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Understanding the blue economy
Time for a sustainable revolution



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01

Introduction

Christian Nolting
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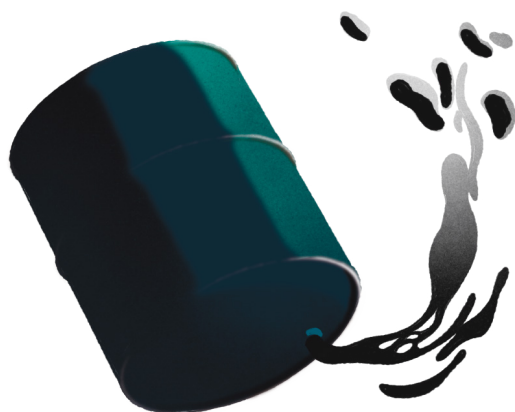
The blue economy is an issue of great importance to everyone, at multiple levels. One reason is that the concept of the blue economy is inextricably linked with biodiversity. There are increasing concerns about global biodiversity decline (both in water and on land) and the potential social impact of this and associated financial risks. Biodiversity underpins the “ecosystem services” that humans receive from nature, and which are thought to provide regenerative returns worth around USD125 to USD140 trillion a year – more than 1.5x conventionally-measured global GDP.¹ The blue economy is an essential element of biodiversity.

For investors, the blue economy can be considered within an ESG (Environment, Social and Governance) perspective. The environmental (“E”) impact of the blue economy and its contribution to sustainability of course goes beyond the overarching topic of global biodiversity to include helping to mitigate the effects of climate change or rising sea levels. The social (“S”) impact of the blue economy is also vast, including through high levels of direct and indirect employment.

Much of this report however looks at the governance (“G”) component of the blue economy. Governance of this vast economic resource (which may be directly be worth USD3 trillion a year by 2030, and indirectly much more)² needs improvement and this will have implications both for its development, and how it is financed.

One key issue is how to combine increased private funding of initiatives (which will likely be necessary) with environmental and social objectives. This will be an area open to new enterprise and investment, as technology increases our understanding of our how marine systems work and as global management of the blue economy evolves. The needs of both enterprise and the environment are, in the very long term, the same – the health of the planet – but divergent pressures will remain. Aided by technology, we think that the next few decades will see an exciting revolution in the blue economy, but this must be a sustainable one.

Technology will increase our understanding of how marine systems work – helping us reconcile enterprise and the environment.



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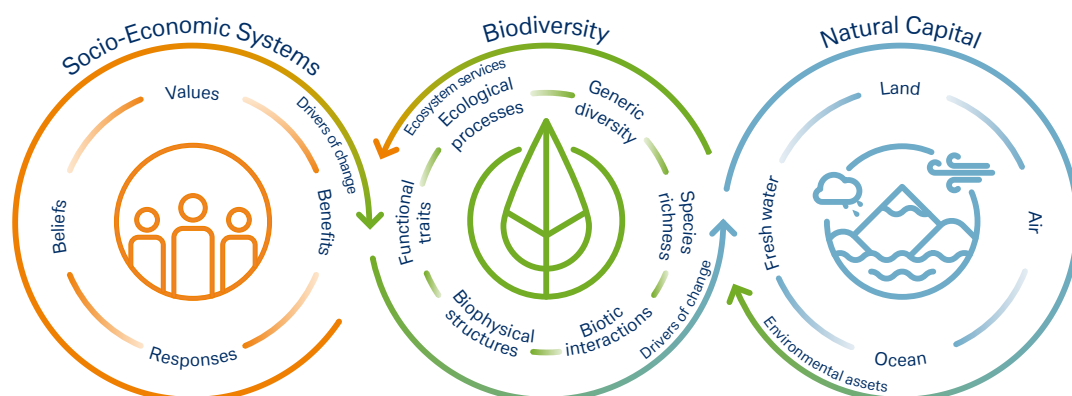
What is the blue economy?

The blue economy should not be seen as a simple resource, but also as a complex economic system – able to generate innovation and also interlinked with other systems and issues (e.g. climate change). Figure 1 below shows one way of conceptualising it. Oceans can be viewed as natural capital (as with terrestrial assets) which provide environmental assets to maintain functioning of biodiversity (“the fuel for the engine”). The ecosystem serves to support human wellbeing, which in turn is the driver of change through changes in social values/beliefs and economic responses.

