In collaboration with
Boston Consulting Group

WORLD ECONOMIC FORUM

What Ocean Sustainability Means for Business

WHITE PAPER

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Foreword

A healthy ocean is the cornerstone of a thriving global economy.

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Prioritizing a sustainable ocean economy will bring multiplier benefits for people, business, nature and the climate – and the G20 can play a pivotal role in leading this agenda.

A healthy ocean is essential for humanity's ability to live and thrive on Earth. We need it for balanced ecosystems and a stable climate; at least 50% of the world's oxygen is produced by the ocean, and it provides nutrition for billions of people. The ocean is a critical foundation of resilient economies – from millions of jobs and livelihoods to resources and energy. A thriving ocean is also the underpinning of industries such as fishing, logistics and transport as well as tourism.

The influence and leadership of G20 countries in global affairs – and planetary health – is significant and critically important. The G20 represents 80% of the world's GDP, 75% of global trade, 60% of the world's population and jurisdictional responsibility for 21% of exclusive economic zones – and encompasses almost half the world's coastlines. We therefore see an immense opportunity – and responsibility – among G20 leaders to elevate blue economy approaches that prioritize ocean sustainability and protect the ability of communities to thrive and prosper across generations.

Both the World Economic Forum and Boston Consulting Group are driven by a mission to help amplify positive impact for business, society and the planet, through multistakeholder partnerships, systems thinking and transformative strategies that help improve the state of the world. We are delighted to be collaborating on this white paper that shines a spotlight on the potential of a sustainable ocean economy for positive change – and how the G20 can help accelerate its coming to fruition.

The Ocean Action Agenda of the World Economic Forum works to create innovative platforms at the nexus of science, business and policy and cultivates partnerships across business, government and society to fast-track ambitious solutions for ocean health. For example, the Ocean 100 Dialogues, engages companies in the global ocean economy to drive positive impact across key issues like climate change, while the Blue Food Partnership catalyses science-based actions towards healthy and sustainable blue food value chains.

The Ocean 20 (or O20), a proposed new official G20 dialogue highlighting the value that the ocean provides to global economies led by the World Economic Forum with the Government of Indonesia, as host of the G20 Presidency, enmeshes perfectly with this portfolio of ocean initiatives.

The Boston Consulting Group has manifold experience of how ocean sustainability is good for business and people alike. Business leaders who have a sense of resource needs and how nature is critical to economic stability and prosperity, are often keen to be at the cutting edge of ocean sustainability – but lack the key pointers and frameworks for doing so. This report helps light the path ahead.

We are excited to drive forward this new agenda for sustainable growth with the Government of Indonesia and future G20 presidencies, and countries across the G20. We look forward to continuing ambitious discussions to advance a sustainable ocean economy, for the G20 and beyond.

Executive summary

The ocean is the backbone of the global economy. Effective action and leadership are required to preserve the services it provides to humankind.

The global economy relies on the ocean. About 90% of goods globally are transported by sea. In addition, the ocean generates about $2.5 trillion worth of goods and services each year. For example, in 2018, the world's 100 largest companies operating in ocean-related industries generated $1.1 trillion in real terms. The ocean also supports the livelihoods of millions of people, both directly – through some 55-65 million jobs in fisheries, aquaculture, and ocean-related tourism industries – and indirectly, with close to 8% of the global population estimated to depend at least partially on the ocean, including subsistence and secondary sector jobs.

The ocean plays an equally important role in G20 economies. The members of the G20 collectively make up 45% of the world's coastline and 21% of the world's exclusive economic zones (EEZ).

The ocean plays a critical role in the effort to tackle climate change. The ocean has the potential to provide the world's population with affordable renewable energy. Covering 70% of the planet's entire surface, the ocean provides a huge potential for floating solar energy. Wave energy produced by the ocean, according to a study, could completely meet the world's total annual electricity needs if fully harnessed. Besides being a source of renewable energy, the ocean also serves as a blue carbon sink. Five of the biggest mangrove countries within the G20 are home to almost half of global mangrove areas.

Unfortunately, the ocean suffers greatly from human-induced climate change and other human activities. The ocean absorbs 90% of excess heat and almost a quarter (23%) of total human-generated CO_2 emissions. Besides that, ecosystem destruction, overexploitation of marine resources and pollution have deteriorated the ocean further – threatening ecosystems and biodiversity, which may, in turn, threaten human lives and the global economy that are heavily reliant on them. Ineffective governance further exacerbates these issues and hinders the ability to act on them – as actors, both in the public and private sectors, are working in isolation, segregated into multiple different layers of governance.

Businesses can make a difference. Sustainable solutions for the world's ocean revolve around three key pillars: protecting and conserving spaces, managing the ocean sustainably, and restoring the ocean for climate adaptation. There are three ways businesses can take an active role. Firstly, develop methods to ensure sustainable and responsible use of, and interaction with, the ocean – this includes working together with the government to shape policies surrounding the ocean. Secondly, use ocean and coastal ecosystems as a tool for carbon sequestration. Finally, increase the adaptability and resilience of the ocean and coastal ecosystems. Equally important, blue financing that enables the three aforementioned strategic imperatives needs to be further unlocked. Currently, only 0.01% of total global sustainable development goals (SDGs) funding is directed towards ocean-based solutions.

