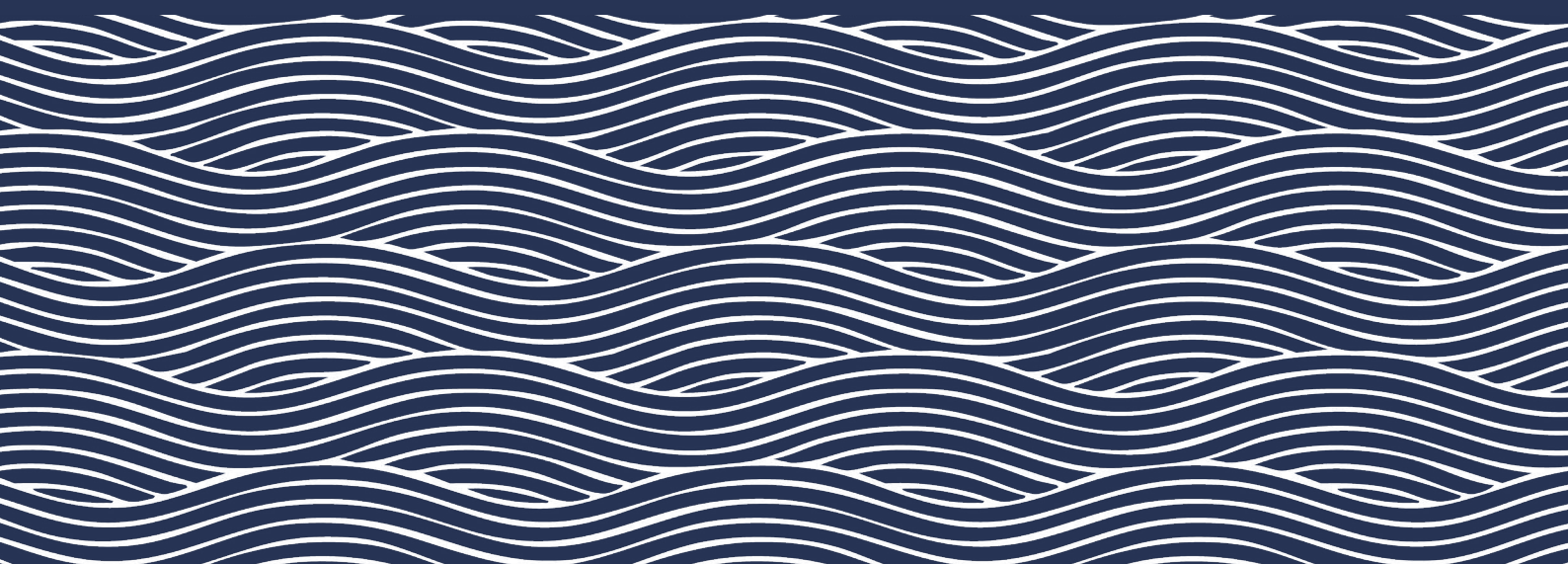
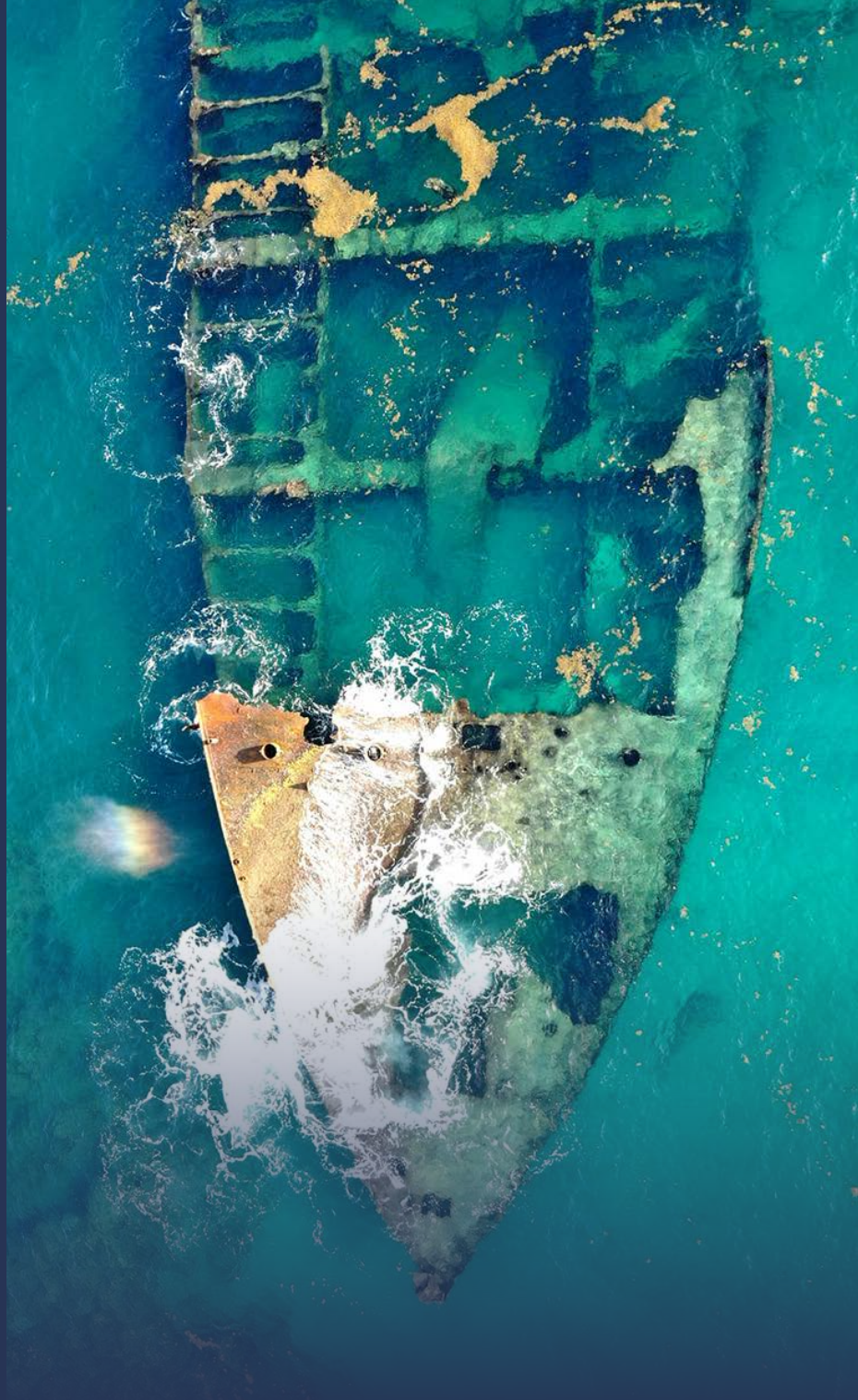


Heritage in the UN Decade of Ocean Science for Sustainable Development (2021–2030) and Beyond

CULTURAL HERITAGE
FRAMEWORK PROGRAMME
BLUE PAPER 1



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Summary

This Blue Paper outlines the need to embed Ocean Heritage into ocean science, sustainable development, and marine conservation to meet the goals of the UN Decade of Ocean Science for Sustainable Development (2021–2030) and beyond. Ocean Heritage—spanning tangible sites, such as shipwrecks or submerged harbours, and intangible connections such as traditional practices and knowledge systems—remains underrepresented in ocean governance. Yet it offers critical insights for more effective policy and research. Its inclusion is essential to ensuring science is informed by human–ocean relationships and responsive to the needs of communities.

Led by the Cultural Heritage Framework Programme (CHFP), the Ocean Decade's only programme focused on Ocean Heritage, this paper demonstrates how heritage supports all 10 Ocean Decade Challenges. Ocean Heritage strengthens climate adaptation, improves spatial planning, and supports equitable governance by grounding decisions in historical context and lived experience. The paper draws on more than 20 CHFP-endorsed initiatives, offering clear case studies and actionable recommendations for policy alignment, institutional support, and multidisciplinary collaboration.

As the Ocean Decade reaches its midpoint, the paper offers a path forward: one where science draws on the full range of human–ocean relationships to guide sustainable, equitable action. Ocean Heritage is not a symbolic gesture—it is a fundamental human right. Rather than treating culture as an add-on to marine conservation, this paper calls for its broad integration into ocean science and decision-making.

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Diver over the walls of the submerged Bronze Age town at Pavlopetri, Greece.

Ocean Heritage,

also known as Marine Cultural Heritage, refers to the broad spectrum of tangible and intangible cultural expressions and practices that reflect human interaction with the sea across time.

As articulated by Henderson (2019, p. 4), Ocean Heritage encompasses “all past human action on the coasts as well as directly on the sea,” and must be understood as encompassing both physical and conceptual dimensions of marine space.

This includes archaeological remains such as shipwrecks, submerged settlements, ports, and harbours, as well as intangible aspects such as maritime traditions, oral histories, languages, cultural beliefs, and traditional ecological knowledge.

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Introduction

1.1 Context and Purpose

With the UN Decade of Ocean Science for Sustainable Development (2021–2030) (hereby the Ocean Decade) well underway, this report will demonstrate how Ocean Heritage is an essential pillar for achieving the Ocean Decade goals, preserving the oceans for future generations, and advancing ocean science in a manner that is more ethical, inclusive, and holistic. This document is a call to action for stakeholders—in particular scientists, policymakers, and heritage professionals—to more explicitly integrate cultural heritage into ocean science and policy.

Historically, ocean science has prioritised the study of physical, chemical, and biological processes within marine systems, often to the exclusion of the human dimensions that have shaped and, in turn, been shaped by these environments. This disciplinary narrowness has contributed to a prevailing separation between nature and culture in marine governance, obscuring the longstanding and dynamic relationships between people, and more crucially, coastal communities, and the sea. As a result, Ocean Heritage—defined broadly to include tangible sites, such as shipwrecks or submerged ports and harbours, and intangible connections such as practices and traditional knowledge systems—has been largely absent from mainstream marine scientific discourse and policy frameworks.

The Cultural Heritage Framework Programme (CHFP), endorsed by the Ocean Decade, is the only programme dedicated exclusively to integrating cultural heritage within the Ocean Decade. As part of the Ocean Decade Heritage Network (ODHN), CHFP brings together maritime heritage professionals, ocean scientists, policymakers, and communities to integrate cultural heritage into the design and delivery of ocean science (Henderson et al., 2021; Trakadas, 2022). By fostering collaboration

across disciplines and sectors, the programme supports co-designed research, knowledge exchange, and public engagement, ensuring that diverse historical and cultural perspectives inform efforts to achieve a safer, more sustainable, and inclusive ocean future. Through activities such as capacity building, co-design workshops, digital resource platforms, and stakeholder engagement, CHFP strengthens ocean literacy, supports diverse representation, and advances inclusive policy. As a formal Decade Action, it plays a critical role in aligning heritage with global sustainability goals, especially in addressing ocean-related risks and amplifying public engagement with marine issues.

This paper, brought together by CHFP and evidenced through its affiliated Ocean Decade-endorsed actions, offers a call for the increased integration of cultural heritage in the Ocean Decade. Through practical examples and current initiatives, we highlight how this integration benefits heritage conservation, strengthens ocean science, and uplifts ocean communities. We also examine why cultural heritage has been overlooked historically, the structural barriers that have prevented its inclusion, and how the Ocean Decade provides a timely and necessary platform for embedding heritage more centrally in ocean governance and science today.

1.2 The Issue: The Ocean Decade’s Cultural Heritage Gap

The persistent divide between the natural and social sciences has reinforced a disciplinary split—one that separates nature from culture in marine governance and overlooks the complex, intertwined nature of human–ocean relationships. This divide is especially apparent in marine conservation, where efforts to protect ecosystems have often failed to account for human presence,



Diver collecting sponge samples from HMS Nasturtium, off the coast of Malta, for the CHFP-affiliated, Ocean Decade-endorsed WreckLife project.

practices, and environmental values. Such an approach must be recognised as ecologically flawed and socially unjust, particularly as marine environments across the globe bear the legacies of millennia of human interaction (Bennett & Dearden, 2014; Di Cintio et al., 2023; Senghor et al., 2023). This has been exemplified in a recent study, in which one-third of Marine Protected Areas (MPAs) globally were found to negatively affect coastal community well-being (Ban et al., 2019).

The marginalisation of these human–ocean relationships is not only a disciplinary oversight but a systemic issue with ethical implications. Excluding heritage and traditional ecological knowledge from marine policy undermines both environmental sustainability and human rights.

As recognised by the UN Special Rapporteur on Human Rights and the Environment, access to a clean, healthy, and sustainable environment is a universal human right (OHCHR, 2019–25)—a right that includes meaningful engagement with, and participation in, the stewardship of one’s ecological and cultural landscape. Equally, access to cultural heritage is considered a human right, as recognised in international instruments such as the Universal Declaration of Human Rights (Article 27) and reinforced by UNESCO’s emphasis on the right of all people to participate in cultural life and to enjoy the benefits of their cultural heritage (UNESCO, 2001).

Recently, there has been a shift within heritage and environmental studies challenging the rigid

separation between nature and culture. Scholars and practitioners are calling for approaches that foreground plurality and recognise that cultural heritage is not singular or static but multivocal and dynamic—ranging from built heritage preservation, to tangible practices like fishing and boat-building to intangible ways of knowing, narrating, and understanding the sea—and are integrating this into international ocean policy, practice, and governance (Trakadas et al., 2019; Breen et al., 2021; Henderson et al., 2021; Holly et al., 2022).

Ultimately, CHFP argues that a sustainable and equitable ocean future requires reimagining marine conservation, governance, and policy as fundamentally socio-ecological. We must resist the impulse to manage ecosystems in isolation from the people who inhabit them and instead centre the deep interdependencies that have always defined human-ocean relations. Heritage, in all its forms, is not an add-on to marine conservation—it is foundational to it. To showcase this point, this paper demonstrates how heritage, in both its tangible and intangible forms, intersects with and enriches each of the Ocean Decade’s 10 Challenges. By exploring these intersections, it aims to highlight the foundational role that heritage can play in advancing inclusive, effective, and place-based approaches to ocean sustainability.

From traditional ecological knowledge systems, Indigenous marine tenure practices, and seasonal fishing calendars that inform climate adaptation and local environmental monitoring (Challenge 5: Ocean-based solutions to climate change), to community-based management of sacred coastal sites or fishing grounds that embody centuries of reciprocal stewardship and foster ecological resilience (Challenge 2: Protect and restore ecosystems and biodiversity), to oral histories, maritime languages, and customary laws that support inclusive governance and protect rights to participation in marine decision-making (Challenge 9: Sustainable ocean economy), cultural heritage offers critical frameworks, historical depth, and place-based wisdom essential to achieving more

holistic and context-sensitive approaches to marine sustainability.