One example underlines the existential importance of this. The oceans have, over the past two centuries of industrialisation, absorbed around two-thirds of the CO₂ created by it, as well as most of the trapped heat from greenhouse gases. But their ability to do this is not infinite and hotter and more acidic oceans are already having an impact on the marine life within them – and on the oceans’ ability to regulate global climate.

Figure 1: The interconnectedness between biodiversity and the blue economy

Source: European Commission, Erhard et al. (2016), Deutsche Bank AG. As of October 29, 2020.



The blue economy can be broadly defined as economic activity with a direct or indirect link to the ocean, e.g. oceans, coastal areas and rivers. Oceans, long seen as a common heritage of mankind, are vulnerable to a range of economic risks (for example, the “tragedy of the commons”, the individual exploitation of shared resources resulting in communal loss). They are both an economic and ecological frontier.³ All in all, it is estimated that 3 billion people rely on our oceans.⁴

This report, however, focuses on a narrower definition. According to the World Bank, the blue economy represents the “sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystems.”⁵ This can be seen in the context of the United Nations’ Sustainable Development Goal (SDG) 14 – Life below water.

Estimates of the size of the blue economy must be tentative. According to the World Wide Fund for Nature (WWF), the blue economy is estimated to be worth USD24.2 trillion (in terms of assets) as shown in Figure 2 and generates at least USD2.5 trillion a year in terms of economic value, making it the world’s 8th largest economy.⁶ The blue economy is expected to expand at twice the rate of the mainstream economy by 2030. According to the European Commission, the EU’s blue economy generated over EUR750 billion and employed 5 million people in 2018, mainly associated with coastal tourism and offshore wind energy.⁷ In 2030, ocean industries are forecast to account for c.40 million full-time equivalent jobs.

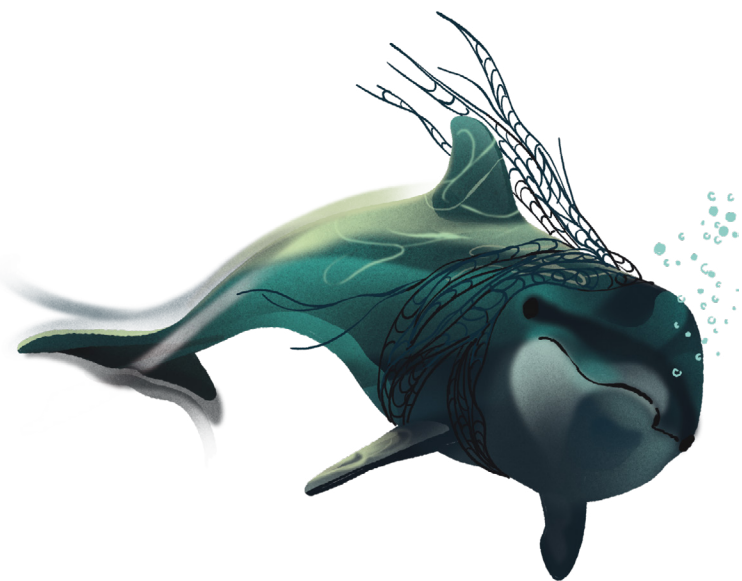
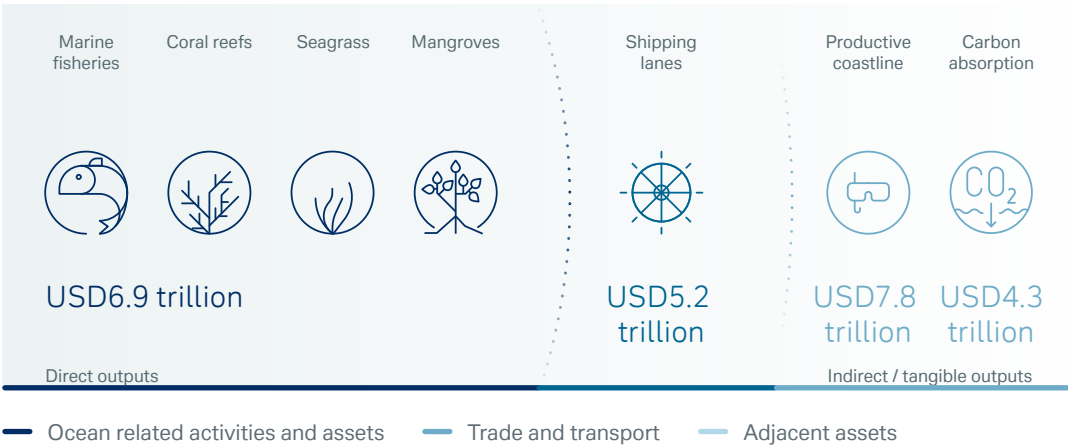
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This may however be understating the importance of the blue economy. If you expand the measurement of the size of the blue economy to include non-market services to the ecosystem (i.e. its value in maintaining the planet's environment, for example through helping reduce temperature), these totals will grow. According to a research study, these ecosystem services are equivalent to around 80% of the global GDP.⁸ This is 30 times more than the direct contribution of the oceans to GDP.