The time is now. Recognizing that each company has its own unique relationship with the ocean, its ability to implement the strategic imperatives prescribed in this report will vary. However, there are important initial steps that every company can take in this collective effort. First, audit operations to understand how business intersects with ocean and coastal ecosystems. Second, identify areas of opportunity, and develop an appropriate implementation roadmap. Third, ensure initiatives are pursued in collaboration with other stakeholders. Finally, pilot and iterate ocean-focused projects and investments.

The Ocean 20 initiative offers a platform to empower that journey. The platform provides a forum to establish integrated ocean management and champions the importance of marine and ocean ecosystems. Businesses that act first not only enjoy an opportunity to pioneer essential ocean protection but embrace the chance to unlock the greatest value from this multi-trillion-dollar resource. In doing so, they not only ensure a sustainable future for their business but contribute to a sustainable future for the irreplaceable ocean and marine systems.

Introduction: The massive economic potential of the ocean

The ocean provides livelihoods to millions, supports climate change mitigation and is critical to achieving the sustainable development goals.

The 100 largest blue economy companies by revenue earned an estimated 60% of all revenues from activities related to the ocean in 2018, amounting to $1.1 trillion in real terms.

The ocean covers a staggering 361 million square kilometres of the planet, covering over 70% of the Earth's surface. It is a major contributor to the global economy, while concurrently presenting significant opportunities to advance international development. Overall, the value of key ocean assets is estimated at $24 trillion, equivalent to 3% to 5% of global GDP,[1] while the value of derived goods and services generated by the ocean is estimated at $2.5 trillion annually,[2] equivalent to the seventh-largest economy on the globe.

With estimates that ocean-related sectors could contribute as much as $3 trillion to the global economy by 2030,[3] the ocean will continue to be a source of huge global wealth, generating valuable economic opportunities and supporting livelihoods across the globe through the "blue economy". According to pre-pandemic data, the 100 largest blue economy companies by revenue earned an estimated 60% of all revenues from activities related to the ocean in 2018, amounting to $1.1 trillion[4] in real terms.

In 2020, the number of people working in fishing industries alone amounted to 37.88 million,[5] with some 20.67 million engaged in aquaculture. Including subsistence and secondary sector workers, and their dependents, an estimated 600 million[6] livelihoods depend at least partially on fisheries and aquaculture – close to 8% of the global population.

Alongside its vast natural wealth, the ocean is also home to another major industry: tourism. Coastal and marine tourism is second only to the fisheries industry for ocean-related employment and accounts for 6.5 million[7] jobs globally. It is estimated that up to 80% of global tourism activities are made possible by the ocean, and with anticipated global growth of 3.5%, coastal and marine tourism is projected to represent the largest value-adding segment of the ocean economy by 2030.[8]

As a medium that connects the planet's land masses, the ocean is also a critical enabler of global trade and a vital part of the connected modern

world. Up to 98%[9] of international communications are conveyed by submarine cables, and 90%[10] of total global goods are transported by sea.

Beyond the ocean's vast resources for fisheries, tourism and transport, it also contributes a major share of global energy generation potential. The ocean is the world's largest generator of both renewable and non-renewable energy, and it has vast energy resources poised to be unlocked by future innovation. The ocean is the world's largest solar collector, covering 70% of the entire surface of the Earth, providing considerable potential for floating solar energy. The huge forces at play in the waters of the world also offer boundless energy generation opportunities, with one recent study[11] estimating that wave energy could completely meet the world's total annual electricity needs if fully harnessed.

The ocean is also a critical element in the effort to fight climate change. Ocean-based climate solutions could reduce the emissions gap by up to 21% to keep temperature rise to 1.5°C by 2050,[12] and as such highlight the ocean's critical role in climate change mitigation and adaptation strategies. In the global transition to a net-zero economy, low-carbon maritime transport and sustainable seafood, offshore renewable energy and nature-based ocean climate solutions represent key enablers. This makes good business sense – recent research, commissioned by the Ocean Panel, suggests that investing $1 in key ocean actions can yield at least $5 in global benefits, and often more, over the next 30 years.

Unfortunately, the ocean is suffering from the devastating impacts of climate change. It has absorbed 90% of excess heat and almost a quarter (23%) of total human-generated CO_2 emissions.[13] Given the global significance of the Earth's ocean, the United Nations (UN) has recognized the importance of protecting it in its sustainable development goal (SDG) 14, which commits to conserving and sustainably using the ocean, seas and marine resources for sustainable development. Achieving this goal will require significant investments, with an estimated $174.5 billion[14] needed annually until 2030 to achieve the UN sustainable development goal for the ocean, SDG14. Despite this need and the substantial role that the ocean plays in the shared global economy, SDG14 is often the development goal that receives the least priority from enterprises.

These issues are even more relevant to G20 nations, which have a strong interdependence with ocean health and sustainability. Together, G20 countries make up 45% of the world's coastline and 21% of the exclusive economic zones (EEZ).[15] In addition, the G20 is host to globally significant mangrove habitats, with five of the biggest mangrove countries within the G20 being home to almost half (49%) of total global mangrove areas.[16] Therefore, it is imperative for G20 nations to mobilize all stakeholders in their circle of influence, including businesses, to proactively solve these issues and ensure ocean sustainability.

