OCEAN LANDSCAPE ANALYSIS TO INFORM SCIENCE BASED TARGETS FOR SELECT MARINE-BASED INDUSTRIES

ACKNOWLEDGEMENTS

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About WWF
World Wildlife Fund (WWF) is one of the world's largest and most respected independent conservation organisations. WWF's mission is to stop the degradation of the earth's natural environment and to build a future in which humans live in harmony with nature. WWF's blue finance work aims to support financial institutions to shift capital away from harmful activities in the blue economy and to support the delivery of scalable, durable global oceans solutions. For more information, please visit www.worldwildlife.org/pages/blue-finance.

GLOSSARY

TABLE 1: GLOSSARY OF KEY TERMS

S. NO.	TYPE	TAXONOMY		DEFINITION
1	**Sectors in Focus**	Marine Renewables		Companies providing offshore wind and tidal/ wave energy
2		Shipping		Shipping lines providing transport of cargo, including companies carrying out port development
3		Coastal Tourism		Companies running business activities in coastal and marine tourism, ranging from coastal resorts, cruise ships, motor boating, scuba diving, fishing, seafood restaurants and artificial beaches
4		Coastal Development		Companies contributing to human-induced change of the landscape within sight of the coastline
5	**Types of Frameworks**	Disclosure Framework		Frameworks which involve reporting and disclosure of an organization's natural capital dependencies, risks and opportunities, policies, strategies, targets and performance to avoid impacts on ocean and marine ecosystem
6		Guidance Framework		Specific recommendations that provide directions on how to set specific targets to avoid impacts on ocean and marine ecosystem
7		Sectoral Practices		Well-documented and sector-specific initiatives that provide evidence of success to avoid impacts on ocean and marine ecosystems and can be considered for replication by actors in the same sector
8		Standards & Certifications		Structured guidelines and criteria used to assess and verify the compliance of organizations or projects with specific environmental or quality benchmarks
9	**Governance Mechanisms**	Targets		Identify the specific, planned level of result in terms of reduction of impact on ocean health, to be achieved within an explicit time frame.
10		Key Performance Indicators (KPIs)		Measurable values that demonstrate how effectively an organization is achieving key business objectives. They are used to evaluate success at reaching targets and can encompass various dimensions, including financial performance, operational efficiency, and sustainability metrics
11		Accountability Mechanisms		Mechanisms to ensure responsibility for the deterioration of the ocean and marine ecosystem
12		Compliance Indicators		Metrics used to assess whether certain environmental standards (such as the use of renewable energy in ports or the protection of critical habitats) are being met
13	**Pressures**	**Habitat Degradation**	Habitat Degradation	Loss of ecological function or integrity of habitat
14			Nesting Ground Degradation	Degradation of habitats where species are nesting
15			Coastal Alteration and Erosion	Altering the physical nature of the coastal zone by coastal construction and engineering
16			Land Reclamation	Process of creating new land by raising the elevation of a low-lying land by removal of water
17			Human Deforestation	Action of clearing a wide area of trees by humans (as opposed to deforestation caused by natural disasters)
18			Dredging and Mining	Operation of excavating material from an ocean water environment
19		**Pollution**	Chemical/ Nutrient Pollution	Chemicals from human-induced activities that are disposed or abandoned into the sea (or leak)
20			Debris Pollution	Human-made solid material that is disposed of or abandoned in the sea
21			Contaminated Packaging	Packaging contaminated with residues
22		**Invasive Species**	Invasive Species	Increase in invasive species population, usually non-native
23			Ballast Water	Fresh or salt water held in tanks and cargo holds of ships
24	**Pressures**	**Wild Population Impact**	Marine Life Stress	Increase in stress to marine species population
25			Direct Ship Strikes	Shipping and ferry lanes overlapping directly with species habitat, often leading to actual collision of ships with wildlife
26			Migratory Changes	Increase in or change in migration pattern of species
27			Noise Pollution	Harmful levels of noise
28			Endangered/ Threatened/ Protected Species Impact	Impacts or increased risk to ETP species rebuilding or recovery

S. NO.	TYPE	TAXONOMY	DEFINITION
29	**Mitigation Hierarchies**	AR3T Framework	The AR3T framework includes four types of actions that should be followed sequentially - avoid, reduce, restore, regenerate and includes transformative action that can be taken any time
30		IUCN Framework	A mitigation hierarchy prioritizing avoidance, minimization, restoration, and offsetting to manage nature impacts
31	**Socio-Economic Considerations**	Livelihood Opportunities	Promotes livelihood opportunities for local communities by emphasizing the importance of engaging Indigenous Peoples and Local Communities in biodiversity conservation efforts
32		Distributional Equity and Benefit Sharing	Promotes fair and equal distribution of benefits to local communities; advocates access and benefit sharing
33		Protection of Human Rights	Considers human rights policies and engagement activities with respect to local communities, affected and other stakeholders
34		Participatory Governance (Inclusion)	Builds partnerships with Indigenous people and local communities to co-create, ensuring inclusive decision-making processes, where all stakeholders have a voice in shaping the conservation strategies
35		Resilience	Outlines the protocols or processes to assess and mitigate the impact of restoration/ conservation activities on the ability to thrive of ecosystems, communities or stakeholders
36	**KPIs & Targets**	Specific (S)	Contained and well-defined in what they are describing, both in terms of specific activities and/or location
37		Measurable (M)	Quantifiable, and infrastructure must exist for progress to be measured
38		Achievable (A)	Provides the necessary methods, tools, and consideration of potential obstacles to allow for building a clear business case for action on ocean health
39		Relevant (R)	Relate to the issue they are setting out to act on
40		Time-bound (T)	Have a deadline to be achieved
41	**Accountability Mechanisms**	Voluntary Adoption	Frameworks that businesses choose to implement on their own, without being mandated
42		Incentivization Scheme	Frameworks offering rewards or benefits to encourage participation and compliance
43		Monitoring & Reporting	Frameworks that require tracking and disclosure of performance or progress
44		Regulatory Requirement	Frameworks that are mandated by law or government policy for compliance
45		Industry Level Push	Frameworks driven by collective industry efforts to raise standards and practices across the sector
46	**Alignment to SDG 14**	14.1 Reduce Marine Pollution	Promotes reduction of marine pollution
47		14.2 Sustainably Manage and Protect Marine and Coastal Ecosystems	Promotes sustainable management and protection of ecosystems
48		14.3 Reduce Ocean Acidification	Frameworks addressing climate change (hence indirectly ocean acidification)
49		14.4 Ensure Sustainable Fishing Practices	N/A (Out of scope of our analysis)
50	**Alignment to SDG 14**	14.5 Conserve Coastal and Marine Areas	Advocates to conserve coastal and marine areas, consistent with national and international law
51		14.6 End Subsidies for Overfishing	N/A (Out of scope of our analysis)
52		14.7 Increase Economic Benefits from Sustainable Use of Marine Resources	Promotes economic benefits for local communities, access and benefit sharing
53		14.A Increase Scientific Knowledge, Research, & Technology for Ocean Health	Encourages marine tech transfer/ investing in R&D/ data gathering/ nature financing
54		14.B Support Small-scale Fishers	N/A (Out of scope of our analysis)
55		14.C Implement and Enforce International Sea Law	Encourages the use of already existing laws for ocean conservation

ACRONYMS

TABLE 2: LIST OF ACRONYMS

S. NO.	ACRONYMS	FULL FORM
1	**ADB**	Asian Development Bank
2	**AER**	Annual Efficiency Ratio
3	**BfN**	Business for Nature
4	**CBD**	Convention on Biological Diversity
5	**CBI**	Climate Bonds Initiative
6	**CDP**	Carbon Disclosure Project
7	**CSRD**	Corporate Sustainability Reporting Directive
8	**EEOI**	Energy Efficiency Operational Indicator
9	**EFRAG**	European Financial Reporting Advisory Group
10	**ESRS**	European Sustainability Reporting Standards
11	**EU**	Europe
12	**FfB**	Finance for Biodiversity
13	**GBF**	Global Biodiversity Framework
14	**GRI**	Global Reporting Initiative
15	**GSSB**	Global Sustainability Standards Board
16	**IAPH**	International Association of Ports and Harbors
17	**ICMA**	International Capital Market Association
18	**IFC**	International Finance Corporation
19	**ILO**	International Labor Organization
20	**IMO**	International Maritime Organization
21	**ISSB**	International Sustainability Standards Board
22	**IUCN**	International Union for Conservation of Nature
23	**LCA**	Life Cycle Assessment
24	**MARPOL**	International Convention for the Prevention of Pollution from Ships
25	**NA**	North America
26	**NPI**	Net Positive Impact
27	**OECD**	Organisation for Economic Co-operation and Development
28	**PRB**	Principles for Responsible Banking
29	**SBE**	Sustainable Blue Economy
30	**SBEFI**	Sustainable Blue Economy Finance Initiative
31	**SBTN**	Science Based Targets for Nature
32	**TNFD**	Taskforce on Nature-related Financial Disclosures
33	**UNEP FI**	United Nations Environment Programme Finance Initiative
34	**UNEP-WCMC**	United Nations Environment Programme World Conservation Monitoring Centre
35	**UNGC**	United Nations Global Compact
36	**UNWTO**	United Nations World Tourism Organization
37	**WBCSD**	World Business Council for Sustainable Development
38	**WDPA**	World Database on Protected Areas
39	**WEF**	World Economic Forum
40	**WPSP**	World Ports Sustainability Program
41	**WRI**	World Resources Institute

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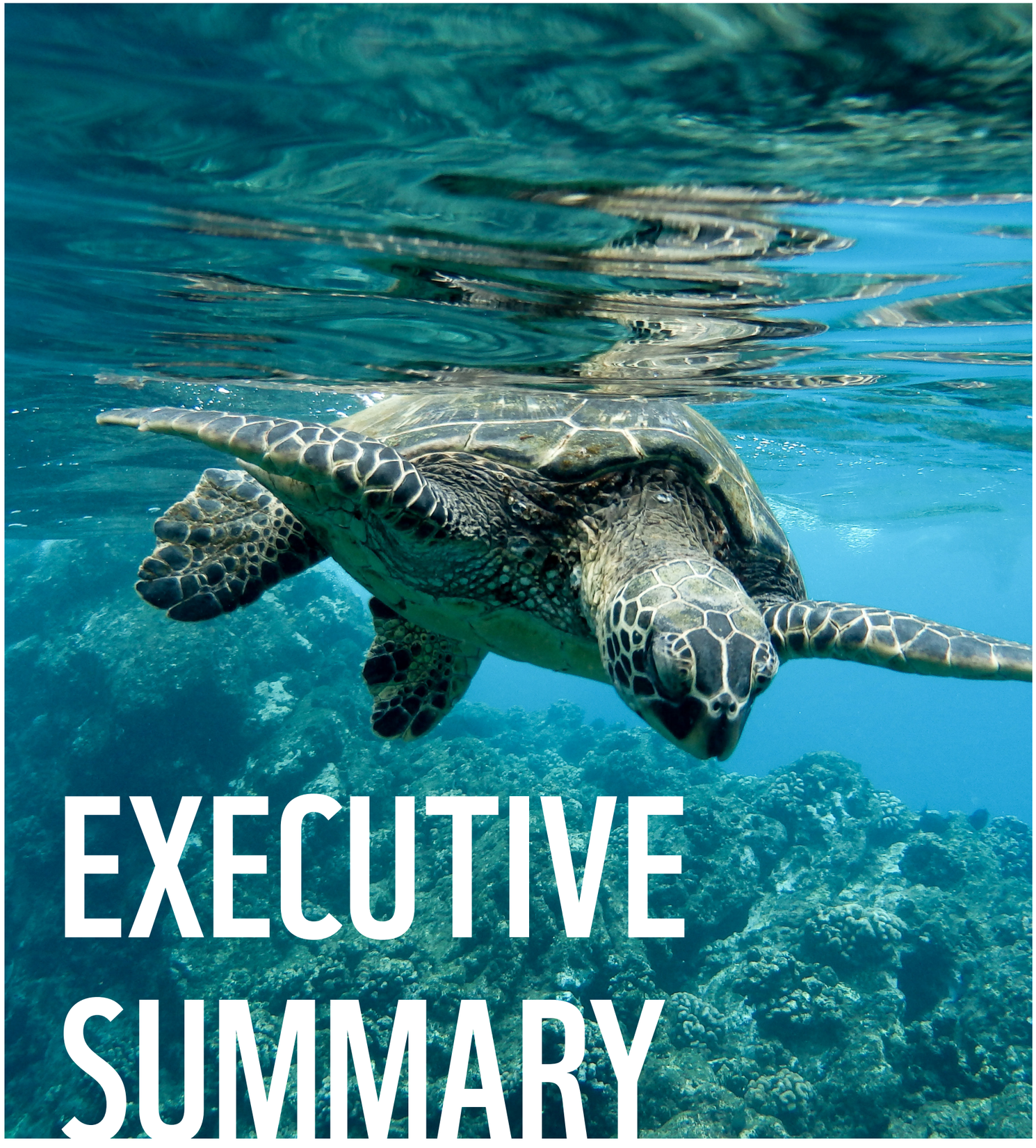


EXECUTIVE SUMMARY

- The ocean is critical for all life on Earth and foundational to the world's economy.
- Corporate actions impact ocean health, including **habitat loss, pollution, species impacts, and invasive species**; these pressures can be addressed through private sector standards, including through the Science Based Targets Network (SBTN).
- We reviewed the landscape of available standards, frameworks, and guidance for companies, identified, gaps, and developed recommendations for future target-setting for key sectors: **marine renewables, shipping, coastal tourism, and coastal development**. (A prior analysis focused on fisheries and aquaculture, which informs the current SBTN Ocean Hub draft guidance)
- **There is a significant lack of industry-specific targets available**, limiting corporate opportunities to address ocean health — with several critical ocean pressures largely left unaddressed by corporations (e.g., coastal alteration and erosion; ship strikes).
- **Target-setting today is not always science-based nor informed by the restoration or transformation steps in the mitigation hierarchy** given most frameworks focus largely on "avoidance" and "minimization," leaving business with limited guidance to address restoration, regeneration, and broader systems change.
- **Enforcement of science-based targets is non-existent**, leaving companies with limited measurable and time-bound targets to address ocean health.
- While companies have started reporting on risks and opportunities via frameworks such as TNFD, **dedicated target setting for the oceans remains a considerable gap**.
- We now need science-based guidance for the ocean, enabling mitigation of risks to the marine ecosystem — only then **can the industry accelerate access to finance, regulatory guidance, and technology**.
- The SBTN has the potential to develop transformative guidance on reducing pressures in the marine ecosystem by focusing on 3Cs: **Capabilities, Collaboration and Communication**. It is critical to ensure that it continues to play the role of a trusted, neutral standard setter.

The health of the world's oceans is critical for maintaining ecological balance and supporting economic stability. Covering 71% of the Earth's surface, oceans play a vital role in climate regulation by absorbing excess heat and sequestering carbon dioxide. They are integral to the global economy, with sectors such as maritime shipping, fishing, coastal tourism, and renewable energy contributing significantly to livelihoods and biodiversity. The marine renewables, shipping, coastal tourism, and coastal development sectors are experiencing rapid growth, with marine renewables projected to reach 570 GW by 2040 and offshore wind comprising 97.2% of marine energy production. Shipping is set to double seaborne cargo volumes to 20 billion tons by 2030. Coastal tourism, contributing 26% to the ocean economy by 2030, heavily relies on ecosystems like coral reefs, which generate $11.5 billion annually. Coastal development, driven by initiatives like China's Maritime Silk Road, poses risks through dredging and habitat disruption.

However, the ongoing decline in ocean health poses substantial risks, potentially costing the global economy over $400 billion annually by 2050.[1]

THE ONGOING DECLINE IN OCEAN HEALTH WILL POTENTIALLY COST THE GLOBAL ECONOMY

$400B BY 2050

1 Stuchtey, M. R., Vincent, A., Merkl, A., & Bucher, M. (2022). Ocean Solutions that Benefit People, Nature and the Economy. High Level Panel for a Sustainable Ocean Economy.

This report aims to provide insights into the current frameworks addressing ocean health and to propose actionable recommendations for establishing science-based targets (SBTs) that can guide corporate engagement in ocean conservation.

Despite the emergence of international agreements like the High Seas Treaty, which aims to protect marine biodiversity by designating Marine Protected Areas (MPAs), there remains a significant gap in corporate engagement with ocean health. The Science Based Targets initiative (SBTi) has successfully guided over 4,000 companies in setting emissions reduction targets for climate action. The establishment of SBTs for Nature is crucial for aligning corporate objectives with global biodiversity goals, such as those outlined in the Kunming-Montreal Biodiversity Framework. While SBTN guidance around the target-setting for land and freshwater have been deployed, a similar approach for oceans is essential to extend corporate responsibility beyond terrestrial ecosystems to include marine environments.

This report outlines recommendations for developing SBTs for oceans by analysing 25 existing frameworks relevant to marine-related industries, including marine renewables, shipping, tourism, and coastal development. The study employed a two-phased approach: first conducting a landscape assessment of current frameworks and then performing a gap analysis to identify deficiencies in framework applicability and effectiveness. Key criteria for assessment included completeness, quality, and ambition of the frameworks.

We reviewed existing guidance to inform approaches to future science-based target setting, focusing on four key sectors that significant impact ocean health:

Marine Renewables

Rapid growth necessitates careful planning to mitigate ecological impacts.

Shipping

Increasing cargo volumes raise concerns about the effects of ballast water, noise pollution, and ship strikes on marine biodiversity.

Coastal Tourism

Climate change threatens infrastructure while pollution exacerbates coastal degradation.

Coastal Development

Coastal engineering such as port operations contribute to emissions and habitat disruption.

The insights outlined in this report aims to inform the efforts being undertaken by civil society, industry coalitions, and researchers, aiming to design, develop, or suggest credible and actionable recommendations for companies to drive nature positive action in the marine ecosystem. Notably, this analysis does not include frameworks related to seafood (and overexploitation) or climate change, as SBTN targets for the seafood value chain are actively being developed, and climate-related impacts are covered by SBTi.

We are now observing a growing recognition of the need for integrated approaches to ocean conservation. For example, some frameworks - such as the Taskforce on Nature-related Financial Disclosures (TNFD) - are beginning to incorporate ocean health metrics into broader environmental standards, albeit in a fragmented manner which lacks a singular focus on marine ecosystems.

Despite these advancements, regulatory mandate and enforcement of ocean action remains a challenge, and many countries struggle with adoption of sustainable practices due to limited resources or political will. Additionally, these frameworks often address ocean health only tangentially, or lack specific guidance tailored to sectoral challenges. This can lead to overlapping mandates and diluted efforts among stakeholders. For instance:

- Many frameworks adequately cover common pressures such as habitat degradation and pollution but often fail to address specific sectoral issues like land reclamation or ship strikes on marine wildlife.
- A lack of granularity in addressing specific pressures limits effective action; for instance, knowing that habitat degradation is an issue is less actionable than understanding its specific sources.

Only a few frameworks focus explicitly on ocean health—such as “Setting Sail,” “Turning the Tide,” and “Bonds to Finance the Sustainable Blue Economy”—and even these do not fully encompass all necessary aspects of marine conservation.

>70%

OF THE 25 FRAMEWORKS ADDRESS AVOIDANCE AND REDUCTION STRATEGIES

Despite advancements in framework development, there remain two principal gaps in actionable guidance for corporations looking to engage with ocean conservation:

- Many existing frameworks lack robust quantitative metrics that allow for nuanced measurement of impacts; they often rely on binary assessments that do not provide sufficient detail for effective decision-making. For example – the ‘FAST Infra label’ offers only a few measurable indicators around ‘Quantifying Positive Contribution’ while the majority are based on binary measurements.
- There is an imbalance in how frameworks approach mitigation strategies; while avoidance and reduction strategies are well-represented (with >70% of frameworks addressing these), restoration efforts are often overlooked due to their complexity.

Frameworks like TNFD stand out by providing detailed methodologies that guide companies through assessing their ocean-related impacts effectively. However, there is still a noticeable lack of science-based guidance on integrating Key Performance Indicators (KPIs) for ocean conservation into corporate strategies.

To achieve meaningful progress in safeguarding ocean health, it is crucial to develop comprehensive guidelines that integrate scientific evidence with actionable metrics across all sectors which are impacting marine ecosystems. By addressing these gaps collaboratively among public and private stakeholders, we can foster a more sustainable future for our oceans.

The recommendations outlined in this report focus on enhancing corporate engagement in ocean health through three key pillars– **Capabilities, Collaboration and Communication**.

Capabilities

First, the target-setting methodology should balance ambition with feasibility, ensuring that ocean health targets align with international frameworks like the UN Sustainable Development Goals and the Global Biodiversity Framework while being tailored to industry-specific conditions. Standardization of the classification and measurement of ocean pressures across industries is crucial for consistent reporting and monitoring. There is also a need to strengthen restoration efforts by moving beyond a 'do no harm' approach to incorporating long-term regeneration strategies, allowing businesses to adapt gradually while committing to ocean health.

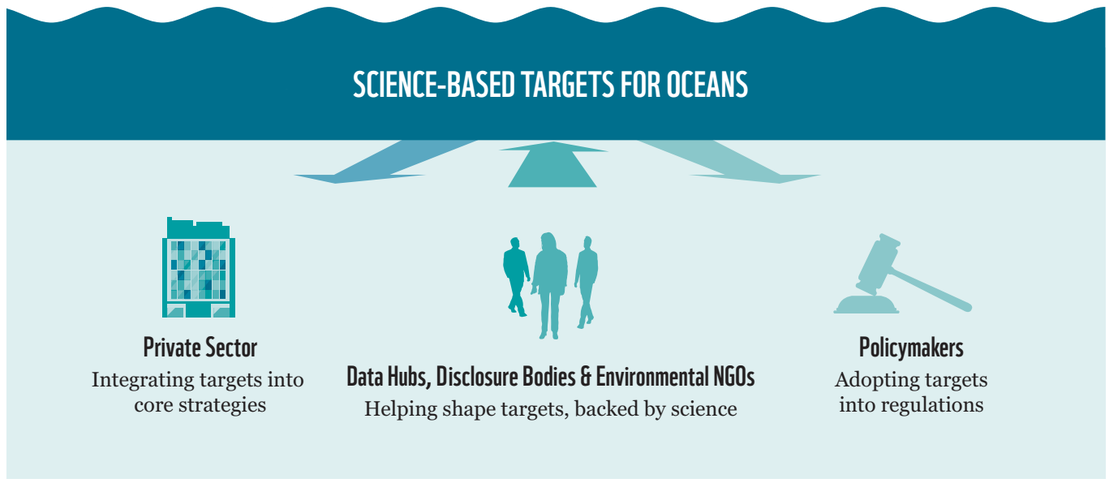
Collaboration

Additionally, aligning SBTN methodologies with existing reporting standards such as TNFD and EU CSRD will streamline compliance processes and reduce duplication of efforts. Collaborative partnerships among ecosystem actors and the private sector are essential for effective data sharing and reporting, which can be facilitated through a centralized ocean data hub. To reinforce the business case for sustainability, it is important to link ocean pressures to tangible financial risks and opportunities, promoting a holistic approach that addresses both ecosystem resilience and community well-being. Tailored resources should support corporate implementation of targets, drawing on in-sights from pilot programs to update toolkits and foster peer learning.