About 71% of the Earth's surface is water-covered, and the oceans hold about 96.5% of all Earth's water.⁹ Oceans regulate our climate and provide the air we breathe: they produce 50% of global oxygen, absorb 30% of CO₂ emissions and 93% of heat arising from changes to the atmosphere according to the National Oceanic and Atmospheric Administration (NOAA).¹⁰ Had that heat gone into the atmosphere, global average temperatures would have jumped by almost 56 degrees Celsius – making the Earth uninhabitable. And oceans also provide ingredients for many medicinal products that help to fight cancer, heart diseases, Alzheimer's disease, etc. as well as opportunities for health-enhancing recreation. It should not be forgotten that globalization would never have progressed so rapidly without the oceans. More than 90% of international commerce (by volume) is nowadays transported by sea.¹¹

Figure 2: Global ocean asset value

Source: WWF, Deutsche Bank AG. As of October 29, 2020.



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03

Managing the blue economy

Managing the blue economy involves both practicalities and aspirations.

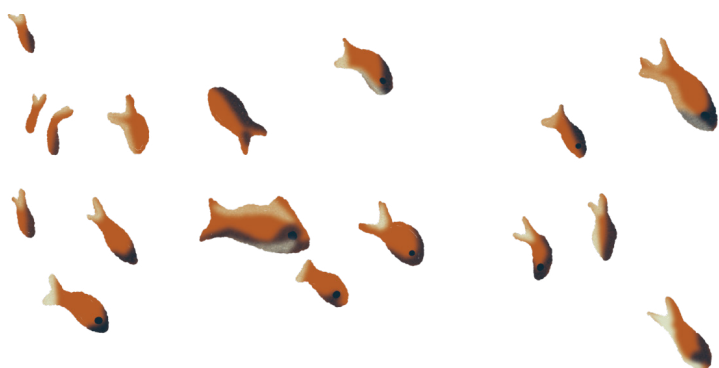
International aspirations may often be tied into broad targets (as we do not have a supranational regime in place). The record around targets is not encouraging. For example, the 10-year old Aichi targets on biodiversity – of particular importance to blue economy ecosystems – at the end of 2020, appear to have gained little traction, despite the 11th Aichi target being directly linked to biodiversity and the relevance of United Nations' SDG 14, as mentioned above. The EU biodiversity strategy 2020 appears to have met a similar fate. Part of the problem is the diversity of biodiversity: it is more difficult to define a specific measurement or a single meaningful goal. Contrast this with the "simple" message of the Paris climate protection agreement to limit the rise in the global average temperature to 2°C. Such a simple aspiration would not be adequate to meet the needs of the blue economy. Hopes now rest on the upcoming 2021 global biodiversity conference in Kunming (China), with a "zero draft" for new biodiversity frameworks released earlier this year. It proposes five long-term goals relating to the "2050 Vision for Biodiversity".

Running in parallel with the search for biodiversity targets has been the concept of "blue growth". The history of this can be traced back to the 2012 Rio+20 conference. This talked about the concept of "green growth" and a number of island economies repurposed this into a specifically "blue" agenda. Blue growth calls for intensified investments to harness the full potential of the oceans, seas, lakes and rivers to accelerate economic growth, create jobs and fight poverty. The private sector is asked to "step in to bridge the financing gap" with the governments offering "the right incentives" via policies to encourage marine activities and support "a pipeline of projects for willing investors".

There is some urgency in addressing these issues, given the threats to blue economy management coming from two broad (and interlinked) areas.

First, from [climate change](#). A recent Intergovernmental Panel on Climate Change report estimated that the effects of climate change on ocean health could cost the global economy USD428 billion per year by 2050 and USD1.98 trillion per year by 2100.¹² There are multiple issues here, from the very broad (oceans' reduced ability to store CO₂) to more specific worries about increased salinity, the effects of ocean warming on marine ecosystems, waste/plastic pollution and rising sea levels (and the resulting challenges for coastal cities, as discussed in Box 1 on page 6).