Simultaneously, tangible forms of Ocean Heritage—from shipwrecks, submerged settlements, historic ports, and ancient harbours that reveal cross-cultural maritime connectivity, technological innovation, and long-term resource use (Challenge 9: Sustainable ocean economy), to reef wrecks that serve both as heritage artefacts and as artificial reefs supporting marine biodiversity (Challenge 2: Protect and restore ecosystems and biodiversity), to coastal archaeological landscapes that offer insights into past ocean–climate interactions and inform adaptive strategies for a changing climate (Challenge 5: Ocean-based solutions to climate change), tangible forms of Ocean Heritage provide material anchors for identity, memory, and belonging. These sites represent deeply entangled socio-ecological systems, where ecological and cultural values are inseparable—offering powerful, place-based contributions to more inclusive and informed marine governance.

It is in Challenge 10, however, that the role of cultural heritage becomes most explicitly aligned. The call to transform humanity’s relationship with the ocean cannot be realised through technological innovation or ecological restoration alone. It necessitates a cultural and epistemological shift—one that foregrounds the relational, historical, and affective dimensions of ocean engagement. Examples such as those above are detailed within **Section 4** of this paper, with links and references to those working in these fields, for interested parties.

Considering these contributions, cultural heritage does not simply support the Ocean Decade’s ambitions; it redefines the means through which they can be achieved, offering an ethical, historically grounded, and socially embedded lens through which to pursue ocean sustainability. Recognising cultural heritage as a foundational element—not an auxiliary concern—enables a more inclusive, pluralistic, and just ocean science agenda.

As the Ocean Decade approaches its midpoint, the need for integrated and inclusive approaches has become ever more urgent. This document therefore serves both as a reflection on the current state of heritage within ocean science and as a forward-looking strategy for embedding cultural heritage more fully within the institutions, frameworks, and knowledge systems that will shape the ocean beyond 2030. It advocates for increased recognition, resourcing, and institutional support for cultural heritage, alongside the development of interdisciplinary education, policy innovation, and participatory governance models.

1.3 An Extended Definition of Cultural Heritage for the Ocean Sciences

The foundational premise of Ocean Heritage lies in the recognition that human societies have been shaped by, and in turn have shaped, the marine environment over millennia. Yet, this deep relationship between people and the sea has often been marginalised in historical narratives, scientific research, and policy frameworks. One major barrier has been the persistent conceptual division between land and sea in academia, governance, and law. This has led to a situation in which terrestrial heritage dominates heritage discourse, while marine heritage is treated as

Artisanal fisherwomen in Catalonia, Spain, working on behalf of the CHFP-affiliated, Ocean Decade-endorsed NaturCap project.





Corals growing on the T. Sierra Wreck off the coast of Sri Lanka. Photographed for the CHFP-affiliated, Ocean Decade-endorsed Shipwrecks as Artificial Reef Structures project.

secondary or exotic (Henderson, 2019, pp. 2–3). As a result, marine archaeology has frequently been excluded from broader archaeological and heritage discussions, limiting its capacity to contribute to sustainability science and ocean governance.

In the paper, ‘Oceans without History? Marine cultural heritage and the sustainable development agenda’, Henderson argues for a shift in perspective, proposing a more inclusive and expansive view of marine heritage that links land and sea through the concept of “maritime cultural landscapes”. These landscapes, as originally defined by Westerdahl (1992), encompass the full range of human use of maritime space—from navigation and fishing to spiritual practices and coastal settlement (Henderson, 2019, p. 3).

The adoption of such a framework enables scholars and policymakers to understand the sea not as a boundary but as a connective space—a site of encounter, innovation, and cultural evolution.

Crucially, Ocean Heritage is even more expansive as it is not restricted to the archaeological past. It includes ongoing cultural practices and knowledge systems that continue to shape coastal and marine life today. Traditional fishing techniques, boat-building skills, the knowledge and veneration of sacred sites and seafaring routes all form part of a living heritage that is under threat from climate change, industrial development, and globalisation. The inclusion of this knowledge in sustainable development planning is essential.

Moreover, Ocean Heritage should be seen not merely as a cultural asset to be preserved, but as a “usable knowledge base” that can inform responses to contemporary global challenges, particularly those related to sustainable development, coastal resilience, and the blue economy (Henderson, 2019, pp. 1, 6). Integrating Ocean Heritage into marine policy is not only essential for ethical, inclusive, and effective governance; it also ensures that the deep historical and cultural connections between people and the sea are recognised as vital to shaping just and sustainable ocean futures (Trakadas, 2022, 2024).



Representation of a traditional dhow, Mozambique Island.

Traditional fishing boats in Vietnam.



2. Ocean Heritage Across the Ocean Decade Challenges

Ocean Heritage is a critical yet under-recognised dimension of ocean sustainability. As both a conceptual framework and a lived, place-based practice, Ocean Heritage offers an integrative approach that bridges nature and culture, past and present, science and stewardship. It supports sustainability, strengthens ocean science, empowers communities, and upholds fundamental human rights. Far from being a passive legacy of the past, Ocean Heritage is a dynamic and adaptive

resource central to addressing the challenges of marine governance in the 21st century. The following section details its relevance across all ten of the Ocean Decade Challenges and the associated alignment with a growing body of international legal, scientific, and policy frameworks. To do so, this section has been organised into the themes of Ocean Heritage as: (1) a pillar of sustainability; (2) a source of knowledge for ocean science (3) equitable ocean governance; (4) ocean literacy; (5) a human right.

A traditional balangay boat and a tree, off the coast of the Calamian Islands, Philippines. Photographed by the team behind the CHFP-affiliated, Ocean Decade-endorsed project, Replicating a Successful Model to Develop a Network of Indigenous Marine Managed Areas in the Philippines.



2.1 Ocean Heritage as a Pillar of Sustainability

Ocean Heritage provides a critical entry point into marine sustainability frameworks that recognise the interdependence of ecological and cultural systems. Across many coastal and Indigenous societies, traditional practices such as seasonal harvesting, customary marine tenure, and sacred seascapes have sustained marine biodiversity for generations. These place-based systems of stewardship align closely with Ocean Decade Challenge 2 (Protect and restore ecosystems and biodiversity) and Challenge 5 (Ocean-based solutions to climate change), contributing time-tested strategies for ecosystem protection and climate adaptation.

This convergence is reflected in global biodiversity governance. The 1993 Convention on Biological Diversity (CBD) recognises in Article 8(j) the importance of Indigenous and local knowledge in biodiversity conservation. The 2022 Kunming–Montreal Global Biodiversity Framework (GBF) expands on this through Target 22, which promotes inclusive, rights-based participation, and Target 3, which supports Indigenous and community-conserved areas (ICCAs). Similarly, the UNESCO World Heritage Convention (1972) calls for the integrated protection of cultural and natural values, while UNESCO's broader biodiversity commitments advocate for safeguarding both tangible and intangible heritage. These frameworks also support Challenge 3 (Sustainable blue food), Challenge 4 (Ocean economy), and Challenge 6 (Coastal resilience), all of which depend on the relationship between human and ecological systems.

Heritage also plays a crucial role in informing the design and legitimacy of MPAs and other spatial planning tools. When MPAs incorporate culturally significant sites, traditional governance regimes, and Indigenous stewardship systems, they are more likely to foster trust, compliance, and effectiveness (Breen et al., 2021; Mast et al., 2025). CHFP-affiliated, Ocean Decade-endorsed projects

spanning from Yawuru Saltwater Country, Australia (Yagarrajalajalan Nagula Buru) to the Calamian Islands, Philippines (*Replicating a Successful Model to Develop a Network of Indigenous Marine Managed Areas in the Philippines*) are integrating heritage into inclusive marine management strategies to enhance their equity and effectiveness (Henderson et al., 2025).

This aligns with the global movement to recognise and support territories and areas conserved by Indigenous Peoples and local communities as essential to biodiversity protection and social equity.

2.2 Ocean Heritage as a Source of Knowledge for Ocean Science

Ocean Heritage also plays a transformative role in reimagining the foundations of ocean science. Historically, dominant marine science frameworks have overlooked the contributions of Indigenous, local, and historically marginalised knowledge systems. Yet heritage-informed disciplines such as historical ecology, ethno-oceanography, and maritime archaeology studies demonstrate that maritime traditions, shipwrecks, navigational knowledge, oral histories, and marine cosmologies provide valuable insight into environmental change, species interactions, and long-term adaptation. These contributions can provide data to inform Ocean Decade Challenge 7 (Expanding the global ocean observing system) and Challenge 8 (Digital representation of the ocean).

This expansion of ocean knowledge is reinforced in international policy frameworks. The CBD and the UNESCO Local and Indigenous Knowledge Systems (LINKS) Programme support the inclusion of traditional knowledge in environmental monitoring. The 2015 Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC) have similarly recognised the value of Indigenous knowledge for climate resilience. The 2021 UNESCO-IPCC-ICOMOS meeting further highlighted the need to incorporate cultural baselines into climate science, enhancing both its historical depth and social legitimacy.

The 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) affirms that Indigenous Peoples have the right to maintain and control their knowledge systems, creating a foundation for ethical and equitable knowledge production. Ocean Heritage is thus not merely a repository of historical memory, but a living epistemological system that enhances the legitimacy, relevance, and robustness of marine science. This aligns with the Ocean Decade's knowledge-action framework and supports more inclusive forms of scientific governance.

2.3 Ocean Heritage and Equitable Ocean Governance

Ocean Heritage can contribute to more just and inclusive ocean governance. It serves as a vehicle for community empowerment by affirming local knowledge, legitimising diverse ocean relationships, and fostering long-term stewardship. This is particularly vital for Ocean Decade Challenge 9 (Equity and inclusion), which calls for fair access to ocean knowledge and benefits.

Globally, marginalised coastal and Indigenous communities continue to be excluded from marine policy processes despite their deep ecological knowledge and cultural ties to the sea. Heritage-based governance approaches—including recognition of customary laws, sacred sites, and oral governance systems—can address these asymmetries by embedding communities as co-creators of policy and conservation strategies.

These principles are increasingly reflected in legal frameworks such as the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement (2023), adopted under the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which aims to regulate biodiversity in Areas Beyond National Jurisdiction. While cultural heritage is not yet fully integrated into BBNJ, it holds clear potential to strengthen its implementation. Heritage can inform impact assessments, identify culturally significant seascapes, and link high seas governance to migratory or diasporic ocean cultures. These

contributions are vital to ensuring equitable outcomes and building international trust in marine governance.

2.4 Ocean Heritage and Ocean Literacy: Transforming Humanity's Relationship with the Ocean

Ocean Heritage is especially relevant to Ocean Decade Challenge 10 (Restoring humanity's relationship with the ocean), which calls for a fundamental transformation in how societies understand, value, and engage with marine environments. Ocean Heritage—as memory, identity, and relational practice—is central to this cultural shift.

Ocean literacy, as promoted by the IOC, is key to supporting Challenge 10. Defined as the understanding of the ocean's influence on people and people's influence on the ocean, ocean literacy enables individuals and communities to make informed decisions and engage responsibly with marine systems. Integrating Ocean Heritage into ocean literacy efforts enriches this concept by grounding scientific knowledge in cultural context, affective connection, and historical consciousness.

This integrative vision is already advancing through initiatives such as the EU4Ocean Coalition, which promotes culturally inclusive and community-led ocean literacy across Europe in collaboration with IOC-UNESCO. Similarly, the Venice Declaration for Ocean Literacy in Action (2024) recognises the need for inclusive, interdisciplinary, and participatory approaches to ocean education. These initiatives affirm that cultural diversity and heritage are not supplementary to ocean literacy but central to it, enabling more meaningful and transformative engagement with marine issues.

By linking heritage with education, storytelling, and collective memory, ocean literacy becomes a tool not only for public understanding, but also for intergenerational justice and planetary care. Heritage-informed ocean literacy, illustrated in examples including CHFP-affiliated, Ocean



CHFP's magazine, *SeaVoice*, promotes heritage-informed ocean literacy.

Decade-endorsed *Women, Heritage & Navigation in the Pacific* and *SeaVoice*, allow societies to reconnect with the ocean as a cultural and ethical space—an approach that is indispensable for achieving the long-term goals of the Ocean Decade (Henderson et al., 2025).

2.5 Ocean Heritage as a Human Right

Perhaps most critically, heritage must be recognised as a fundamental human right. Cultural access to the ocean is central to the right to participate in cultural life, as enshrined in Article 27 of the Universal Declaration of Human Rights, and reaffirmed by the UN Human Rights Council's 2021 resolution on the right to a clean, healthy,

and sustainable environment. Heritage is also protected through the 2001 Universal Declaration on Cultural Diversity, the 2003 Convention for the Safeguarding of Intangible Cultural Heritage, the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage, and the 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions. Protecting Ocean Heritage as a human right is directly relevant to Ocean Decade Challenge 1 (Understand and beat marine pollution) and Challenge 6 (Increase community resilience to ocean and coastal risks), particularly where environmental degradation intersects with cultural loss. As Renold and Chechi (2022) argue, the safeguarding of cultural heritage—particularly under threat

from environmental change or displacement—is inseparable from the exercise of cultural identity, memory, and continuity.

The implications are particularly urgent in the context of climate change. Rising sea levels, ecosystem collapse, and forced relocation threaten not only environmental security but also the cultural survival of ocean-dependent communities. The 1994 UN Convention to Combat Desertification (UNCCD) highlights the cultural implications of land degradation and drought—a framework that parallels the cultural loss experienced through ocean degradation. Cultural heritage, in this light, is not merely a cultural asset but a vector for climate justice.