Communication

Finally, engaging policymakers and financial institutions to promote company action to reduce pressures on nature will enhance collective action. Multiple tools can be considered including compliance-based and voluntary measures and green financing options for companies committed to sustainability targets.

FIGURE 1: ROLE OF STAKEHOLDERS IN SUPPORTING SBTS FOR OCEANS



Effective governance of the oceans requires collaboration between governments, NGOs, and private sectors to ensure adherence to these agreements. Stakeholders—including companies, policymakers, and conservation groups—can get involved by advocating for the adoption of SBTs, joining Ocean Hub's initiatives, and collaborating on projects that drive positive change:

- Businesses should integrate ocean health into core strategies, implement industry-specific sustainability measures, invest in habitat restoration, and foster collaboration across sectors.
- Policymakers should incorporate ocean targets into national and international frameworks, strengthen regulatory measures, promote public-private partnerships, and increase investment in ocean protection.
- Non-profits and conservation groups should align conservation programs with SBTs, mobilize financial resources, monitor progress, engage local communities, and advocate for policy changes to ensure long-term ocean resilience and sustainability.

The report emphasizes the urgent need for cohesive action towards safeguarding ocean health through science-based targets for nature. By fostering collaboration between public and private sectors and developing comprehensive frameworks to enable setting of targets, which are tailored to specific industry challenges, we can drive meaningful progress toward a sustainable ocean economy. Implementing these recommendations will not only protect marine ecosystems but also enhance economic resilience and social well-being globally.

Photo Credit: Joan Sullivan / Climate Visuals

THE GROWING AND EVOLVING SIGNIFICANCE OF OCEAN HEALTH

- Oceans are crucial for regulating the planet's climate by absorbing excess heat and carbon dioxide, while contributing significantly to biodiversity and economic sectors like fishing, shipping, and renewable energy.
- The declining health of oceans could cause economic losses of over $400 billion annually by 2050, making ocean conservation essential for both ecological and economic stability.
- International agreements, such as the 2023 High Seas Treaty, aim to protect marine ecosystems, designating 30% of oceans as Marine Protected Areas and introducing regulations for deep-sea mining however gaps still persist in mobilizing action on ocean conservation from all sectors.
- Science based Targets can provide structured guidance to businesses on setting a sustainability ambition that expands beyond climate-focused initiatives to address the complex, interconnected nature of marine ecosystems.

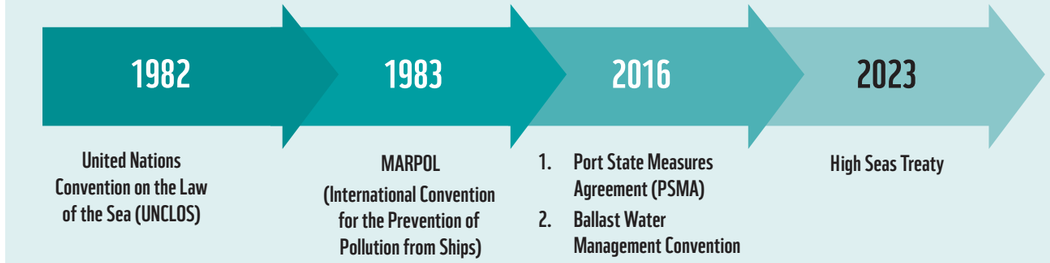
Oceans, which cover 71% of the Earth's surface, are essential for maintaining both ecological balance and economic stability. They play a crucial role in regulating the planet's temperature by absorbing approximately 93% of excess heat and sequestering around 30% of human-produced carbon dioxide (CO_2).[2] According to the High-Level Panel for a Sustainable Ocean Economy, the ocean economy has the potential to achieve 21% of the greenhouse gas (GHG) emission reductions necessary to meet the Paris Agreement's goal of limiting global temperature rise to 1.5°C by 2050.[3] Additionally, key ecosystems such as coastal wetlands, mangroves, and coral reefs are vital to the 'blue economy,' contributing significantly to biodiversity conservation and providing livelihoods to over 31 million people worldwide.[4] Efforts to conserve, mitigate, and restore ocean health is the only path to building a resilient future, as climate-induced coral reef loss could expose 100–300 million people to increased risk of floods and hurricanes.[5]

Beyond its ecological importance, the ocean serves as a significant economic driver. It encompasses various sectors such as maritime shipping, fishing and aquaculture, coastal tourism, renewable energy, undersea cabling, seabed extraction, marine genetic resources, and biotechnology. Collectively, these activities could add an additional USD $1.5 trillion to the global economy annually, which is expected to double to $3 trillion by 2030.[4] However, the declining health of our oceans could cost the global economy over $400 billion annually by 2050.[5]

Despite a focus on the 'green economy' centred on land-based initiatives for a low-carbon future, there is a renewed recognition of the importance of ocean health to sustain planetary well-being. International agreements that aim to govern the sustainable use of oceans are on the rise. In March 2023, a landmark agreement known as the High Seas Treaty was established at the United Nations, aiming to designate 30% of the world's oceans as Marine Protected Areas (MPAs) to safeguard wildlife and ensure equitable access to marine genetic resources. This treaty also allocates additional funding for marine conservation and introduces new regulations for deep-sea mining.

2 Hoegh-Guldberg, O. (2022). The Ocean as a Solution to Climate Change. The High-Level Panel for Sustainable Blue Economy.
3 IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Bonn, Germany.
4 UNEP FI. (2022, April 7). In the same boat: ocean finance, inclusivity and social equity. Retrieved from Blue Finance: https://www.unepfi.org/themes/ecosystems/in-the-same-boat-ocean-finance-inclusivity-and-social-equity/
5 Stuchtey, M. R., Vincent, A., Merkl, A., & Bucher, M. (2022). Ocean Solutions that Benefit People, Nature and the Economy. High Level Panel for a Sustainable Ocean Economy.

FIGURE 2: INTERNATIONAL AGREEMENTS GOVERNING SUSTAINABLE USE OF OCEANS



While government action on oceans is emerging to establish or expand marine protected areas (MPAs), enact sustainable fishing policies, and enforce regulations against pollution, unlocking advancements for ocean health will require a collaborative endeavour between the public and private sectors. Businesses have the potential to drive innovation, provide crucial data and resources, and implement sustainable practices across their value chains. This synergy is vital for generating the comprehensive solutions required to address the multifaceted challenges facing our oceans.

This report aims to illuminate how the existing landscape of frameworks, guidance, and standards considers ocean pressures, how companies are responding, and what will be needed for the successful establishment of science-based targets and goals, ultimately contributing to a blueprint for effective public-private engagements in safeguarding ocean health.

THE NEED FOR SCIENCE-BASED TARGETS

Although regulatory efforts like the High Seas Treaty and the voluntary reporting frameworks like the Taskforce on Nature-related Financial Disclosures (TNFD), have emerged over time and are gaining prominence, the ocean is still perceived as a mere component of nature, rather than a critical and interconnected global biome demanding focused attention. This nascent movement underscores the urgent need for broader corporate engagement in protecting ocean health, both for the fight against climate change and our ecosystem well-being.

The successful Science Based Targets initiative (SBTi), launched in 2015, has established a clear precedent for effective corporate climate action by aiding companies in setting emissions reduction targets. Its scientifically grounded framework has resulted in over 4,000 committed companies actively decarbonizing at an accelerated rate.[7] Throughout its existence, the SBTi's sector-specific guidance and methodologies have ensured relevance and feasibility across a wide range of industries, solidifying its position as a crucial driver of the net-zero future while garnering significant support from investors and stakeholders. While the SBTi enables companies to focus on climate and reduce their carbon footprint over time, developing Science-Based Targets (SBTs) for Nature would complement these efforts to extend a company's target boundaries to the whole Earth system (including oceans) and align with the recent Kunming-Montreal Biodiversity Framework goals adopted in 2022 (synonymous to the Paris Agreement climate goals).

However, the oceans are vast and complex ecosystems with intricate governance systems. Without structured guidance, businesses might have a narrow focus on ocean health, resulting in a fragmented approach to resource sharing, and hindering a holistic understanding of the ocean's environmental and economic consequences. This complexity necessitates an integrated approach that combines knowledge and data across various scientific disciplines and underscores the need for a precautionary approach where scientific understanding is incomplete.

6 United Nations. (2021). The Sustainable Development Goals Report. New York: United Nations Department of Economic and Social Affairs.
7 Science Based Targets. (2024). SBTi Monitoring Report. London: Science Based Targets Initiative.

INDUSTRIES IN FOCUS

SBTs for oceans hinge on providing a well-defined framework for setting science-based targets and actionable pathways and align their environmental goals with scientific evidence and best practices. Corporations, particularly those reliant on and impacting the marine ecosystems, have a significant role in following the methodological guidelines to establish ambitious yet achievable goals for ocean health. Beyond the critical seafood industry, where SBTs are already under development, four other sectors requiring attention include:

1 Marine Renewables

The sector is growing at rapid pace with an estimated 570 GW installation by 2040,[8] fuelled by increasingly competitive electricity costs, increased investments in renewable energy and its minimal environmental footprint, including substantial carbon reduction benefits. Offshore wind, in particular, encompasses 97.2% of all marine energy production[9] of the marine renewables sector, and often has intrinsic sustainability-oriented business values, making it a more mature industry to address ocean health compared to others. Offshore wind farms may be constructed with minimal ecological harm, as long as careful planning, siting, and mitigation strategies are implemented to address concerns like bird/ mammal strikes, noise pollution, and seabed disturbance, that may impact benthic communities, fish stocks, and ecosystem productivity.[10]

2 Shipping

The OECD predicts a near doubling of seaborne cargo volume by 2030, reaching 20 billion tons, primarily driven by GDP growth. While international agreements and corporate efforts are pushing for decarbonization in shipping, the discharge of untreated ballast water remains a major concern. This practice poses a significant threat to marine biodiversity, potentially leading to severe public health, environmental, and economic consequences. The sheer volume of organisms in ballast water – up to 50,000 zooplankton and 10 million phytoplankton cells per cubic meter – highlights the magnitude of this issue. In response to these threats, the IMO's ongoing implementation of the Ballast Water Management Convention since 2016, aims to prevent the spread of these invasive species. Beyond ballast treatment systems, they also set out guidelines for control and management of biofouling, which is another significant pathway for the transfer of invasive aquatic species. Other detrimental effects of shipping include noise pollution that disrupts crucial communication and foraging behaviours, and ship strikes causing injuries and fatalities across numerous sensitive habitats.

3 Coastal Tourism

It is the top economic contributor to coastal communities and small island developing states and is projected to be the largest (26%) by GDP ocean economy sector by 2030.[11] The sector is both highly dependent on ocean and coastal health and contributes significant and growing pressures on marine ecosystems and coastal communities. According to the World Travel and Tourism Council, approximately 80% of the value of travel and tourism goods and services is highly dependent on nature, including oceans.[12] For example, coral reefs, contribute $11.5 billion annually to global tourism, so damages to these ecosystems poses serious risks to economies and business that are dependent on these ecosystems.[13] Impacts and pressures the industry exerts on coastal and ocean health include pollution, sewage, nutrient run-off, coastal land degradation, plastic waste, local population displacement and impacts to place-based character and culture. Climate related threats further amplify these impacts and broad risk profiles. For instance, sea level rise is submerging resorts and coastal infrastructure with estimated economic losses reaching $10 to $23.3 billion by 2050.[14]

4 Coastal Development

While ports are intrinsically connected to the shipping industry, they themselves present many challenges. Their operations contribute to carbon emissions, pollution from goods movement, and waste mishandling that contaminates local waterways. Heavy ship traffic also generates underwater noise. Furthermore, port construction and expansion often involve dredging and land reclamation, disrupting marine habitats and altering water flows and sediment patterns, which can lead to increased deposition in some areas and erosion in others. With significant expansions planned due to China's Maritime Silk Road initiative[15] and the European Fit for 55 programs[16] (European Union, 2022), these issues are expected to worsen. Beyond its obvious linkages to shipping, ports play a vital role in the entire lifecycle of offshore wind farms, from manufacturing and construction to installation, operation, and maintenance. Their strategic location and infrastructure make them indispensable for the successful buildout of the offshore wind industry.

> **By encouraging companies to adopt ambitious targets that align with scientific evidence, business leaders from these sectors can mobilize resources for research, promote innovation, and advocate for policy changes. Together, these actions can accelerate the shift towards mitigating the impacts posed by the sectors and safeguard marine biodiversity, while also generating social and economic benefits, including improved livelihoods, enhanced resilience, and strengthened ecosystem services.**

8 IEA. (2019). World Energy Outlook. Paris, France: International Energy Agency.
9 Ocean Energy Systems (OES). (2020). OES Annual Report. Paris, France: International Energy Agency.
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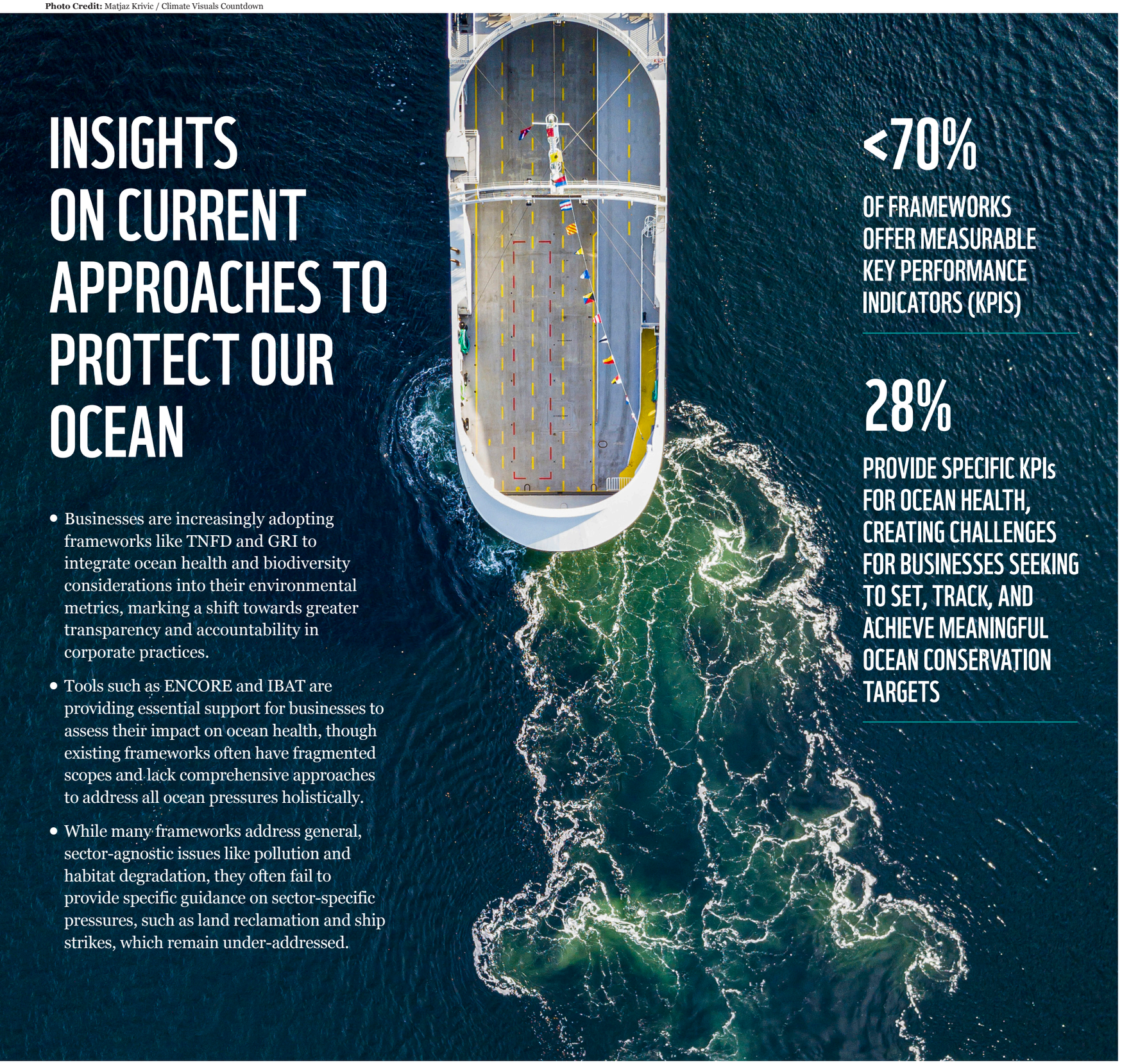
Photo Credit: Matjaz Krivic / Climate Visuals Countdown



INSIGHTS ON CURRENT APPROACHES TO PROTECT OUR OCEAN

- Businesses are increasingly adopting frameworks like TNFD and GRI to integrate ocean health and biodiversity considerations into their environmental metrics, marking a shift towards greater transparency and accountability in corporate practices.
- Tools such as ENCORE and IBAT are providing essential support for businesses to assess their impact on ocean health, though existing frameworks often have fragmented scopes and lack comprehensive approaches to address all ocean pressures holistically.
- While many frameworks address general, sector-agnostic issues like pollution and habitat degradation, they often fail to provide specific guidance on sector-specific pressures, such as land reclamation and ship strikes, which remain under-addressed.

<70%

OF FRAMEWORKS OFFER MEASURABLE KEY PERFORMANCE INDICATORS (KPIS)

28%

PROVIDE SPECIFIC KPIs FOR OCEAN HEALTH, CREATING CHALLENGES FOR BUSINESSES SEEKING TO SET, TRACK, AND ACHIEVE MEANINGFUL OCEAN CONSERVATION TARGETS

- Sector-specific pressures like coastal alteration and land reclamation are often overlooked, highlighting the need for more tailored guidance to address the unique challenges faced by different industries operating within marine ecosystems.
- Corporate action on ocean-related pressures varies significantly by industry, with high traction in addressing habitat degradation, deforestation, and chemical pollution, but lower engagement in issues like ballast water management and direct ship strikes.
- The majority of frameworks focus on important early-stage mitigation actions such as “avoid” and “reduce” in their ap- proaches, while more complex stages like restoration and regeneration are often neglected, limiting opportunities for proactive and long-term ocean improvement.
- Fewer than 50% of frameworks offer measurable Key Performance Indicators (KPIs), and only 28% provide specific KPIs for ocean health, creating challenges for businesses seeking to set, track, and achieve meaningful ocean conservation targets.
- Existing frameworks, while helpful in structuring corporate approaches to ocean risks, often lack granular, science-based guidance, leading to inconsistent measurement practices and the risk of greenwashing.
- Regulatory mandates for ocean-related reporting are limited, with most frameworks driven by voluntary initiatives; the EU’s ESRS is an exception, but widespread mandatory action remains a challenge for global ocean con- servation.
- New initiatives, such as WWF’s Nature Positive Framework for Oceans, the Marine Net Gain in the UK, and the Global Initiative for Nature and Green Recovery (GINGR), are ex- pected to provide more specific guidance, metrics, and tools, helping businesses better navigate ocean conservation efforts and contribute to a sustainable blue economy.

FIGURE 3: AR3T FRAMEWORK

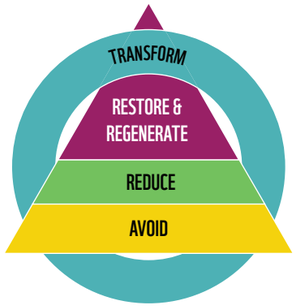
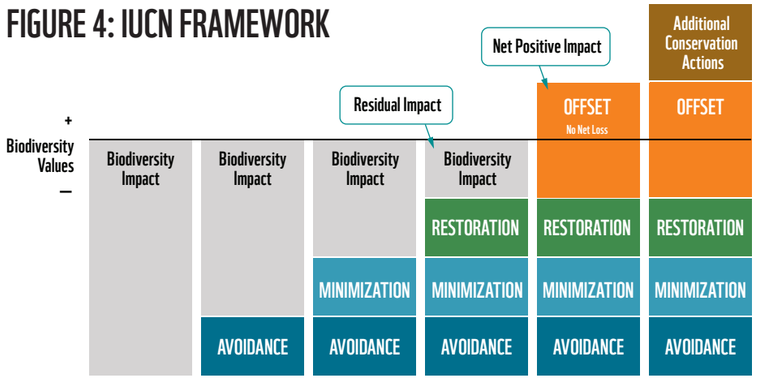


FIGURE 4: IUCN FRAMEWORK



OCEAN HEALTH

The tide is turning in how we measure and manage our impact on the ocean. On one hand, few leading corporates have started to outline their risks and dependencies aligned to disclosure frameworks like the TNFD, which is witnessing high traction among businesses, on the other hand, the widely used GRI standards are starting to integrate ocean health and biodiversity considerations into their broader environmental metrics. While comprehensive, science-based guidance for target setting is still evolving, the initial steps being taken by the corporates, signals a shift towards greater accountability and transparency.

In addition, while corporates' interest in frameworks is growing because of the financial relevance and the intrinsic interest to better monitor and improve risk management, the rise of data portals like the ENCORE and Integrated Biodiversity Assessment Tool (IBAT) are providing invaluable support for driving action towards ocean health. By embracing these tools and collaborating across sectors, businesses can effectively assess their impacts, set meaningful targets, and drive progress towards a sustainable ocean economy. Work is in progress to build a strong foundation for corporate engagement in ocean health. Refer below to understand the landscape of frameworks (Table 3 and Table 4).