Second, from [increased economic development activities](#). These have already had a cumulative impact, increasing threats both to individuals and to the livelihoods of individuals employed in the maritime economy.¹³ The situation seems now likely to get worse, with increased activity in many sectors – e.g. offshore energy and aquaculture having both environmental impacts and possibly leading to conflicts with traditional resource users. Economic threats are not only ocean-based: the development of coastal regions can have multiple impacts (e.g. through a reduction in storm-buffering capacity) as can development further inland (e.g. through disrupting nutrient cycles).



But there are also many problems in finding a solution.

For example, there are obvious shared resource management issues that blue economy governance will have to address such issues as the so-called “tragedy of the commons” – where incentives for individual actors (e.g. fishermen) may go against collective needs (e.g. fish stock conservation to allow the long-term supply of adequate food supplies).

At present, we do not have a supranational regime in place to deal with shared resource management. The challenges around getting such a regime in place, if desired, are formidable at multiple levels. It would be necessary not only to reach overall global political agreement on establishing such a regime – even before it faced highly difficult ongoing decisions about equitable resource restrictions, not just between countries, but also between companies and individuals. International bodies could play a role in such a process (and frame the discussion through, for example, Agenda 2030 and the Paris Accord), but they could be operating within an often dysfunctional global legal system.

What this means is that we will not get a full or perfect system any time soon. But this should not stop us considering how to better manage the current situation and exploring possible routes forward. Effective measurement of blue economy seems an essential component of this – both to allow rational calculation of the problems involved and also to set the ground for future investment. There are some suggestions that this would be best done through a new national accounts framework where more “economic” measures around industrial activity in the ocean (e.g. fishing) could be set against measures of “environmental” health. Getting this right will require deeper knowledge about how marine ecosystems work, shared internationally, so the world can build up transparent, agreed international environmental accounting guidelines.¹⁴ It has been suggested that any new international order must allow mobilization of flexible coalitions of countries and institutions around specific global or regional commons.¹⁵

Developing a blue economy management system will take time – knowledge and, in particular, effective measurement will be key components.

Box 1

The blue economy can help save the world’s coastal cities

Professor Dr. Jason Scorse (Middlebury Institute of International Studies, Center for the Blue Economy)

A slew of new climate changes over the past couple of years have brought dire news for the world’s low-lying cities; if left unchecked, the combined impacts of sea level rise, greater and more powerful storms, and increased precipitation will impose hundreds of billions of dollars in damages annually as soon as mid-century. These damages are mainly due to property damage – both residential and commercial – but also include losses to infrastructure, major risks to public health and safety, and lost revenue from reduced economic activity. Cities that are routinely and severely flooded will experience major disruptions to all forms of business activity and ocean-based commerce, as well as reductions in tourism. Coastal flooding also greatly increases the risk of water-borne illness and the spread of toxins, often disproportionately impacting the most vulnerable populations.

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The development of the blue economy is one of the surest ways to save cities from the worst impacts of climate change. First off, mitigating climate change by significantly reducing greenhouse gas emissions is the most efficient option going forward. As the saying goes, "an ounce of prevention is worth a pound of cure", which is true with respect to mitigation versus adaptation. While adaptation to inevitable climate impacts is needed, reducing global warming is the first best option.

On this front, the oceans can play a major role, specifically through the rapid and accelerated development of offshore wind energy. The world has witnessed a global surge in offshore wind production led primarily by Europe and Asian development – which grew by 10% in 2019 to a total of 6 GW of installed capacity – but this must be greatly accelerated in order to both keep pace with population growth and replace fossil fuel energy with zero carbon alternatives. The U.S. in particular lags behind the rest of the world, with only one small project currently in operation. Hopes are that a new administration in 2021 will greatly increase federal leases and address the backlog of applications for new projects.

Offshore wind power is now economic almost everywhere in the world, and in many places represents the lowest cost option. Wind turbine technology has developed by leaps and bounds, with new turbines towering many hundreds of feet in the sky, many of them on new floating platforms that can be located in a much a greater range of offshore environments.

While offshore wind will remain the dominant blue economy energy source for the foreseeable future, other clean ocean-energy technologies also hold great promise, including tidal and wave energy.

Blue carbon is another climate mitigation technology that is growing in importance. The world's scientists have known for decades about the crucial role that terrestrial forests play in capturing and storing carbon dioxide; but coastal ecosystems – particularly mangroves and wetlands – have been shown to sequester much more on a per hectare basis. Creating greater financial incentives to both protect and expand blue carbon reserves around the world is now a focus of many leading NGOs, with attention paid on how to include blue carbon into the REDD+ avoided deforestation UN framework.