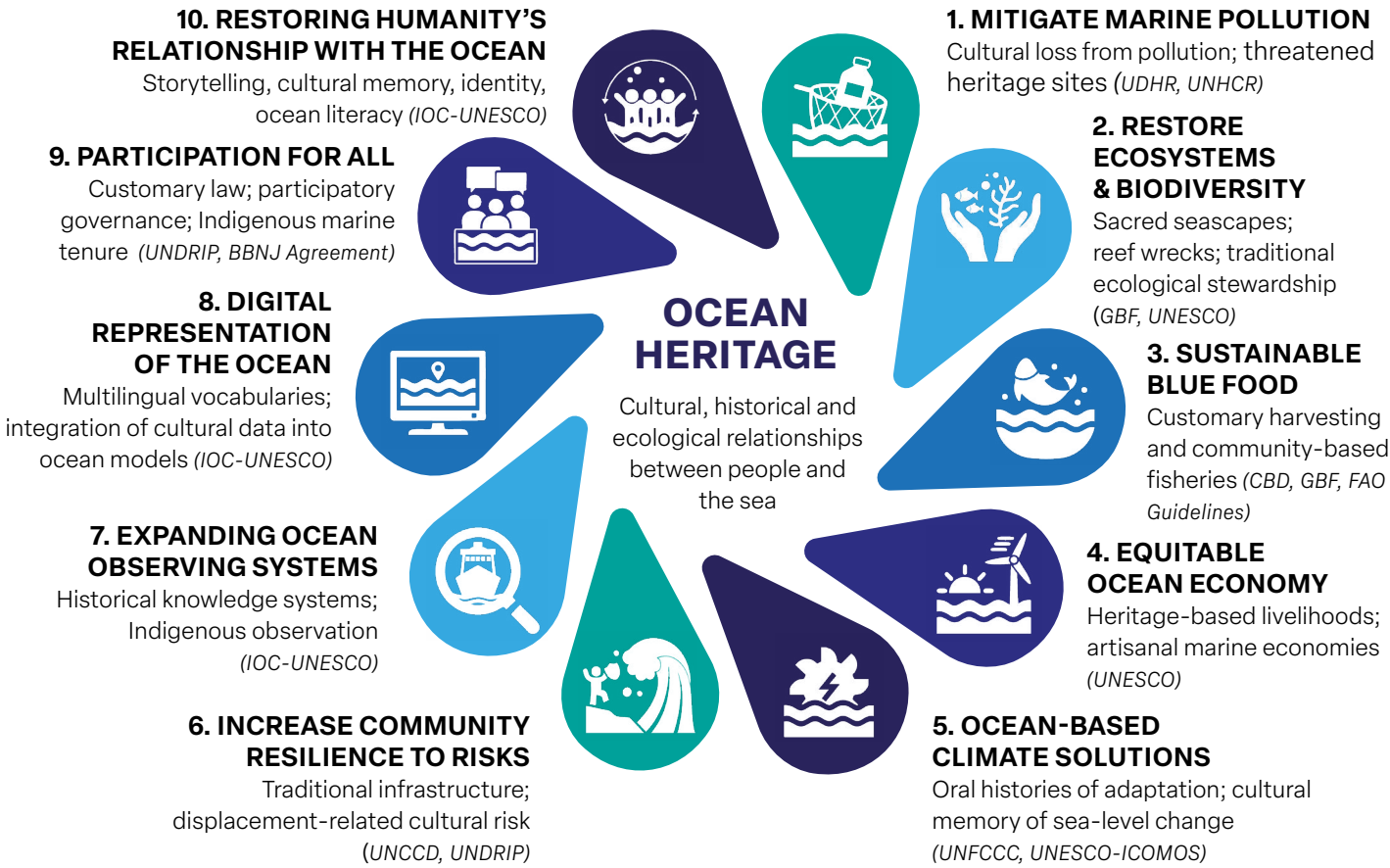
Cultural heritage, when positioned within these legal and normative frameworks, becomes a means of resisting environmental injustice. It demands recognition not only as an object of protection but as a practice, a right, and a mechanism for survival. This is reinforced by the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which affirms Indigenous communities' rights to protect and revitalise their Ocean Heritage. Recognising Ocean Heritage as a human right therefore establishes a legal and moral imperative to include it in climate, biodiversity, and marine governance strategies.

Fishers launch a traditional boat, recently made from a mango tree, in Tanga, Tanzania.



Fig 1: Ocean Heritage's Connections with the 10 Ocean Decade Challenges

The inclusion of heritage supports international governance bodies and agreements, including BBNJ, UNFCCC, and UNESCO activities.



BBNJ Agreement – Biodiversity Beyond National Jurisdiction Agreement
 CBD – Convention on Biological Diversity
 FAO Guidelines – Food and Agriculture Organization Guidelines
 GBF – Kunming-Montreal Global Biodiversity Framework
 ICOMOS – International Council on Monuments and Sites
 IOC – Intergovernmental Oceanographic Commission
 UDHR – Universal Declaration of Human Rights
 UNCCD – UN Convention to Combat Desertification
 UNDRIP – United Nations Declaration on the Rights of Indigenous Peoples
 UNFCCC – United Nations Framework Convention on Climate Change
 UNHCR – UN Refugee Agency

3. Challenges Facing Ocean Heritage

The integration of Ocean Heritage into marine governance and conservation offers transformative potential, yet it faces a multitude of global and structural challenges that threaten its preservation, visibility, and utility. These challenges are multifaceted, ranging from climate and environmental change to epistemological and institutional exclusions within ocean sciences and governance systems. While many of these threats mirror those faced by natural marine systems—such as rising sea levels, pollution, and overexploitation—cultural heritage is also subject to distinct pressures. These include lack of consideration in marine spatial planning, legal ambiguity around ownership and protection, and inadequate

representation in environmental assessments. Furthermore, heritage sites and practices rooted in marginalised or Indigenous communities are especially vulnerable due to systemic under-resourcing, limited political influence, and the prioritisation of commercial development over cultural value. To advance sustainable and inclusive ocean futures, it is essential to address these barriers and reframe Ocean Heritage as a critical driver of policy, science, and social resilience. The following section details the challenges associated with the protection of Ocean Heritage, organised as (1) global challenges; (2) challenges within the ocean sciences; and (3) challenges within the Ocean Decade.

A shipwreck surrounded by fish, documented by the CHFP-affiliated, Ocean Decade-endorsed WreckLife project.



3.1 Challenges Affecting Global Ocean Heritage

Climate Change

One of the most pressing threats to Ocean Heritage is climate change. Rising sea levels, increasingly frequent severe storms, and ocean acidification are directly impacting both tangible and intangible Ocean Heritage. Submerged archaeological sites, such as shipwrecks and coastal settlements, are being degraded or lost entirely, while climate-induced erosion and flooding compromise sacred coastal spaces and traditional livelihoods. In Indonesia, sites such as the historic Banda Islands, with centuries-old forts, shipwrecks, and colonial maritime infrastructure, are increasingly threatened by rising sea levels and coastal erosion. Similarly, in the Maldives, traditional coral stone mosques and waterfront heritage zones are at risk due to intensified tidal flooding and shoreline retreat—both consequences of the impacts from climate change.

Preserving Ocean Heritage is vital as it can help to mitigate against the effects of climate change. Traditional maritime knowledge, including sustainable fishing practices, coastal management techniques, and shipbuilding methods adapted to local environments, offer valuable models for resilience. Coastal heritage landscapes, such as mangrove forests and traditional seawalls, can act as natural barriers against storm surges and coastal erosion, reducing vulnerability to climate impacts. Preserving and revitalising Indigenous and local maritime practices can support ecosystem health and foster more adaptive, community-led approaches to conservation. For example, in the Pacific Islands, the revival of traditional wayfinding practices, such as those taught by the Polynesian Voyaging Society through the Hōkūle'a canoe expeditions, has helped to strengthen environmental stewardship and promote sustainable ocean management rooted in Indigenous knowledge (Mau et al., 2024). Here the revival of traditional navigation and reef

stewardship practices can be seen to not only strengthen cultural identity but also promote the sustainable management of fragile marine ecosystems essential for climate resilience.

Overexploitation

The intensification of industrial fishing, extractive industries, and mass tourism continues to place unprecedented pressure on coastal and marine environments. These activities often disregard cultural landscapes and traditional practices, leading to the disruption of biocultural systems. The *Rising from the Depths* project in East Africa has examined how consulting and involving local communities in development initiatives—such as coastal management, dredging, and port expansion—can help to mitigate the impact of works on local ecosystems and, in some cases, create new opportunities for sustainable livelihoods (Henderson, 2024). Away from the coast, bottom trawling and deep-sea mining, in particular, threaten both natural ecosystems and heritage, with the latter often lacking sufficient legal protection in international waters. Interdisciplinary work shows that trawling and mining can irreversibly damage submerged archaeological landscapes, while also exacerbating ecosystem fragility (Jarvis, 2023; Jarvis et al., 2023).

Ocean Heritage can play a crucial role in mitigating overexploitation by promoting more sustainable and culturally informed management of ocean resources. Traditional maritime practices, such as Indigenous fishing techniques, seasonal harvesting, and sacred marine areas, often embody principles of conservation and ecosystem balance. Revitalising these heritage practices can support community-led stewardship models that prioritise both cultural values and environmental sustainability. For instance, in Papua New Guinea, customary marine tenure systems grant local communities exclusive rights to manage and regulate access to their marine resources, fostering sustainable fishing practices rooted in kinship while helping to maintain biodiversity and reduce pressure on the local



Uzio fish traps taken for deployment near Mida Creek, Kenya. Photographed during the CHFP-affiliated, *Ocean Decade-endorsed Rising from the Depths initiative*.

marine ecosystem (Asafu-Adjaye, 2000). Similarly, in Fiji, the recognition of *qoliqoli* (customary fishing grounds) empowers iTaukei communities to oversee and enforce traditional fishing rights, integrating cultural heritage into contemporary marine resource management (Wilson, 2021). Furthermore, integrating marine cultural heritage into marine spatial planning and environmental impact assessments can help to ensure that development activities recognise and respect both ecological and cultural dimensions, offering more holistic and sustainable outcomes.

Loss of Traditional Knowledge

Globalisation, modernisation, and colonial legacies have accelerated the erosion of Indigenous and

local knowledge systems—often repositories of sustainable marine stewardship. *Rising from the Depths* initiatives such as *Protecting Marine Cultural Heritage through Biocultural Community Protocol in Kilifi County* (Kenya) and *Using Fishers' Traditional Maritime Knowledge to Improve Small-Scale Fisheries Management in Northern Madagascar*, demonstrate both the critical role traditional knowledge plays in environmental resilience and the risks posed by its loss.

In Kilifi County, Mijikenda communities—the Giriama, Rabai, and Chonyi—have created a Biocultural Community Protocol to document customary laws, rights, and marine traditions, strengthening their ability to negotiate with governments, researchers, and private companies.

Participatory mapping with elders and youth recorded vital marine heritage resources, including sacred mangroves and traditional fishing techniques, supported by tools like GIS databases and maps of women's fishing practices. In northern Madagascar, the *Using Fishers' Traditional Maritime Knowledge* project documented traditional knowledge, taboos (*fady*), and sacred marine practices in the Diana region, integrating them into local marine management plans and advancing efforts to embed Traditional Heritage Knowledge into national law. Through children's books, theatre, and community performances, the project also revitalised cultural transmission and strengthened ocean literacy among young people.

Both initiatives highlight the urgent need to value, document, and legally recognise traditional marine knowledge. Generational knowledge of fishing grounds, sacred sites, and seasonal resource management is rapidly disappearing under pressures from youth disengagement, urbanisation, poorly regulated development, climate change, and institutional neglect. Marginalising Traditional Ecological Knowledge (TEK) in favour of externally imposed solutions not only undermines sustainable practices but also fractures the social fabric of coastal communities (Henderson, 2024).

Environmental Degradation

Pollution, habitat destruction, and biodiversity loss further diminish the ecological and cultural significance of marine environments. These issues are deeply interconnected: the degradation of mangroves or coral reefs, for instance, disrupts not only ecosystem services but also spiritual practices, oral traditions, and local economies tied to these landscapes. Furthermore, emerging threats include the spread of invasive species and the increasing presence of potentially polluting wrecks (PPWs), which pose both environmental and cultural risks due to the corrosion of fuel-laden World War I and II shipwrecks and associated legal ambiguities (Brennan, 2024).

Research and Capacity Gaps

Disparities in research infrastructure, funding access, and technical capacity between regions—particularly between the Global North and South—severely restrict the development and implementation of heritage-focused ocean strategies. Many heritage-rich coastal communities lack access to international grants, and often depend on underfunded local NGOs, informal knowledge networks or short-term academic projects to document and protect marine heritage. This structural inequality not only limits local participation in international decision-making forums but also results in fragmented or incomplete documentation, leaving significant sites and practices unrecorded and unprotected. Moreover, coastal management frameworks often prioritise natural over cultural values, meaning marine cultural heritage is frequently overlooked in conservation and blue economy planning. These capacity gaps also extend to the availability of skilled personnel, training opportunities, and technical resources such as underwater survey equipment, digital mapping tools, and long-term archival support. As a result, communities are left more vulnerable to environmental threats—such as coastal erosion, sea-level rise, and resource exploitation—as well as to exclusion from marine spatial planning and climate resilience strategies (Blue & Breen, 2019). Addressing these imbalances is critical to ensuring that marine heritage protection is equitable, locally-driven, and meaningfully integrated into broader ocean governance frameworks.

3.2 Challenges Within Ocean Sciences

Fragmented Approaches

A major barrier to recognising Ocean Heritage lies in the disciplinary silos that dominate ocean sciences. Traditionally, marine science has been rooted in biophysical approaches with limited engagement with cultural or social dimensions. This fragmentation has led to planning and

policy frameworks that exclude human–ocean relationships, resulting in conservation measures that may displace communities or erase heritage values (Sumaila, 2024).

Knowledge Gaps

The lack of interdisciplinary engagement continues to create significant knowledge gaps in ocean science and conservation. Concepts such as biocultural heritage and historical ecology remain underutilised, despite their proven value in reconstructing past human-marine relationships and informing more context-sensitive governance (Poole, 2018). The persistent prioritisation of quantitative metrics over narrative, place-based, or experiential knowledge systems further

exacerbates these gaps. Additionally, efforts at interdisciplinary collaboration are frequently undermined by the divergent methodologies, terminologies, and epistemological assumptions inherent to different scientific traditions, leading to communication barriers and fragmented research outcomes (Brugnach & Ingram, 2012). Addressing these challenges requires the establishment of shared conceptual frameworks, the promotion of cross-disciplinary education, and the creation of collaborative platforms that actively foster dialogue between the natural sciences, social sciences, and humanities. Without such integration, the potential for marine heritage to inform sustainable ocean governance will remain severely limited. Moreover, recent reliance on digital platforms for

archiving intangible heritage introduces additional vulnerabilities, including ethical concerns related to intellectual property, dissemination, and access, as well as risks of data loss through technical failure, poor maintenance, or lack of long-term institutional support (Rouhani, 2023).

Policy Gaps

Institutional frameworks for ocean governance continue to neglect the cultural dimensions of sustainability. Development and conservation policies rarely include provisions for heritage, despite the fact that international legal frameworks such as UNCLOS and the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage recognise state duties to protect archaeological and historical materials found at sea. The fragmentation and under-enforcement of these regimes, particularly in Areas Beyond National Jurisdiction, leave cultural heritage vulnerable. Furthermore, many national and regional planning mechanisms lack clarity on how to incorporate intangible heritage and traditional knowledge into marine spatial planning (Martin, 2019, 2021).

3.3 Challenges Within the Ocean Decade

While many of the preceding challenges are systemic and transnational, they are also reflected—sometimes acutely—in the operational frameworks of the Ocean Decade. The Ocean Decade has articulated a vision for a more inclusive, collaborative, and actionable ocean science. However, despite growing recognition, the integration of Ocean Heritage into the Ocean Decade's core frameworks remains limited.

Although the Ocean Decade acknowledges the need for interdisciplinary approaches, significant gaps remain in the inclusion of cultural identities, values, practices, and tangible heritage. Through a series of co-creation interviews with projects CHFP has identified a variety of structural and epistemological factors affecting inclusion.