TABLE 3: COMPARATIVE ANALYSIS OF FRAMEWORKS ON PRESSURE COVERAGE AND MITIGATION HIERARCHIES

S. NO.		FRAMEWORK	FRAMEWORK TYPE	ISSUING BODY	PRESSURES*	DRIVING FORCES/ PRESSURE GROUPS	AR3T MITIGATION HIERARCHY	IUCN MITIGATION HIERARCHY
	Cross - sectoral	**Taskforce for Nature Related Financial Disclosures (TNFD)**	Disclosure	TNFD		HD PI IS WP	A R1 R2 R3 T	A M R O
		GRI	Disclosure	Global Sustainability Standards Board (G55B)		HD PI IS WP	A R1 R2 R3 T	A M R O
		ESRS	Disclosure	European Financial Reporting Advisory Group (EFRAG)		HD PI IS WP	A R1 R2 R3 T	A M R O
		CDP Biodiversity	Disclosure	Carbon Disclosure Project		HD PI IS WP	A R1 R2 R3 T	A M R O
		Global Biodiversity Framework	Guidance	Convention on Biological Diversity (CBD)		HD PI IS WP	A R1 R2 R3 T	A M R O
		Setting Sail Guidance Criteria	Guidance	UNEPFI + WWF		HD PI IS WP	A R1 R2 R3 T	A M R O
		Turning the Tide Guidance	Guidance	UNEPFI		HD PI IS WP	A R1 R2 R3 T	A M R O
		ACT-D Framework	Guidance	Capitals Coalition + Business for Nature + WBCSD1+ TNFD + SBTN +WEF*+ WWF		HD PI IS WP	A R1 R2 R3 T	A M R O
		Net Positive Impact	Guidance	IUCN		HD PI IS WP	A R1 R2 R3 T	A M R O
		Align Project (Capitals Coalition)	Guidance	UNEP-WCMC+Capitals Coalition+ Arcadis + ICF		HD PI IS WP	A R1 R2 R3 T	A M R O
		Bonds to Finance the Blue Economy	Guidance	ICMA[3]+ADB[4] + IFC + UNGC + UNEPFI		HD PI IS WP	A R1 R2 R3 T	A M R O
		Finance for Biodiversity Foundation Pledge	Guidance	Finance for Biodiversity Foundation		HD PI IS WP	A R1 R2 R3 T	A M R O
		Accounting for Nature Framework and Certification	Standards & Certifications	Accounting for Nature Framework Ltd.		HD PI IS WP	A R1 R2 R3 T	A M R O
	Shipping	**CBI: Shipping Criteria**	Guidance	Climate Bonds Initiative		HD PI IS WP	A R1 R2 R3 T	A M R O
		Clean Shipping Index	Certification	IVL Swedish Environmental Research Institute		HD PI IS WP	A R1 R2 R3 T	A M R O
		Green Marine Certification Framework	Certification	Green Marine International		HD PI IS WP	A R1 R2 R3 T	A M R O
	Marine Renewables	**TNFD Sector Guidance**	Disclosure	TNFD		HD PI IS WP	A R1 R2 R3 T	A M R O
		CBI: Marine Renewable Energy Criteria	Guidance	Climate Bonds Initiative		HD PI IS WP	A R1 R2 R3 T	A M R O
		WBCSD Roadmaps to Nature Positive	Guidance	World Business Council for Sustainable Development		HD PI IS WP	A R1 R2 R3 T	A M R O
	Coastal Tourism	**Global Sustainable Tourism Criteria**	Guidance	Global Sustainable Tourism Council		HD PI IS WP	A R1 R2 R3 T	A M R O
		Green Globe Standard For Sustainable Tourism	Standards & Certifications	Green Globe		HD PI IS WP	A R1 R2 R3 T	A M R O
		UN Framework for Measuring the Sustainability of Tourism	Guidance	World Tourism Organization (UNWTO), UN Statistical Commission		HD PI IS WP	A R1 R2 R3 T	A M R O
	Coastal Development	**ESPO: A Manual for European Port towards a Green Future**	Guidance	European Sea Ports Organisation (ESPO)		HD PI IS WP	A R1 R2 R3 T	A M R O
		World Ports Sustainability Program	Best Practice	International Association of Ports and Harbors (IAPH)		HD PI IS WP	A R1 R2 R3 T	A M R O
		FAST (Finance to Accelerate the Sustainable Transition) infra-label	Standards & Certifications	FAST-Infra initiative, (IFC, the Global Infrastructure Facility, the Climate Policy Initiative, OECD and HSBC)		HD PI IS WP	A R1 R2 R3 T	A M R O

Key

Pressure Groups

- HD — Habitat Damage
- PI — Pollution
- IS — Invasive Species
- WP — Wild Population Impact

AR3T Mitigation Hierachy

- A — Avoid
- R1 — Reduce
- R2 — Restore
- R3 — Regenerate
- T — Transform

IUCN Mitigation Hierachy

- A — Avoidance
- M — Minimization
- R — Restoration
- O — Compensation/ Offset

* Proportion of pressures addressed via targets/ KPIs/ guidance or all

TABLE 4: COMPARATIVE ANALYSIS OF FRAMEWORKS ON GOVERNANCE MECHANISMS, REGULATORY REQUIREMENTS, AND CORPORATE TRACTION

S. NO.	FRAMEWORK	GUIDANCE	KPIS	TARGETS	ACCOUNTABILITY	REGULATORY REQUIREMENT	VOLUNTARY SUPPORT	COPORATE TRACTION
Cross - sectoral	**Taskforce for Nature Related Financial Disclosures (TNFD)**	✓	✓	✗	✓	✗	✓	**High** (416 companies + 114 FIs are early adopters)
	GRI	✓	✓	✗	✓	✗	✓	**High** (>10,000 companies globally utilize the GRI standards)
	ESRS	✓	✓	✗	✓	✓	✓	**High** (It has a regulatory mandate)
	CDP Biodiversity	✓	✓	✗	✓	✗	✓	**High** (23,000+ companies disclosed through CDP in 2023)
	Global Biodiversity Framework	✓	✓	✓	✓	✗	✓	**High** (No corporates mentioned explicitly but it was adopted by 196 countries at COP15)
	Setting Sail Guidance Criteria	✓	✗	✗	✗	✗	✓	**Medium** (Primarily targeted at UNEP FI members and signatories of the Sustainable Blue Economy Finance Principles)
	Turning the Tide Guidance	✓	✓	✗	✗	✗	✓	**Medium** (Targeted at >50 Financial institutions that have signed the Sustainable Blue Economy Finance Principles)
	ACT-D Framework	✓	✗	✗	✗	✗	✓	**Medium** (Evidence of actions by 10 leading organizations)
	Net Positive Impact	✓	✗	✗	✗	✗	✓	**Medium** (Evidence for ~10 companies committed to have NPI)
	Align Project (Capitals Coalition)	✓	✓	✗	✗	✗	✓	**Low**
	Bonds to Finance the Blue Economy	✓	✓	✗	✓	✗	✓	**Low**
	Finance for Biodiversity Foundation Pledge	✓	✗	✗	✗	✗	✓	**High** (Signed by 177 FIs representing 28 countries & over €22.1 trillion in assets)
	Accounting for Nature Framework and Certification	✓	✓	✓	✓	✗	✓	**Medium** (58 registered and 22 certified accounts, but none in ocean-based businesses)
Shipping	**CBI: Shipping Criteria**	✓	✓	✗	✓	✗	✓	**Low** (2 climate bonds issued)
	Clean Shipping Index	✓	✓	✗	✓	✗	✓	**Medium** (applicable in Sweden, Finland & Canada)
	Green Marine Certification Framework	✓	✓	✗	✓	✗	✓ *	**High** (490+ members in NA; 23 members in the EU)
Marine Renewables	**TNFD Sector Guidance**	✓	✓	✗	✓	✗	✓	**High** (416 companies + 114 Fis are early adopters)
	CBI: Marine Renewable Energy Criteria	✓	✗	✗	✓	✗	✓	**Medium** (43 climate bonds issued)
	WBCSD Roadmaps to Nature Positive	✓	✗	✗	✗	✗	✓	NA
Coastal Tourism	**Global Sustainable Tourism Criteria**	✓	✗	✗	✓	✓	✓	**High** (500+ tourism related and management businesses)
	Green Globe Standard For Sustainable Tourism	✓	✗	✗	✓	✗	✓	**High** (600+ certified members in more than 80 countries worldwide)
	UN Framework for Measuring the Sustainability of Tourism	✓	✓	✗	✓	✗	✓	**Low** (The extent of adoption is still developing)
Coastal Development	**ESPO: A Manual for European Port towards a Green Future**	✓	✗	✓	✓	✗	✓	**High** (88 Ecoports members, representing 26 countries)
	World Ports Sustainability Program	✓	✗	✗	✗	✗	✓	**Medium** (50+ projects related to ocean health showcased from across the globe)
	FAST (Finance to Accelerate the Sustainable Transition) infra-label	✓	✓	✗	✓	✗	✓	**Low** (6 projects have earned the FAST-Infra Label as mentioned on the website)

Key

High
Evidence available for >100 corporates

Medium
Evidence available for 10-100 companies

Low
Evidence available for 10-100 companies

✓ Exists

✓ Exists but not specific to oceans

✗ Does not exist

* Supported by EU Comission

The growing focus on nature and biodiversity has led to a recent surge of ocean-related frameworks; however, these frameworks have a fragmented scope, with no framework addressing all the ocean pressures holistically, hindering a cohesive approach.

- While numerous frameworks exist, developed by a diverse range of organizations including industry groups, NGOs, and government bodies, many touch upon ocean health without making it a central focus. This can lead to overlapping mandates and diluted efforts, as different frameworks address similar issues with varying levels of depth and specificity. This lack of a singular focus can create confusion for companies seeking to engage with ocean conservation, potentially hindering effective action and progress. Only a few frameworks dedicatedly provide guidance or parameters to understand ocean health like the Setting Sail Guidance Criteria, Turning the Tide guidance, and Bonds to Finance the Sustainable Blue Economy.

- Further contributing to this fragmentation are the 'pressure point blind spots' that exist within many frameworks (refer Figure 6). While sector-agnostic pressures like ETP species, habitat degradation and pollution are generally well-addressed (covered by around 70% of the studied frameworks), sector-specific issues often fall through the cracks. For example, none of the frameworks studied address the impacts of land reclamation in coastal development, and very few provide guidance on nesting ground degradation or reducing direct ship strikes on marine wildlife. An observation for this gap is that the most addressed pressures are sector-agnostic, meaning they apply universally across all industries, and therefore have high coverage across frameworks (especially in cross-sector ones). In contrast, the least addressed ones are sector-specific (for e.g. 'land reclamation' is material for the coastal development sector while 'direct ship strikes' is material for shipping) and hence have a lesser coverage. The lack of coverage of land reclamation by all the frameworks indicate that the sector currently lacks well-developed frameworks specifically designed to guide coastal and port development activities towards mitigating their impact on ocean health. This highlights a critical need for more tailored guidance that acknowledges the unique pressures and challenges faced by different sectors operating within the marine ecosystem

- Many existing frameworks address broad categories of ocean pressures, such as habitat degradation, pollution, invasive species, and impacts on wild populations. However, these categories are quite general, and a truly comprehensive understanding requires a more granular lens. While recognizing 'habitat degradation' as an issue is helpful, but it is far more useful to understand the specific point sources impacting a particular area – whether it stems from coastal alteration and erosion, land reclamation, deforestation, or other human activities. The lack of a holistic understanding of the inter-relations between ocean pressures and limited access to granular datasets, often limits effective action, which could indirectly lead to greenwashing among corporates, inconsistent measurement practices and inaccurate comparisons.

- Further, the estimated level of corporate action on identified ocean pressures varies significantly across industries (refer Figure 6). Here corporate action on pressures refers to the adoption of or alignment to the frameworks, and how well those frameworks address the pressures on the ocean (it is important to note that corporate action can also happen beyond reporting on frameworks). Pressures with relatively high corporate traction include habitat degradation, deforestation, chemical/nutrient pollution, invasive species, and ETP species impact. In contrast, pressures like coastal alteration, land reclamation, dredging, ballast water, and ship strikes have lower corporate traction. Some pressures are widely covered by frameworks but see lower corporate action potentially because the sectors are focused on other more material pressures, leaving less room for these ocean pressures. For example, in the shipping sector, although most of the frameworks address the impacts of ballast water after the IMO convention on Ballast Water Management was launched, decarbonisation activities have been heavily incentivised in the sector, making carbon emissions the most strategically important area of concern, relative to other environmental pressures like ballast water. Another reason for the limited corporate action on these pressures is likely due to a lack of clear understanding, rather than just unwillingness to act. For instance, while companies recognize the impact of untreated ballast water, they often face challenges such as a lack of monitoring systems to measure progress on actions.

FIGURE 5: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) ADDRESSING THE PRESSURES AND CORPORATE ADOPTION LEVEL PER PRESSURE

PRESSURE GROUPS	PRESSURES	SECTOR ALIGNMENT	% OF FRAMEWORKS ADDRESSING THE PRESSURES	LEVEL IF CORPORATE ADOPTION
Habitat Damage	Habitat Degradation	Marine Renewables, Coastal Tourism, Coastal Development	77%	High
	Nesting Ground Degradation	Coastal Tourism	13%	Medium
	Coastal Alteration and Erosion	Coastal Tourism, Coastal Development	14%	Low
	Land Reclamation	Coastal Tourism, Coastal Development	0%	Low
	Dredging and Mining	Marine Renewables, Coastal Development	26%	Low
	Human Deforestation	Coastal Tourism, Coastal Development	63%	High
Pollution	Chemical/Nutrient Pollution	Marine Renewables, Shipping, Coastal Tourism, Coastal Development	68%	High
	Debris Pollution	Marine Renewables, Shipping, Coastal Tourism, Coastal Development	60%	Medium
	Contaminated Packaging	Shipping, Coastal Tourism	37%	Medium
Invasive Species	Invasive Species	Marine Renewables, Shipping, Coastal Tourism, Coastal Development	68%	High
	Ballast Water	Shipping	31%	Low
Wild Population Impact	Marine Life Stress	Marine Renewables, Coastal Tourism, Coastal Development	48%	Medium
	Direct Ship Strikes	Shipping	13%	Low
	Noise Pollution	Marine Renewables, Shipping, Coastal Development	59%	Medium
	ETP Species Impact	Marine Renewables, Shipping, Coastal Tourism, Coastal Development	80%	High
	Migratory Changes	Marine Renewables, Coastal Tourism, Coastal Development	41%	Medium

Key

Marine Renewables

Shipping

Coastal Tourism

Coastal Development

Note: 1. This is a relative scoring

Majority of frameworks (>70%) address the important "avoid" and "reduce," but fewer focusing on the latter stages of the mitigation hierarchies.

Finally, a difference in how frameworks are designed and informed by the mitigation hierarchies adds another layer of complexity. It is noteworthy that among the array of frameworks assessed, only the TNFD and GRI comprehensively address all aspects of both the AR3T and the IUCN Mitigation Hierarchy. However, even with this comprehensive guidance, a critical observation emerges – while majority of frameworks (>70%) address the fundamental 'avoid' and 'reduce' steps, 'restore', 'regenerate' and 'transform' are often overlooked. This is understandable, as these latter approaches require more complex, collaborative, and often long-term efforts. However, this imbalance can limit opportunities for proactive ocean improvement and hin- der progress towards a truly comprehensive approach to ocean health. By overlooking these crucial elements of the mitigation hierarchy, frameworks may inadvertently limit the scope of actions towards ocean conservation.

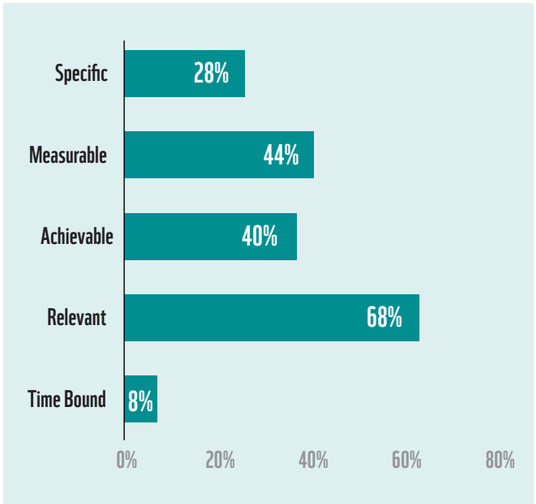
FIGURE 6: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) ALIGNED TO THE MITIGATION HIERARCHY FRAMEWORK

MITIGATION HIERARCHY	COMPONENTS	% OF FRAMEWORKS ADDRESSING
AR3T Hierarchy	Avoid	72%
	Reduce	76%
	Restore	40%
	Regenerate	12%
	Transform	20%
IUCN Hierarchy	Avoidance	72%
	Minimization	76%
	Restoration	40%
	Compensation or Offset	28%

Although existing frameworks offer a structured approach to understanding marine ecosystem risks and impacts, fewer than 50% provide measurable and actionable KPIs.

- Frameworks like the TNFD stand out by providing detailed, step-by-step methodologies that guide companies through the process of assessing and addressing their ocean-related impacts. This granular approach makes the TNFD particularly valuable for businesses seeking a structured framework to integrate ocean conservation into their strategies. Similarly, frameworks like "Setting Sail," "Turning the Tide," and "Bonds to Finance the Blue Economy" distinguish themselves by their targeted focus on ocean-specific issues, offering valuable insights and guidance for companies operating within the marine environment.
- Fewer than 50% of frameworks provide 'measurable' indicators and only 28% of frameworks provide specific KPIs - indicating a clear gap in adequate, science-backed, and achievable guidance on how to integrate KPIs for ocean conservation into strategic objectives. This challenge is further compounded by a limited quantitative focus within many frameworks. Instead of relying on robust quantitative data that allows for nuanced measurement of impacts and progress, many metrics rely on simplistic binary (yes/no) assessments or narrative description of efforts. For example, the FAST Infra Label indicators checks for adherence to broader environmental and biodiversity standards, the Global Sustainable Tourism Council (GSTC) Criteria outlines umbrella guidelines for compliance and so on. This oversimplification hinders the ability to conduct robust impact analyses and accurately track performance, limiting the ability to understand the true extent of a company's impact on the ocean to set meaningful targets that can drive tangible improvements.
- While frameworks like TNFD, GRI, and ESRS do include KPIs and disclosures related to ocean health, such as those around sea-use change, they often lack the specificity and scientific grounding needed to effectively drive progress. Moreover, with the exception of the GBF which operates at a national/global level, the ESPO guidance for port development (which suggests high level targets), and the Accounting for Nature framework, which outlines methodologies for measuring impact over specific periods in specific locations (although not operational for oceans yet), most frameworks lack ocean-specific, time-bound targets. This absence of specific goals makes it difficult for companies to operationalize their commitments. Without clear targets, efforts can become fragmented and lose focus, hindering the ability to drive meaningful and measurable improvements in ocean health.

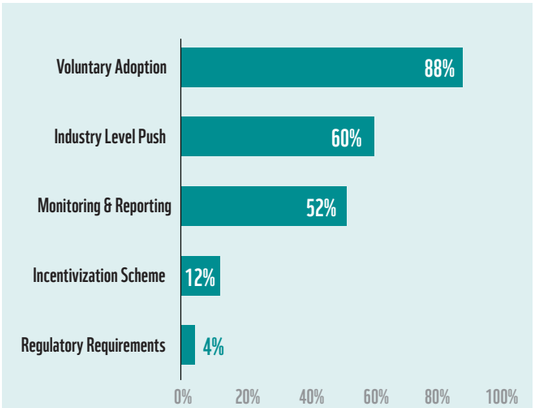
FIGURE 7: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) ALIGNED TO THE SMART TARGET SETTING PRINCIPLES



Despite industry dialogues and voluntary initiatives driving action towards ocean conservation, widespread corporate adoption of ocean-related frameworks remains a critical challenge.

- Regulatory mandates play a crucial role in driving the adoption of sustainable practices, ensuring that environmental considerations are not merely optional but become an integral part of doing business. While voluntary initiatives and commitments from organizations and industries are currently driving much of the progress in sustainable ocean practices, their impact is inherently limited by their voluntary nature. Companies may choose to engage selectively leading to inconsistent action. Currently, the only mandated standard for ocean-related reporting is the ESRS, mandated by the CSRD in the European region. This highlights the limited scope of mandatory action and the reliance on voluntary initiatives in most parts of the world. While there are calls for governments, such as in the UK, to mandate frameworks like the TNFD, the current landscape is largely shaped by voluntary commitments and industry-led initiatives. For instance, frameworks like ACT-D, the Align Project, and Bonds to Finance the Blue Economy are driven by the support of credible organizations, while GRI, CDP, Net Positive Impact, and the Finance for Biodiversity Pledge are influenced by investor pressure, reputational concerns, and the evolving regulatory landscape.
- While frameworks like the EU's ESRS and the TNFD are shaping the mandatory nature and biodiversity reporting landscape, but their scope remains limited. Expanding the scope of mandatory reporting and developing standardized verification procedures will be crucial. Currently, while many disclosure and certification frameworks advocate for monitoring and reporting processes, their effectiveness remains unproven due to the lack of standardized audit procedures for assessing impacts on ocean health. This lack of standardization can lead to inconsistencies in reporting and make it difficult to compare performance across different companies and sectors.
- Furthermore, the level of engagement varies significantly across different sectors. While sectors such as marine renewables show promising engagement with ocean-related frameworks, likely driven by the inherent connection between their operations and the marine environment, and shipping is globally mandated by the IMO, other sectors, like coastal development and tourism, lag behind. The gaps are further exacerbated by the sheer number and complexity of existing frameworks which can lead to 'corporate fatigue', hindering adoption and implementation. Faced with a multitude of frameworks, each with its own set of requirements, metrics, and reporting guidelines, companies are struggling to prioritize action.

FIGURE 8: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) THAT HAVE ACCOUNTABILITY BUILT INTO THEIR STRUCTURE



Ocean-related frameworks often fail to adequately incorporate socio-economic factors (with only 64% addressing these aspects) hindering a truly holistic and equitable approach.

- About 64% of frameworks that were assessed include social considerations in their guidance (i.e. addressing at least one of the listed parameters). While many frameworks acknowledge the importance of social factors in achieving sustainable ocean management, only a few actively incorporate them into their guidance. Meaningful engagement with local communities and Indigenous groups, who possess invaluable traditional knowledge and depend on healthy oceans for their livelihoods, remains limited in many frameworks. This oversight is a significant missed opportunity, as these groups can offer unique insights and perspectives crucial for developing effective and sustainable conservation strategies. Their involvement ensures that ocean-related actions are not only environmentally sound but also socially responsible, protecting both biodiversity and the well-being of communities who rely on marine resources.
- There is a significant gap in addressing the 'Resilience' parameter (with only 20% of frameworks covering it), indicating a lack of guidance on assessing and mitigating the impact of restoration and conservation activities on the resilience of ecosystems, communities, and stakeholders. This gap likely stems from the complexity of the topic and the lack of readily available data and guidance. However, the tourism sector frameworks are more competent in this regard with the Global Sustainable Tourism Criteria, the Green Globe Standard for Sustainable Tourism, and the UN Framework for Measuring the Sustainability of Tourism, all underscore the significance of resilience and online abroad guidelines. In addition, although not directly, the issuance of bonds for marine renewables under the CBI Marine Renewable Energy Criteria, also outlines the requirements for adaptation and resilience protocols during operations and post decommissioning.
- While other social parameters such as inclusion, human rights, and equity are addressed by the well-recognised and leading reporting standards like the TNFD, GRI, and ESRS; others, including CDP Biodiversity, IUCN Net Positive Impact, and the Align Project, currently overlook these aspects. Moreover, at a sectoral level, frameworks for shipping and coastal development are missing any social parameters, except for Green Marine Certification Framework and ESPO that adhere to global human right protocols and encourage inclusive decision making. The inconsistencies highlight the need for a more unified approach that prioritizes inclusive decision-making and ensures that social considerations are integrated into all aspects of ocean conservation.