But even with the most ambitious GHG reduction targets, coastal cities are still going to face increased climate impacts for many decades to come. In order to build climate resilience, a new living shorelines industry is developing that can help cities buffer storm impacts using nature-based infrastructure, or green-grey hybrid systems. Not only are the living systems often cost-competitive with hardened infrastructure, but they provide many ecological co-benefits. In addition, efforts are underway to develop new materials and new flood control systems that allow cities to absorb increased flood waters. China has launched a "sponge city" program so that their cities can absorb the great majority of water in flood events.

These blue economy initiatives are the way of the future. The old way of doing business is no longer viable. True blue economy investment is the way forward for a sustainable future with coastal cities that are liveable for all.

04

Investment and the blue economy

Blue is the new green: investment challenges

Investors in the blue economy face a range of challenges, some similar to those in ESG investment more broadly, others that are rather different.

Investment challenges in the blue economy can be broken down into five areas.

- 01 **The large weight of government-linked investment.** 80% of biodiversity finance was generated from non-market mechanisms, which primarily come from the public sector and rely on regulations for their implementation.¹⁶ But government spending on “blue ocean” schemes can be cyclical and there is an argument that a private sector approach should be encouraged to ensure innovation. In the long term, reliable mechanisms need to be established in order to enable continued growth in financing.
- 02 **A lack of alignment on taxes, subsidies and economic incentives.** This could be because of (rather than in spite of) the heavy involvement of government-linked investors focused on for example government budget allocations, Official Development Assistance (ODA), subsidies reform and debt-for-nature swaps. This is not an environment which is geared up for the location-neutral institutional investor.
- 03 **Harmful subsidies.** The main reason why governments offer subsidies to farmers and fishermen is to provide stability by guaranteeing a steady income and supply stream. In total, USD35.4 billion were provided as fisheries subsidies by public entities in 2018 (but these reached only 16% of the small-scale fishing sector).¹⁷ Large-scale fisheries receive much greater subsidies, per person employed, than the small-scale fishing sector and capacity-building subsidies are linked to over-fishing.¹⁸ Transfers to the fishing sector have economy-wide effects and also give individual countries competitive advantage over others.¹⁹ One of the main issues around fisheries subsidies is the scarcity of data as well as a lack of transparency, also with regards to the definition of small-scale fishing. Therefore, a concerted effort by all countries to discipline these subsidies via mechanisms and data availability is crucial if we are to collectively meet the commitments of United Nations' SDG 14.6, which prohibits certain forms of fisheries subsidies which contribute to overcapacity and overfishing.
- 04 **Inconsistent data and metrics.** This is a complex area which is worth focusing on. One immediate and obvious challenge here is the size of many oceans – in terms of area covered and depth.²⁰ Issues around the territorial control of waters may provide additional problems. Part of the issue here is how to evaluate the changing interrelationships between climate change and other factors, but there are other specific issues and unknowns about multiple elements on the blue economy.
- 05 **Measuring the desirability of economic activity.** New activity must provide public benefits that are at least equal to existing freely provided activities that are unpriced (an example of this would be a development raising the profile of an area for marine tourism). Policymakers need to ensure that new economic activity in the blue economy has a positive net benefit on this measure.

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These concepts will have an impact on how we use financial instruments as part of conservation/preservation efforts. Some public instruments are concerned with compensating for damages (e.g. environmental taxes). Others look more at benefits, e.g. providing assistance to public private benefits, and positive sustainability labelling of products.

But there is clearly scope for innovation here, as has been recommended by the Convention on Biological Diversity (CBD) and the United Nations Environment Assembly (UNEA). In the private sector these could include biodiversity offsets and payments for ecosystem services (PES) as well as enhanced forms of international development finance.²¹ Entrepreneurial Marine Protected Areas (EMPA) are potentially important, but relatively few existing ones include the private sector.

Investment activity

Financing systems at the moment are underdeveloped. Around 80% of biodiversity financing is through non-market mechanisms.²² This could be vulnerable cyclical cutbacks (particularly in the current global economic environment).

Recent initiatives have included the following:

In 2018, the Republic of Seychelles was the first government to issue a [blue bond](#) (as an extension of the green bond market) to promote sustainable fisheries and thus employment and food security (the issue was for USD15 million).²³ More recently, the Nordic Investment Bank, the international financial institution of the Nordic and Baltic countries, launched a blue bond in 2019 raising SEK2 billion for wastewater treatment, prevention of water pollution and water-related climate change adaptation projects.²⁴ The international not-for-profit group The Nature Conservancy (TNC) also wants to raise USD1.6 billion of funding for global ocean conservation efforts through blue bonds.²⁵ So while the overall blue bond market remains small relative to green bond activity, this is an area to watch.