1 Five challenges for global ocean health

The ocean is subject to multiple stressors that threaten the services that it provides to society.

> It is projected that more than 90% of global coral reefs will be threatened by 2050, and nearly all will be affected by ocean warming and acidification.

There are five issues that contribute to the decline of ocean health, as well as hinder efforts to improve it.

1 **Climate change.** The negative impacts of climate change on ocean ecosystems are evident, as can be seen in increasing ocean warming and acidification. The ocean absorbs 93% of excess heat due to climate change,[17] impacting habitats and disrupting the sensitive natural balance. In conjunction with this, the ocean absorbs 23% of human-caused CO_2 emissions.[18] Over time, these CO_2 emissions have built up beyond the ocean's capacity to absorb them, thus forming carbonic acid which in turn increases the acidity of ocean waters.

A warmer and more acidic ocean poses a very real threat to marine life and delicate ecosystems, with current projections that the ocean could warm by up to an additional five degrees by 2100 if no mitigating action is taken. Ocean warming is directly linked to the extinction and displacement of species and has severe negative impacts on communities and economies that rely on fishing. Gradual acidification also negatively affects ocean health, disproportionately impacting some critical ecosystems such as coral reefs, leading to a greater risk of ecosystem collapse. Changes in ocean acidity have seen ocean pH decrease by 26% since the beginning of the Industrial Revolution.[19] The current rate of ocean acidification is ten times faster than it ever was at any other period during the preceding 55 million years.[20]

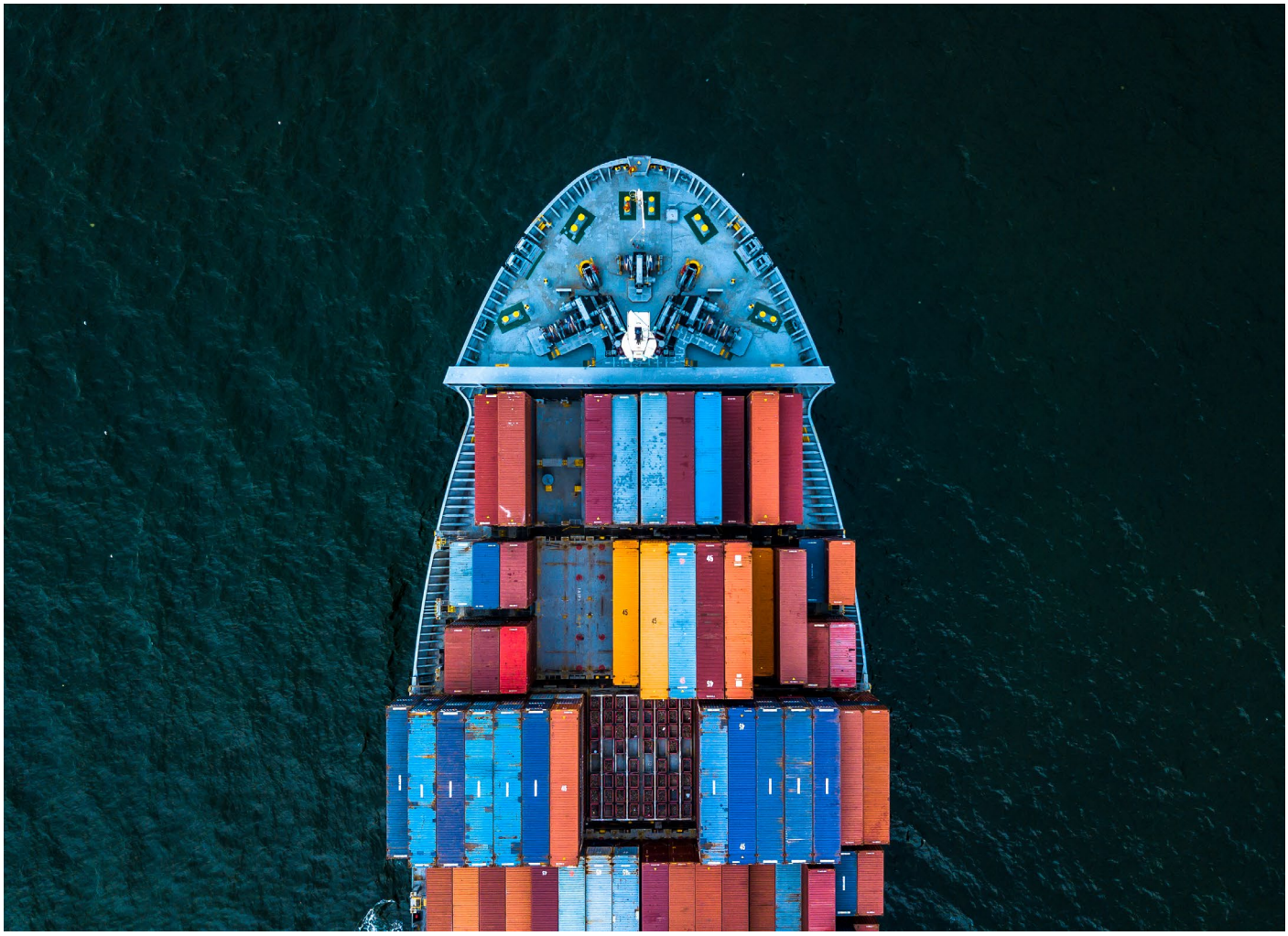
The combined impacts of a warming climate and warming ocean could together contribute to sea level rises of up to 25cm by 2040-2050,[21] decimating low-lying coastal regions and habitats around the world. Urgent action is needed to reverse and mitigate negative impacts caused by climate change, limiting further temperature rises and preventing more acidification of the ocean. Interventions to limit actions that will further exacerbate global climate change are therefore key to ensuring the long-term health of the global ocean.