Issues within the marine sciences as discussed above, which often view cultural elements as outside the domain of scientific inquiry, result in institutions leading Ocean Decade initiatives to lack frameworks or partnerships that enable meaningful collaboration with cultural heritage professionals, Indigenous knowledge holders, or social scientists.

There are also institutional and funding barriers that restrict the visibility of cultural heritage within global marine policy processes. Heritage-based initiatives frequently operate with limited financial resources and without the same access to major ocean science platforms as natural science counterparts (Blue & Breen, 2019). This imbalance is exacerbated by a lack of integrated metrics or indicators that can capture cultural contributions within mainstream sustainability frameworks, leading to their exclusion from performance-based assessments or reporting structures (Holly, 2022).

Moreover, the Ocean Decade's reliance on quantitative outputs and technical innovation can create challenges for incorporating narrative-based, community-driven, and relational knowledge systems. These are central to many heritage practices and worldviews but are often undervalued in policy settings that favour standardisation and scalability. As such, even where cultural heritage is recognised in principle, its methodologies and priorities may not align with existing funding calls or institutional mandates.

Finally, the geographic distribution of leadership within the Ocean Decade continues to be dominated by institutions based in the Global North, resulting in an uneven global influence. Most endorsed programmes and policy initiatives are concentrated in the Global North, where institutions may neither prioritise nor fully understand the heritage concerns of communities in the Global South. This imbalance reinforces persistent asymmetries in whose knowledge, history, and values are represented in ocean governance—and in who is positioned to shape its future direction.

Photographs collected at a focus group organised by Community Waterscapes, a CHFP-affiliated, Ocean Decade-endorsed initiative in Hull, England.



4. Cultural Heritage Framework Programme Affiliated Projects

The Cultural Heritage Framework Programme stands as a pivotal initiative within Ocean Decade aiming to integrate cultural heritage into ocean science and policy. By fostering interdisciplinary collaboration, CHFP underscores the significance of cultural heritage in understanding and managing marine environments. This section outlines the key objectives of CHFP and presents case studies from its affiliated, Ocean Decade-endorsed projects, highlighting their contributions to sustainable ocean governance.

Key Objectives of CHFP

CHFP is dedicated to bridging the gap between cultural heritage and ocean science through several core objectives:

- 1. **Interdisciplinary Collaboration:** Facilitating partnerships among marine archaeologists, social scientists, heritage practitioners, marine biologists, and marine resource managers to promote holistic ocean research and management.
- 2. **Policy Integration:** Advocating for the incorporation of cultural heritage considerations into the Ocean Decade to ensure comprehensive and inclusive science, policy, and governance frameworks.
- 3. **Community Engagement:** Empowering local and indigenous communities by recognising and integrating their traditional knowledge and practices related to marine environments into the Ocean Decade.
- 4. **Capacity Building:** Sourcing resources, training, and networking opportunities to support early-career researchers and practitioners in the field of marine cultural heritage to engage with the Ocean Decade.
- 5. **Public Awareness:** Enhancing ocean literacy by disseminating information about the interconnections between cultural heritage and marine ecosystems to a broad audience.

Case Studies from the CHFP

The CHFP has supported the Ocean Decade by endorsing numerous affiliated projects that exemplify the integration of cultural heritage into ocean science. Summaries of 21 such projects are provided below, each demonstrating a unique approach and contribution to sustainable ocean management.

1 Replicating a Successful Model to Develop a Network of Indigenous Marine Managed Areas in the Philippines

Project Lead:
Reyante Ramilo and
Chris Poonian

Lead Organisation:
C3 Philippines

Endorsed Activity



The C3 Philippines Team.

This project aims to establish six Indigenous Marine Managed Areas (IMMAs) that integrate traditional ecological knowledge with marine science to improve conservation outcomes and community wellbeing. The Calamian Islands in the Philippines are home to numerous endangered marine species and the last remaining members of the Tagbanua tribe, representing rich marine and biocultural diversity. The project aims to conduct research into traditional knowledge and beliefs of the Tagbanua tribe, and how this influences their management of coastal resources. The project uses social and behavioural science research approaches to determine a pathway between traditional and scientific ecological knowledge, which can benefit the marine environment and local communities. This approach will be applied to each of the six IMMAs, and policy recommendations will be compiled for inclusion in each IMMA management plan.

As this project promotes equitable marine protection alongside promoting community-

based sustainable blue economy and ocean literacy initiatives, this project integrates cultural heritage across several Ocean Decade Challenges, particularly Challenge 2 (Protect and restore ecosystems and biodiversity), Challenge 4 (Develop a sustainable, resilient and equitable ocean economy), and Challenge 10 (Restore humanity’s relationship with the ocean).

The communities are receiving training in marine ecology and cultural heritage for sustainable development. Local Government Units and Barangay councils will be trained to co-develop marine resource management plans and create the necessary legislation and enforcement activities. The project will use social marketing techniques, such as the book ‘Diwa the Dugong’, to train fisherfolk to assist in monitoring the IMMA, and will facilitate knowledge exchanges between the IMMAs. Ultimately, the project will finalise the legal recognition of six IMMAs, strengthening the groundwork for a replicable, culturally grounded marine governance model in the Philippines.

2 GIRT (Gathering Information via Recreational and Technical) Scientific Divers

Project Lead:
Andy Viduka

Lead Organisation:
GIRT (Gathering Information via Recreational and Technical) Scientific Divers

Endorsed Project

The GIRT team collects images for photogrammetry of the SS Milo Gallipoli.



Gathering Information via Recreational and Technical (GIRT) Scientific Divers is a citizen science project that enables divers to document and monitor underwater cultural heritage sites in Australia. Through systematic data collection, the project enhances understanding of site conditions and promotes community involvement in heritage preservation.

GIRT trains recreational and technical divers to systematically document physical and natural features of submerged sites—such as historic shipwrecks and aircraft—across open seawater environments. And the name “GIRT” is a nod to the Australian national anthem—“*our home is girt by sea*”—meaning encircled or surrounded, fittingly reflecting GIRT’s mission.

GIRT’s primary goal is to support the long-term protection and management of these sites by enhancing understanding of their current condition and the environmental or human factors influencing their preservation or deterioration. The initiative empowers divers to play an active role in

public archaeology.

Participants can ‘adopt-a-wreck’ and commit to regularly monitor the site using a standardised GIRT methodology. Based on observed threats, divers assign a ‘traffic light’ rating (Green, Yellow, Orange, Red), indicating the site’s vulnerability. This rating appears on GIRT’s website and links to downloadable survey reports, all publicly accessible and permanently attributed to contributing members.

Importantly, GIRT reports can also be added to statutory databases, helping preserve observations and promoting long-term data continuity. As more participants contribute over time, this data may reveal broader environmental patterns affecting underwater heritage across local and regional scales. By joining GIRT, divers contribute directly to science-based decision-making, helping prioritise conservation or rescue archaeology efforts. Open to divers with 50+ logged dives, GIRT welcomes those passionate about Ocean Heritage protection.

3 Community Waterscapes

Project Lead:
Katerina Velentza

Lead Organisation:
University of Hull

Endorsed Project

Participatory mapping at a Community Waterscapes focus group.



Community Waterscapes is a UK project led by the University of Hull’s Energy and Environment Institute, exploring the city’s cultural heritage of living with water. It investigates how Hull’s communities have shaped and been shaped by water, focusing on tangible and intangible heritage that is often lost, under-represented, or overlooked.

Using a bottom-up approach, the project captures local knowledge, lived experiences, and environmental understandings in this dynamic estuarine city. These insights will form a digital, community-led heritage record through an open-access Story Map featuring personal narratives, memories, places, and objects tied to water.

Initial workshops were held in July 2024 at Western Library and Wilberforce House Museum. Dr Katerina Velentza, Dr Hannah Worthen, Dr Edward Brookes, and Dr Kate Smith engaged participants in sharing stories and mapping places of personal significance—past and present—alongside

discussions of maritime change and future preservation. Stories of family maritime traditions, favourite walks, and shifting landscapes revealed the deep-rooted connections people have with the rivers, estuary, and North Sea.

Aligned with the Ocean Decade’s Challenge 10 to “change humanity’s relationship with the ocean,” the project contributes to broader efforts to recognise and conserve local heritage amid environmental change. Community Waterscapes will expand in 2025, with continued knowledge exchange and collaboration. Findings will be shared with local councils to inform planning, heritage recognition, and environmental decision-making in coastal and estuarine contexts.

4 MARGAIN (Marine Resource Gathering and Infrastructure in the Norse North Atlantic)

Project Lead:

Dawn Elise Mooney,
Oliver Rusk, Lísabet
Guðmundsdóttir, Ines
Meier, and Inka Dewitz

Lead Organisation:

Museum of
Archaeology, University
of Stavanger

Endorsed Project

*Driftwood and whalebone
in Iceland, photographed
as part of the MARGAIN
project.*



MARGAIN is an environmental archaeology project led by the University of Stavanger that investigates how past communities along the North Atlantic coast lived with and relied on the ocean. By studying historical coastal practices, the project aims to inform more sustainable human–ocean relationships today and into the future.

Many environmental issues affecting oceans today stem from human actions. MARGAIN suggests that by understanding how people in the past respected and relied on marine resources, we might learn valuable lessons for modern stewardship.

The project focuses on overlooked marine resources that played key roles in daily life, such as driftwood, seaweed, shellfish, coastal plants, and eiderdown. It also considers the historical use of shipwreck materials and other items that washed ashore—recognising that beachcombing has long been a part of coastal life.

Drift beaches were especially important in the past. They often served as landing sites, sources of essential materials like firewood, or seasonal gathering places. Archaeological remains, including boathouses and temporary settlements, are frequently found near these sites.

Through this work, MARGAIN connects archaeological evidence with present-day environmental concerns, encouraging reflection on how coastal heritage can support efforts to build a more sustainable relationship with the ocean.

5 Recovering and Reusing Ghost Nets

Project Lead:

Beatriz Mattiuzzo

Lead Organisation:

Marulho

Endorsed Project

Recovered ghost net.



Marulho is an innovative initiative addressing both environmental and social challenges along the coast of Brazil. Addressing the issue of abandoned fishing gear, known as ghost nets, this project combines cultural heritage with environmental conservation. By recovering and repurposing ghost nets, it mitigates marine pollution, transforms harmful waste into valuable artisanal products, and raises awareness about traditional fishing practices and their ecological impacts. This not only protects marine biodiversity but also promotes sustainable, circular economies rooted in traditional coastal knowledge.

Central to Marulho's approach is community empowerment. The initiative actively engages local coastal populations—particularly women and young people—in the collection and transformation of fishing gear. Through skills development and income-generating opportunities, participants are supported in building sustainable livelihoods that honour and preserve their cultural heritage.

Marulho also fosters awareness of ocean conservation issues through public engagement and strategic collaborations. By building partnerships across sectors, Marulho strengthens its impact and demonstrates a model that can be replicated in other regions facing similar challenges.

Combining environmental action with social inclusion and cultural resilience, Marulho offers a holistic solution to ghost gear pollution. The initiative contributes not only to cleaner oceans but also to the revitalisation of traditional coastal ways of life, making it a powerful example of how innovation, heritage, and community can intersect for a more sustainable future.

6

Vaka Oceanstory Lab

Project Lead:
India Tabellini

Lead Organisation:
Okeanos Foundation

Endorsed Project



*Huahine,
French Polynesia.*

The Vaka Oceanstory Lab, led by the Okeanos Foundation for the Sea, is an innovative initiative that uses traditional Polynesian sailing canoes—Vakas—as platforms for storytelling, exploration, and climate resilience. Crewed by Indigenous knowledge holders and captained by celestial navigators, each Vaka can accommodate 12 people and transport up to three tons of cargo. These vessels have already contributed to disaster relief, scientific research, and community connectivity across the Pacific.

In the face of accelerating climate change, the Vaka Oceanstory Lab responds to the urgent need to combine ancestral knowledge with modern science. From 2024 to 2026, two Vakas will host a rotating crew of Indigenous knowledge holders, filmmakers, and storytellers. They will document and share stories through partnerships with local communities, universities, museums, and media platforms.

By fostering a deeper connection between people, place, and the ocean, the Vaka Oceanstory Lab promotes ocean literacy and supports sustainable marine ecosystem management. It not only preserves traditional seafaring knowledge, but also amplifies Indigenous voices in shaping future ocean policy and stewardship. This initiative represents a powerful convergence of culture, creativity, and conservation, uniting tradition and science.

7

Yagarrajalajalan Nagula Buru

Project Lead:
Adrian Gleiss

Lead Organisation:
Murdoch University

Endorsed Project



*Saltwater County's
coastline.*

This multidisciplinary project, led by Murdoch University, uses socio-ecological research to enhance equity in knowledge sharing and the co-management of marine and coastal resources with Indigenous Traditional Owners in Australia. By integrating Indigenous Knowledge and Western Science, the project identifies the distributions of human and conservation values, translating this information into co-management strategies to enhance custodianship of Saltwater Country.

Marine parks often involve diverse stakeholders with differing values, uses, and responsibilities. These differences can create challenges for effective, inclusive management—especially where Indigenous and non-Indigenous perspectives diverge. This project aims to bridge that gap by integrating Indigenous Knowledge and Western Science.

Focusing on Yawuru Saltwater Country near Broome in Western Australia, the research maps how humans, turtles, and dugongs use marine

spaces. It explores where these species go, what they do, why, and how these uses interact. By identifying the spatial and temporal distribution of both human and conservation values, the project supports more culturally grounded and ecologically informed management strategies.

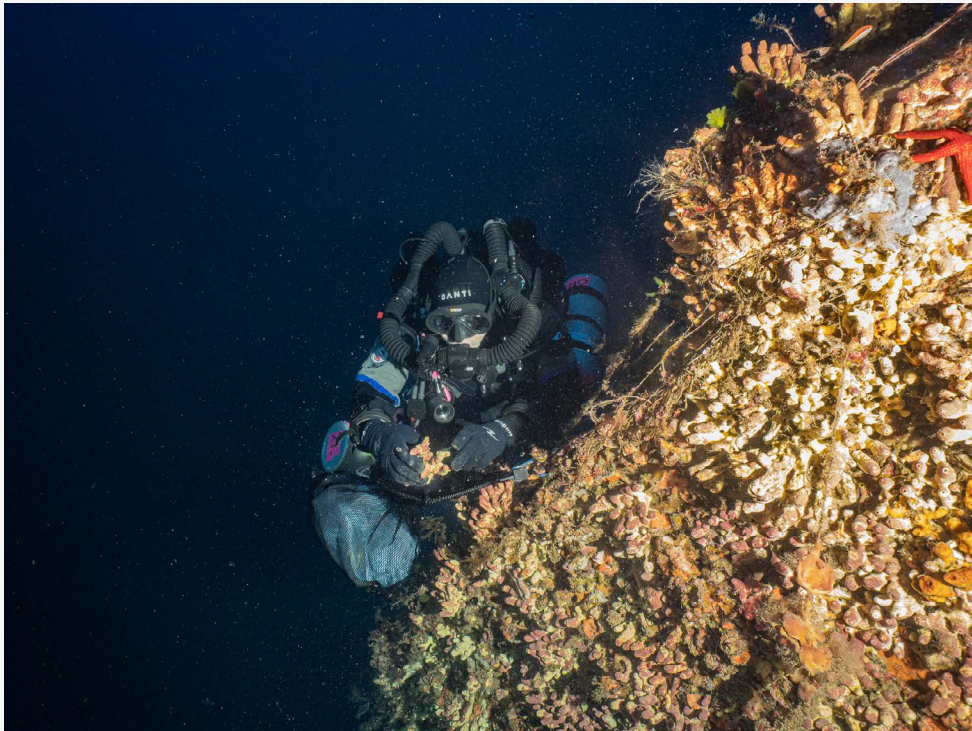
Driven by Yawuru priorities and committed to two-way knowledge exchange, the project develops communication frameworks to ensure equitable access to data and decision-making. It strengthens custodianship of Saltwater Country by recognising that both Indigenous Knowledge—rooted in generations of lived experience—and scientific methods are essential for sustaining marine biodiversity, cultural heritage, and livelihoods. In doing so, the project offers a blueprint for co-management that can inform cross-cultural marine governance across Australia and beyond.