[Funds](#) dealing with blue economy issues are growing, with several issues in 2020, but these tend to be small scale at present.

These are small amounts relative to government funding or that from international institutions. For example, the Asian Development Bank committed in 2019 USD5 billion over the next five years to promoting more sustainable oceans through the "Action Plan for Healthy Oceans and Sustainable Blue Economies".²⁶ Substantial non-commercial funding also comes from foundations – existing grants from U.S. foundations had a total value of USD7 billion in mid-2020.²⁷



Finance directly from governments is – even with general statements of support – still subject to political will and, as we noted above, may prove to be cyclical. Even though governments' support for blue economy issues may increase in future, many believe that market-based approaches could have greater potential – if long-term reliable mechanisms for doing this can be established. Investment activity will also reflect the fact that blue economy projects and initiatives vary from the regional to the local.

For example, at the regional level, there are Mediterranean initiatives (protection of region's marine and coastal environments) and initiatives around Africa (38 coastal countries and six islands whose maritime industry is estimated to be worth USD1 trillion per year).²⁸ These industries are collectively called the blue economy and are recognised as central to Africa's sustainable development. They can also play a key role in achieving the continent's Agenda 2063.

At a national level, for example, there are initiatives from the Seychelles (blue economy for sustainable future, first blue bond) and China (Blue Economic Zone Development Plan and Blue Silicon Valley). Norway has integrated management plans for the country's marine areas. Community-based initiatives are also important around the world.

Blue economy developments (and broader climate change issues) will also have implications for how existing financial sectors themselves operate. Three examples are obvious: [sovereign ratings](#) where blue economy issues impact water supply, the [insurance industry](#) (both through insurance asset values and also through potential losses) and real estate (including REITs) if areas are exposed to rising seas.

Financing systems for the blue economy remain underdeveloped, despite recent initiatives. Greater private sector involvement may encourage innovation.



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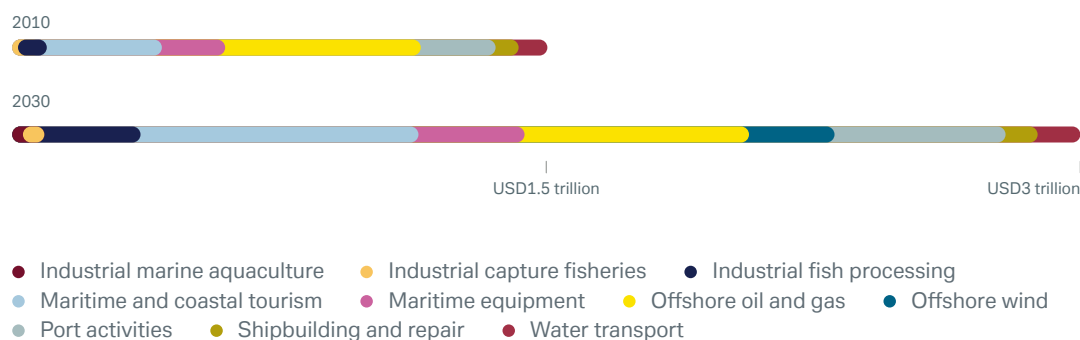
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What the future holds

The blue economy has an immediate importance for investors – in terms of both opportunities and risks. One views of the opportunities is provided by Figure 3, which includes projections for sectoral contributions to blue economy output. It is important to note that not all investments are sustainable in nature. Failures in other areas of development in the past should not be repeated in the future. Individual industries can indeed have a positive effect in the short term, but can cause serious damage to the blue economy in the long term. A careful and sustainable treatment of the oceans is indispensable. Another way of understanding the issues is provided by Figure 4, a summary of challenges and opportunities.

Figure 3: Expected contributions to blue economy output

Source: OECD, Niehörster and Murnane (2018), Deutsche Bank AG. As of October 29, 2020.



Future pressures are already evident. Demographic trends and economic growth fuel the rising demand for resources such as minerals, fish protein, desalinated seawater and alternative energy. Other contributing factors include global tourism, ocean technology research/development, rapid coastal urbanization/protection, and bioprospecting healthcare.

