroon - Director, Environment and Food Foundation
Easkey Britton - Ireland - author, social ecologist, surfer
Guadalupe Díaz Costanzo - Argentina - Director, Cultural Science Centre
Natalie Hart - UK - Strategy Unit Director, Communications Inc
Louisa Hooper - UK - Director, Calouste Gulbenkian Foundation
Rachel Kelly* - Australia, Professor, Tasmania University
Judy Mann-Lang - South Africa, Executive Strategic Projects, Two Oceans Aquarium
Olga Mashkina - France - Coordinator, EU4Ocean
Romney McPhee - Science Coordinator, Decade Collaborative Center for the Northeast Pacific
Ken Paul - Canada/Wolastoqey Nation - Ocean Governance, Fisheries, Indigenous Knowledge Systems Expert
April Peebler - USA - Director, Heirs To Our Oceans
Sebastian Thomas - Australia - Director, Blue Praxis
Alexander Turra - Brazil - Professor, Oceanographic Institute University São Paulo
Carlie Wiener - USA, Director of Communications & Engagement, Schmidt Ocean Institute
Ray Yen - Taiwan - Director, Marine Planning and Training Center, National Academy of Marine Research

**Supporting Experts (who directly contributed to the White Paper)**

Meghan Callon - Canada, Communications Lead, Canadian Ocean Literacy Coalition

Fiona Curtin - UK, Senior Writer, Communications Inc

Jen McRuer - Canada, Research Lead, Canadian Ocean Literacy Coalition
United Nations Decade of Ocean Science for Sustainable Development (2021-2030)

Proclaimed in 2017 by the United Nations General Assembly, the UN Decade of Ocean Science for Sustainable Development (2021-2030), provides a convening framework to develop the scientific knowledge and partnerships needed to catalyse transformative ocean science solutions for sustainable development, connecting people and our ocean. The Ocean Decade is coordinated by UNESCO’s Intergovernmental Oceanographic Commission (IOC).

Established during the Preparatory Phase and to continue throughout implementation until 2030, the IOC’s Ocean Decade Series will provide key documentation about this global initiative and aims to serve as a primary resource for stakeholders seeking to consult, monitor and assess progress towards the vision and mission of the Ocean Decade.

https://oceandecade.org/