Photo Credit: Colby Bignell / Climate Visuals

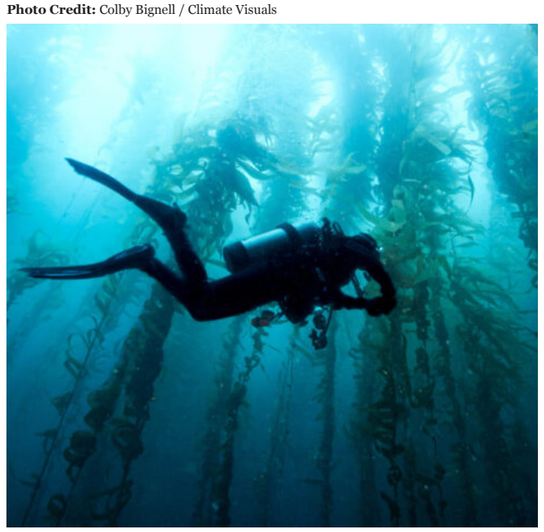
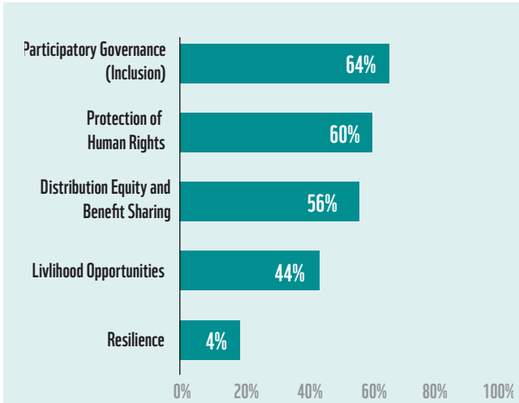


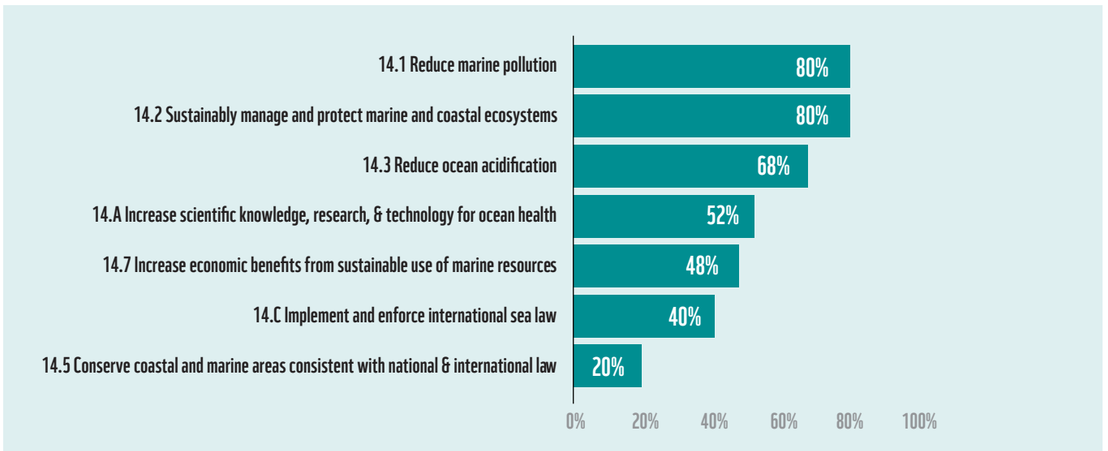
FIGURE 9: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) COVERING SOCIO-ECONOMIC FACTORS



Though some gaps remain in alignment of frameworks with global goals (SDG 14), major ones like TNFD, GRI, and ESRS are increasingly converging in their approach towards ocean conservation.

- Increased harmonization and collaboration between frameworks are essential to avoid duplication, streamline efforts, and promote cohesive action. Evidence suggests that frameworks with high corporate traction, such as TNFD, GRI, ESRS, GBF, and CDP, have benefited from their efforts to align and enable interoperability. The TNFD, for example, has successfully promoted its framework through pilot testing, capacity building, and stakeholder consultations, contributing to its widespread adoption. However, the same is not true for the other frameworks, which are being developed in-silo. There is a need for a more accessible landscape for ocean conservation, making it easier for companies to navigate and engage with existing frameworks.
- Additionally, achieving a sustainable blue economy hinge on strengthened alignment and collaboration across frameworks, sectors, and stakeholders, fostering a cohesive and integrated approach to ocean conservation.
- Currently, 14.1, 14.2, and 14.3 goals have a strong representation across frameworks (~80%), indicating widespread concern and action towards reducing marine pollution and acidification as well as, protecting/ restoring the ecosystems. However, focus on the economic benefits (14.7) and improving R&D in the ocean health domain (14.A) is limited (<60%).
- Strengthening alignment with international laws and regulations is equally crucial. While nearly all frameworks emphasize the importance of protecting marine and coastal ecosystems, the actual implementation of conservation measures aligned with these laws remains inadequate. Many frameworks are currently weak in their consistency with established international laws, particularly within sector-specific guidance. Addressing this gap and promoting greater adherence to international standards will be crucial to ensuring the effectiveness of ocean conservation efforts and fostering a cohesive global approach to ocean management.

FIGURE 10: PERCENTAGE OF FRAMEWORKS (OUT OF THE SELECTED 25) THAT ALIGN TO THE SDG 14 'LIFE BELOW WATER'



THE NEXT WAVE OF FRAMEWORKS FOR OCEAN ACTION

The landscape of ocean-related frameworks is dynamic and evolving, with several new initiatives on the horizon that promise to further shape the way businesses approach ocean conservation (Refer to Table 5). Apart from WWF's forthcoming Nature Positive Framework for Oceans, which aims to define credible actions that contribute to a nature-positive future for the ocean focused on the private sector and financial institutions, another notable development is the "Global Initiative for Nature and Green Recovery" (GINGR), anticipated to launch by COP30 in 2025. This guidance framework specifically targets the marine renewables sector, aiming to provide tools and methodologies to measure the efficacy of nature-positive solutions and monitor progress towards agreed-upon targets. GINGR will also showcase best practices and facilitate a faster rollout of renewable energy and electricity grids that simultaneously contribute to both climate action and ocean health.

The IUCN is also developing a new guidance framework, "Measuring Nature Positive," currently under consultation. This will provide measurable steps towards defined targets with timeframes and regular monitoring, supporting companies in setting and achieving ambitious goals for nature conservation. It also promises to offer a list of datasets that can be leveraged for data collection and estimations, addressing the critical need for standardized and accessible data for measuring impact and progress.

An upcoming regulation is the "Nature Repair Market" in Australia, expected in 2025. While not specifically ocean-focused, it aims to protect 30% of Australia's land and seas by 2030 and could indirectly influence ocean-related practices. This policy framework will provide methods for registering projects and receiving biodiversity certificates, potentially incentivizing conservation efforts in the marine environment.

Another upcoming regulation is the Marine Net Gain in UK, which is currently under consultation, promoting a net gain approach to marine development in the UK. It seeks to ensure that development activities result in a net positive impact on the marine environment, contributing to the overall health and biodiversity of UK waters.

Various other frameworks like TNFD (additional) Sector Guidance (Marine Infrastructure), WEF Sector Transitions to Nature Positive - Offshore Wind and Port Operations and CDP Oceans questionnaire are under-development indicating that efforts to protect ocean health are increasing.

By providing more specific guidance, standardized metrics, and innovative tools, these initiatives can help companies navigate the complexities of ocean-related challenges and contribute to a more sustainable and thriving blue economy.

It will be crucial to continue monitoring their development, assess their strengths and weaknesses, and promote alignment with existing frameworks to ensure a cohesive and impactful approach to ocean conservation.

TABLE 5: EMERGING FRAMEWORKS (NON-EXHAUSTIVE) TO GUIDE OCEAN ACTION

FRAMEWORK	LAUNCH	TYPE	SECTOR	AR3T MITIGATION HIERARCHY	VALUE PROPOSITIONS
UNEP FI - Accountability for Nature	2024	Guidance	Cross-sector	NA	• Provides a **comparative study of 7 disclosure frameworks**, giving an overview of the conceptual and methodological approaches on nature-related issues (covered in our detailed assessments)
WWF Nature Positive Framework for Oceans	Launch version 1 in 2025; version 2 in 2026	Guidance	Cross-sector	A R1 R2 R3 T	• Provides **cross-sector and sector-specific guidance for the sustainable blue economy** sectors as an entry point for companies and financial institutions to make credible contributions to the Nature Positive goal.
Marine Net Gain (UK)	2022 (consultation)	Policy	Cross-sector (UK)	A R1 R2 R3 T	• Proposes **9 principles (strategic and site-based)** to best introduce a net gain approach to infrastructure and development in the marine environment.
EU Biodiversity Platform	2022	Initiative	Cross-sector	NA	• Supports the EU Biodiversity Strategy for 2030, through 9 sub-groups (marine being one of them). • Catalyzes **business engagement, bridges knowledge gaps** and provides guidance to integrate biodiversity considerations into their operations.
GINGR (Global Initiative for Nature and Green Recovery)	2025 (by COP 30)	Guidance	Marine Renewables	NA	• Will provide **tools and methodologies** (such as the STAR and IBAT frameworks from IUCN) **to measure efficacy of nature positive solutions**, monitor and report progress towards agreed. • Will also **showcase best practices, framework for biodiversity management and conservation** while facilitating a faster roll-out of renewable energy and electricity grids globally.
Nature Repair Market (Australia)	2025	Policy	Cross-sector (Australia)	NA	• Provides methods that **define the conditions that must be met** for a project to be registered and receive **biodiversity certificates**. • Methods being developed are currently **not aligned to oceans**. • Aims to **protecting 30% of Australia's land and seas by 2030**.
UNGC's Net-positive Biodiversity in Offshore Renewable Energy	2023	Guidance	Marine Renewables	A M R O	• Outlines **minimum considerations for Marine RE developers to adopt**. • Guides the industry by setting measurable targets towards Net Positive Impact (NPI) by **identifying immediate actions that can be taken**.
IUCN - Measuring Nature Positive	2023 (consultation)	Guidance	Cross-sector	A M R O	• Aligned with SBTN approach & TNFD metrics. • **Scientifically-grounded framework** for organizations to assess, measure, and report on their contributions to biodiversity protection, offering **standardized, verified, and robust metrics**. • Provides **measurable steps towards defined targets**, with timeframe, and regular monitoring. • Also **provides list of Datasets that can be leveraged** for data collection and estimations.
Nature Finance Alignment Tool	2022	Monitoring Tool	Financial Sector	NA	• Provides a **quantifiable assessment of the alignment of public & private financial flows** with nature-positive goals, at the **country, sector, and individual levels**. • Combines existing frameworks and proprietary scoring systems to provide a **alignment scores**. • Highlights **areas where financial flows can be redirected** to increase their positive impact on nature and help financial institutions assess and **manage nature-related risks in their portfolios**.

Key

AR3T Mitigation Hierachy

- A Avoid
- R1 Reduce
- R2 Restore
- R3 Regenerate
- T Transform

IUCN Mitigation Hierachy

- A Avoidance
- M Minimization
- R Restoration
- O Compensation/ Offset

DEEP DIVES INTO SECTOR-SPECIFIC INSIGHTS

Photo Credit: Nuno Rodrigues / Climate Visuals

MARINE RENEWABLES

- Offshore wind projects, essential for renewable energy, create several environmental concerns, including **seabed disruption, pollution, and invasive species introduction**. These can harm marine ecosystems by damaging habitats, reducing phytoplankton production, and affecting marine mammal communication.
- Significant financial and competitive barriers prevent the industry from fully embracing ocean conservation. These include **long-term investment uncertainty, lack of incentives for exceeding minimum compliance standards, and competitive pressures that discourage collaboration on conservation initiatives**.
- Fragmented data sources and a lack of supply chain transparency **impedes the access to the localized environmental information necessary for robust project-specific assessments**, thereby limiting the consideration of context-specific conditions and concerns.
- The lack of standardized metrics for assessing conservation initiatives presents a **significant challenge in justifying financial investments and demonstrating tangible progress**, further hindering the efficacy of conservation endeavours.
- Despite these challenges, **leading companies in the sector, such as Ørsted and Vattenfall, are adopting proactive measures** through early adoption of frameworks like TNFD, participation in WBCSD pilots, and issuing climate bonds. European companies, especially in the Nordic region, are spearheading these efforts, although global frameworks are still needed for broader industry adoption.

SECTOR OVERVIEW

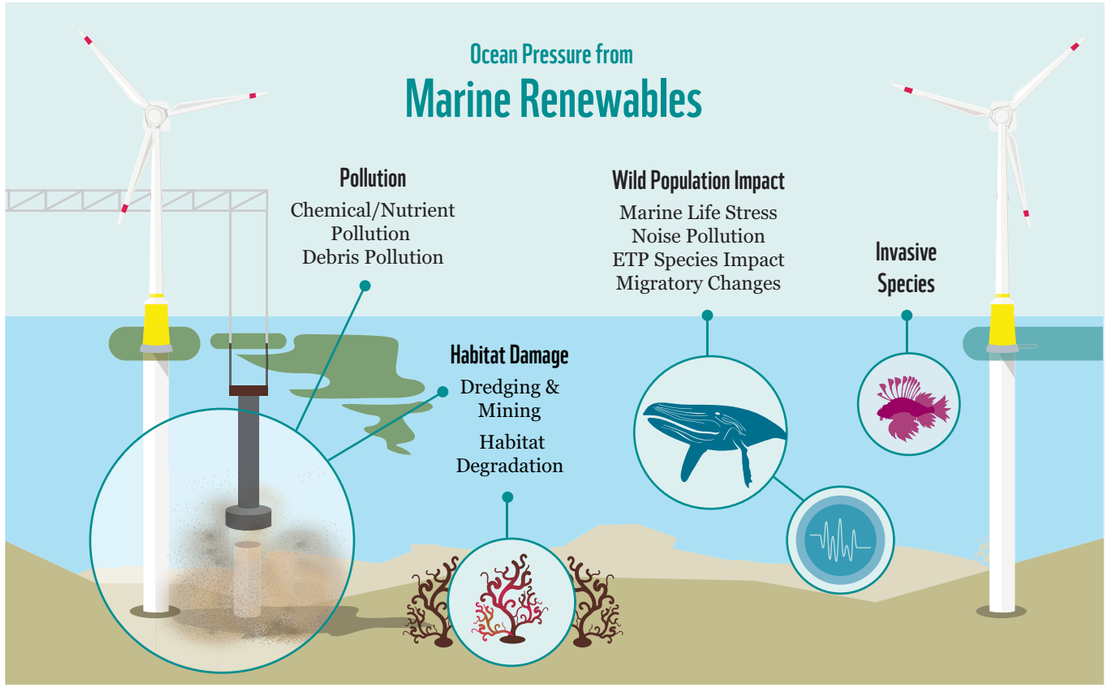
The offshore wind industry is at a pivotal point in its evolution, grappling with the need to balance its clean energy ambitions with responsible stewardship of the marine environment. The offshore wind installations, while crucial for renewable energy, exert several key pressures on the ocean environment. The construction and operation of these installations can lead to habitat damage through seabed disruptions, with an estimated reduction in phytoplankton production which could extends beyond 1000 m and up to 30 years.[17] Pollution is another concern, with potential chemical leaks and debris during construction, impacting marine life and water quality. Additionally, invasive species can be introduced via construction vessels, upsetting the delicate ecological balance and noise pollution from operations can disrupt marine mammal communication and behaviour, including migratory patterns. While we need offshore wind energy to combat climate change, it's crucial that projects are developed and managed responsibly to minimize their effects on the delicate ocean health.

Fortunately, a suite of frameworks is emerging, offering guidance and support for the private sector to navigate this complex landscape (Refer to Table 6). Notably, the frameworks within the marine renewables sector showcase the most comprehensive coverage of ocean pressures compared to other industries. This depth is largely due to the influence of both the TNFD and WBCSD sector guidance, which have elevated the understanding of the materiality of these pressures on vital ecosystem services. Together, they are laying a foundation for guiding future ocean-related action across the mitigation hierarchy.

The CBI Marine Renewables criteria on the other hand, while not directly focused on ocean pressures, indirectly contribute to impact mitigation by establishing rigorous benchmarks for projects seeking green financing, which includes emphasis on resilience and adaptation plans. This approach indirectly incentivizes projects to minimize their ecological footprint and prepare for the challenges of a changing climate.

It is important to acknowledge that, while promising, these frameworks are still in their early stages. None individually, nor even in combination, currently provide the industry with the comprehensive tools needed to set or achieve truly ambitious goals for ocean health protection.

FIGURE 11: CRITICAL SOURCES OF OCEAN PRESSURES FROM THE MARINE RENEWABLE INDUSTRY



17 Dannheim, J., Bergstro, L., Birchenough, S. N., Brzana, R., Boon, A. R., Coolen, J. W., . . . more, a. (2020). Benthic effects of offshore renewables: identification of knowledge gaps and urgently needed research. ICES Journal of Marine Science, 17.

TABLE 6: ASSESSMENT OF FRAMEWORKS IN THE MARINE RENEWABLE SECTOR

FRAMEWORK	FRAMEWORK TYPE	PRESSSURES	DRIVING FORCES/ PRESSURE GROUPS	AR3T MITIGATION HIERARCHY	IUCN MITIGATION HIERARCHY	GUIDANCE	KPIS	TARGETS	ACCOUNTABILITY	REGULATORY REQUIREMENT
TNFD Sector Guidance	Disclosure	◔	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✓	✗	✓	✗ *
CBI: Marine Renewable Energy Criteria	Guidance	◔	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✗	✗	✓	✗
WBCSD Roadmaps to Nature Positive	Guidance	◔	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✗	✗	✗	✗

Pressure Groups
HD Habitat Damage | PI Pollution | IS Invasive Species | WP Wild Population Impact

AR3T Mitigation Hierachy
A Avoid | R1 Reduce | R2 Restore | R3 Regenerate | T Transform

IUCN Mitigation Hierachy
A Avoidance | M Minimization | R Restoration | O Compensation/ Offset

✓ Exists ✓ Exists but not specific to oceans ✗ Does not exist

* There are calls for governments to mandate, especially in the UK

Adding to these challenges, existing guidelines and frameworks for measuring biodiversity impacts can be excessively data-intensive and complex. Companies, especially smaller ones, may struggle to collect, analyse, and report the required data effectively. This can lead to a situation where even well-intentioned conservation efforts fail to yield meaningful, reportable results.

CRITICAL BARRIERS TO ADDRESSING THE OCEAN PRESSURES

Long-term Investments and Uncertain Returns

The development and operation of offshore wind farms necessitate significant upfront capital and long-term financial commitments. While the industry recognizes the intrinsic value of ocean conservation, the lack of a clear business case presents a challenge in prioritizing actions to mitigate ocean pressures, especially when the decommissioning phase and its associated costs are decades away. This is further compounded by the absence of regulations that incentivizes or mandates actions beyond the minimum compliance standards. Although upcoming regulations like the EU Taxonomy and CSRD are drawing attention to biodiversity, in the current landscape, where competition for tenders is fierce, companies may be hesitant to invest in additional conservation measures that could increase costs or complicate the permitting process.

Competitive Pressures and Financial Constraints

The industry operates within a highly competitive environment marked by tight profit margins. Companies are constantly vying for limited resources, investment opportunities, and market share. This reality creates significant reluctance to collaborate and share knowledge, as companies prioritize their own financial survival over collective efforts towards ocean conservation. While the industry realises the benefits of collaborative initiatives to streamline data collection across supply chains and enable the development of mutually beneficial plans and best practices to mitigate ecological pressures, the inherent competitive dynamics pose a significant barrier to cooperation.

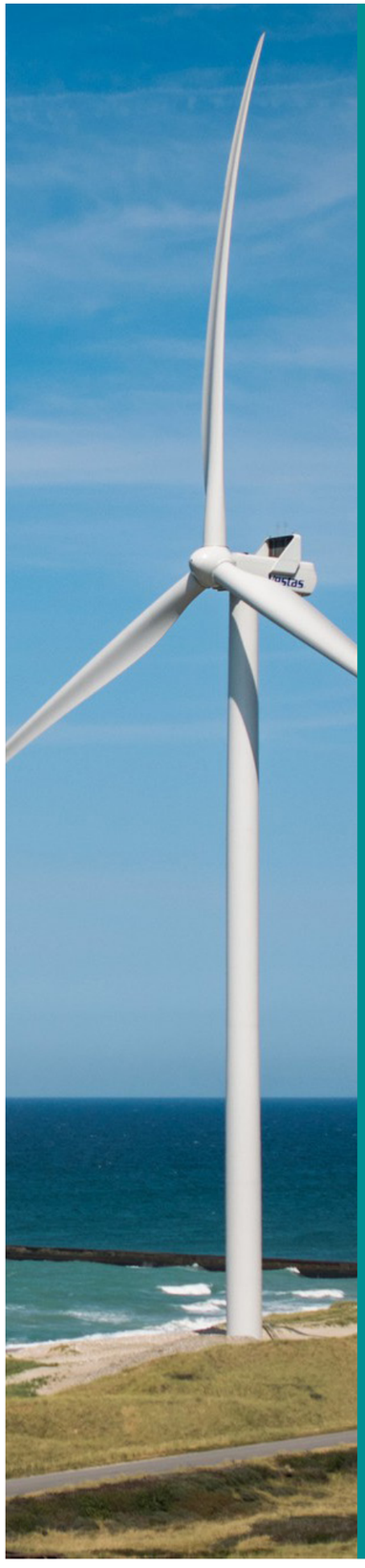
Data Integration Challenges

While the industry might be seen as a progressive leader in marine conservation, effectively integrating broad environmental and ecological information into project-specific assessments remains a significant challenge. This disconnect stems from fragmented and inaccessible data sources/ formats and a lack of supply chain transparency, which coupled with a focus on internal operations create blind spots in assessing the full value chain impact. Moreover, there is a notable disconnect between the global-scale datasets recommended by frameworks like the TNFD and the more detailed, project-level environmental impact assessment (EIA) data that companies have access to. This mismatch makes it difficult to integrate the two and derive meaningful insights that can inform their strategy.