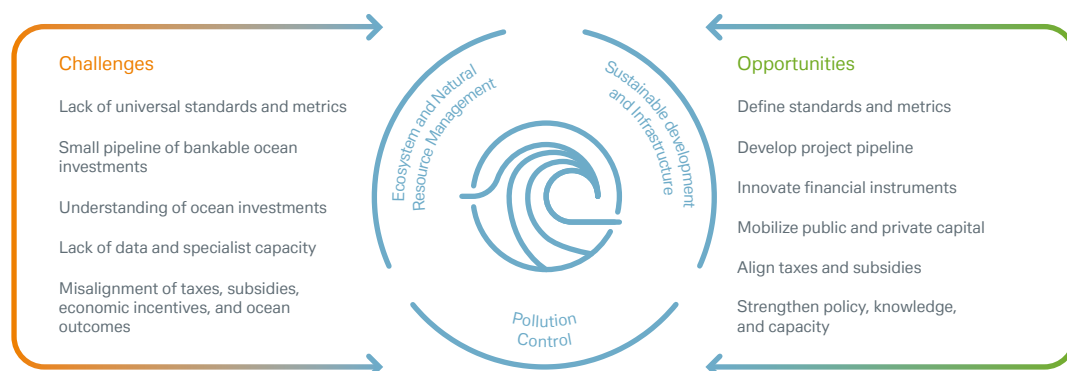
Effective global management and technology use are key to addressing these pressures and enhancing the potential of the blue economy (and the regeneration as well as the resilience of oceans, as discussed in Box 2 on page 13). What is already evident is that while public investment allocations may increase in future (as awareness grows), market-driven approaches are likely to become relatively more important.

Innovation and investment here should not just be focused on new activities in emerging markets. In fact, there may be equal or greater opportunities in the transformation of existing industries in the blue economy – into forms that can make greater economic and social contributions with fewer environmental concerns. Scientific and technological solutions should help this process, through creating and monitoring blue economy solutions.

This will not be a situation where everything is fixed quickly. Issues such as the underfunding of ocean investments, misalignment of taxes, subsidies, economic incentives etc. are not resolvable in months (see Figure 4).

Figure 4: Blue economy sustainability

Source: Asian Development Bank, Deutsche Bank AG. As of October 29, 2020.



We could however have a “white knight” in the form of **technology** – certain to prove a key factor in future development. As we noted above, measurement and tracking are problems that need to be fixed and more data, along with artificial intelligence and robotics, should help us better understand marine ecosystems and how they work. Technology should complement underlying advances in the fundamental science. As, elsewhere, both investment and government policy decisions on the blue economy need to be evidence-based. Considerable amounts of oceanography data exist but to make the best use of this we still need advances around access and interoperability of this data.²⁹

A sustainable revolution in the blue economy will require re-evaluation of both the new and the old. There will be exciting opportunities in the development of new sectors in relatively undeveloped areas. But equally important will be the re-imagination of existing industries which are already important in terms of the economy and employment into forms with fewer surrounding social and environmental concerns. This will help us overcome a mixed historical legacy and ensure the future health of the blue economy – important to us all.

Innovation and enterprise can help reimagine existing blue economy industries as well as create new ones. Technology will help ensure evidence-based decision making.

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Box 2

The oceans are world experts in regeneration and resilience

Dr. Kristen L. Marhaver (Marhaver Lab - CARMABI Foundation)

Early in my research career, I watched helplessly as Hurricane Omar pummeled the coast of Curacao in the Southern Caribbean. As I swam across the reef, I estimated that over 50% of the coral colonies were either cracked, flipped, or scoured down to the skeleton. I panicked. How could a coral reef possibly recover, if the growth rate of a coral is a few centimeters per year, and the losses I just witnessed topped 100 centimeters in a day?

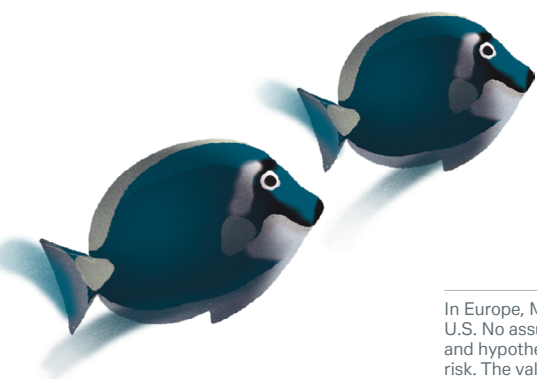
A decade later, the corals I mourned have come roaring back. Perhaps these animals were not so unprepared to take a hit after all. My time horizon was just so much shorter than theirs. In fact, they had probably already survived 10 or 20 of these chaotic, damaging storms, thanks to resilience of the ocean.