2 **Ecosystem destruction.** The ocean is experiencing ecosystem destruction to varying degrees, largely driven by human activities. These impacts can be seen across a range of ecosystems including coral reefs, seagrass, mangroves and others. It is estimated that half of the world's total coral reefs[22] and more than half of global seagrasses[23] have been lost as a result of ongoing habitat destruction, while the rate of net loss for mangroves has been declining to about 0.04% per year as of 2020. The interconnected nature of mangroves – with other tidal wetland systems and nearby terrestrial, freshwater and marine habitats – means that restoration of lost mangrove ecosystems may not be possible in all cases, and will take time to reach its full ecosystem potential.

The ongoing diversification of human activities in the ocean is also opening up new challenges for the conservation of marine life, particularly in industries such as energy production and mining. If this continues, it is projected that more than 90% of global coral reefs will be threatened by 2050, and nearly all will be affected by ocean warming and acidification.[24]

3 **Overexploitation.** Marine resources are being severely depleted through overexploitation and are set to deteriorate further if no mitigation is implemented. Currently, 65% of the world's marine fish stocks[25] are exploited to their maximum capacity, and another 35% are being overfished.[26] This situation is more acute in the Southeast Pacific, Mediterranean and Black Seas – all areas with significant fishing communities. These stark falls in fish stocks are driven by market forces and poor governance. Today, just 2.8% of the ocean's surface is protected from the effects of fishing.[27]

The risk of overexploitation continues to evolve, as new industries such as seabed mining see growing interest in the ocean. The International Seabed Authority (ISA) has issued 31 contracts to explore for deep-sea minerals to date, with more than 1.5 million square kilometres of the seabed



> While only an estimated 3% of global plastic waste enters the ocean, plastic waste makes up 80% of all marine pollution, with 8-10 million metric tons ending up in the ocean every year.

now reserved for exploitation. This mining poses risks to ocean ecosystems through, amongst others, disturbance of the seafloor, negative impacts of sediment plumes, noise, vibration and light pollution.

Cross-sector public-private partnerships are crucial in order to address these emerging risks, and limit and/or halt the overexploitation of marine resources.

4 **Pollution.** Marine pollution has a major detrimental impact on ocean health, primarily from land-based sources. Plastic accounts for around 85% of marine litter, with eight million tons of plastic waste entering the ocean each year.[28] On the current trajectory, this rate of marine plastic pollution is expected to double by 2040.[29]

The COVID-19 pandemic further compounded this pollution challenge, leading to a significant global increase in single-use plastics. Alongside its clear health impacts, COVID-19 triggered a pandemic of plastic, leading to huge increases in the consumption of masks, sanitizer bottles, delivery packaging and other single-use items. The pandemic resulted in an estimated additional consumption of 129 billion face masks and 65 billion gloves every month.[30] While only an estimated 3% of global plastic waste enters the ocean,[31] plastic waste makes up 80% of all marine pollution,[32] with 8-10 million metric tons ending up in the ocean every year.

The alarming and accelerating rate of global marine pollution requires a committed shift towards a circular economy approach that reduces waste and cuts pollution. Delivering on this transition could unlock a $4.5 trillion economic opportunity[33] through reduced waste, improved innovation, and expanded employment. Research shows that a circular economy approach could reduce by 80% the volume of plastics entering the ocean by 2040.[34]

5 **Ineffective governance.** Ineffective governance is a persistent problem for ocean degradation. Management of the ocean is a complex web of actors at various levels, each coming with interrelated, intertwined, converging, and competing demands and interests. The modern governance framework reflects this disaggregation. Each body will likely operate within a narrow and defined functional or territorial mandate. Today, this special international space is regulated by 576 bilateral and multilateral agreements, a fact that in itself reflects the need for improving environmental and ocean governance among world political leaders.[35] Addressing global challenges will require an integrated and holistic approach to ocean management in order to stop and reverse the current decline in ocean health.

2

Three areas where businesses can make a difference

Businesses can become stewards for ocean sustainability by understanding and minimizing their impacts on ocean and coastal ecosystems.

Sustainable solutions for the world's ocean revolve around three key pillars: protecting and conserving spaces, managing the ocean sustainably, and restoring the ocean for climate adaptation. Within these three key areas, this report has identified three strategic imperatives through which businesses can play a significant role and make a positive impact on ocean sustainability.