Absence of Standardized and Simple Metrics

Measuring the tangible outcomes of conservation efforts remains a significant hurdle. The absence of clear, standardized metrics to quantify the positive impacts of such actions makes it difficult to justify investments and transparently communicate progress on conservation efforts to stakeholders. This ambiguity allows for a wide range of interpretations and practices, potentially leading to inadequate safeguards for marine life. Moreover, this lack of measurable outcomes can open the industry up to public criticism. The absence of verifiable processes to demonstrate impact raise questions on the industry's commitment to ocean conservation, creating obstacles for any future plans.

Adding to these challenges, existing guidelines and frameworks for measuring biodiversity impacts can be excessively data-intensive and complex. Companies, especially smaller ones, may struggle to collect, analyse, and report the required data effectively. This can lead to a situation where even well-intentioned conservation efforts fail to yield meaningful, reportable results.



CORPORATE ACTION

Despite these challenges, the marine renewables sector demonstrates a growing commitment to sustainability, with industry leaders like Ørsted, Vattenfall, and others paving the way. Early TNFD adoption, CDP disclosures, and participation in WBCSD pilots are indicating a proactive approach to addressing ocean pressures. The most significant uptake is observed in European companies, particularly those located in the Nordic countries, the Netherlands, and Germany, followed by a considerable number of climate bonds being issued by China and Australia. However, there is a need for more targeted and globally accepted science-based guidance frameworks that can help address barriers to adoption and scale.

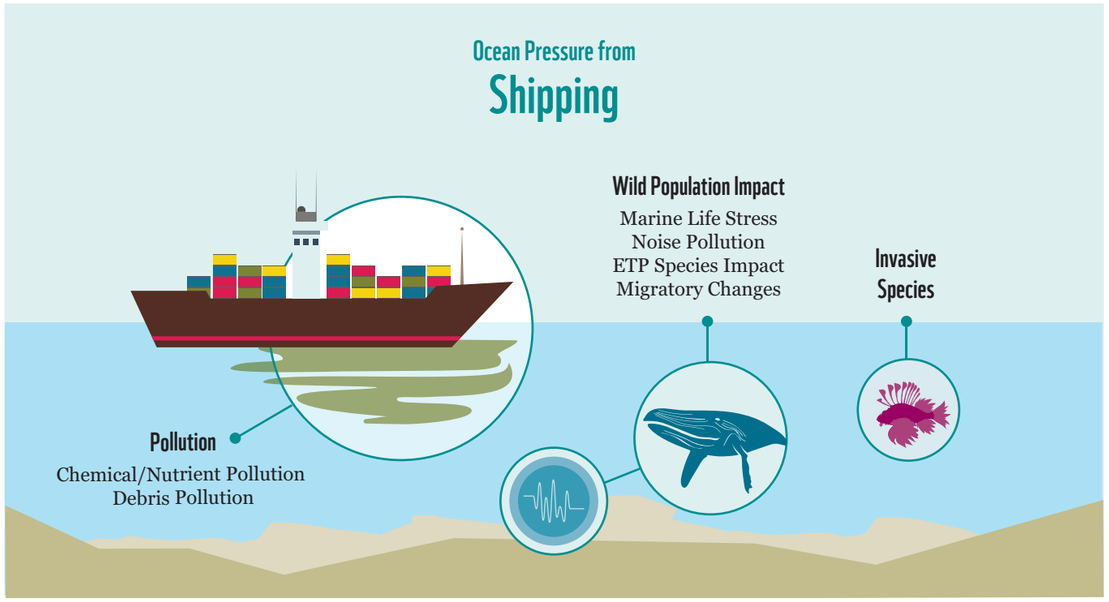
"ØRSTED, A GLOBAL LEADER IN OFFSHORE WIND DEVELOPMENT, HAS SET AN AMBITIOUS GOAL TO ACHIEVE A NET-POSITIVE IMPACT ON BIODIVERSITY FOR ALL NEW PROJECTS COMMISSIONED FROM 2030 ONWARDS.".

ØRSTED. (2023, JUNE 20). ØRSTED NEWS. RETRIEVED FROM ØRSTED AND WWF EMBARK ON MARINE RESTORATION PROJECT IN THE DANISH NORTH SEA TO CONTRIBUTE TO OCEAN BIODIVERSITY.

SHIPPING

- Shipping activities contribute significantly to ocean pollution through **oil spills, ballast water discharge, chemical releases, and underwater noise, affecting marine life, water quality, and ecosystems**, particularly endangering species like whales and those on the IUCN Red List.
- The shipping industry is regulated by the IMO, with key frameworks like MARPOL and the Ballast Water Management Convention addressing pollution and invasive species. However, **gaps remain in addressing cumulative ocean health impacts like noise pollution and ecosystem disruption**.
- **Voluntary frameworks like the Clean Shipping Index and Green Marine Certification are emerging**, encouraging shipping companies to exceed regulatory compliance by improving environmental performance, especially in Nordic, Canadian, and U.S. ports.
- **Fragmented data and limited collaboration** among smaller shipping companies **pose barriers to effective environmental management**, while larger players like Maersk and Hapag-Lloyd lead the way in adopting sustainability practices, often surpassing regulatory requirements.

FIGURE 12: CRITICAL SOURCES OF OCEAN PRESSURES FROM THE SHIPPING INDUSTRY



SECTOR OVERVIEW

The shipping industry is a critical component of the global economy, enabling international trade and facilitating the movement of goods. However, it places significant pressures on the environmental footprint, including the impacts on the very seas it traverses. Shipping operations release various chemicals and nutrients into the ocean, including oil spills, fuel leaks, cleaning agents, sewage, as well as debris and packaging materials, all directly impacting water quality, oxygen levels, and marine life. Habitat destructions is further exacerbated by threats of direct collisions with large marine animals and underwater noise from ship engines, that disrupt marine animal navigation, and foraging behaviours, including reduction of lifespan by up to 10 years among whales.[18] The ETP species are particularly susceptible to these impacts. But one of the most critical consequences of shipping comes from the discharge of ballast water that is used to main stability. Ballast water, greywater discharge, leeching of hull coating and biofouling facilitate the spread of invasive species to new environments, threatening every 1 in 10 species on the IUCN Red List.[19] Moreover, the air emissions from ships contribute significantly to climate change, further stressing marine life.

Various frameworks and regulations have been in place to address these pressures, but their effectiveness and scope vary (Refer to Table 7). The shipping industry is unique in being globally regulated by the IMO. The IMO Marine Environment Protection Committee Resolutions provides a strong legally binding framework on particularly carbon and pollutant emissions. Though its focus on marine ecosystems is limited, the IMO offers guidance on ocean concerns like ballast water, noise pollution, dredging, and chemical and plastic pollution. The protocols are utilized by organizations like UNCTAD, to report on vessel compliance with key indicators, such as ballast water treatment systems, scrubbers for sulphur reduction, and adherence to emission standards.Building on the IMO guidelines, market-based approaches, in the form of incentivisation and labelling schemes are now emerging. The Clean Shipping Index, an independent labelling system, rates ships based on their environmental performance on a set of parameters including SOx, NOx, CO_2, chemicals, waste, water and particulate matter. Although globally applicable, Nordic and Canadian ports are currently offering flexible port and fairway fees for cleaner vessels. Another such framework is the Green Marine Certification, which emerged in the USA and has expanded to the European countries recently, with interest rising in Australia as well. It is more comprehensive in terms of addressing both the environmental and ecological pressures on the marine environment, as well as social impacts on the community and stakeholders. Although voluntary, it provides a clear framework and benchmarks for companies to improve their performance beyond regulatory compliance.

The CBI Shipping criteria, at present, concentrates exclusively on funding projects within the shipping industry that contribute to decarbonization. However, as a relatively new framework, there's potential for it to expand its scope in the future to incorporate technical requirements related to ocean health.

Overall, the industry demonstrates a growing recognition of the decarbonisation agenda, with the value chain currently geared towards avoiding and reducing harm, neglecting the crucial aspects of restoring and regenerating the marine ecosystem.

18 Rolland, R. M., Parks, S. E., Hunt, K. E., Castellote, M., Corkeron, P. J., Nowacek, D. P., . . . Kraus, S. D. (2012). Evidence that ship noise increases stress in right whales. Proceedings: Biological Sciences.
19 IUCN. (2022). Invasive Alien Species. Retrieved from International Union for Conservation of Nature: https://iucn.org/our-work/topic/invasive-alien-species#:~:text=Invasive%20alien%20species%20are%20one,biodiversity%20loss%20and%20species%20extinctions

TABLE 7: ASSESSMENT OF FRAMEWORKS IN THE SHIPPING SECTOR

Framework	Framework Type	Presssures	Driving forces/ Pressure groups	AR3T Mitigation Hierarchy	IUCN Mitigation Hierarchy	Guidance	KPIs	Targets	Accountability	Regulatory Requirement
CBI: Shipping Criteria	Guidance	○	HD PI IS WP	A R1 R2 R3 T	A **M** R O	✓	✓	✗	✓	✗
Clean Shipping Index	Certification	◔	HD **PI** **IS** WP	**A** R1 R2 R3 T	**A** **M** R O	✓	✓	✗	✓	✗ *
Green Marine Certification Framework	Certification	◑	HD **PI** **IS** WP	**A** R1 R2 R3 T	**A** **M** R O	✓	✓	✗	✓	✗

Pressure Groups

HD Habitat Damage | PI Pollution | IS Invasive Species | WP Wild Population Impact

AR3T Mitigation Hierachy

A Avoid | R1 Reduce | R2 Restore | R3 Regenerate | T Transform

IUCN Mitigation Hierachy

A Avoidance | M Minimization | R Restoration | O Compensation/ Offset

✓ Exists ✓ Exists but not specific to oceans ✗ Does not exist

* Some aspects like are mandated by the IMO - Energy Efficiencty Existing Ship Index (EESI) and Carbon Intensity Indicator (CII)

CRITICAL BARRIERS TO ADDRESSING THE OCEAN PRESSURES

Data Deficiencies

The vastness and complexity of the ocean make it extremely challenging to accurately measure and manage the impacts from shipping activities. The lack of globally standardized and consistent data collection methods and the difficulty of obtaining real-time and publicly available information can obscure the true extent of the damage caused by shipping. This poses a significant problem for initiatives aimed at restoring and regenerating marine ecosystems, as the long-term consequences of shipping activities remain uncertain. Additionally, baselining and benchmarking performance across different regions and shipping companies, making it challenging to identify targeted mitigation strategies and track progress over time.

On the other hand, as the shipping industry operates directly within the ocean biome, the nature and biodiversity community is often relying on it to collect crucial data on noise and habitat patterns using eDNA measurements and sampling. However, analysing these samples and drawing meaningful conclusions to set guidelines can take decades. This delay in obtaining actionable insights further hinders immediate conservation efforts.

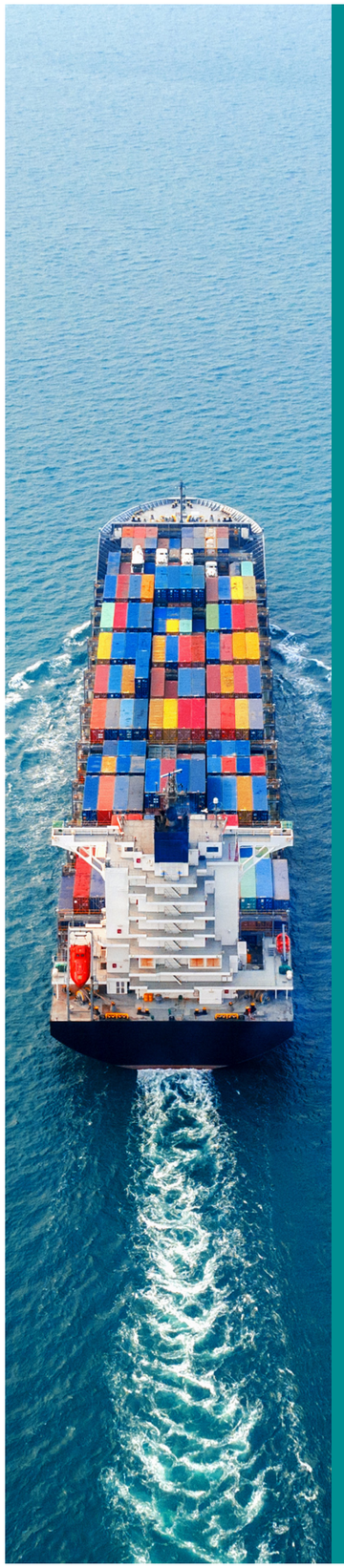
Lack of Strong Regulation and Attribution of Impacts

The current regulatory landscape for the shipping industry, while addressing some environmental concerns, lacks a comprehensive framework that specifically targets ocean health. While the IMO has made strides with regulations such as MARPOL (International Convention for the Prevention of Pollution from Ships) to limit pollution from ships, and the Ballast Water Management Convention to curb the spread of invasive species, these regulations primarily focus on point-source pollution and vessel-specific issues. The broader, cumulative impacts of shipping on ocean ecosystems, like underwater noise pollution, ocean acidification, and disruption of migratory routes, are not adequately addressed by a unifying regulatory framework. This creates uncertainty for shipping companies to invest in proactive measures beyond basic compliance.

Additionally, impacts from shipping can have cascading effects on various species and habitats, making it challenging to isolate and attribute specific damage to individual actors. This makes it difficult to establish clear liability and enforce penalties, potentially discouraging companies from taking full responsibility for their environmental and ecological footprint.

Capacity Constrains

The fragmented nature of the shipping industry, with numerous small and medium-sized players, can limit opportunities for collaboration and knowledge-sharing. Larger companies often have dedicated sustainability teams and engage in industry initiatives, while smaller companies often operate on tighter budgets and have limited access to capital compared to larger conglomerates. This financial constraint can significantly hinder their ability to invest in the necessary technologies and infrastructure for sustainable operations or hire in-house technical expertise to assess and implement sustainable solutions effectively. The IMO highlights that many small and medium-sized enterprises (SMEs) in the shipping sector struggle to keep up with evolving environmental regulations and best practices due to limited resources and awareness.



CORPORATE ACTION

The shipping industry is at the forefront of adopting sustainability practices, largely due to the influence of industry coalitions and NGOs (e.g. - Clean Shipping Coalition, Getting Zero, etc.). The sector demonstrates leadership in areas like TNFD adoption and CDP disclosures. Key players, such as Maersk and Hapag-Lloyd, have sustainability plans that not only achieve 100% compliance with IMO Ballast Water guidelines and other standards, but often exceed them, addressing a wider range of environmental pressures and showcasing higher compliance levels than the global average. A prime example is their commitment to reducing the risk of whale strikes or disturbing breeding whales, through proactive speed reduction and demarcation of restricted zone schemes at sea. However, despite these commendable efforts, the industry still lags behind in addressing ocean-specific concerns, highlighting an area for improvement for the ecosystem, especially IMO to develop those standards for ecological sustainability.

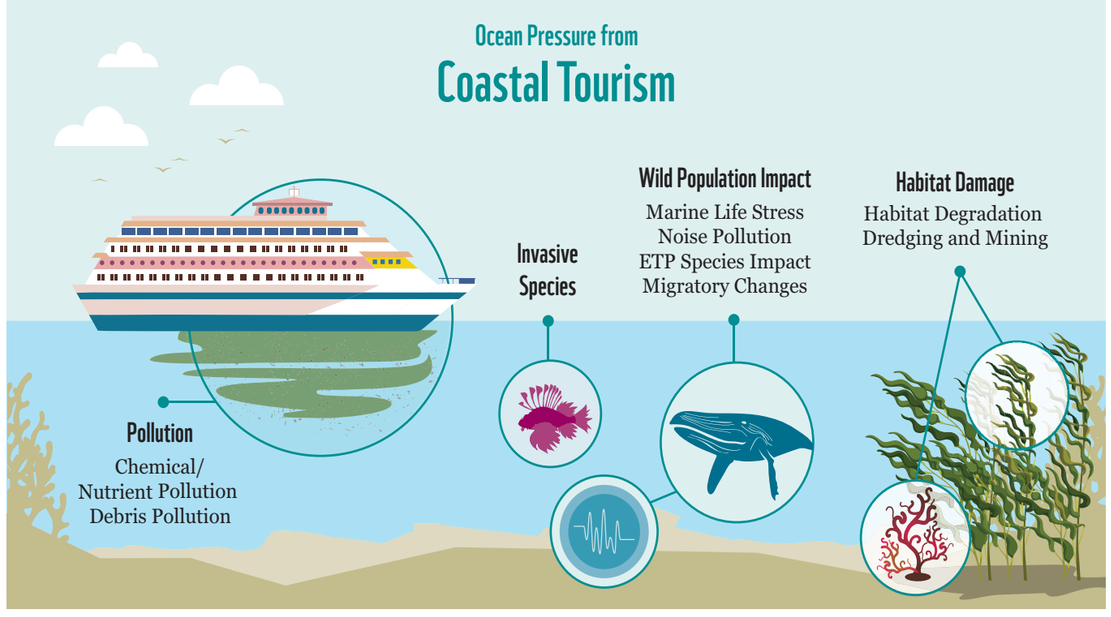
"AS PART OF ITS ESG STRATEGY, MAERSK HAS IDENTIFIED ECOSYSTEM HEALTH & BIODIVERSITY AND WASTE & POLLUTION AS MATERIAL TOPICS FOR ECOSYSTEMS IN WHICH THEY OPERATE. TO PROCEED WORK ON THIS, MAERSK IS COLLECTING UNDERWATER RADIATED NOISE (URN) DATA FROM VESSELS AND COLLABORATING WITH SUPPLIERS AND CLASS RATING ORGANISATIONS, WITH THE AMBITION OF ESTABLISHING A BASELINE TO MEASURE THE IMPACT OF IMPROVEMENTS SUCH AS PROPELLER BLADE NOISE FREQUENCY ADJUSTMENTS OR NOISE DAMPENING SOLUTIONS."

MAERSK. (2023). SUSTAINABILITY REPORT. DENMARK.

COASTAL TOURISM

- Tourism activities, particularly in coastal and marine environments, contribute to habitat degradation through **coastal development, pollution from tourism infrastructure, and the disturbance of marine life by recreational activities like boating and diving**.
- Tourists contribute to **increased waste, particularly plastic, in marine areas, which affects water quality and harms marine species**. Hotels, resorts, and cruises often generate significant waste that can end up in oceans if not managed properly.
- **Tourism can support ocean action by funding or promoting Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measure (OECM)**, which help preserve critical habitats and species. Sustainable tourism models often align with conservation goals, providing incentives for local communities to protect marine ecosystems.
- **Eco-tourism initiatives are emerging as a response to the negative impacts of traditional tourism**. These include promoting low-impact activities, educating tourists on responsible behaviours, and supporting ocean conservation projects directly tied to tourism revenue.

FIGURE 13: CRITICAL SOURCES OF OCEAN PRESSURES FROM THE COASTAL TOURISM INDUSTRY



SECTOR OVERVIEW

The coastal tourism sector is undeniably a major economic powerhouse with rapid growth and close ties to the ocean environment. However, tourism development particularly in coastal areas, can lead to the loss of vital marine habitats like coral reefs, mangroves, and seagrass beds. Construction of hotels, resorts, and other infrastructure can physically damage these ecosystems, while related deforestations and land reclamations can further disrupt natural shorelines through erosion and disturb the nesting grounds of sea turtles and seabirds, leading to decreased reproductive success and population declines. Moreover, increased human activity, including recreational activities, contributes to increased pollution and waste, further putting stress on marine life and disrupting migratory patterns, particularly impacting vulnerable species. Importantly, one type of tourism dependent on coral reefs attracts approximately 60 million visitors, in over 70 countries generating millions of dollars in revenues each year.[20] However, their rapid pace of degradation, wherein that 90% of reefs might be lost by 2050[21] , poses a material risk to the industry's future. To mitigate its environmental impacts, the primary body guiding the sector is the GSTC. The GSTC criteria provide an umbrella framework for businesses to adopt sustainable tourism practices and set goals for increasing certified destinations, hotel businesses, tour operators and so on. These criteria address key environmental concerns like GHG emissions, waste, and noise pollution. In tandem to this, the GSTC-recognised framework, the Green Globe Standard for Sustainable Tourism, offers certification and performance management metrics for the tourism-related businesses globally. Their relationship is one of collaboration and mutual support in achieving the shared goal of a more sustainable tourism industry.

On the other hand, the World Tourism Organization (UNWTO) and the UN Statistical Commission has developed the Statistical Framework for Measuring the Sustainability of Tourism (SF-MST), which serves as a crucial instrument in capturing, organising, and presenting data related to ESG (environmental, social, and governance) ramifications of tourism activities at a national scale, shaping innovative policies and business models to promote better tourism. While not directly applicable for businesses, the outlined data collection processes might serve useful in establishing thresholds.

Although the frameworks are globally recognised and adopted (Refer to Table 8), the parameters laid out are qualitative, focused on compliance to certain minimum standards or best practices, thereby hindering the ability to track progress quantitatively and effectively. Additionally, the criteria don't fully address ocean-related issues like coastal construction and habitat loss, which are often tied to national land-use laws.

Tourism businesses often need specific insights tailored to their operations and locations. Without standardized analysis tools and frameworks, they struggle to extract meaningful information from raw data.