Every species in the ocean – animal, plant, fungus, microbe, and virus – has an innate physical, chemical, and biological drive to grow, to make copies of itself, to make offspring. In fact, growth is so important in the ocean that species have evolved an amazing, even comical, diversity of strategies to achieve it. A hermaphroditic sea star might fertilize its own eggs to ensure population growth. A single coral polyp might clone itself diligently for a millenium until it covers the area of a football pitch. A bacterium might divide in half every 24 hours, a doubling rate that could yield a billion progeny in just 30 days.

And herein lies our opportunity. The ocean is resilient because it is so profoundly productive. We can live off the ocean's dividends forever, if we are careful with the principal.

Even when we falter and cut too far into the principal, the ocean has a stunning ability to recoup losses. In 1995, the Cabo Pulmo Marine Reserve was established in the Gulf of California, Mexico, to help foster the recovery of overexploited fish stocks. 14 years later, total fish biomass had grown by over 450%. In the meantime, Cabo Pulmo Marine Reserve was named a UNESCO World Heritage Site and the booming tourism sector lifted average incomes for the local community.

The same comeback story is being replayed around the world in countries like Palau, Gabon, Barbuda, and the Seychelles, as communities and governments overcome resource overexploitation and market externalities by establishing marine protections and enforcing property rights. What these countries all know is that the secret to growth is creating the right conditions with smart policy, and then letting Mother Nature do the rest. Despite the many setbacks we have witnessed and perpetuated in the ocean, there are still so many reasons for long-term optimism, including the inherent resilience of the ocean itself. Our job now is to think carefully enough, and act bravely enough, to make the conditions right for growth.



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Glossary

Agenda 2063 is an initiative proposed by the African Union focusing on economic, political and cultural goals on the African continent.

Blue bonds are fixed-income instruments that finance projects related to ocean conservation.

Blue carbon is a term referring to the absorption of carbon dioxide by the world's ocean ecosystems.

The **Convention on Biological Diversity (CBD)** is a multilateral treaty focusing on the conservation and sustainable use of biological diversity.

Entrepreneurial Marine Protected Areas (EMPA) are projects within the private sector that are fulfilling both environmental and social outcomes in marine habitats.

ESG stands for Environment, Social, Governance, and is the acronym most commonly used for sustainable investments.

EUR is the currency code for the euro, the currency of the Eurozone.

The **European Commission (EC)** is the executive body of the European Union (EU) representing the interests of the European Union as a whole. It consists of 27 Commissioners (one from each EU Member State).

European Union (EU) is an economic and political union consisting of 27 European member states.

A **fund** is a pool of investable money, professionally managed.

Green bonds are fixed-income instruments that finance projects relating to climate-related or environmental projects.

Greenhouse gas (GHG) refers to chemical elements and gases that cause the greenhouse effects on the planet.

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

National Oceanic and Atmospheric Administration (NOAA) is a scientific agency in the United States that conducts research on oceans, waterways and the atmosphere.

Non-governmental organizations (NGOs) are non-profit entities that are independent of any state or government.

Official Development Assistance (ODA) describes financial aid flows to promote economic development, mostly in developing countries.

The **Organisation for Economic Co-operation and Development (OECD)** consists of 35 member countries with the objective of encouraging economic progress and world trade.

Payments for Ecosystem Services (PES) are payments to incentivise landowners and farmers to manage their land sustainably.

A **Real Estate Investment Trust (REIT)** is a company that owns, and in most cases, operates income-producing real estate. REITs are traded on the major exchanges and invest in real estate directly, either through properties or mortgages.

REDD+ (Reducing Emissions from Deforestation and forest Degradation) a multilateral agreement aiming to encourage developing countries to reduce greenhouse gas emissions.

Rio+20 is a common reference to the United Nations Conference on Sustainable Development hosted in 2012.

Glossary

SDGs stands for Sustainable Development Goals. They are a collection of 17 global goals set by the United Nations General Assembly in 2015.

SEK is the currency code for the Swedish krona.

The Nature Conservancy (TNC) is an American charity organization focusing on environmental conservation.

The **tragedy of the commons** describes a situation where independently acting individual economic agents behave contrary to the common good of all economic agents as a whole.

The **United Nations (UN)** aims to increase political and economic cooperation among its member countries.

The **United Nations Environment Assembly (UNEA)** is the governing entity of the United Nations Environment Programme.

USD is the currency code for the U.S. Dollar.

The **World Wide Fund for Nature (WWF)** is a non-governmental organization protecting the world's wildlife, rivers, forests and seas.

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