Develop methods to ensure sustainable and responsible use of, and interaction with, the ocean

Major ocean industries such as tourism, fishing and aquaculture, deep-sea oil and gas, shipping, extraction and other related enterprises must look to develop methods to ensure sustainable and responsible use of ocean resources. In order to solve issues around ecosystem destruction and overexploitation, two key levers should be applied:

Lever 1: Address market drivers and improve business operations.

Efforts to ensure a sustainable ocean ecosystem should be embedded in the day-to-day business operations of marine industry enterprises, and not merely reserved for corporate social responsibility drives. That focus on daily best practice should commit to efforts that are restorative and regenerative.

The Getting to Zero Coalition offers an example from the shipping industry, convening approximately 200 industry stakeholders from across the shipping and energy value chain. The Coalition has a stated ambition to 1) commercialize zero-emission vessels operating along deep-sea trade routes by 2030, and 2) develop the necessary infrastructure for scalable zero-carbon energy sources including production, distribution, storage and bunkering. These changes reflect the transformation of core shipping industry business models towards full decarbonization by 2050.

Curated approaches are used to align with the domestic circumstances of both developed and developing nations, with a differentiated approach that respects divergent market dynamics. In the fishing industry, for example, developed economies should work across the value chain to ensure sustainable fishing practices, while shifting consumer demand towards sustainably sourced fish and away from brands with unsustainable supply chains. Information and best practices can be shared across operators to enable better production systems. Technology can be leveraged to facilitate these types of coordination, such as the example of the Supply Chain Risk Tool (SCRT),[36] a project developed through a partnership among the World Economic Forum, FishWise, Global Fishing Watch and the Stanford Center for Ocean Solutions. The project integrates various data sources to provide buyers and retailers visibility on vessels they potentially procure from, including whether they are at risk of engaging in illegal, unreported and unregulated fishing – an activity that leads to the annual loss of up to $23.5 billion in stolen fish.

In developing nations, overfishing is more directly tied to food insecurity and the needs and livelihoods of often vulnerable communities. Efforts to shift towards more sustainable operations must be undertaken with community support, working with communities to inform and enable better stewardship of fishing resources and enhance the resilience of small-scale fisheries against the impact of overuse. This approach should also integrate the actions of sustainable development actors in order to manage and mitigate underlying market drivers around hunger and poverty.

Lever 2: Work with governments to ensure effective governance, policy design and implementation

Beyond the scope of their own operations, companies should work with governments to facilitate industry-wide collaboration and compliance, especially for initiatives that require widespread adoption or adherence to effectively make an impact.

Marine protected areas (MPAs) are a good example. MPAs are a key tool to protect ocean assets and ecosystems and delivering on this requires alignment with public bodies to ensure effective governance, policy design and implementation. Effective MPAs should be developed in partnership with relevant stakeholders, while efforts are deepened to ensure existing MPAs are designed to protect key habitats rather than achieve a tick-box target. Unfortunately, today, less than 3%[37] of the world's ocean is protected under MPAs. In recent years, 30x30, a global movement that advocates for the protection of at least 30% of the ocean by 2030, is gaining traction. According to scientists, protecting 30% will give the ocean a real chance to recover and protect the critical ecosystems that hold its rich biodiversity – and support the ecosystem services.[38] Supporting the cause, more than 100 countries have committed to protect at least 30% of their land and seas by 2030.[39] In addition, 17 heads of government, who are part of the High Level Panel for a Sustainable Ocean Economy, committed to the 100% sustainable management of EEZs – protecting 30% of the ocean, and sustainably managing the rest.

Protection in priority areas should be expanded, incorporating a multi-dimensional definition of "priority" based on key factors such as biodiversity, human benefit, level of threat, ease of implementation and other measures. Businesses should strive to ensure MPAs are successful by aligning business operations with compliance measures promoted by MPA managers. That includes avoiding sourcing from vessels that violate MPAs and carefully following navigation rules to avoid collisions or groundings which may negatively impact MPAs. The funding of MPAs to date has largely been driven by governments and third-sector organizations, and private-sector funding could further assist MPAs' establishment and effective implementation to scale at an accelerated pace.

Another potential area where companies can engage governments is the facilitation of collective action across all ocean industries and stakeholders. Setting standards, directing capital and using tax mechanisms (for example, creating blue tax credit schemes that allow market mechanisms to take place) to ensure that all users of oceanic resources contribute equitably to its protection are but a few examples.

To effectively engage governments, companies should join forces to ensure engagement is being done coherently and at a critical mass that ensures the collective voice of the cause is heard and acted upon. The Global Tuna Alliance's[40] work is an excellent example of this. An independent group of more than 50 retailers and tuna supply chain companies aim to advance the work to implement objectives laid out in World Economic Forum's Tuna 2020 Traceability Declaration.[41] A key part of their strategy is aligning their positions and asks to effectively engage regional fisheries management organizations (RFMOs) to ensure sustainable, legal and labour-abuse-free practices.

These collaboration efforts can offer win-win solutions to companies, presenting an opportunity to move early and safeguard their long-term viability and operations. By shifting the conversation from dated production and protection dichotomies towards creating voluntary and innovative mechanisms instead, these kinds of efforts can drive positive ocean health outcomes at scale.

According to scientists, protecting 30% will give the ocean a real chance to recover and protect the critical ecosystems that hold its rich biodiversity.