8 WreckLife

Project Lead:
Timmy Gambin

Lead Organisation:
Heritage Malta

Endorsed Project



A diver collecting samples for the WreckLife project.

Heritage Malta's Underwater Cultural Heritage Unit (UCHU) launched the WreckLife project to investigate the complex interactions between historically significant deep-water shipwrecks in Maltese waters and their surrounding marine environments. The project aims to understand how the degradation of these wrecks, influenced by changing ocean conditions, affects local marine biodiversity and ecosystems.

WreckLife uses both legacy data and newly collected baseline datasets to assess long-term environmental changes and the condition of wreck sites. By analysing the impacts of climate-related stressors on these underwater heritage assets, the project refines predictions of future degradation and potential seabed pollution. This knowledge is critical for developing mitigation strategies that protect both cultural heritage and marine ecosystems.

WreckLife also examines the ecological functions of wrecks as structured habitats that support diverse benthic assemblages. Recognising these sites as both cultural heritage and integral parts of the seascape, the project contributes to broader efforts to reconcile heritage conservation with marine ecosystem protection.

With a strong emphasis on research integration and knowledge sharing, WreckLife fosters dialogue among scientists, heritage managers, and the public, ensuring that cultural and ecological values are jointly considered in future decision-making about Malta's underwater cultural heritage.

9 Women, Heritage and Navigation in the Pacific

Project Lead:
Elena Perez-Alvaro

Lead Organisation:
Universitat Pompeu Fabra

Endorsed Project



Women's navigational heritage in the island of Guåhan.

The project Women, Heritage and Navigation in the Pacific, led by Universitat Pompeu Fabra, explores how traditional Polynesian navigation—particularly the knowledge and roles of Indigenous women—can inform global responses to environmental challenges. In many Pacific cultures, women have been central to the transmission of navigational knowledge, combining celestial cues from stars, the sun, and moon with expert interpretation of weather patterns, ocean swells, and biological signs from plants and animals. This deep environmental understanding allowed for precise navigation across the Pacific and shaped sustainable resource management practices.

By documenting and elevating the contributions of Indigenous women navigators, Women, Heritage and Navigation in the Pacific investigates how these practices intersect with the goals of the Ocean Decade. The project highlights how traditional knowledge systems—especially those often marginalised—can contribute meaningfully

to ocean conservation, climate resilience, and culturally grounded governance.

Rather than viewing Indigenous heritage as separate from environmental science, this project calls for integrated, intercultural approaches. In doing so, it promotes more inclusive, effective, and just strategies for managing the ocean in a time of crisis, grounded in generations of lived experience and deep cultural connection to the sea.

10 Unpath'd Waters

Project Lead:
Barney Sloane

Lead Organisation:
Historic England

Endorsed Contribution



Ceramics on the wreck of the Josephine Willis, lost off Kent in 1856.

Unpath'd Waters is a ground-breaking three-year research project that unites the UK's maritime collections, unleashing their potential and enabling anyone to explore stories from beneath the surface. By developing methodologies for incorporating historical information, the project enhances the understanding of human interactions with and heritage contributions to marine ecosystems over time.

The UK has a rich maritime heritage, stretching back over 23,000 years. It's impossible to tell the story of these islands without talking about the relationship with the sea, and this maritime past is becoming increasingly important. People are increasingly aware of the exploitation of the sea and its relationship with colonialism, slavery and immigration. Unpath'd Waters explored ways of enhancing interaction with the UK's maritime heritage by making it easier to research and for the public to discover and share stories in new ways.

Unpath'd Waters has developed a shared and cross-searchable online catalogue of marine data across the UK, bringing together maritime collections from various physical locations. This catalogue is now freely and openly available via the Unpath'd Waters Portal. For the first time, marine records of all four UK nations can be searched in one portal. In doing so, Unpath'd Waters enables more seamless integration of cultural heritage data into marine environmental assessments.

The Unpath'd Waters catalogue contributes to Ocean Decade Challenge 8 (create a digital representation of the ocean) while advancing Ocean Literacy (supporting Challenge 10) as it seeks to engage the general public in maritime heritage. Unpath'd Waters co-designed innovative immersive digital experiences to explore areas including shipwrecks off the Isle of Wight and the now inundated prehistoric landscapes lying beneath the North Sea.

11 Enhancing Estuary Resilience in Coastal British Columbia

Project Lead:
Tom Reid

Lead Organisation:
The Nature Trust of British Columbia

Endorsed Project



Xwésam (salmon) fishing.

The project Enhancing Estuary Resilience in Coastal British Columbia combines cultural heritage with ecological restoration to strengthen estuary resilience. Collaborating with Indigenous communities, it integrates traditional knowledge into habitat restoration efforts, promoting biodiversity and cultural continuity.

Estuaries and coastal wetlands comprise less than 3% of BC's coastline, yet they support over 80% of BC's coastal fish and wildlife. Many culturally and commercially important fish stocks, including Pacific salmon, herring, crabs, clams, oysters, and various forage fish species, are dependent on estuaries.

The project includes development of meaningful and lasting partnerships between Coastal First Nations, Nature Trust British Columbia, and other project partners; monitoring and research to assess estuary resilience to sea-level rise at more than 20 sites on Vancouver Island, the central coast, and Haida Gwaii; implementation of several major ecological restoration projects utilising data collected; increased knowledge and capacity

of all partners to make informed management, conservation, restoration, and enhancement decisions; and showcasing the integration of science and cultural knowledge and heritage.

To date, this project has been implemented in 16 First Nations/Indigenous communities at 20 sites throughout the Coast of British Columbia. A guiding principle of this project is to also ensure that there is equitable funding for their First Nation partners to be involved in all stages of the project from planning, field work, data collection, and analysis, as well as the implementation of restoration and enhancement projects. This project has provided employment opportunities to each First Nation and Indigenous community partner. To date, the project has employed over 100 First Nation community members and has contracted or collaborated with many First Nation owned businesses. Through integration of cultural heritage into ecological restoration, the projects are increasing marsh resilience to sea-level rise, restoring fish and wildlife habitat, and revitalising Indigenous food systems.

12 Rising from the Depths

Project Lead:

Jon Henderson

Lead Organisation:

University of Edinburgh

Endorsed Activity

A fisherman shows off his catch on Bagamoyo Beach alongside the Bahari Yetu, Urithi Wetu ngalawa logboat. The boat was commissioned by the Rising from the Depths network and built by master boatbuilder Mzee Alalae Mohamed.



The Rising from the Depths (RftD) network utilises marine cultural heritage to create social, cultural, and economic benefits in Kenya, Tanzania, Mozambique, and Madagascar. By engaging local communities, the project fosters sustainable development through heritage-based initiatives.

RftD has explored how the marine cultural heritage can drive ethical, inclusive, and sustainable economic growth in the region. The initiative co-created a research agenda, organised a series of in-country workshops and events, and supported 27 challenge-led projects that sought to enhance social cohesion, poverty reduction, an equitable coastal development. The network involves 248 partners (75% from the Global South), and continues to publish results, lead workshops, and support the creation of additional initiatives rooted in marine heritage for sustainable development, supporting both the Sustainable Development Goals and the Ocean Decade Challenges.

RftD represents the first coordinated effort to examine East Africa's marine heritage through a collaborative and multidisciplinary lens, and

prioritises giving agency to local communities in the elaboration of research agendas, project design, and resource management. Over 90% of its projects contributed to SDG 11 (Sustainable Cities and Communities), many through engagement with cultural heritage and tourism, directly supporting Challenge 4 of the Ocean Decade (Develop a sustainable, resilient and equitable ocean economy). More than two thirds of the projects contributed to the preservation of SDG 14 (Life Below Water) through promoting sustainable coastal activity (tourism, agriculture, and fishing), in turn supporting several of the Ocean Decade Challenges—in particular Challenge 2 (Protect and restore ecosystems and biodiversity) and Challenge 4 (Develop a sustainable, resilient and equitable ocean economy).

Through the promotion of interdisciplinary, locally-grounded research and community-driven projects that emphasise co-creation and equity, the RftD network provides a scalable model for integrating cultural heritage into the Ocean Decade and sustainable development efforts.

13 Shipwrecks as Artificial Reef Structures

Project Lead:

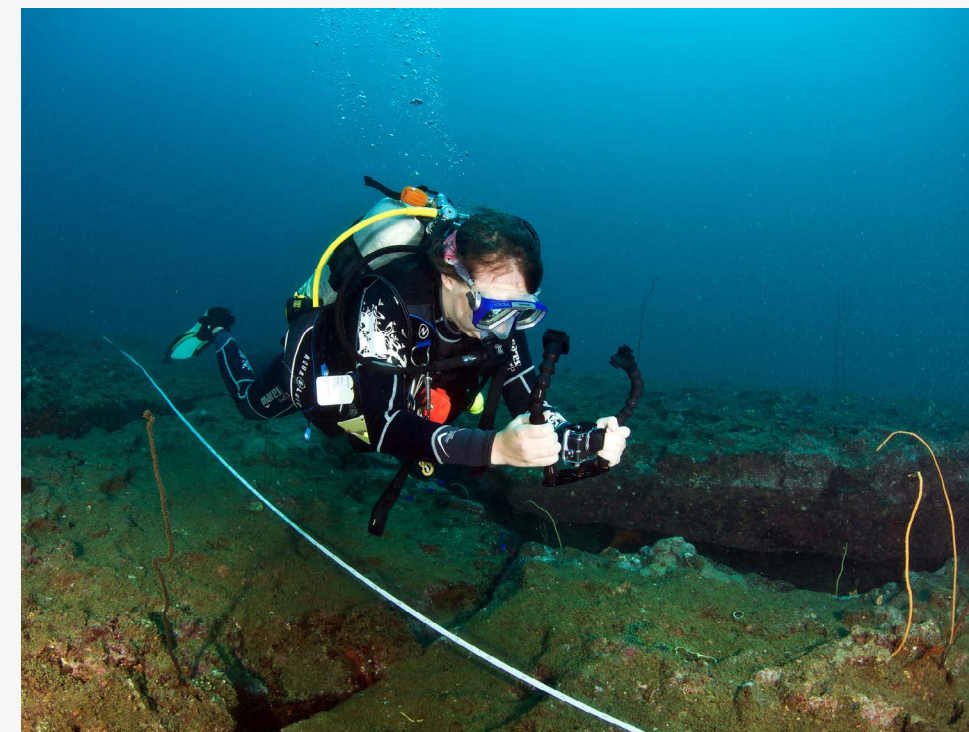
Anjleen Hannak

Lead Organisation:

University of Bremen

Endorsed Activity

Conducting video-transects during the project fieldwork season in Sri Lanka.



Investigating the role of shipwrecks as artificial reefs, the Shipwrecks as Artificial Reef Structures project assesses their ecological contributions and cultural significance for coastal communities in Sri Lanka. The findings inform conservation strategies that recognise shipwrecks as both heritage assets and biodiversity hotspots. A unique feature of Sri Lanka is the high concentration of wrecks around the island's coastline, with 114 recorded by the National Shipwreck Database of Sri Lanka so far. Literature on the role of shipwrecks in Sri Lanka is limited, and this project adds a valuable contribution to the protection of these marine habitats and cultural heritage sites.

The project evaluates shipwrecks from an ecological, historical, and socio-economic standpoint to understand their value for the development of marine communities, their support for local fisheries and tourism, and as a tool for sustainable marine resource management. The biological value of shipwrecks is determined by their importance for species recruitment, food

source, biodiversity, and sheltered habitat. Further investigation into the role of shipwrecks in the marine environment is required to identify their ecosystem services for marine and coastal areas.

Through local and international scientific collaboration, the first phase of the project began in 2022 with a preliminary study on the shipwrecks in Colombo. Shipwrecks as Artificial Reef Structures directly addresses Ocean Decade Challenge 2 (Protect and restore ecosystems and biodiversity) and Challenge 4 (Develop a sustainable, resilient and equitable ocean economy). The results highlight the role of the wrecks as habitats of indigenous species, including larger aggregations of fish that constitute a resource for local artisanal fisheries, alongside opportunities for sustainable tourism.

14 Sustainable Ocean Management (SOM) Programme

Project Lead:
Matthew Harpster

Lead Organisation:
Koç University

Endorsed Activity



The Sustainable Ocean Management (SOM) Programme in Istanbul.

The Sustainable Ocean Management (SOM) programme establishes an innovative cross-disciplinary curriculum that integrates Maritime Cultural Heritage, Marine Spatial Planning, and Climate Science to train a new generation of ocean professionals equipped to meet global sustainability goals.

Originally developed under the Erasmus Mundus Design Measure (EMDM) as the Marine Spaces—Planning / Culture / Climate (MS-PCC) programme, SOM builds on that foundation to address a critical skills gap within the European Higher Education Area. While international frameworks such as the UN 2030 Agenda and the EU Blue Growth Strategy call for integrated, culturally informed, and climate-aware ocean governance, few formal education programmes deliver training across these domains.

SOM responds to this need by combining scientific, policy, and heritage perspectives into a unified curriculum. Developed through a partnership between Koç University, the University of Oldenburg (Germany), University of Copenhagen (Denmark), the State Archaeology Department of Schleswig-Holstein, and the Ocean Decade Heritage Network, the programme supports both student and educator training.

15 Community Engaged Ocean Science in Canada

Project Lead:
Zoe Compton

Lead Organisation:
Canadian Commission for UNESCO Canada (CCUNESCO)

Endorsed Project



Peggy's Cove, Nova Scotia, Canada.

This initiative promotes collaborative ocean science involving local communities in Canada. By integrating cultural heritage and traditional knowledge, the project enhances scientific research and supports community-led marine management.