20 Spaldinga, M., Burke, L., Wood, S. A., Ashpole, J., Hutchison, J., & Ermgassen, P. z. (2017). Mapping the global value and distribution of coral reef tourism. Marine Policy, 10.
21 Heron, S. F., Kalmus, P., Beger, M., & Dixon, A. (2022, February 4). 99% of coral reefs could disappear if we don't slash emissions this decade. Retrieved from World Economic Forum: https://www.weforum.org/agenda/2022/02/coral-reefs-extinct-global-warming-new-study/

TABLE 8: ASSESSMENT OF FRAMEWORKS IN THE COASTAL TOURISM SECTOR

FRAMEWORK	FRAMEWORK TYPE	PRESSSURES	DRIVING FORCES/ PRESSURE GROUPS	AR3T MITIGATION HIERARCHY	IUCN MITIGATION HIERARCHY	GUIDANCE	KPIS	TARGETS	ACCOUNTABILITY	REGULATORY REQUIREMENT
Global Sustainable Tourism Criteria	Guidance	◑	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✗	✗	✓	✓ *
Green Globe Standard for Sustainble Tourism	Standards & Certification	◑	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✗	✗	✓	✗ **
UN Framework for Measuring the Sustainability of Toursim	Guidance	◔	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✓	✗	✓	✗

Pressure Groups
HD Habitat Damage · PI Pollution · IS Invasive Species · WP Wild Population Impact

AR3T Mitigation Hierachy
A Avoid · R1 Reduce · R2 Restore · R3 Regenerate · T Transform

IUCN Mitigation Hierachy
A Avoidance · M Minimization · R Restoration · O Compensation/ Offset

✓ Exists ✓ Exists but not specific to oceans ✗ Does not exist

* Turkey Tourism Promotion and Development Agency (TGA) with guidance from the GSTC, has developed the 1st mandatory national program for hotels
** Regions might have their own sustainability regulations which could overlap with some aspects of Green Globe

CRITICAL BARRIERS TO ADDRESSING THE OCEAN PRESSURES

Industry Fragmentation & Governance

The tourism sector is a complex web of infrastructure developers, tour operators, and destination management organizations, each with distinct regulations and operating standards. Each of these sub-sectors operates within its own set of regulations and standards, making it challenging to establish a single, cohesive framework for ocean health with clear KPIs. Ensuring sustainable development would require interventions at different planning stages and with different stakeholders - policymakers, infrastructure and site engineering firms, consultants, etc. - for each of the different industries. For example, a construction company might prioritize minimizing environmental impact during development, while a tour operator focuses on sustainable practices during excursions. This also hinders the execution of large-scale restoration or regeneration initiatives involving diverse stakeholders.

The franchise model further complicates the picture, particularly within the hotel industry. Major brands might set sustainability standards and agreements but enforcing them across numerous independently owned and operated franchises can be difficult especially in a relatively competitive market, among the hotel chains for franchisees. While brand reputation and environmental risks are motivating factors for compliance, ensuring consistent action across a geographically dispersed network is a major roadblock.

Analytical Challenges

Tourism businesses require access to accurate, high-resolution data specific to their location. This data may include real-time or historical information about wave patterns, currents, water quality, beach erosion rates, and the health of marine ecosystems like coral reefs. However, this is challenging for 3 main reasons –

i) **Data Availability**: In many regions, the necessary oceanographic data may simply not be collected or publicly available, especially at a fine-grained, localized level.

ii) **Data Accessibility**: Even if data exists, it might be held by government agencies or research institutions, making it difficult or costly for businesses to access and utilize.

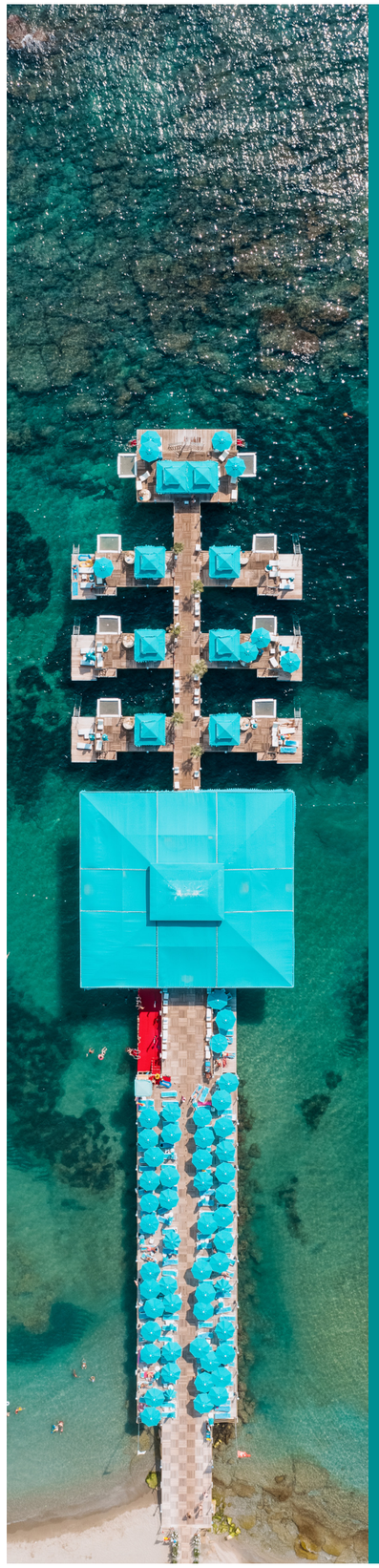
iii) **Data Inconsistency**: While technologies like remote sensing and satellite imagery offer powerful tools for gathering ocean-related data, there is a lack of industry-wide consistency. Data collected by different organizations or using different methods may not be easily comparable, limiting its usefulness for benchmarking and identifying industry-wide trends.

Geographical Fragmentation

The industry operates on a global stage, with businesses and destinations spanning across different countries and continents. This global nature, however, presents a challenge when it comes to ocean conservation. Each region, country, as well as more localized municipalities has its own set of zoning regulations, political priorities, environmental priorities, and cultural attitudes towards sustainability. This creates a fragmented landscape where approaches to ocean conservation vary significantly, hindering the establishment of a unified and consistent strategy by businesses. Furthermore, this geographical fragmentation limits effective cross-border collaboration. While some knowledge-sharing and best practice dissemination do occur, the tourism industry often operates in silos within their respective regions. This can impede the widespread adoption of innovative solutions and collaborative initiatives that could address ocean challenges on a larger scale.

Lack of an 'Outside-In' View

A key barrier to proactive ocean conservation by tourism companies lack a clear understanding of the correlations between specific ocean pressures and the long-term profit or loss, business risks or competitiveness. While many businesses recognize the general importance of sustainability, the negative effects of ocean degradation on tourism might not be immediately apparent. For instance, declining fish populations could impact dive tourism years down the line, or beach erosion might slowly reduce the attractiveness of a destination. This delayed impact makes it difficult for businesses to prioritize immediate action. Current guidance often focus on short-term cost savings through operational efficiency rather than ocean health aligned business performances.



CORPORATE ACTION

Globally, sustainable tourism practices are gaining attention and uptake. The sector is showing a growing interest in adopting sustainability frameworks like the GSTC and major hotel chains and operators have been certified by the Green Globe Standards. The table suggests that the tourism industry is indeed showing a growing interest in adopting sustainability frameworks. This positive trend partly is driven by local/ national policies and regulations, such as the Turkey Tourism Promotion and Development Agency (TGA) framing the mandatory national program for hotels based on the GSTC and partly due to reputational benefits that attract the growing eco-conscious travellers. However, voluntary action, especially on marine and coastal conservation, is still limited, with primarily responding to compliance requirements.

"AS A GSTC-CERTIFIED HOTEL CHAIN, IBEROSTAR IS GOING ABOVE AND BEYOND WITH ITS CORAL LABS, TAKING DIRECT ACTION TO PROTECT CORAL REEFS. WITH 8 NURSERIES, OVER 100 STRUCTURES, AND 2,000+ CORAL FRAGMENTS, THEY' ARE STUDYING CORAL BLEACHING AND IDENTIFYING RESILIENT SPECIES. THIS INITIATIVE IS PART OF IBEROSTAR'S LARGER COMMITMENT TO OCEAN HEALTH, WHICH INCLUDES RESPONSIBLE SEAFOOD SOURCING, A CIRCULAR ECONOMY MODEL, AND IMPROVING COASTAL ECOSYSTEMS. THIS INITIATIVE IS PART OF IBEROSTAR'S LARGER COMMITMENT TO OCEAN HEALTH, WHICH INCLUDES RESPONSIBLE SEAFOOD SOURCING, A CIRCULAR ECONOMY MODEL, AND IMPROVING COASTAL ECOSYSTEMS."

IBEROSTAR. (2022, MAY 27). CORAL REEFS IMPORTANCE FOR IBEROSTAR. RETRIEVED FROM IBEROSTAR PRESS.

COASTAL DEVELOPMENT

- Coastal development and global trade expansion have increased the environmental pressure on ports, driving the need for sustainable practices.
- Common port activities like dredging and construction lead to **sediment disruption, water pollution, and harm to marine ecosystems**.
- **Noise pollution and habitat destruction from port expansion also threaten biodiversity and fishery resources**. While initiatives like the ESPO Green Guide and the World Ports Sustainability Program provide frameworks for environmental improvement, implementation is hindered by fragmented regulations and a lack of standardized data across the industry.
- Addressing these challenges requires a shift from economic growth to prioritizing ocean health through innovative solutions and better data sharing.

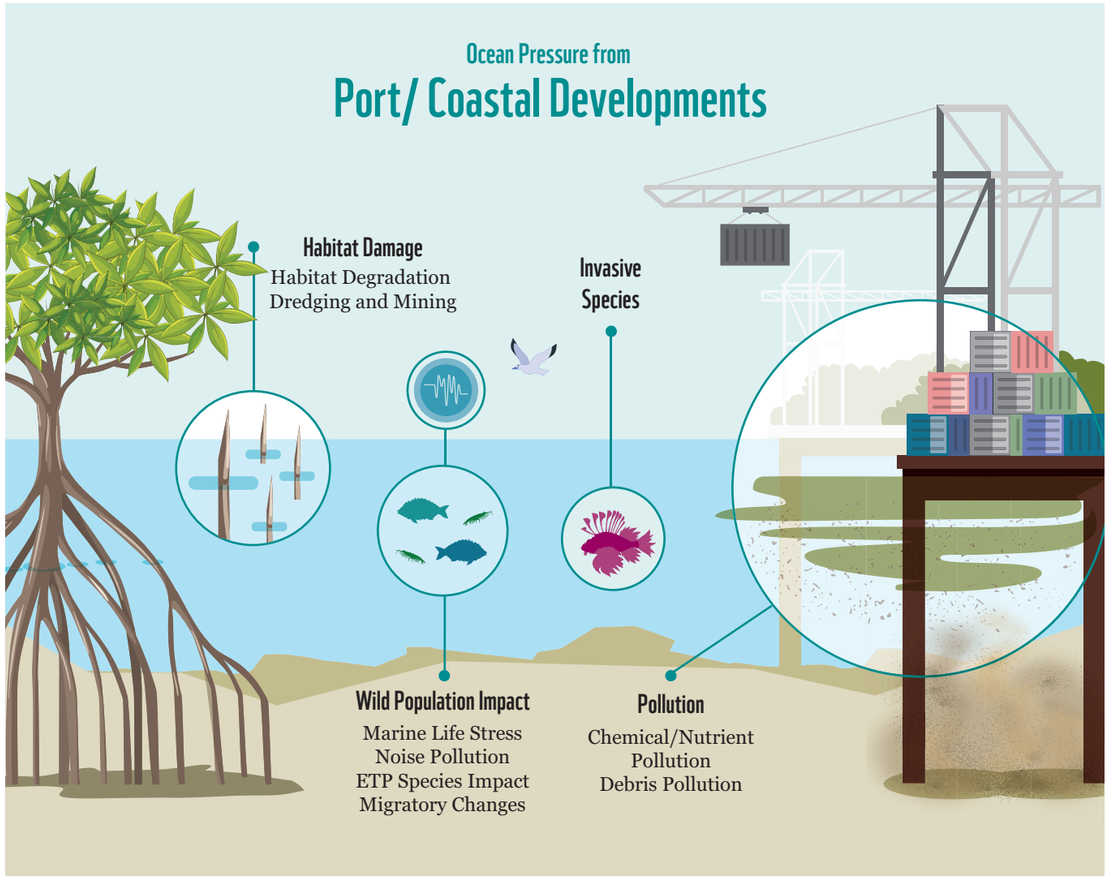
SECTOR OVERVIEW

The rapid development of coastal areas, expanding global trade, and increasing stakeholder involvement necessitates a shift in the port development industry to integrate ecological and environmental factors into their operations and development plans to remain sustainable and responsible. Activities like dredging, pile driving, and land reclamation cause erosion and sediment resuspension, increasing turbidity and reducing sunlight penetration, crucial for marine life. Additionally, spills and leaks from construction vessels, not only affects the water quality but also leads to eutrophication, oxygen depletion, and harm to marine organisms. It is estimated that coastal areas within a 6 km radius of even a small local port can experience a 1.7% rise in Chlorophyll-a levels.[22] Additionally, dredging activities not only releases invasive species, potentially harming benthic organisms, but physically removes bottom habitats, impacting biodiversity and reducing fishery resources. Additionally, noise pollution from port activities can disrupt marine mammal communication, while increased human presence and vessel traffic adds stress to marine life, displacing species and disrupting the ecological balance.

Although the sector is currently underdeveloped and ill-equipped to address the pressures on the ocean environment, existing initiatives may offer some valuable resources and best practices that can be utilized to mitigate ocean pressures. For example, the ESPO Green Guide offers a shared vision, tools, and strategies for European port authorities to enhance their environmental performance, particularly in areas like water quality, waste management, noise pollution, and biodiversity. The World Ports Sustainability Program (WPSP), on the other hand, serves as a valuable repository of best practices, showcasing various initiatives undertaken by port authorities worldwide to address marine litter, soil contamination, biodiversity protection, etc. It can help identify effective measures and success factors in sustainable port and coastal management. Beyond these, frameworks like the Global Environment Facility's Greening Transportation Infrastructure Development (GRID) program, which is not directly focused on coastal development, are supporting few port developments in Suriname to minimize impacts on ocean ecosystems by integrating environmental considerations into policies and planning processes.[23]

22 Yudhistira, M. H., Karimah, I. D., & Rahmi Maghfira, N. (2022). The effect of port development on coastal water quality: Evidence of eutrophication states in Indonesia. Ecological Economics.
23 WWF-GEF. (2023). GRID Program Framework Document. GEF. Retrieved from Preserving Suriname's Immense Marine and Coastal Biodiversity through Greening Infrastructure Development: https://files.worldwildlife.org/wwfcmsprod/files/Publication/file/50dyi4z0m8_suriname_wwf_gef_grid_cn.pdf

FIGURE 14: CRITICAL SOURCES OF OCEAN PRESSURES FROM THE COASTAL DEVELOPMENT INDUSTRY



Emerging frameworks like the FAST Infra Label showcase a much broader scope, designed to assess and enhance the sustainability and resilience of infrastructure projects across infrastructure projects globally. By consolidating and building upon more than 55 existing standards and taxonomies, it simplifies the evaluation process to communicate the positive environmental, social, governance, and resilience (ESGR) performance of infrastructure assets. The framework is well suited for the finance sector integrating its overarching due diligence/ screening processes, in order to support sustainable infrastructure projects and understand whether the asset meets international sustainability standards. Although the processes and guidelines can be translated to port development, it lacks a targeted focus on the sector as well as on ocean pressures.

TABLE 9: ASSESSMENT OF FRAMEWORKS IN THE COASTAL DEVELOPMENT SECTOR

FRAMEWORK	FRAMEWORK TYPE	PRESSSURES	DRIVING FORCES/ PRESSURE GROUPS	AR3T MITIGATION HIERARCHY	IUCN MITIGATION HIERARCHY	GUIDANCE	KPIS	TARGETS	ACCOUNTABILITY	REGULATORY REQUIREMENT
ESPO: A Manual for European Ports towards a Green Future	Guidance	◔	HD PI IS WP	A R1 R2 R3 T	A M R O	✓ *	✗	✗	✗	✗
World Ports Sustainability Program	Best Practice	○	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✗	✓	✓	✗
FAST (Finance to Accelerate the Sustainable Transition) intra-label	Standards & Certification	◑	HD PI IS WP	A R1 R2 R3 T	A M R O	✓	✓	✗	✓	✗

Pressure Groups
HD Habitat Damage | PI Pollution | IS Invasive Species | WP Wild Population Impact

AR3T Mitigation Hierachy
A Avoid | R1 Reduce | R2 Restore | R3 Regenerate | T Transform

IUCN Mitigation Hierachy
A Avoidance | M Minimization | R Restoration | O Compensation/ Offset

✓ Exists ✓ Exists but not specific to oceans ✗ Does not exist

* Not guidance, but learnings from projects

CRITICAL BARRIERS TO ADDRESSING THE OCEAN PRESSURES

Fragmented Implementation

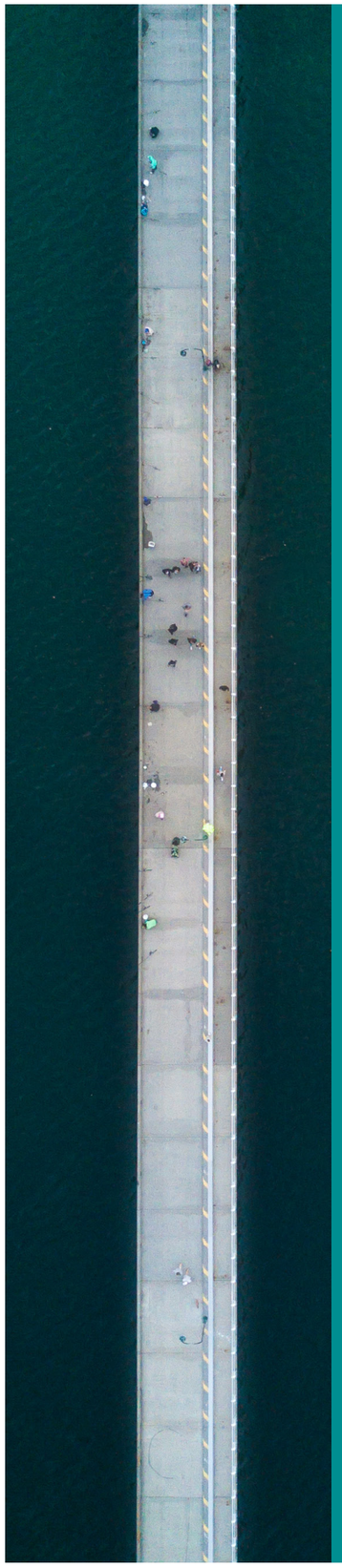
Despite the recognized environmental impact of ports, the ports development authorities have historically been slow to react and adopt sustainable practices. Regulations often arise as a response to major incidents, rather than proactively addressing potential risks. While IMO guidelines are valuable, they are often optional, limiting their effectiveness in driving widespread change. Another challenge lies in the fragmented nature of regulations, with national, regional, and international bodies often having overlapped or conflicting requirements. This complexity hinders the adoption of new technologies and sustainable practices. Moreover, a truly sustainable approach requires addressing not just maritime-specific pollution, but also land-based sources that impact the ocean. For example, plastic waste, much of which originates from land-based sources, poses a significant threat to marine life and requires collaborative solutions beyond the port industry itself.

Siloed Working

Environmental data is often scattered across different departments, organizations, and systems, creating information silos that hinder effective environmental management. This fragmentation makes it difficult to develop comprehensive continuity plans. Without a complete understanding of potential risks and impacts, it is challenging to address all potential scenarios or establish any effective data sharing protocols: Sharing data across different platforms and organizations requires standardized protocols and systems, which can be difficult to implement when data is fragmented. Hence, each port works within its own remit and acts on protecting the ocean with the limited data and resource access it has, further limiting the exchange of information that hinders the ability to develop innovative and effective solutions to marine challenges.

Balancing Economic Growth and Ocean Health

Ports are vital engines of economic growth, facilitating trade and supporting industries. However, this economic importance often creates tension with environmental concerns. Expanding port infrastructure to accommodate larger vessels and increased trade volumes can lead to further habitat destruction, dredging, and pollution. While efforts are being made to assess and improve the environmental performance of ports, existing tools often fall short. Many assessments rely on qualitative data and lack standardized metrics, making it difficult to compare performance across different ports and track progress over time. Furthermore, while promising solutions like ecological engineering and eco-design have shown potential for habitat restoration, these efforts are often limited in scale and lack clear objectives and long-term monitoring. Scaling up these solutions and integrating them into port design and operations is crucial for achieving meaningful conservation benefits. Ultimately, a sustainable future for ports requires a shift in mindset from a purely economic focus to one that prioritizes environmental stewardship and recognizes the interconnectedness of human activities and ocean health.



CORPORATE ACTION

While the WPSP hosts a rich database of sustainable coastal conservation projects over the years, the frameworks targeting this sector are relatively new and developing and hence their adoption and implementation across the industry is also limited, requiring time and effort. However, EcoPorts, which is the main environmental initiative of ESPO has been successful in registering interest and action by 88 port members across EU 26 countries.

"THE PORT OF HUELVA, LOCATED IN AN AREA OF HIGH ECOLOGICAL VALUE, IS HEAVILY IMPACTED BY SEDIMENTS AND POLLUTANTS DUE TO ACID DRAINAGE TO THE RIVERS THAT FLOW INTO THE PORT. THEY UNDERTOOK AN INITIATIVE "RECOVERY OF HABITATS AND SEABIRDS THROUGH THE BENEFICIAL USE OF DREDGING AND BIO-TOOLS' BASED ON WORKING WITH NATURE METHODOLOGY AND HAS BEEN CONCEIVED NOT ONLY IN A WAY THAT IS INTEGRATED INTO NATURE BUT ALSO BASED ON ITS NATURAL PROCESSES FOR THE SUCCESS OF THE COMPATIBILITY BETWEEN PORT ACTIVITY AND THE CONSERVATION OF THE ECOLOGICAL VALUES."

IAPH. (2024, OCTOBER 4). PORT OF HUELVA – RECOVERY OF HABITATS AND SEABIRDS. RETRIEVED FROM WORLD PORTS SUSTAINBAILITY PROGRAMME.

THE WAY FORWARD FOR SCIENCE-BASED TARGETS FOR OCEAN HEALTH

As the SBTN develops the target setting methodology for the marine biome, it needs to focus on the following:

Capabilities

Science-based Ocean health targets should align with international conservation goals (e.g., UN SDGs) and strike a balance between ambition and attainability. They must account for industry-specific baselines and regional sensitivities to ensure progress is both achievable and impactful.

Standardization

Establishing standardized methods for measuring ocean pressures across industries is essential for consistency in reporting. This includes creating a taxonomy for various ocean stressors and protocols for data collection, improving the accuracy and reliability of impact measurement.

Restoration Focus

Beyond the “do no harm” paradigm, targets should promote proactive restoration and long-term planning for ocean health. Businesses should incorporate incremental goals for regeneration, fostering gradual progress while maintaining focus on wider ecosystem impacts.

Collaboration

Aligning science-based ocean health targets with existing frameworks like TNFD and EU CSRD simplifies reporting, reduces duplication, and allows companies to integrate ocean-related goals into broader biodiversity and sustainability efforts.

Data Accessibility

SBTN should work with data providers to bridge gaps in ocean health data, creating centralized platforms for tracking marine ecosystem impacts. Collaboration with platforms like IBAT and ENCORE can provide businesses with necessary datasets for assessing ocean-related pressures.