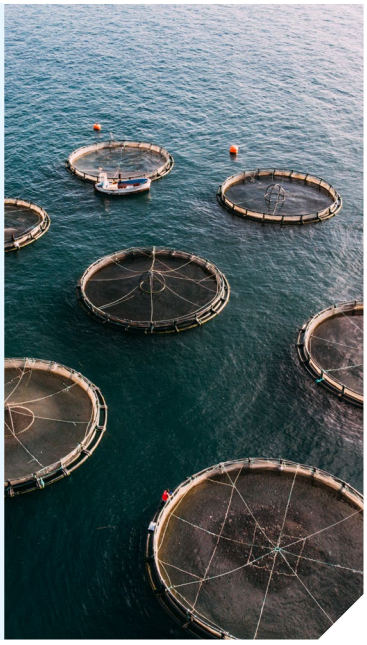
CASE STUDY 1

The Ocean Approved label: The world's first tool to measure companies' impacts on the ocean

The French Ministry of Ecological and Inclusive Transition and NGO Fondation de la Mer partnered with Boston Consulting Group (BCG) to provide the private sector with a dashboard of key indicators that can be used by any company to assess their holistic impact on marine ecosystems. The tool also enables tracking of all contributions to SDG14.

The dashboard aggregates data across 12 impact types with 54 solution levers, each with a recommended indicator for businesses. The Ocean Approved label is endorsed by the UN and certified by specialized French testing, inspection and certification company Bureau Veritas, and is now being adopted by companies in Europe.[42]

Amundi, a French asset management company with €2 trillion of assets under management, has been using this tool to as a base to drive its engagement on sustainability with companies it invests in. They launched a dedicated engagement stream on the ocean in 2021 covering nine companies in four sectors – aquaculture, shipping cruise lines, hotels and energy.[43]



In total, the carbon absorption potential of the ocean and adjacent blue carbon credits have an estimated value of $4.3 trillion.

Realize the benefits of ocean and coastal ecosystems for carbon sequestration (blue carbon)

Blue carbon is a term that represents the carbon sequestration opportunities of global ocean ecosystems. Maximizing this potential opens a path to blue carbon credits, with each credit representing the removal of one metric ton of CO_2 and stored in coastal and marine ecosystems.

Blue carbon ecosystems could also offer a market-driven opportunity to protect key ocean natural resources. Contracts can be agreed and traded on global markets for protected areas, such as mangrove forests, and used to offset emissions made elsewhere in the world. As pressure for companies to balance their carbon footprint grows, such carbon offsets are likely to be an increasingly important part of the solution.

Blue carbon ecosystems, such as mangrove, seagrass and salt marshes, offer unique carbon sequestration potential, providing a path to mitigate climate risk and protect biodiversity while improving livelihoods through new economic opportunities. It is estimated that blue carbon ecosystems could store ten times greater volumes[44] of carbon than terrestrial ecosystems per hectare, with a single square mile of mangrove able to hold a level of carbon equivalent to the annual emissions of 90,000 cars,[45] with carbon storage of up to 1,100 tons.

Coastal ecosystems are key carbon sequesters for the world, with mangroves able to store almost a ton (914kg) of carbon per acre per year, salt marshes similarly able to store 880kg of carbon per acre per year, and seagrass a little over half a ton (560kg) per acre per year.[46] In total, the carbon absorption potential of the ocean and adjacent blue carbon credits have an estimated value of $4.3 trillion.[47] This potential is further complemented by the protection and expansion of MPAs, offering a further opportunity to generate revenue from blue carbon credits.

Despite the substantial potential of blue carbon credits, governments and project developers around the world have experienced notable challenges in implementing and upscaling such initiatives. At the time of writing, there are only eight validated mangrove blue carbon projects, and just one validated seagrass project. Only Vida Manglar, in Colombia's Cispatá Bay, has successfully brought its blue carbon credits to market.

Regulation remains a persistent challenge, as conflicting rules and standards set by government agencies stifle project development. One prominent challenge is the need to balance national policies that clarify a nation's stance on Article 6 of the Paris Climate Agreement – designed to provide a rulebook to manage global carbon markets. This can create a conflict between selling credits for commercial use against accruing credits to meet the targets set out in each country's nationally determined contributions (NDCs).

Complex land tenure scenarios create another barrier to the implementation of coastal blue carbon credits and the delicate balance of creating climate-positive carbon credits while maintaining the interests of local communities. Planned projects must ensure that the wishes and livelihoods of communities living on protected land are embedded into the agreement.

Businesses can support the scaling of blue carbon by following good practices, as stated in the High-Quality Blue Carbon Principles,[48] a document prepared in collaboration between the World Economic Forum and several organizations looking to scale up blue carbon projects that benefit climate, nature and people. From this guidance, four principles are particularly relevant for businesses:

1. **Reduce before offsetting.** Carbon credit initiatives must work alongside robust commitment to reducing business emissions, not simply replace them. Actively reducing carbon emissions remains an important path to limiting harm to ocean ecosystems, and avoiding and mitigating emissions remains a pressing imperative.