In alignment with the Cultural Heritage Framework Programme's aim to see diverse histories and cultural heritage integrated into ocean science and policy, this project studies ocean science research and programmes that are co-designed and co-delivered with or led by Indigenous coastal communities in Canada. The project examines how embedding food security, culture, and community health considerations within research and marine conservation programmes serves to advance both conservation and sustainable development objectives.

Given that Western science has historically put the needs of people before the environment, while many Indigenous knowledge systems recognise the inherent rights of the ocean, one of CCUNESCO's priorities during the Ocean Decade is to promote, showcase and encourage a different

kind of relationship to the ocean that is based on reciprocity and respect.

In April 2024, CCUNESCO's Ocean Decade working group partnered with the New Zealand National Commission for UNESCO, the Great Barrier Reef Foundation, and The Pacific Community to deliver a panel, "Indigenous Knowledge Systems and Community-Engaged Ocean Science" at the Ocean Decade Conference in Barcelona. Recognising the need to work across borders and oceans in partnership with Indigenous communities, this collaboration provided an international platform for Indigenous knowledge holders from Canada, New Zealand, Australia and the Pacific Islands, highlighting innovative Indigenous-led approaches to marine governance and management, and outlining models of meaningful engagement for the science community. Indigenous ways of knowing and being can complement Western scientific knowledge to create new realities based on sustainable living and reciprocal relationships, and this is crucial in taking action to protect the planet that sustains us.

16 NaturCap: Take Care of Cap de Creus

Project Lead:
Sílvia Gómez Mestres
Lead Organisation:
Universitat Autònoma
de Barcelona
Endorsed Project

*Cap de Creus,
Catalonia, Spain.*



NaturCap is a digital platform and pilot project that uses marine cultural heritage to connect communities, promote ocean literacy, and support equitable MPAs across the Mediterranean.

Despite covering only 0.3% of global ocean volume, the Mediterranean holds between 4–18% of the world's marine species. Cap de Creus, a biodiversity hotspot, faces intense anthropogenic pressures—tourism, marine debris, and climate change—all threatening its sensitive ecosystems.

The region's seascape is shaped by a rich mosaic of cultural and natural heritage: red and cold-water coral, posidonia meadows, shipwrecks, dolmens, fisher huts, vineyards, and small-scale fisheries. These elements reflect centuries of human interaction with the sea.

NaturCap places this heritage at the heart of marine conservation, fostering pro-environmental behaviour and equity. The platform builds bridges between environmental and cultural initiatives, encouraging cross-sector collaboration and local-

global knowledge exchange. It aims to connect MPAs through shared biodiversity and cultural recognition.

Through its app, NaturCap promotes ocean literacy, environmental justice, and community participation. It features a gamified learning tool, showcases eco-social practices, and allows users to share geolocated images and reflections about the sea.

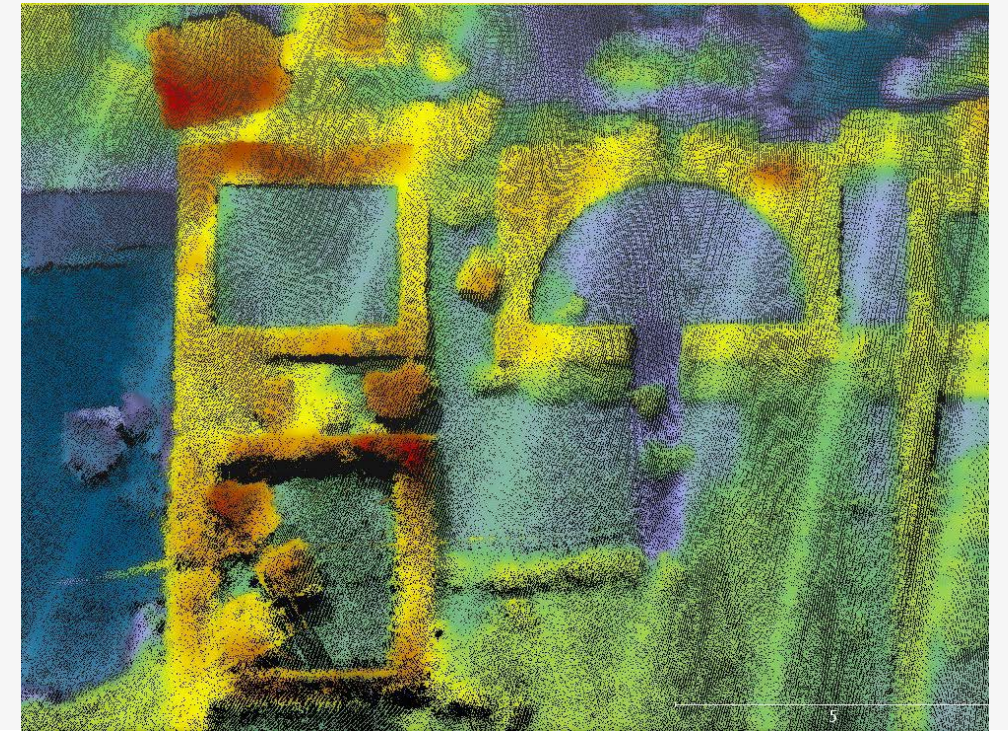
By restoring both ecosystems and cultural ties, NaturCap champions an inclusive vision of ocean stewardship—one that honours memory, knowledge, and traditions as vital to marine protection. It invites the global community to join in building a just, heritage-based network of Mediterranean MPAs.

This pilot initiative, part of the EU-funded EmpowerUs project (Grant No. 101059957), was co-created with regional communities, fishers, scientists, and youth. Organisations, research centres and associations also collaborated.

17 Remote Sensing of Underwater Cultural Heritage (RUSH)

Project Lead:
Crescenzo Violante
Lead Organisation:
Institute of Heritage
Science (ISPC) National
Research Centre (CNR)
– Italy
Endorsed Project

*Remains of a thermal
complex in the Baia
submerged park, created
by a point cloud from
multibeam data.*



This project uses cutting-edge underwater remote sensing technologies to explore the dynamic relationship between underwater cultural heritage (UCH) and the surrounding marine environment. Combining archaeology, geosciences, and biology, the project integrates remotely collected data with direct investigations to better understand how UCH shapes and supports marine ecosystems. RUSH recognises UCH not only as historically valuable, but also as a contributor to ecological functions that influence biodiversity and the structure of seabed landscapes.

One key focus is the digital reconstruction of underwater cultural sites. Using ultra-high-resolution depth measurements, the team creates detailed 3D models of submerged artifacts. These reconstructions are brought to life through advanced Web3D modelling techniques, making underwater sites accessible via interactive digital platforms and enhancing conservation, public engagement, and management efforts.

RUSH also prioritises collaboration, aiming to build a multidisciplinary network that facilitates

information sharing and long-term, sustainable use of underwater heritage. The project is currently active at multiple Mediterranean sites, including the coasts of Campania and Sicily in Italy, and the islands of Crete and Aegina in Greece, contributing to a broader understanding of cultural and ecological interconnectedness.

The RUSH project involves researchers from the CNR Italy, FORTH Greece and CNRS France, along with cultural authorities and stakeholders in tourism and social inclusion.

The project is led by ISPC in collaboration with: Campi Flegrei Archaeological Park, Pozzuoli—Italy; Superintendence of Archeology, Fine Arts and Landscape for the metropolitan area of Naples—Italy; Superintendence of the Sea, Palermo, Italy; Lab of Geophysical Satellite Remote Sensing and Archaeoenvironment, Institute for Mediterranean Studies, Foundation for Research and Technology Hellas (FORTH), Crete—Greece; Centre Camille Jullian, Aix Marseille University, CNRS, Aix-en-Provence—France; Pozzuoli Diving Center, Pozzuoli—Italy; L'ABCD—Edutainment, Naples—Italy.

18 Linking Nature and Culture to Support Sustainable Coastal Livelihoods: Establishing a Marine Protected Area (MPA) at the Island of Mozambique, East Africa (“LiNaCuMoz”)

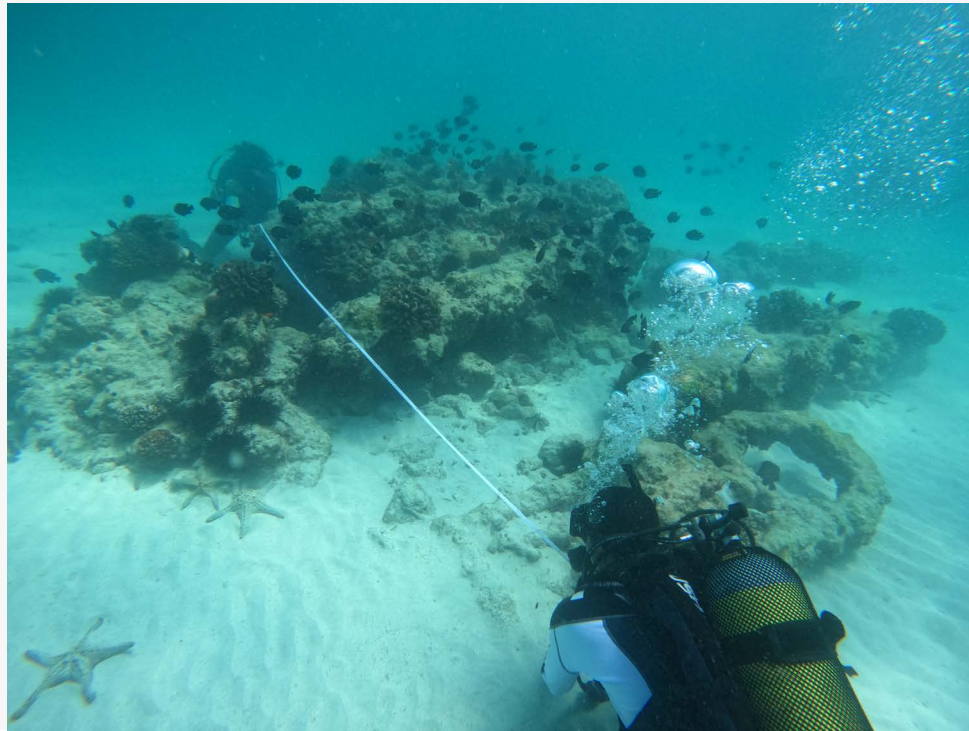
Project Lead:

Jon Henderson and
Georgia Holly

Lead Organisation:

University of Edinburgh

Endorsed Activity



The LiNaCuMoz project involves the community in coral surveys.

The Linking Nature and Culture in Mozambique (LiNaCuMoz) project investigates the intersections of marine ecology, cultural heritage, and community livelihoods on Mozambique Island, a UNESCO World Heritage Site facing intensified conservation pressures. Supported by the UKRI ODA Impact and Development Fund, the initiative aims to integrate biocultural heritage into marine governance by fostering equitable, community-driven management of the coastal environment.

Through interdisciplinary methods—including ecological surveys, underwater archaeology, oral histories, participatory mapping, and gender-disaggregated focus groups—LiNaCuMoz challenges conventional MPA models. The project highlights the exclusionary impacts of top-down conservation frameworks, particularly on women and marginalised coastal users, and provides empirical evidence for recognising biocultural heritage sites, such as shipwrecks, mangroves, and coral reefs, as central to sustainable marine governance.

LiNaCuMoz primarily addresses Ocean Decade

Challenge 10 (Restore humanity’s relationship with the ocean) by cultivating marine management practices that are culturally legitimate, gender-inclusive, and grounded in community-defined priorities. By emphasising the co-production of biocultural indicators and integrating diverse knowledge systems, the project also advances Challenge 2 (Protect and restore ecosystems and biodiversity) and Challenge 4 (Develop a sustainable, resilient, and equitable ocean economy).

Initial findings include the discovery of specific biocultural heritage sites used for subsistence fishing, documentation of culturally and ecologically significant sites for protection, and the collection of community oral histories on marine use and governance. The project has shown that these cultural-natural ecosystems represent vital subsistence resources with potential for sustainable alternative livelihoods. This research is being used to deliver culturally just, ecologically effective, and locally embedded marine protection strategies that benefit both people and place.

19 SeaVoice

Project Lead:

Georgia Holly

Lead Organisation:

University of Edinburgh

Endorsed Activity



SeaVoice interviews representatives from Coral Catch, a female-led coral restoration project based across Indonesia.

SeaVoice is an innovative magazine and media platform that investigates the interconnectedness of cultural heritage, climate change, and marine environments. Through curated multimedia storytelling, SeaVoice explores the intersections of ocean and culture, inspiring collective responsibility for blue spaces. Curated by academics directly engaged in ocean-climate challenges, this platform amplifies the research, activism, and art of those who live, work, and survive by bodies of water. SeaVoice distinguishes itself by elevating traditionally underrepresented voices—including Indigenous communities, artisanal fishers, women, and youth—and integrating diverse disciplinary perspectives. Artists, activists, knowledge holders, scientists, and policymakers are presented on an equally accessible platform, challenging conventional hierarchies in marine communication and policy dialogue. This model directly supports Ocean Decade Challenge 10: Restore Humanity’s Relationship with the Ocean.

Since its founding in 2023, SeaVoice has published one print edition and six digital volumes—

Osmosis, Community, GenSea, Blue Tech, Sense, and Waterwomxn—each featuring ten diverse contributions. Rather than addressing Ocean Decade Challenges in isolation, SeaVoice adopts an integrative approach: every volume cross-cuts multiple Decade Challenges, emphasising the complex interdependencies between ocean sustainability, cultural heritage, technology, food security, equity, and education.

Recognising the critical role of younger generations in advancing ocean sustainability, SeaVoice collaborates with the Ocean Decade Early Career Ocean Professionals (ECOP) network, featuring ECOP contributors in every issue and dedicating an entire volume, GenSea, to their perspectives and pathways into ocean science and governance. By weaving together multiple knowledge systems, artistic expression, community experiences, scientific research, and policy discourses, SeaVoice exemplifies an urgently needed, interdisciplinary model of integrated ocean storytelling—one that mirrors and advances the cross-sectoral ambition of the Ocean Decade.

20

Indigenous People, Traditional Ecological Knowledge, and Climate Change: The Iconic Underwater Cultural Heritage of Stone Tidal Weirs

Project Lead:

Akifumi Iwabuchi and
Bill Jeffery

Lead Organisation:

Tokyo University of
Marine Science and
Technology (UNESCO
UNITWIN Network
for Underwater
Archaeology)

Endorsed Project

*Stone tidal weirs and
an artisanal fisher in
Timor-Leste.*



Stone fish weirs represent one of the most vulnerable forms of cultural heritage, susceptible to global ocean climate change, including sea level rise, coastal erosion, and destructive storms. Countless weirs, along with the Indigenous communities intertwined with them, are vanishing at an alarming rate, with their rich cultural heritage, traditions, and profound wisdom fading before adequate research or government intervention. The project 'Indigenous People, Traditional Ecological Knowledge, and Climate Change: The iconic underwater cultural heritage of stone tidal weirs' works to study, preserve, and promote the value of this aspect of humanity's relationship with the world's oceans.