Communication

To drive corporate commitment, SBTN should provide tailored resources, toolkits, and knowledge-sharing platforms that incorporate lessons from past pilots. Peer learning and collaboration with financial institutions can enhance co-financing for mitigation and restoration initiatives.

RECOMMENDATIONS FOR TARGET SETTING

Based on our understanding of the landscape, we believe that the science-based targets for the future should be focused on three key pillars – **Capabilities, Collaboration and Communication.**

FIGURE 15: KEY PILLARS FOR SETTING SCIENCE-BASED TARGETS

CAPABILITIES
SBTN's own resources, competence and offerings

- Push the boundaries of corporate sustainability ambition while still setting a methodology that is achievable in the mid term
- Standardize the classification and measurement of ocean pressures for each industry
- Strengthen action on restoration while maintaining a continued focus on 'do no harm'

COLLBABORATION
Key partnerships and collaboration with peers

- Ensure interrelatedness with TNFD and EU CSRD to simplify reporting processes
- Work with data providers to bridge data availability & accessibility gap that will ultimately enable companies to measure ocean impacts effectively

Leverage financial institutions to improve co-financing of mitigation and restoration initiatives

COMMUNICATION
Effective engagement of corporate sector partners for roll out of targets and scaling

- Strengthen corporate engagement through tailored resources that support the implementation of target, incorporating learnings from prior pilot

Work together with the extended Ocean Hub network of partners to clearly outline the financial risks and opportunities of ocean health pressures

Priority Considerations

Long-term considerations for SBTN to work on in collaboration with other partners

CAPABILITIES

1. Push the boundaries of corporate sustainability ambition while still setting a methodology that is achievable in the mid term

As a fundamental step, targets aimed at safeguarding ocean health must be intrinsically aligned with and actively contribute to the realization of broader international conservation objectives, such as those articulated in the UN Sustainable Development Goals and the Global Biodiversity Framework at a minimum. This alignment can subsequently facilitate the integration of these science-based metrics into regulatory frameworks.

While the transition from a focus on mere compliance with process-oriented requirements to measurable time-bound indicators that genuinely reflect the state of the ocean is paramount, it is equally vital to ensure that these targets strike a balance between ambition and attainability. They should challenge industries to move beyond ‘business-as-usual’ while remaining achievable within a realistic timeframe. This necessitates a comprehensive understanding of industry baselines and their potential for advancement. This requires acknowledgement of the specific environmental conditions and sensitivities of distinct operational regions and varying degrees of ocean impact across different industries. Providing flexibility in target setting to accommodate these disparities is essential, while still ensuring substantial progress towards overarching ocean health goals.

Additionally, it is crucial to view ‘achievability’ not just as businesses meeting their targets, but also as striking the right balance between planning and action. While thorough data collection, due diligence, and target assessments are important, the ultimate goal is to maximize resources dedicated to actual implementation of sustainable practices and initiatives within their value chains. Therefore, to maximize impact, it is imperative that the target-setting process is streamlined and efficient, ensuring that the focus remains on tangible improvements and real-world impact. In this regard, it is also imperative to recognize and reward incremental progress towards targets, even if complete attainment necessitates an extended duration. This approach fosters continuous improvement and prevents discouragement, ensuring sustained engagement from companies in their pursuit of ocean health objectives.

2. Standardize the classification and measurement of ocean pressures for each industry

While recognizing that each industry necessitates its own set of metrics and operates within distinct contexts, achieving consistency and compatibility in reporting across diverse sectors and regions necessitates the establishment of standardized methods for classifying and measuring ocean pressures and impacts throughout the value chain. It is highly recommended that the ecosystem adopts a standardized taxonomy that comprehensively categorizes various ocean pressures, encompassing all major anthropogenic stressors on the marine environment. This taxonomy should acknowledge the unique contributions of different sectors to varying ocean pressures, facilitating precise identification and measurement of impacts, and enabling targeted action. Another point of standardisation are the data requirements and formats, including clear definitions of data points for quantifying each type of ocean pressure and its impacts, as well as establishing standardized protocols for data collection, is essential. This will streamline data integration and enhance the reliability and efficiency of target setting and monitoring processes.

3. Strengthen action on restoration while maintaining a continued focus on 'do no harm'

When designing targets for ocean health, it is imperative to encourage a move beyond the current 'do no harm' paradigm that primarily focuses on avoidance and impact reduction through resource-efficient practices. To account for the potential complexities of planning for risks posed to future resources and assets, it is essential to incorporate guidance on modelling the long-term implications of the restoration, regenerative, and transformative actions. This proactive approach will provide a more comprehensive understanding of the true value at risk and enable businesses to strategize for the long-term health of the ocean as well as their bottom-lines.

Integrating such forward-looking perspectives into target-setting goals will not only strengthen existing frameworks but also provide a broader context for businesses to move beyond a narrow focus on their immediate pressures on the ocean ecosystem and consider the wider implications of their actions. However, setting and monitoring targets around restoration and regeneration can be implemented incrementally, allowing businesses to gradually adapt and evolve their practices. The incremental approach would provide a practical starting point, fostering a sense of progress and encouraging continued commitment to ocean health.

COLLABORATION

4. Ensure complementarity with existing reporting standards such as TNFD, EU CSRD and others to simplify reporting processes

To minimize the burden of reporting, there is a need to ensure alignment between the SBTN target-setting methodology and widely adopted reporting frameworks, specifically TNFD and CSRD, as well as the Global Reporting Initiative (GRI). By structuring SBTN's methodology to build upon familiar reporting frameworks, companies will be able to integrate ocean-related targets into their broader biodiversity and sustainability reporting processes with minimal additional effort. This reduces the likelihood of duplicated reporting efforts and streamlines compliance with regulatory frameworks such as CSRD, which mandates sustainability disclosures at the European Union level. This can be done by mapping the target setting methodology to existing nature-related disclosure frameworks, particularly the TNFD's LEAP (Locate, Evaluate, Assess, Prepare) approach. This mapping can be based on an examination of where ocean targets intersect with nature and biodiversity-related disclosures already embedded in these frameworks.

Going into the next stage of the target setting pilots, SBTN should consider leveraging interoperable KPIs and metrics with those used in TNFD, GRI, and CSRD to allow for consistent and efficient reporting on ocean health across multiple frameworks. Ocean-specific indicators, such as those related to pollution reduction, habitat restoration, and marine biodiversity impacts, should be structured in a way that they can be integrated into the broader sustainability frameworks that companies already use. The interoperability of metrics will allow companies to report on ocean-specific targets in conjunction with existing nature-related disclosures, thus reducing the complexity of compliance. Given that TNFD and CSRD already address broad environmental and biodiversity factors, incorporating ocean health KPIs into these frameworks will allow companies to address multiple environmental priorities within a unified reporting structure.

5. Work with data providers to bridge data availability & accessibility gap that will ultimately enable companies to measure ocean impacts effectively

A critical area where collaboration between SBTN, TNFD, CSRD, and the private sector can have a significant impact is the sharing of data and the development of common platforms for ecosystem monitoring. SBTN can partner with platforms such as the Integrated Biodiversity Assessment Tool (IBAT) and the ENCORE platform, which are already used by TNFD for nature risk assessments. Integrating ocean-specific data into these platforms can help track the health of marine ecosystems, providing companies with robust datasets for assessing their impacts. Collaborating with TNFD and CDP (Carbon Disclosure Project), SBTN could establish or contribute to a centralized ocean data hub that consolidates corporate and public data on ocean-related indicators. Such a hub could integrate geospatial data, biodiversity indices, and pollution metrics, making it easier for companies to access the data they need to comply with reporting standards and track progress on ocean health targets.

SBTN can also engage with private sector companies to develop data-sharing agreements, whereby corporations share non-sensitive ocean data (e.g., pollution levels, marine biodiversity) in exchange for access to shared datasets. SBTN can work as a facilitator, ensuring data quality and providing guidelines on anonymizing sensitive corporate data. Engage key industries such as shipping, tourism, marine renewables, and fisheries in collaborative ocean monitoring programs, where companies contribute to joint monitoring efforts of critical ecosystems (e.g., coral reefs, seagrass meadows). This approach would reduce individual monitoring costs and increase the geographical coverage of data collection.

COMMUNICATION

6. Strengthen corporate engagement through tailored resources that support the implementation of targets, incorporating learnings from prior pilots

To strengthen corporate engagement in the implementation of science-based targets (SBTs), SBTN can develop tailored resources that incorporate key learnings from previous pilot programs. Specifically, insights gained from the seafood sector pilot can be leveraged to refine tool kits designed for corporations. These toolkits should include comprehensive baseline assessments, sector-specific methodologies, and step-by-step guidance for setting and achieving SBTs. By providing industry-relevant resources, SBTN can address the unique challenges companies face in aligning their operations with marine conservation objectives.

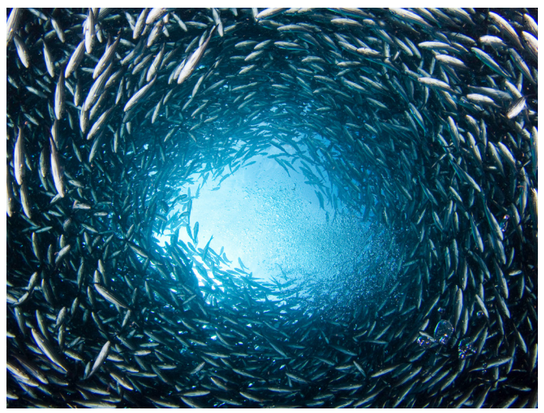
In addition, establishing a dedicated platform where companies can access a repository of case studies, participating in peer-to-peer learning sessions, and engaging with subject matter experts would enhance collaborative problem-solving. This platform could serve as a central hub for knowledge exchange, enabling businesses to learn from the experiences of others and adapt best practices to their own contexts. Furthermore, SBTN should regularly organize workshops and webinars that facilitate discussions around progress, allow for troubleshooting, and foster a shared commitment to marine sustainability. These sessions would not only help businesses track their implementation efforts but also create a dynamic feedback loop that enables SBTN to continuously update its resources and methodologies based on real-world application and challenges.

7. Leverage public sector actors and financial institutions to improve co-financing of mitigation and restoration initiatives

To drive effective collective action, the Science Based Targets Network (SBTN) can serve as a critical facilitator, fostering cross-sectoral collaboration among governments, businesses, NGOs, and local communities. This collaborative approach would ensure that all stakeholders are aligned with the goals of sustainable ocean management. One of the key mechanisms to achieve this is through the transparent sharing of results from SBTN's pilot programs, such as those targeting land, freshwater, and seafood sectors. By disseminating lessons learned and successes, SBTN can help ensure the equitable sharing of conservation benefits and support the long-term sustainability of marine ecosystems.

Engaging policymakers from nations with significant ocean economies is another essential step. This could ensure that corporate actions related to science-based targets are aligned with both national conservation strategies and broader international commitments, such as the United Nations Sustainable Development Goals and the Paris Agreement. By working directly with these governments, SBTN can create synergies between private-sector initiatives and public-sector priorities.

Additionally, collaboration with development finance institutions (DFIs) like the International Finance Corporation (IFC) could open new avenues for green financing. For example, offering companies access to reduced-interest loans or sustainability-linked bonds would provide strong financial incentives for businesses committing to science-based targets for the ocean. Such financial tools could also be linked to innovative approaches like "debt-for-nature" swaps, further encouraging corporate investment in ocean conservation initiatives. Through these combined efforts, SBTN can build a coalition of public and private actors dedicated to driving sustainable outcomes for ocean ecosystems.



8. Work together with the extended Ocean Hub network of partners to clearly outline the financial risks and opportunities of ocean health pressures

The core principle lies in ensuring that ocean health targets are not perceived as mere regulatory or reporting obligations, but rather as strategic imperatives intrinsically linked to an industry's long-term viability and success. Establishing this connection necessitates explicitly linking ocean pressures to tangible financial risks and opportunities, thereby creating a compelling business case for action. While conducting materiality assessments to identify and prioritize significant ocean-related impacts, risks, and opportunities is a crucial first step, it is equally important to showcase the economic benefits of investing in ocean health. These benefits may include cost savings through resource efficiency, enhanced brand value, improved access to capital, or the avoidance of long-term costs associated with penalties, resource supply or ecosystem degradation.

When targets are strategically aligned with business goals, their adoption and implementation by industries are far more likely, positioning them better to account for complexity and uncertainty in decision-making. However, the challenge lies in the often-delayed realization of positive outcomes from ocean conservation efforts. To maintain momentum and ensure sustained commitment to ocean health initiatives, it is crucial to incorporate metrics and targets that showcase tangible financial and conservation benefits within shorter timeframes as well, in addition to long-term goals.

9. Underline the importance of embedding resilience into blue economy systems including Indigenous people and local communities

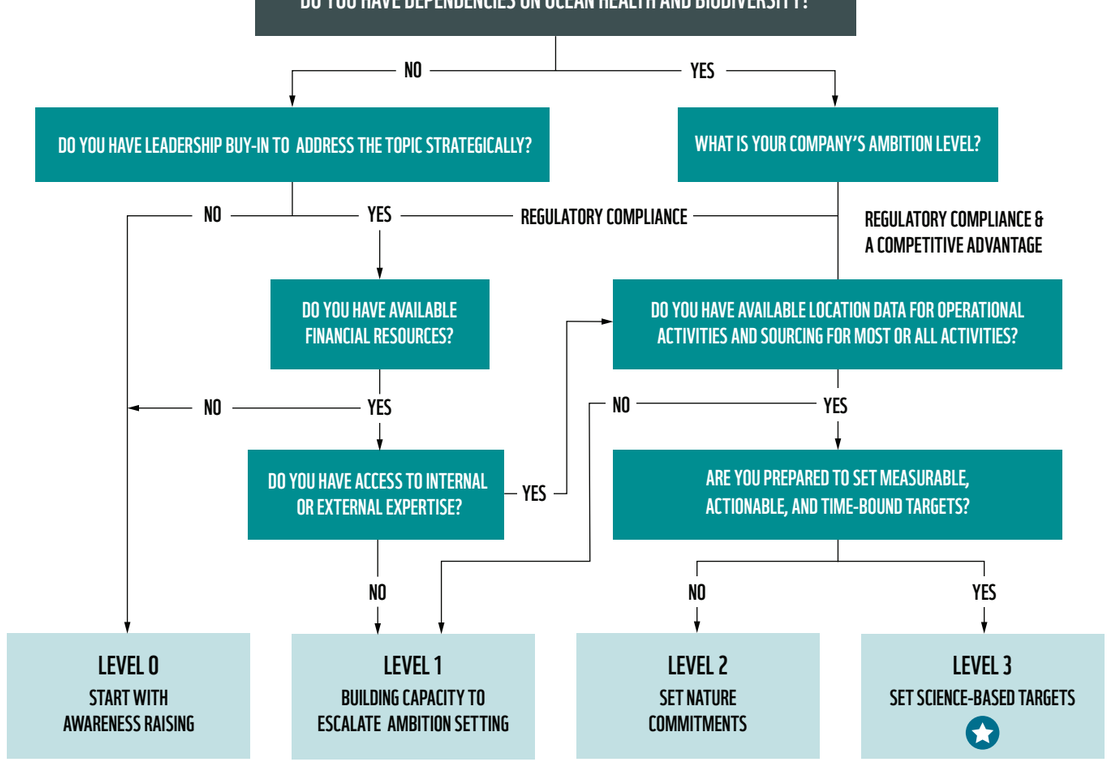
When designing targets for ocean health, it is imperative for target-setting bodies to adopt a holistic perspective that goes beyond ecological concerns and encompasses the resilience of both marine/coastal ecosystems and the communities dependent on them. While metrics around resilience are not yet established and difficult to quantify, the very interconnectedness of the ocean ecosystem demands focus on strengthening community-based resource management and promoting economic activities that are compatible with healthy ocean ecosystems. Recognizing that ocean conservation is a shared responsibility, targets should incentivize collaboration among diverse stakeholders, including governments, businesses, NGOs, and local communities, while ensuring that the benefits of conservation activities are equitably shared among all. This integrated approach is pivotal for ensuring the long-term sustainability of conservation efforts.

BUT HOW MIGHT SBTN ENABLE CORPORATIONS IN ESTABLISHING OVERARCHING TARGETS FOR PROTECTING AND RESTORING OCEAN HEALTH?

Establishing the connection between ocean health and an industry's long-term viability necessitates creating a compelling business case for action. However, every industry and company is at different levels of maturity, depths, as well as breadth, regarding their sustainability. The immense challenge and critical importance of ocean health necessitates targeted and decisive action, using a science-driven and pragmatic approach. So where does one start?

To effectively chart a course towards ocean sustainability, businesses need a clear starting point tailored to their unique circumstances. Companies with existing expertise in natural capital can immediately leverage the SBTN framework to assess their ocean impacts, prioritize areas for action, and set ambitious targets. For those at an earlier stage, the focus should be on building a strong foundation through data collection, internal education, and securing leadership buy-in. This journey necessitates a collaborative and iterative approach, with ongoing corporate engagement to ensure that decisions are well-informed and lead to meaningful progress.

FIGURE 16: FRAMEWORK FOR BUSINESSES TO START ON THEIR JOURNEY TO PROTECT OCEAN HEALTH



ADDITIONAL INDUSTRY-SPECIFIC CONSIDERATIONS FOR SBTN

MARINE RENEWABLES

- Consider focusing on embedding site selection processes into the target setting methodology to minimise impact to sensitive marine ecosystems.
- SBTN can recommend credible habitat restoration and re-generation actions that companies can take, including in the operational and post-operational phases to compensate for ecological disturbances caused by construction and operation.
- SBTN should consider how to address cumulative impact assessment requirements in its target-setting framework, which can encourage wind farm developers to assess how their projects, when combined with existing or planned developments, contribute to regional environmental stressors.
- Companies can advocate for the incorporation of ambitious non-financial criteria around marine biodiversity in tenders, in line with SBTs. This would ensure that developers not only focus on cost and energy output but also prioritize minimizing the ecological impacts, while maintain business competitiveness.

SHIPPING

- SBTN should initially focus on the “avoid” and “reduce” stages of the AR3T mitigation hierarchy, guiding the maritime industry to prevent and minimize environmental harm before advancing to restorative actions which are more complex for the maritime shipping industry to implement
- Establish targets that integrate ocean conservation goals with existing decarbonization efforts in the maritime shipping sector, particularly focusing on reducing greenhouse gas (GHG) emissions and controlling marine pollution.
- The shipping industry is subject to numerous international regulations aimed at reducing environmental impacts, including the IMO’s MARPOL convention and regulations on ballast water management and the BBNJ High Seas Treaty.
- Technological advancements, such as cleaner fuels, hull modifications, and real-time monitoring systems, offer significant potential for reducing the environmental footprint of maritime shipping. While significant work as been ongoing to reduce the noise from ships by optimising hull and propeller designs, technologies like the Masker System, which uses air injection to create an air curtain around the hull, muffling the noise and the Marine Vibroseis, a seismic survey technology, which used vibrations instead of airguns, are fast emerging. To promote a healthier marine environment, 2 critical aspects need to concurrently occur in collaboration with the IMO – i) Develop scientifically sound thresholds for underwater noise and other pollutants, considering the diverse impacts of different ship types, profiles, and operational contexts and ii) Integrate these science-based standards into existing regulations like MARPOL or the Code on Noise Levels on Board Ships, or create new standards where necessary, robust mechanisms for monitoring, reporting, and verifying compliance to ensure the effectiveness of these measures.

COASTAL TOURISM

- Focus on protecting and restoring vital ecosystems, such as coral reefs, mangroves, and seagrass beds, that are vulnerable to tourism-related impacts. Through its targets, SBTN should encourage tourism operators to adopt reef-friendly practices, such as eco-friendly anchoring, reduced foot traffic in sensitive areas, and active participation in coral reef restoration projects. Coastal resorts and operators should also engage in mangrove and seagrass bed restoration to support ecosystem resilience and carbon sequestration.
- All coastal tourism infrastructure developers should map the coastal and marine impacts and ecosystem service dependencies, during the early planning stages, for the entire lifecycle of the development project from conceptualization to completion.
- Develop targets for the marine tourism sector focused on reducing pollution, especially from plastic waste, wastewater, and emissions from tourism-related transportation. Guide marine tourism companies toward achieving pollution reduction goals by adopting sustainable practices such as zero-waste initiatives, improved wastewater treatment, and transitioning to low-carbon or electric transportation options.
- Encourage formation of regional working groups comprising of a diverse range of stakeholders, including tourism companies, indigenous people and local communities, scientists, conservation organizations, and government agencies can be established to enable a localized approach. This ensures that targets are informed by local knowledge and expertise, fostering a sense of ownership and shared responsibility for ocean health. Moreover, by operating at a sub-kilometre level, these working groups can create highly detailed maps of human activities and their impacts on specific marine habitats and species. This level of precision is critical for identifying areas of high conservation value and developing highly specific baselines and thresholds that reflect the unique sensitivities and carrying capacities of different marine ecosystems, directly feeding into developing a contextualised, and adaptable framework for the science-based targets. As a starting point, the GSTC Destination Assessment process could be used as reference to adhere to minimum standards.
- Promote responsible wildlife interactions and establish clear guidelines for tourism activities that involve marine species, including whale watching, diving, and snorkelling. This includes limiting the number of tourists in sensitive areas, establishing minimum distances from marine life, and prohibiting harmful activities like feeding or touching wildlife. Marine tourism operators should also support and contribute to marine protected areas (MPAs) to help conserve biodiversity.
- Promote models of community-based tourism that give local populations ownership over tourism initiatives. This includes providing training in sustainable practices, supporting locally led conservation projects, and ensuring that tourism revenue supports both community development and ecosystem protection.

COASTAL DEVELOPMENT

- Prioritize a comprehensive assessment of the ecological sensitivity of the port area, including its connections to the city and surrounding oceans, in line with EIAs. This should encompass, physical and chemical analysis for evaluating water and sediment quality and the presence of pollutants, biological assessments for identifying key habitats, species, and their sensitivities to port activities as well as socioeconomic considerations for understanding the impact of port operations on local communities and economies.
- Given the port construction require large areas, with significant land reclamation and dredging activities, principles of circular economy that encourage reutilisation of dredged material or sediments for construction and rebuilding habitats should be incorporated. Developing specific KPIs focused on waste reduction, material reuse, and resource efficiency would indirectly help transform potential waste streams to the oceans into valuable resources for ecological enhancement.
- Given that retrofit programs of ports underway globally, actively collaborate with ports to integrate sustainability targets and KPIs into their existing environmental plans and retrofitting programs, including the Environment Management Systems (EMS) in accordance with ISO 14001. This ensures alignment and promotes continuity in environmental management efforts.
- Need to strike a balance between harmonization and flexibility. Establishing consistent global standards ensures a level playing field and facilitates progress assessment, while acknowledging the diverse legal frameworks and ecological sensitivities of different regions accommodates the unique circumstances of each port. This can be achieved by defining core environmental principles with adaptable parameters, promoting performance-based targets, and fostering collaboration for knowledge sharing.