2. **Champion community-first, nature-positive strategies.** Projects should be carefully assessed for community support, ensuring that buyers invest in carbon credits with a positive community and nature impact. These present immense additional value potential from benefits and co-benefits that are not always priced into the carbon credits themselves, such as multiplier effects from improved livelihoods through poverty reduction and economic empowerment of local community groups like cooperatives, women's groups and community trust funds. This includes incorporating community knowledge and valuing the local knowledge and insights in the planning of the strategies – which, when successful, will ultimately benefit investors. Gold-standard blue carbon credit initiatives deliver positive environmental opportunities alongside strong community buy-in.

3. **Share as you learn and learn as you go.** Pioneering businesses have an opportunity to inform the wider corporate landscape, leading by example and passing learning on to other enterprises. Due to the nascent nature of blue carbon and, correspondingly, projects associated with it, sharing knowledge and experiences between stakeholders is key to effectively guiding impactful future blue carbon investments.

4. **Act with transparency.** Transparency is critical to sustainable climate solutions. Monitoring, reporting, and verification (MRV) best practices should be implemented across initiatives to continually measure and assess ongoing impact and inform future best practice. Blue carbon projects should also be carefully assessed for additionality, permanence and potential leakage that could impact habitats, alongside the community and wider ecological benefits. These actions are essential if blue carbon offsets are to be incorporated into corporate sustainability commitments.

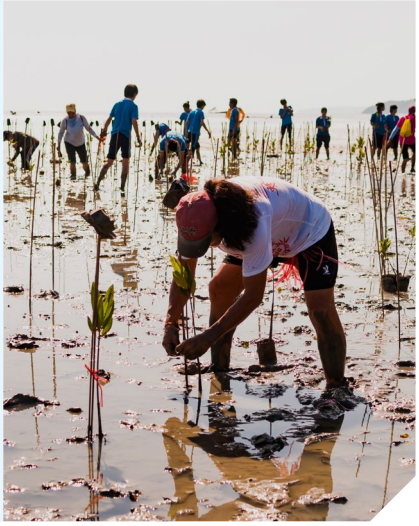
CASE STUDY 2

Blue Carbon Buyers Alliance

Blue Carbon Buyers Alliance (BCBA) is a group of companies working together to catalyse the voluntary carbon market towards blue carbon ecosystem preservation and restoration. The BCBA is an initiative incubated in the Business Alliance to Scale Climate Solutions (BASCS).

The companies recognize the vital role that blue carbon ecosystems play in addressing climate change through removing, sequestering and storing carbon, protecting biodiversity and food systems, and increasing community resilience and sustainable livelihoods.

The BCBA aims to establish a clear market demand signal for high-quality blue carbon credits and will work to unlock substantial investments in blue carbon projects through collaborative partnerships and through jointly using best practices for procurement and requests for proposals (RFPs).



Increase adaptability and resilience of ocean and coastal ecosystems

The current trajectory of global ocean changes means that beyond efforts to halt and reverse the degradation of the ocean, it is also important to be more adaptable and resilient to face the changes already happening. Sea levels are rising at rates unprecedented in the past 2,500 years.[49] Extreme weather events are happening with increasing frequency, as the number of weather-related disasters – including heat waves, heavy downpours, flooding and major hurricanes – has increased by a factor of five over the past 50 years,[50] driven by climate change, more extreme weather and improved reporting. These worsening trends already impact ocean and coastal ecosystems, exacting very real tolls on people living in or near these communities.

Beyond direct physical harm, the natural resources provided by coastal ecosystems are also under threat. Many of the inhabitants of coastal areas rely on these natural resources, particularly in low-income and developing countries. These natural resources support the adaptive capacity of communities living near them, offering alternative livelihoods, food sources and natural buffers from the direct impacts of climate change. In addition, critical coastal infrastructure is also at risk. From ports and roads to utilities and hospitals, these elements of coastal infrastructure are important for societies to function, yet not all of them are equipped to withstand the increasing frequency of severe weather events.

Further exacerbating the issue, coastal cities are growing as people are still moving to the coasts – by 2100, up to 410 million[51] people could be at risk from coastal flooding as the warming climate expands the ocean, causing sea levels to rise even higher. This underscores the need for development planning and policies that ensure the protection of both resources and people living in coastal areas.

These present an opportunity for businesses to create new sources of value by creating innovative business models and advocating for policies that can contribute to solving them. There are several ways in which pioneering businesses have started addressing this issue.

First, companies can identify climate risks associated with their assets in ocean and coastal areas, make corresponding adaptation plans and in some cases – such as companies with assets for public goods like electrical power grids – disclose them. Companies can also take this beyond their internal operations by participating in cross-company groups to contribute their expertise and experience to the development and dissemination of best practices in assessments, measurements and execution.

Second, solution providers such as those operating in the construction and tech sectors can innovate and grow the market of solutions that improve adaptability and resilience. For example, telecom and tech companies can introduce digital solutions to enhance disaster early warnings. Another example is the adoption of “green-grey infrastructure” (GGI) approaches by construction and real estate development companies, mixing the

conservation and restoration of nature including natural coastal buffers such as mangroves and seagrasses) with conventional approaches (such as concrete dams, seawalls and water treatment plants). While GGI needs to be applied carefully, as the natural protection needs to be delicately balanced with the shoreline armouring, which actually releases greenhouse gas (GHG) emissions and thus exacerbates climate change, this approach has the potential to adequately fortify communities against climate effects while providing fresh water, clean air, coastal protection and other natural benefits.