The underwater cultural heritage of stone tidal weirs is a sustainable and eco-friendly fishing practice along the shoreline. Weirs were built in various shapes and styles to catch specific fish at certain times of the year. Many extant examples remain and provide a tangible link to this sustainable fishing practice that incorporated traditional ecological knowledge and the spirit world, providing balance and harmony for

Indigenous people for thousands of years. Today, they are not just examples of the past, but a guide to future sustainable, equitable marine conservation.

The project strives to reconnect and reinforce the relationship between coastal communities and their natural environment through the medium of weirs and interaction with the natural environment. By uniting Indigenous traditions and knowledge, tangible pieces of cultural heritage, and modern scientific methods, the initiative works with local Indigenous communities around the world to develop more resilient coastal management. As part of a group effort by eight team members (from Japan, USA, South Korea, Philippines, Poland, South Africa and Ireland) work across the globe. The team, a mixture of anthropologists and archaeologists, is brought together to work with local communities to conduct fieldwork around these monuments and their intangible cultural heritage. The project fuses together knowledge to support scientific research, coastal communities, sustainable development, and the Ocean Decade Challenges.

21

Threats to Our Ocean Heritage: A Book Series

Project Lead:

Charlotte Jarvis and
Ole Varmer

Lead Organisation:

The Ocean Foundation

Endorsed Activity

*A diver exploring a
shipwreck entangled in
fishing gear.*



Advancing Ocean Decade Challenge 10 (Restore humanity's relationship with the ocean) and Challenge 2 (Protect and restore ecosystems and biodiversity), this ocean literacy initiative highlights the biocultural threats from bottom trawling, deep sea mining, and potentially polluting wrecks. The action consists of three books, workshops on potentially polluting wrecks, and associated multimedia products which target both stakeholders and the general public. The workshops are part of Project Tangaroa, a larger initiative focusing on potentially polluting wrecks and developing a framework and standards for their remediation and management.

The books are a valuable tool for resource managers, representatives of governments and international organisations, educators, archaeologists, marine researchers, and cultural heritage practitioners. The three volumes have been published as part of the SpringerBriefs in Underwater Archaeology Series and are available Open Access. Two volumes, one on bottom

trawling's impact on underwater cultural heritage and one about potentially polluting wrecks, have been published as part of the SpringerBriefs in Underwater Archaeology Series.

These resources are a call to action and include recommending a moratoria on activities until scientific surveys and research have been done and baseline information about our Ocean Heritage (natural and cultural) is integrated into Environmental Impact Assessments, Marine Spatial Planning– including the setting aside of significant natural and cultural heritage as Marine Protected Areas.

5. Moving Beyond the Ocean Decade: Maintaining Momentum

The following sections offer concise guides to key dimensions of Ocean Heritage beyond the Ocean Decade, including its enduring relevance, strategic importance, core methods and principles, and actionable recommendations. This is not intended to be exhaustive; rather, it serves as a practical reference for engaging with foundational arguments and accessing key sources on heritage and ocean governance. First, this section discusses the strategic importance of cultural heritage beyond 2030; then continues to outline what we need to do to ensure the enduring role of cultural heritage in future ocean governance frameworks. We then briefly discuss the method for integrating cultural heritage into such frameworks; before providing key recommendations for post-2030 governance.

Documenting living heritage as 'Hidden Histories' in Tanzania, as part of the Rising from the Depths project.



5.1 The Strategic Importance of Cultural Heritage Beyond 2030

This section offers a concise yet comprehensive overview of the strategic importance of cultural heritage in the context of the Ocean Decade and future marine governance frameworks.

Contextualising Marine Governance Through Time

A key strategic benefit of cultural heritage as part of the ocean sciences is heritage's capacity to contextualise marine governance within longer temporal scales. By incorporating oral histories, archaeological records, and traditional ecological knowledge, decision-makers can better understand historical baselines, patterns of ecological change, and the cultural dimensions of marine resource use. This perspective supports more grounded, adaptive, and socially responsive responses to environmental pressures, particularly in areas where scientific data is limited or contested.

Fostering Inclusive and Participatory Governance

A further strategic value lies in fostering participatory and inclusive governance. Cultural heritage offers entry points for engaging stakeholders who may otherwise be excluded from scientific or policy processes. For instance, heritage-based frameworks have been shown to facilitate inclusive marine spatial planning in projects and in community-led mapping of sacred marine sites in East Africa, as seen in Rising from the Depths (Henderson, 2024; Henderson et al., 2021). These initiatives have improved trust, increased compliance, and expanded local involvement in marine protection.

Enhancing Cross-Sectoral Coordination

Cultural heritage can also strategically enhance coordination across policy domains. For example, heritage-related approaches have begun to inform cross-cutting agendas such as marine biodiversity, disaster risk reduction, and cultural tourism, creating opportunities for integrated, multi-benefit management. In the Western Indian Ocean region, for instance, efforts such as the CHFP-affiliated, Ocean Decade-endorsed Linking Nature and

Culture in Mozambique project are underway to align heritage conservation with ecosystem-based management strategies, linking sustainable livelihoods, biodiversity conservation, and the safeguarding of coastal identity (Henderson et al., 2025).

Embedding Heritage in Global Ocean Governance

At a global level, institutions such as the Intergovernmental Oceanographic Commission (IOC) and UNESCO's World Heritage Centre are working to incorporate cultural heritage more systematically into reporting, education, and conservation frameworks. The development of guidance for the protection of underwater cultural heritage in Areas Beyond National Jurisdiction and participation in the BBNJ Agreement negotiations illustrate a gradual but strategic shift in how Ocean Heritage is positioned within global governance dialogues.

Strengthening Marine Governance Beyond 2030

Looking beyond 2030, the continued integration of cultural heritage offers a way to build marine governance systems that are more resilient, reflective of cultural realities, and better equipped to manage complex socio-ecological change. This includes formal recognition of heritage values in marine spatial planning, support for transdisciplinary heritage science, and the inclusion of heritage dimensions in global and regional biodiversity and climate frameworks. It also requires long-term investment in community-based capacity, improved legal coherence across cultural and environmental regimes, and the continued development of ocean literacy that reflects diverse cultural perspectives.

Translating Recognition into Action

In sum, the strategic inclusion of cultural heritage is not simply a normative or ethical choice—it is a practical and necessary step toward building more robust and adaptive ocean governance systems. The Ocean Decade provides a platform from which

this can be advanced, but the challenge remains to translate recognition into institutional practice and enduring policy transformation.

5.2 Ensuring the Enduring Role of Ocean Heritage in Future Governance Frameworks

As the Ocean Decade progresses, one of its most important developments has been the growing recognition of heritage—and the legacy of the past—as an essential component of ocean sustainability. The challenge now is to ensure this momentum continues beyond the Ocean Decade's conclusion, by supporting the ongoing integration of heritage within long-term ocean governance frameworks.

The CHFP, alongside affiliated Decade Actions, has demonstrated that heritage can strengthen efforts to improve ocean conservation, science, ocean literacy, sustainability. However, these initiatives currently exist in parallel to mainstream marine science and policy, and their potential impact depends on more sustained institutional support and wider recognition within global frameworks. The inclusion of cultural heritage in future ocean governance would benefit from reinforcing existing legal commitments, supporting interdisciplinary collaboration, and creating opportunities for regional and community-level participation. The following outlines reference materials for information on current and future integration of cultural heritage into institutional frameworks, legal and policy alignment, regional and community participation, and climate and biodiversity strategies.

Building on Existing Institutional Frameworks

There are already mechanisms in place that provide a basis for integrating cultural heritage into ocean governance. Instruments such as the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage, the Barcelona Convention, the BBNJ Agreement, and UNCLOS offer formal routes for the protection and

recognition of submerged and coastal cultural sites. Nonetheless, implementation challenges remain. Many States have yet to ratify the 2001 Convention, and underwater cultural heritage in Areas Beyond National Jurisdiction often lacks clear jurisdictional oversight. Strengthening the coordination between international conventions and national marine spatial planning frameworks could improve consistency and visibility (Dromgoole, 2013; Martin, 2019, 2021).

Supporting Legal and Policy Alignment

There is growing international discussion around the alignment of cultural and environmental governance frameworks. The 1992 Convention on Biological Diversity (CBD), the 2022 Kunming-Montreal Global Biodiversity Framework (GBF), and the BBNJ Agreement (2024) increasingly acknowledge the importance of traditional and Indigenous knowledge in biodiversity and ecosystem protection. However, clearer mechanisms are needed to link these frameworks with heritage-specific tools and practices.

Existing work under the EU4Ocean coalition and the UNESCO-IPCC-ICOMOS collaboration on climate and heritage has illustrated how multi-agency coordination can support shared objectives. Embedding heritage into reporting systems and environmental assessments aligned with the SDGs, the Paris Agreement, and the CBD could help ensure more consistent inclusion across global agendas (see Breen et al., 2024; Holly, 2022; Papageorgiou, 2018; Poole, 2018).

Encouraging Regional and Community Participation

Efforts to strengthen the governance of Ocean Heritage will also require greater support for local and regional actors. The Rising from the Depths project, for example, has shown the value of locally driven research and community-based approaches in documenting and managing marine heritage in East Africa. Integrating cultural knowledge into MPA planning and supporting cultural dimensions of ecosystem-based management are further avenues for enhancing participation.

Rather than proposing entirely new governance regimes, a more realistic approach involves adapting existing ones to be more inclusive of cultural values. This includes enhancing local capacity for heritage documentation, increasing access to funding for community-led initiatives, and promoting partnerships between governments, NGOs, and Indigenous organisations (see Chambers et al., 2021; Dawson et al., 2021; Henderson, 2019; Henderson et al., 2021; Holly et al., 2022).

Including Heritage in Climate and Biodiversity Strategies

The role of cultural heritage in informing climate adaptation and biodiversity conservation is increasingly recognised in international fora.

Heritage contributes to long-term environmental monitoring, resilience-building, and sustainable resource management. Programmes like UNESCO's Local and Indigenous Knowledge Systems (LINKS) have been instrumental in advocating for this integration, while the World Heritage Centre and Indigenous Peoples' Forum on World Heritage (IIPFWH) have highlighted the importance of safeguarding heritage at risk from climate change.

Ongoing efforts should focus on ensuring that cultural heritage is explicitly considered within National Biodiversity Strategies and Action Plans (NBSAPs), climate adaptation reports under the UNFCCC, and regional ecosystem-based planning (Azzopardi et al., 2023; Grorud-Colvert et al., 2021; Holly et al., 2022; Paxton et al., 2023).

Mediterranean submerged thermal structure, photographed as part of the CHFP-affiliated, Ocean Decade-endorsed Remote Sensing of Underwater Cultural Heritage (RUSH) project.



5.3 A Note on the Method: The Process of Integrating Heritage into Future Ocean Policy Frameworks

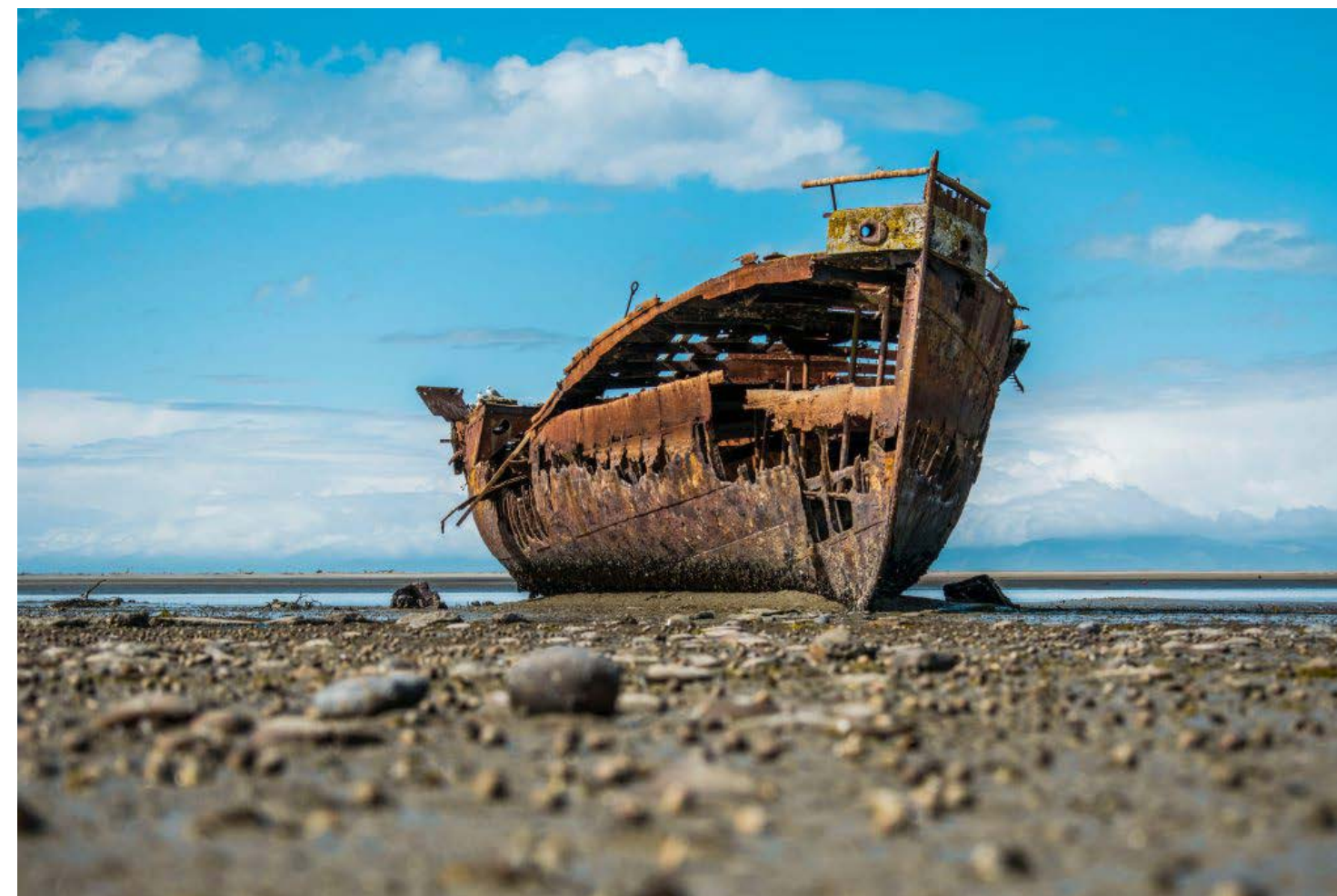
Future ocean policies must be guided by an integrated understanding of value—one that recognises the entanglement of ecological, social, and cultural systems. Policy instruments that treat “nature” and “culture” as separate entities limit the potential for truly sustainable and inclusive governance (Azzopardi et al., 2023; Firth, 2015)

Research has highlighted the need for valuation frameworks that reflect this interdependence. One promising approach is the concept of integrated cultural–natural value, which enables the recognition of benefits that emerge from the co-production of ecosystem services and cultural

heritage. This includes practices such as traditional fisheries, sacred marine species, or culturally significant underwater landscapes—where both cultural meaning and ecological function are interlinked (Azzopardi et al., 2023; Holly, 2022).