CHARTING A COURSE TOWARDS A SUSTAINABLE BLUE ECONOMY

While the urgent need for a global transition towards a sustainable blue economy is the need of the hour, the transition demands a collective commitment from governments, businesses, investors, and civil society to prioritize sustainable practices, embrace innovation, and ensure the responsible stewardship of our invaluable marine resources for generations to come.

1 **Governments** hold a pivotal role in establishing the necessary foundation for this transition. By enacting and enforcing robust regulations that incentivize sustainable practices, they can create a level playing field for businesses. This includes implementing marine net gain frameworks, where any marine development must result in a net positive impact on the marine environment. Furthermore, reforming harmful subsidies that currently support unsustainable practices, such as large-scale industrial fishing and fossil fuel extraction, and redirecting them towards sustainable alternatives like rebuilding fish stocks and renewable energy infrastructure, are crucial steps. Finally, fostering international collaboration and agreements to protect biodiversity in international waters, as exemplified by the UN High Seas Treaty, is equally important for effective ocean governance on a global scale.

2 **Businesses, investors, and NGOs** form a crucial force in driving corporate awareness and promoting transparency within ocean-related industries. Industry leaders must actively engage in collaborative initiatives to address shared challenges and promote sustainable practices across sectors. Raising public awareness through targeted campaigns can educate consumers and drive demand for environmentally friendly products. NGOs play a crucial role in holding industries accountable and advocating for responsible resource management. By leveraging their influence, corporations can promote sustainable practices throughout their supply chains and encourage partners to adopt similar commitments. Ultimately, achieving a truly sustainable blue economy demands a collective commitment to responsible stewardship of our oceans.

3 **Financial instruments** play a critical role in accelerating the transition to a sustainable blue economy. Governments can leverage public funds to de-risk investments in sustainable ocean ventures and attract private sector participation, particularly in developing nations where such investments are critically needed. Blending public and private capital and expanding innovative finance mechanisms can further incentivize investment in projects that benefit both biodiversity and carbon sequestration.

4 **Technological innovation** offers immense potential for transforming the ocean industries. Developing and deploying advanced monitoring tools for sensing, tracking, and managing data related to ocean activities can greatly improve transparency and accountability. Creating global data networks and accessible platforms for sharing ocean data across all sectors enables informed decision-making and widespread adoption of sustainable practices. Governments should take the lead by mandating data sharing and implementing real-time monitoring technologies to ensure compliance with sustainability targets.

By effectively leveraging these four key levers of regulation, financial instruments, technological innovation and corporate collaboration, we can chart a course towards a future where economic prosperity and the health of our oceans are mutually reinforcing.

APPENDIX

METHODOLOGY FOR THE STUDY

The goal of the study is to outline recommendations for the successful development of Science-Based Targets (SBTs) for oceans. Notably, this analysis does not include frameworks related to seafood, as SBTN targets for the seafood value chain are actively being developed and is limited to focusing on ocean-based activities, given that climate and land-based pressures are the focus of the respective issue Hubs of the SBTN. To achieve this, existing frameworks and standards relevant to ocean-related industries, such as marine renewables, shipping, tourism, and coastal development have been analysed. By examining the strengths and weaknesses of this diverse landscape, this report provides an updated view of existing guidance and identifies gaps in applicability to corporate operating within the marine ecosystem. This will be crucial in shaping the development of future guidance of SBTs for oceans, ensuring it is both comprehensive and actionable for companies across the 4 sectors operating within the marine ecosystem.

Figure 15 shows the list of 25 frameworks in scope of this report, categorized based on their type i.e. Disclosure/ Guidance/ Standards & Certifications/ Best Practice framework as well as their sectoral focus. The landscape of frameworks and standards is both complex and diverse, characterized by variations in sectoral focus, ocean pressure coverage, governance mechanisms, corporate adoption and stakeholder engagements.

FIGURE 17: LIST OF 25 FRAMEWORKS BASED ON ALIGNMENT TO PRESSURES AND SECTORS PRIORITIZED

CROSS-SECTORAL FRAMEWORKS (13)

Applicable to multiple sectors

- **DISCLOSURE FRAMEWORK (4)**: GRI; TNFD; ESRS; CDP (Disclosure Insight Action)
- **GUIDANCE FRAMEWORK (8)**: IUCN; Aligning accounting approaches for nature (Align); UN publications
- **STANDARDS & CERTIFICATIONS (1)**: Accounting for Nature

SECTOR-SECTORAL FRAMEWORKS (12)

Applicable to multiple sectors

- **SHIPPING (3)**: Climate Bonds Initiative – *Guidance Framework*; Clean Shipping Index; Green Marine – *Standards & Certifications*
- **MARINE RENEWABLES (3)**: Climate Bonds Initiative; World Business Council for Sustainable Development (WBCSD) – *Guidance Framework*; TNFD; Additional Sector Guidance Electric Utilities & Power Generators – *Disclosure Framework*
- **TOURISM (3)**: UN Tourism; GSTC – *Guidance Framework*; Green Globe – *Standards & Certifications*
- **COASTAL DEVELOPMENT (2)**: ESPO – *Guidance Framework*; FAST-Infra Sustainable Infrastructure – *Standards & Certifications*; WPSP – *Best Practice*

The study was developed using a two-phased approach. The first phase was a landscape assessment of the existing frameworks that address ocean health. A total of 25 most relevant frameworks (refer Table 10 for detailed descriptions) were identified and reviewed in detail to understand the current available guidance in the ocean space.

FIGURE 18: FRAMEWORK OUTLINING KEY DIMENSIONS OF THE LANDSCAPE

HOW MIGHT WE DEVELOP AN UNDERSTANDING OF THE LANDSCAPE OF OCEAN RELATED GUIDANCE AND ITS APPLICABILITY TO CORPORATES?

COVERAGE

OCEAN PRESSURES

- HD Habitat Degredation
- PI Coastal Construction
- IS Invasive Species
- WP Ballast Water...

AR3T FRAMEWORK

Which components of the AR3T framework can be mapped to this framework

- A Avoid
- R1 Reduce
- R2 Restore
- R3 Regenerate
- T Transform

IUCN MITIGATION HIERARCHY FRAMEWORK

- A Avoidance
- M Minimization
- R Restoration
- O Compensation or Offset

GOVERNANCE

KPIs

Suggested metrics/ KPIs related to oceans in the framework

Example

- **Ocean use change**: Extent of ocean ecosystem use change (km^2) by: Type of ecosystem and Type of business activity
- **Pollution**: Volume of water discharged (m^3), split into: Total; Freshwater; and Other

DATA HUBS

What are the datasets that can be leveraged as suggested by the framework

Example

- WRI Aqueduct
- WWF Biodiversity Risk Filter
- WWF Water Risk Filter

TARGETS

Planned level of result to be achieved within a time frame using the framework

Example

- Restore 30% of all Degraded Ecosystems (terrestrial, inland water, and marine and coastal ecosystems) by 2030
- Conserve 30% of Land, Waters and Seas

ACCOUNTABILITY MECHANISMS

Mechanisms in the framework to ensure responsibility for the deterioration of the ocean

Example: TNFD and CDP Biodiversity have governance related disclosures to ensure responsibility

IMPLEMENTATION SUPPORT

REGULATORY REQUIREMENT

Whether it is mandated by any regulation

Example: While there are calls for governments to mandate TNFD-aligned disclosures, no jurisdiction has mandated TNFD disclosures

VOLUNTARY DRIVERS

Whether it is recommended by any industry associations

Example

- ISSB, CDP, GRI plan on aligning with TNFD
- Clean Shipping Index is highly recognized by the Swedish Maritime Administration

EVIDENCE OF CORPORATE TRACTION

EVIDENCE OF CORPORATE TRACTION

What is the extent of framework adoption by organizations

Example: 416 companies and 114 financial institutions have committed to be TNFD early adopters

EVIDENCE IN SHIPPING

Specific evidence of framework implementation in *Shipping* sector

EVIDENCE IN TOURISM

Specific evidence of framework implementation in *Tourism* sector

EVIDENCE IN COASTAL DEVELOPMENT

Specific evidence of framework implementation in *Coastal development* sector

EVIDENCE IN MARINE RENEWABLES

Specific evidence of framework implementation in Marine renewables sector

Example: Ørsted (Denmark) is a TNFD early adopter

BEST PRACTICES

STAKEHOLDER ENGAGEMENT

Details of which stakeholder are engaged in the process of framework adoption / implementation

Example

- TNFD-engaged companies and financial institutions (feedback from >200 pilot tests)
- Knowledge partners: ISSB, GRI, IUCN, UNEP-WCMC, Capitals Coalition and SBTn

In the second phase, the gap assessment, the aim was to assess these 25 frameworks to identify key gaps that could be filled through future action. This analysis was conducted using criteria across three dimensions, as outlined below, to provide a holistic view:

Completeness

To assess how material are the frameworks for targeting the pressures identified for the 4 focus sectors, mitigation hierarchy and socio-economic aspects

The criteria used were:

- **Coverage of identified ocean pressures**: The coverage of pressures across the four industries gives an insight into the relative maturity of the frameworks in understanding and mitigating those stressors, as well as identify gaps to develop further guidance
- **Coverage of mitigation hierarchies**: Identifying the gaps in guidance for different components of the mitigation hierarchies can help in understanding the current trend and take targeted actions to develop guidance for the least addressed components
- **Coverage of socio-economic aspects of conservation**: Engaging local communities and indigenous peoples is crucial for corporates managing nature impacts, as these groups have deep knowledge of ecosystems and rely on them for their livelihoods. Their involvement ensures more sustainable practices, protecting both biodiversity and the communities' well-being

Quality

To assess how well are the frameworks designed for robust adoption and implementation in terms of KPIs, targets and accountability mechanisms

The criteria used were:

- **Presence of time bound targets or KPIs**: Adhering to SMART principles when setting targets or KPIs ensures goals are clear, unambiguous, and aligned with broader company strategy; facilitating performance assessments and resource allocation by setting transparent expectations
- **Accountability mechanisms**: Recognizing the gaps in provision of accountability mechanisms in the ocean-focused frameworks can help design targeted strategies to overcome those challenges and facilitate adoption

Ambition

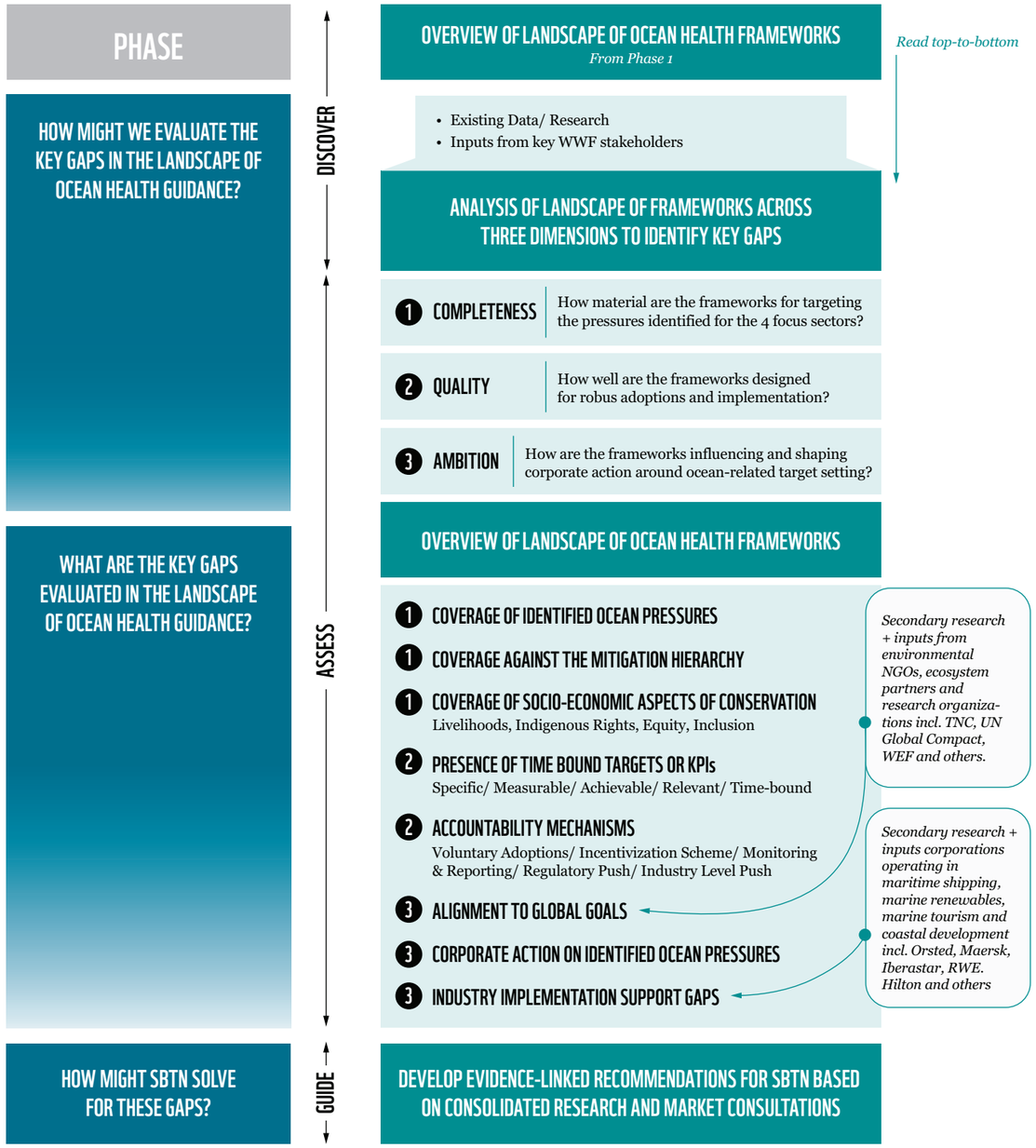
To assess how are the frameworks influencing and shaping corporate action around ocean-related target setting

The criteria used were:

- **Alignment of frameworks to global goals (SDG 14)**: Alignment to the broader SDG 14 goals is imperative not only for a sustainable future for the oceans, but also for socio-economic prosperity and global cooperation.
- **Level of corporate action on identified ocean pressures**: Identifying the pressures that are under adopted by companies will help SBTN to work towards increasing ambition and corporate uptake in these gaps
- **Industry implementation support gaps**: Identifying the challenges faced by companies to act towards ocean health will help to these into consideration while developing science-based targets

The gap assessment was conducted through secondary research and supplemented by insights from environmental NGOs, research organizations, and corporations within the four sectors of interest. Using the findings from the above phases, the report gives evidence-linked recommendations to SBTN based on consolidated research and market consultation.

FIGURE 19: FRAMEWORK OUTLINING KEY PARAMETERS TESTED IN THE GAP ASSESSMENT



LIST OF FRAMEWORKS IN SCOPE OF THE STUDY

TABLE 10: FRAMEWORKS IN SCOPE OF THE STUDY

NAME	DESCRIPTION	TYPE	SECTOR
Taskforce on Nature-related Financial Disclosure (TNFD)	The TNFD Recommendations and guidance are designed to help organizations to report and act on evolving nature-related issues with the ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. While the additional, TNFD LEAP document provides guidance on the integrated approach that TNFD has developed for the identification and assessment of nature-related issues to inform disclosure statements aligned with its recommendations.	Disclosure Framework	Cross-sector
Global Biodiversity Framework (GBF)	The purpose of the Kunming-Montreal Global Biodiversity Framework (GBF) is to set out guidelines for countries to protect biodiversity, ensure sustainable use, and promote fair and equitable benefit sharing. It aims to halt and reverse biodiversity loss by 2030 and achieve a world living in harmony with nature by 2050.	Guidance Framework	Cross-sector
Global Reporting Initiative (GRI)	The purpose of the framework, GRI 101: Biodiversity 2024, is to provide organizations with disclosures to report their biodiversity-related impacts and how they manage these impacts. It aims to promote sustainability reporting concerning biodiversity, which is crucial for maintaining ecological balance. GRI 101 will be effective for reporting on biodiversity published on or after January 1, 2026. Early adoption is encouraged.	Disclosure Framework	Cross-sector
European Sustainability Reporting Standards (ESRS)	The ESRS framework aims to standardize and enhance the transparency of environmental, social, and governance (ESG) reporting across Europe, providing a clear, comparable view of a company's sustainability impacts, risks, and opportunities.	Disclosure Framework	Cross-sector
ACT-D Framework (Business for Nature)	ACT-D stands for Assess, Commit, Transform and Disclose. ACT-D guides businesses through the various tools, frameworks and initiatives available in the market to support them in assessing their relationships with nature, committing to action and target setting, transforming their practices and disclosing nature-related information.	Guidance Framework	Cross-sector
Setting Sail Guidance Criteria	The manual enables financial institutions to set targets that align with the Sustainable Blue Economy Finance Principles (SBEFP) and support the transition to a Sustainable Blue Economy.	Guidance Framework	Cross-sector
Turning the Tide guidance	This is a practical guide for financial institutions on financing a sustainable blue economy. It covers five key ocean sectors: seafood, ports, maritime transportation, marine renewable energy, and coastal & marine tourism. It points the way to the Sustainable Blue Economy Finance Principles, the keystone for financing activities in the ocean economy.	Guidance Framework	Cross-sector

LIST OF FRAMEWORKS IN SCOPE OF THE STUDY (CONTINUED)

NAME	DESCRIPTION	TYPE	SECTOR
CDP Biodiversity	CDP is a voluntary disclosure framework for companies, cities, and governments for their climate impact, deforestation, water security and continues to grow by expanding to new areas such as biodiversity, plastics and oceans, and recognizing the interconnectedness of nature and earth's systems.	Disclosure Framework	Cross-sector
Net Positive Impact (IUCN)	The purpose of the framework is to outline the business case for companies adopting a Net Positive Impact (NPI) approach to managing their biodiversity impacts.	Guidance Framework	Cross-sector
Align Project (Capitals Coalition)	The framework aims to provide businesses and financial institutions with principles and criteria for measuring and valuing their impacts and dependencies on biodiversity, addressing the urgent need for effective biodiversity measurement and valuation practices.	Guidance Framework	Cross-sector
Finance for Biodiversity Foundation Pledge	The purpose of the Finance for Biodiversity Pledge is for financial institutions to commit to protecting and restoring biodiversity through their finance activities and investments.	Guidance Framework	Cross-sector
Bonds to Finance the Sustainable Blue Economy: A Practitioner's Guide	The framework aims to provide guidance on issuing blue bonds and to promote investments that support the sustainable blue economy, ensuring that projects contribute positively to ocean health and meet sustainability standards.	Guidance Framework	Cross-sector
Accounting for Nature (AfN) Framework and Certification	It is the first environmental accounting standard that measures the state ecosystems and natural capital, at both property (enterprise) and ecosystem (regional) scales, as well as certifies businesses/ environmental accounts, who can then report on, and manage their environmental Assets.	Standards & Certifications	Cross-sector
TNFD (additional) Sector Guidance (Electric utilities and power generators)	The TNFD Recommendations and guidance are designed to help organizations to report and act on evolving nature-related issues with the ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. It has published this additional sector guidance to help organizations with business models or value chains in the electric utilities and power generators sector to apply the TNFD LEAP approach to their context.	Disclosure Framework	Marine Renewables
WBCSD Roadmap to Nature Positive	Provides an initial materiality screening, documenting the risks, opportunities, impacts and dependencies across the value chain, as well as step by step guidance to prioritize practical actions for both reducing negative impact and restoring damaged ecosystems, as well as help prepare for transparent reporting.	Guidance Framework	Marine Renewables
Climate Bonds Initiative: Marine Renewable Energy Criteria	Set of guidelines designed to ensure that marine renewable energy projects qualify for Climate Bonds Certification.	Guidance Framework	Marine Renewables
Green Marine Certification Framework	Certification framework is a voluntary program designed to help maritime companies in North America improve their environmental performance beyond existing regulations.	Standards & Certifications	Shipping & Coastal Development
Clean Shipping Index	It is a voluntary environmental labelling scheme aimed at promoting environmentally friendly practices in the shipping industry by providing a rating system for ships based on their operational impact on the environment as well as economic advantages for efforts towards cleaner shipping practices.	Standards & Certifications	Shipping
Climate Bonds Initiative: Shipping Criteria	It is a set of guidelines designed to help the shipping industry invest in projects that reduce emissions and act as a roadmap for the shipping industry to transition towards a low-carbon future, to help them get qualified for climate bonds.	Guidance Framework	Tourism
Global Sustainable Tourism Council (GSTC) Criteria	Establishes global standards and rules to guide tourism businesses in sustainable operations and management. The 4 broad criteria - Sustainable management, Socioeconomic impacts, Cultural impacts, and Environmental impacts - are used for education and awareness-raising, policymaking for businesses and government agencies and other organization types, measurement and evaluation, and as a basis for certification. Acts as an umbrella organization with its own criteria but also recognizes and accredits other certification programs that meet their standards.	Guidance Framework	Tourism
Green Globe Standard for Sustainable Tourism	GSTC recognized certification body.	Standards & Certifications	Tourism
Framework for Measuring the Sustainability of Tourism	The Statistical Framework for Measuring the Sustainability of Tourism (SF-MST) is designed to support the recording and presentation of data regarding the sustainability of tourism. It aims to organize data about the economic, environmental, and social impacts of tourism in a holistic manner, facilitating better decision-making.	Guidance Framework	Tourism
World Ports Sustainability Program	It is a global repository of best practices, serving as a platform for partner organizations to showcase their projects and initiatives, functioning as a think tank to incubate new collaborations, and regularly reporting on the sustainability performance of the global ports sector.	Best Practice	Coastal Development (ports)
A Manual for European Ports towards a Green Future	The purpose of the ESPO Green Guide 2021 is to guide and support port authorities in their environmental greening ambitions, providing tools and good practices to improve their environmental performance and contribute positively to a sustainable future.	Guidance Framework	Coastal Development (ports)
FAST (Finance to Accelerate the Sustainable Transition) infra-label	The FAST-Infra Label is a globally applicable labelling system designed to identify and evaluate sustainable infrastructure projects, with the overarching objective of supporting infrastructure and creating a liquid asset class.	Standards & Certifications	Coastal Development (ports)

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