Third, financiers and investors can develop specialized risk-return assessments and/or instruments tailored for adaptability and resilience projects. These would enable decision-making processes that can unlock and direct a new pool of capital for both public and private resilience projects.

CASE STUDY 3

CI-Bechtel GGI Project in Iloilo, Philippines

Conservation International (CI), with technical support from bechtel.org, Bechtel's social enterprise, is installing green-grey infrastructure for coastal protection at two highly vulnerable sites[52] in the Province of Iloilo, Philippines. These communities suffered severe impacts during Typhoon Haiyan – which killed more than 6,000 people in 2013 – and other storms. Their isolation makes extensive engineering solutions, such as seawalls, economically and socially unviable. These communities are also highly dependent on mangroves and related ecosystems for their livelihoods.

Given the local context, the team is working to minimize the damage of future storms by constructing green-grey projects, especially in the country's most isolated and vulnerable regions. Four pilot project sites in the Iloilo province combine mangrove restoration with breakwaters to improve the resilience of coastal communities. The team is also working with the government to implement these kinds of approaches across the country, as well as the community, by ensuring the green-grey infrastructure strategies will be community-led and the designs are developed together by the communities and bechtel.org.

The role of blue financing

Blue financing will be a critical enabler in delivering on the three strategic imperatives outlined above. There remains a huge gap in appropriate funding for sustainable ocean initiatives, with just 0.01% of total global SDG funding[53] directed towards ocean-based solutions. A recent Forum report[54] attributes this underfunding to the lack of disaggregated, traceable and transparent data directly linked to SDG14 targets and indicators.

The multi-trillion-dollar potential of the ocean economy presents a compelling business case for private-sector investment. Even before the disruption of the COVID-19 pandemic, the ocean economy was expected to double in value between 2010 and 2030, reaching a value of $3 trillion.[55]

With growing recognition of the importance of ocean health, blue bonds and loans are now enjoying a surge in interest, with these financial instruments ringfencing funds exclusively for ocean-friendly projects and clean water resourcing. Companies who are interested in investing in blue projects can also now benefit from guidance such as the International Finance Corporation's *Guidelines for Blue Finance*,[56] building on the experience and understanding of green bonds and loans and applying them to ocean-focused finance. Companies can also benefit from the sustainable blue economy finance principles, a global guiding framework for banks, insurers and investors to finance a sustainable blue economy, which set out ocean-specific standards, allowing the financial industry to mainstream the sustainability of ocean-based sectors. These standards were co-developed by United Nations Environment Programme Finance Initiative (UNEP FI), the European Commission, the World Wildlife Foundation (WWF), the World Resources Institute (WRI) and the European Investment Bank (EIB).

3 The path forward: How businesses can get started

Each company is unique, and its ability to implement efforts in line with the three imperatives above will vary by activities undertaken and business areas of focus. There are, however, important initial steps that every company can take to explore this opportunity, building out understanding of where the most impactful intervention can take place:

1. **Audit operations to understand how business intersects with ocean and coastal ecosystems.** To understand its interlinkage with the ocean, businesses should thoroughly audit and assess their operations for direct and indirect relations with it. Even businesses operating outside of the ocean-related industries may have indirect impacts on the ocean (e.g. pollution, shipping, sourcing of raw materials, etc.). Understanding this relationship is the first key step to transforming businesses' relationship with the blue economy.

2. **Identify areas of opportunity and develop an appropriate implementation roadmap.** There are various issues, opportunities, interventions and approaches businesses might encounter as a result of their ocean impact audit. It is important to have a framework to prioritize this set of initiatives, taking into account factors such as impact, feasibility and viability. Having a roadmap of which issues to tackle or initiatives to implement and at which point in time helps businesses organize as well as monitor the progress of their efforts.

3. **Ensure initiatives are pursued in collaboration with other stakeholders.** An integrated and collaborative multistakeholder approach is key to achieving sustainable ocean management. This collaboration should transcend specific industry sector boundaries as well as the public-private sectors dichotomy. Here, companies should map out the set of relevant stakeholders for their prioritized topics, as well as the potential roles and forms of partnerships they can play.

4. **Pilot, scale and iterate ocean-focused projects and investments.** As a relatively novel field, ocean-related initiatives are not always straightforward. Piloting projects serves companies well by limiting potential investment downsides, allowing for iterative improvements, and – for successful ones – providing a value proof for the subsequent scale-up efforts.

The ocean is an invaluable global resource, and it is one that must be protected for the benefit of businesses, communities and ecosystems. The new Ocean 20 engagement group offers a platform to empower that journey, providing a forum to establish integrated ocean management, and championing the importance of marine and ocean ecosystems. Businesses that act first not only enjoy an opportunity to pioneer essential ocean protection – they also embrace the chance to unlock the greatest value from this multi-trillion-dollar resource. In doing so, they not only ensure a sustainable future for their business, but also contribute to a sustainable future for the irreplaceable ocean and marine systems.

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