Such a framework aligns with international developments that seek to expand definitions of sustainability. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the post-2020 Global Biodiversity Framework, and the UN Human Rights Council’s resolution recognising a healthy environment as a human right all support a shift toward more

Woman mending fishing nets in Catalonia, Spain, documented for the CHFP-affiliated, Ocean Decade-endorsed NatureCap project.



The Janie Seddon shipwreck in Motueka, New Zealand.

inclusive approaches. However, existing marine policies and spatial planning mechanisms still often lack the tools to identify and protect intangible heritage values alongside biodiversity.

To address this gap, integrated cultural–natural indicators can be developed and applied in marine spatial planning, environmental impact assessments, and climate adaptation strategies. These indicators should be designed not only to quantify economic value but also to reflect lived relationships to marine environments—such as intergenerational knowledge transfer, spiritual significance, community resilience, and cultural continuity (Breen et al., 2021, 2024; Papageorgiou, 2018, 2019).

This approach is particularly relevant in regions facing climate-induced displacement and ecological change. Coastal communities, small island states, and Indigenous peoples are among the most vulnerable to ocean-related disruption, yet their knowledge systems are among the most robust in terms of long-term adaptation and place-based governance. Recognising and protecting cultural heritage in these contexts is not just a matter of identity—it is also a matter of climate justice and social resilience.

5.4 Recommendations for Post-2030 Governance

Informed by the CHFP-led co-creation process (CHFP, 2025) and lessons learned during the Ocean Decade, the following recommendations provide a roadmap for embedding Ocean Heritage into future marine governance frameworks. These actions are essential for sustaining the momentum generated during the Ocean Decade and for realising inclusive, just, and sustainable ocean futures.

1. EMBED CULTURAL HERITAGE INTO OCEAN POLICIES

Mandate the inclusion of cultural heritage assessments in marine spatial planning, environmental impact assessments, biodiversity strategies, and climate adaptation policies. Heritage should be treated as a core dimension of marine governance, not a secondary consideration.

2. DEVELOP AND APPLY INTEGRATED INDICATORS

Create and operationalise indicators that assess cultural–natural value together, capturing the interdependencies between ecological health and cultural practices. These metrics should include both material assets (e.g. shipwrecks, archaeological sites) and intangible elements (e.g. traditional knowledge, oral histories, cultural landscapes).

3. FORMALISE CROSS-SECTORAL GOVERNANCE

Promote collaborative frameworks that bring together ocean scientists, cultural heritage professionals, Indigenous knowledge holders, policymakers, and community actors. Such partnerships are crucial for designing policies that reflect the pluralism of ocean knowledge and ensure alignment across conservation, development, and heritage agendas.

4. ENSURE ETHICAL AND EQUITABLE ENGAGEMENT WITH INDIGENOUS AND LOCAL COMMUNITIES

Recognise and value Indigenous and local knowledge systems, heritage practices, and governance models in marine research and policy. Conservation initiatives must be co-developed with communities and designed to support both environmental sustainability and cultural survival. Participatory processes should be embedded in all stages of project design, implementation, and evaluation.

5. SUPPORT COMMUNITY-LED OCEAN HERITAGE GOVERNANCE

Invest in legal recognition, institutional support, and financial resources that enable coastal and Indigenous communities to co-govern marine spaces. Empowering communities not only enhances conservation outcomes but also ensures heritage is managed by those with deep-rooted relationships to place.

6. INCORPORATE OCEAN HERITAGE INTO OCEAN SCIENCE EDUCATION AND TRAINING

Develop interdisciplinary curricula and professional development programmes that equip ocean scientists with the tools to recognise, respect, and engage with cultural heritage. This includes training in participatory methods, ethics, and the social dimensions of conservation. Building cultural competence within the marine science community is key to lasting integration.

7. CREATE AND EXPAND INTERNATIONAL PLATFORMS FOR COLLABORATION

Strengthen and scale initiatives such as CHFP and other global networks dedicated to heritage-inclusive ocean science, including the creation of focused subregional cooperation networks. These platforms should be resourced to facilitate transboundary cooperation, share best practices, and develop guidance for policy and implementation at all governance levels.

8. SUPPORT INTANGIBLE HERITAGE RESEARCH AND DATA COLLECTION

Allocate funding for the documentation, analysis, and transmission of intangible Ocean Heritage, led by those closest to this heritage, including oral traditions, spiritual practices, community narratives, and Indigenous place names. Intangible heritage plays a critical role in shaping community identity and stewardship but is often neglected in formal conservation systems.

9. REFORM AND ALIGN LEGAL AND POLICY FRAMEWORKS

Advocate for the development and reform of international agreements and national legislation to include explicit protections for Ocean Heritage, including throughout the implementation strategies—especially in the face of climate change, sea-level rise, and industrial activity. Heritage protection should be aligned with environmental, social, and cultural rights, ensuring that legal systems reflect the complex realities of marine spaces.

10. INVEST IN INTERDISCIPLINARY CAPACITY AND LONG-TERM RESEARCH

Increase funding for interdisciplinary marine research that integrates the natural and cultural sciences, including archaeology, anthropology, history. Research should be oriented toward real-world impact, community benefit, and long-term sustainability. This also includes supporting emerging scholars, practitioners, and community researchers through fellowships, exchanges, and collaborative projects.

The integration of cultural heritage into ocean science and governance must extend well beyond the symbolic or supplementary. It is a foundational element of sustainable, inclusive, and resilient marine futures. As the Ocean Decade concludes, its legacy must be measured not only in ecological metrics or technological innovation, but also in its capacity to foster equity, knowledge pluralism, and long-term stewardship.

This Blue Paper calls upon the global ocean community—governments, research institutions, NGOs—to commit to the structural inclusion of Ocean Heritage in the post-Decade era. Only by recognising the full scope of human–ocean relationships can we ensure that ocean governance is truly sustainable, just, and future-facing.

The Rising from the Depths network involved documenting traditional fishing techniques – here local women at Tanga in Tanzania are sorting through the day's fish catch.



6. Conclusion

6.1 Ocean Heritage and the Future of Ocean Governance

This Blue Paper has demonstrated through tangible examples that heritage is not ancillary to marine governance but central to its sustainability, equity, and effectiveness. Ocean Heritage—encompassing both tangible and intangible expressions of human interaction with marine environments—represents a foundational pillar in the development of ethical, inclusive, and contextually appropriate ocean science and policy.

The ongoing Ocean Decade has provided a critical platform to challenge conventional paradigms and encourage interdisciplinary approaches that better reflect the complexity of human–ocean relationships. Cultural heritage offers both historical insight and contemporary relevance for addressing the social, ecological, and climatic challenges facing the ocean today.

By recognising Ocean Heritage as a dynamic system of knowledge, practice, and memory, we are better positioned to understand how past and present human interactions with the sea shape ecological processes, governance strategies, and community resilience. Integrating heritage into ocean science moves the field beyond a narrow focus on biophysical data toward a more holistic understanding of the ocean as a socio-ecological system.

The long-term success of the Ocean Decade will be determined not only by scientific outputs or conservation targets achieved but by the degree to which it transforms the structural foundations of marine governance. A truly sustainable ocean future demands the integration of cultural heritage at all levels—from global policy to local stewardship—and across all sectors, including education, conservation, development, and maritime planning. Such integration requires more than rhetorical inclusion. It demands robust frameworks for heritage valuation, interdisciplinary capacity-building, equitable community partnerships, and policy reform. The tools and methodologies presented in this report—such as integrated cultural–natural indicators, cross-sector governance models, and revised funding opportunities—provide a practical foundation for this work. The examples presented within this document provide on-the-ground illustrations of this approach in action and continue to build a growing bank of evidence demonstrating how heritage-based frameworks can enhance ocean sustainability, strengthen governance legitimacy, and support equitable, culturally grounded marine conservation outcomes.

Sailing in Madagascar.



6.2 Call to Action

As the Ocean Decade progresses toward its conclusion, the imperative is clear: the momentum generated must not only be sustained but institutionalised through durable policy, legal, and governance frameworks.

The ocean is more than a reservoir of biodiversity and a regulator of planetary systems—it is also a repository of human history, identity, and cultural meaning. Effective and equitable ocean governance must therefore encompass the full spectrum of cultural values and practices that shape human–ocean relationships.

The integration of cultural heritage into marine science and policy is no longer optional or aspirational—it is a necessary condition for achieving resilient, inclusive, and adaptive ocean futures. To meet this challenge, heritage must be embedded not as a symbolic gesture, but as a core dimension of long-term ocean governance architecture.

The Ocean Decade presents a pivotal moment to redefine the role of heritage in shaping more inclusive, just, and sustainable relationships with the ocean. To do so, we must move beyond tokenistic inclusion and instead recognise heritage as a dynamic driver of knowledge production, community resilience, and ocean stewardship. This requires building equitable partnerships that respect Indigenous and local knowledge systems, investing in interdisciplinary and transdisciplinary approaches, and creating governance frameworks that embed heritage at all levels of decision-making.

To fully realise these ambitions, a clear and coordinated agenda is needed. We recommend the following way forward:

- **Formal recognition of Ocean Heritage** as a core component of the Ocean Decade’s mission and outcomes.
- **Targeted funding and support** for heritage-led ocean science initiatives, especially those driven by and for coastal communities.
- **Capacity building and training** that empower early career researchers, Indigenous practitioners, and other underrepresented groups to engage in Ocean Heritage work.
- **Robust evaluation frameworks** that measure how heritage contributes to the societal outcomes of the Ocean Decade, including equity, sustainability, and intergenerational justice.

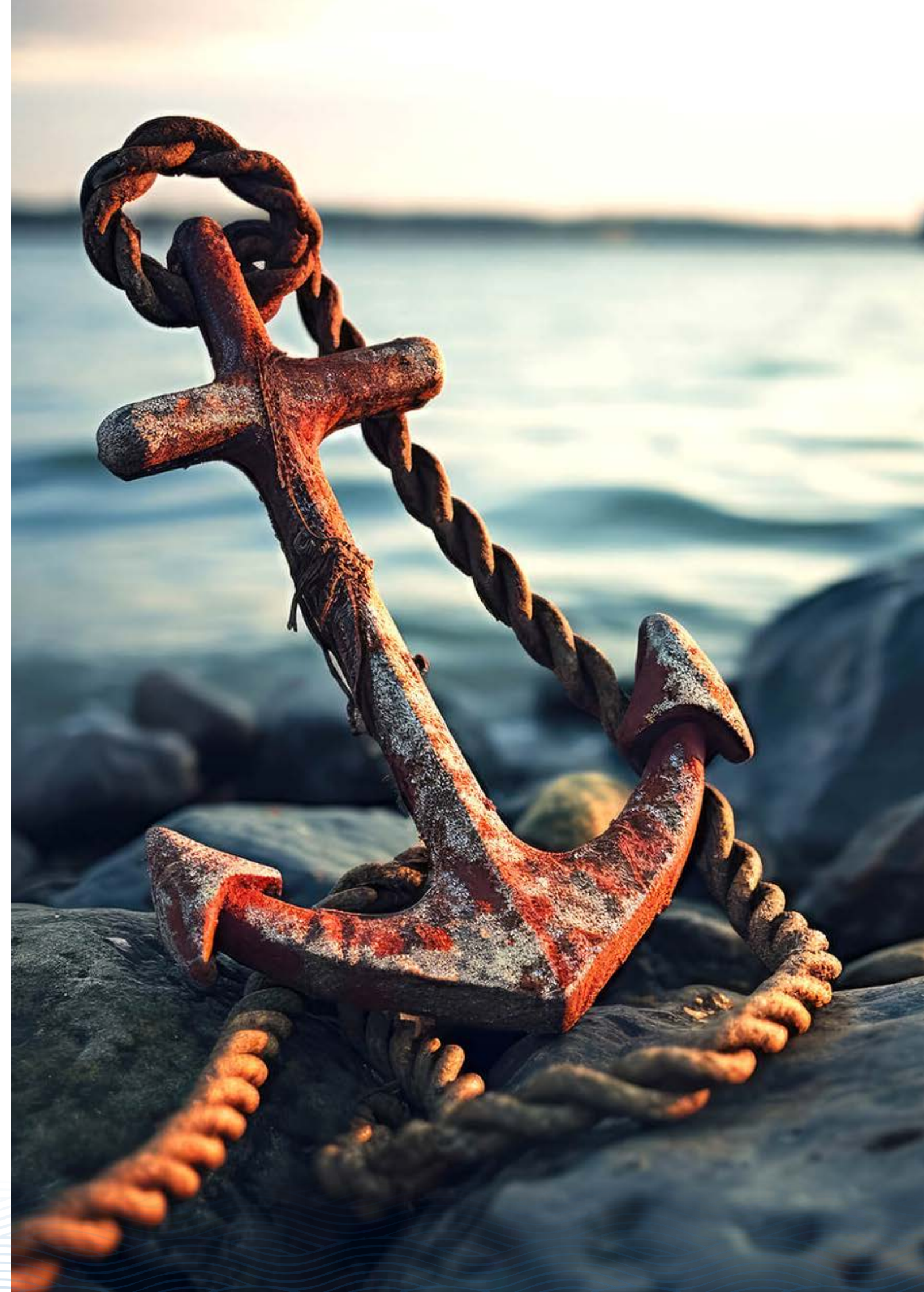
Only by embedding Ocean Heritage in the science, policy, and governance of the Ocean Decade can we ensure a truly transformative approach to ocean futures—one that acknowledges the deep interconnections between people and the sea across time and space.

The responsibility before us is to ensure that the frameworks developed during the Ocean Decade lay the groundwork for governance systems that are not only ecologically robust but also culturally responsive. The future of the ocean—and of the communities whose lives are entwined with it—depends on the decisions we make today.

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The Cultural Heritage Framework Programme

The Cultural Heritage Framework Programme (CHFP) is an endorsed action of the UN Decade of Ocean Science for Sustainable Development (2021–30) coordinated by the University of Edinburgh on behalf of the Ocean Decade Heritage Network (ODHN). It is the first UN-level global platform bringing marine cultural heritage practitioners together with ocean science and policy stakeholders. To date, it is the only endorsed Ocean Decade programme focused on cultural heritage.

At the core of CHFP is the view that marine cultural heritage, including intangible heritage such as traditional and ecological knowledge and practices, and tangible heritage such as shipwrecks and coastal structures, represents an essential medium through which we can provide informed solutions to future challenges, develop resilience, and motivate inclusive sustainable adaptation.

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