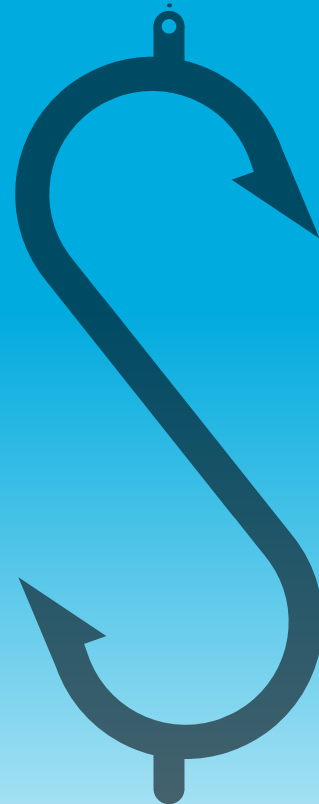


The blue economy

Growth, opportunity and a sustainable ocean economy

An Economist Intelligence Unit briefing paper for
the World Ocean Summit 2015



Sponsored by

GORDON AND BETTY
MOORE
FOUNDATION

Contents

1. The blue economy: Research objectives	5
Box 1. Defining the blue economy: A working definition	7
2. State of the blue economy	8
Box 2. Balancing economy and conservation: A Coastal Governance Index	13
3. Investing in the blue economy	15
Box 3. Potential investment strategies for the ocean economy	18

About this briefing paper

This Economist Intelligence Unit briefing paper has been prepared for the Economist Events World Ocean Summit 2015, to share the initial findings of two upcoming white papers on the “State of the blue economy” and “Investing in the blue economy”, sponsored by the Gordon and Betty Moore Foundation. These will be published following the World Ocean Summit.

The Economist Intelligence Unit bears sole responsibility for the content of this report. The findings do not necessarily reflect the views of the sponsor.

About The Economist Intelligence Unit

The Economist Intelligence Unit (EIU) is the research arm of The Economist Group, publisher of *The Economist*. As the world’s leading provider of country intelligence, it helps governments, institutions and businesses by providing timely, reliable and impartial analysis of economic and development strategies. Through its public policy practice, the EIU provides evidence-based research for policymakers and stakeholders seeking measurable outcomes, in fields ranging from gender and finance to energy and technology. It conducts research through interviews, regulatory analysis, quantitative modelling and forecasting, and displays the results via interactive data visualisation tools. Through a global network of more than 350 analysts and contributors, the EIU continuously assesses and forecasts political, economic and business conditions in more than 200 countries. For more information, visit www.eiu.com.

About the Gordon and Betty Moore Foundation

The Gordon and Betty Moore Foundation believes in bold ideas that create enduring impact in the areas of science, environmental conservation and patient care. Intel co-founder Gordon and his wife Betty established the foundation to create positive change around the world and at home in the San Francisco Bay Area. Environmental conservation efforts promote sustainability, protect critical ecological systems and align conservation needs with human development. Patient care focuses on eliminating preventable harms and unnecessary healthcare costs by meaningfully engaging patients and their families in a supportive, redesigned healthcare system. Science looks for opportunities to transform—or even create—entire fields by investing in early-stage research, emerging fields and top research scientists. Visit Moore.org or follow [@MooreFound](https://twitter.com/MooreFound).

1

The blue economy: Research objectives

Our economic relationship with the ocean is once again evolving in important ways. As a setting for global trade and commerce, and as a significant source of food and energy, the ocean's contribution is already important. This century, it is likely to become an economic force. The drivers are many and varied, but have their origins in our growing familiarity with the ocean environment; new technologies that make it feasible and economically viable to tap ocean resources; longer-term growth and demographic trends fuelling; the search for food security and for alternative sources of minerals and energy; seaborne trade and rapid coastal urbanisation, among others.

The term "industrialisation" is sometimes used to signal this gathering trend of expansion and acceleration of human activity in and around the ocean. It is probably not far from the truth. Alongside established ocean industries, emerging and new activities—offshore renewable energy, aquaculture, deep seabed mining and marine biotechnology are often cited—will bring new opportunities, growth and greater diversity to the ocean economy (see *Table 1*). Governments too are playing a key role in driving growth. Through new national ocean development plans, countries are turning to the ocean as a "new" source of jobs, innovation and competitive advantage.

There is another, very important dimension to future growth in the ocean, and that is the so-called "blue economy" (or "blue growth"). The concept has its origins in the broader green movement and in a growing awareness of the heavy damage wrought on ocean ecosystems by human activity such as overfishing, habitat destruction, pollution and the impact of climate change. A tinge of "blue" can be found in most new national ocean strategies and policies, in some more explicitly than in others, as governments signal an intention to promote a more sustainable balance between economic growth and ocean health. Much of the wider ocean discourse has also gone "blue"—even if there are plenty of different views of the concept and there is no widely agreed or consistent definition.

More prosaically, the idea that we cannot continue, let alone accelerate, human-induced changes to ocean ecosystems is gaining traction, even at the highest levels of global policymaking. The world is slowly waking up to this—and it may not be too late, either. Some argue, quite reasonably, that the extent of the damage to the ocean is many decades shy of the impact of industrialisation on land, and there is still time, if we act now, to get the principles and the framework for the development of the ocean economy right. Business as usual is clearly not an option.

But can the concept of the blue economy be more than aspirational? What do governments, and others, really mean when they refer to it? Is the blue economy at risk from “greenwashing”? What are the challenges of “blueing” the ocean economy? What are the investment opportunities? And what opportunities are there for existing industries facing the transition to more environmentally sustainable practices, or for new and innovative investments, where technologies and business models and innovations are focused on promoting or restoring ocean health?

The Economist Intelligence Unit, sponsored by

the Gordon and Betty Moore Foundation, has embarked on a programme of research which draws on interviews with ocean stakeholders and existing research to raise, and answer, just these questions. In the first of the proposed white papers, the “State of the blue economy”, we seek to take stock of the blue economy concept today and identify key strategies for—and impediments to—advancing the idea of a sustainable ocean economy. Acknowledging the significance of investment to the future of the ocean economy, a second proposed report, “Investing in the blue economy”, will examine how money can be made from a growing ocean economy in a

Table 1. Components of the ocean economy

Type of activity	Ocean service	Established industries	Emerging industries	New industries	Drivers of future growth
Harvesting of living resources	Seafood	Fisheries	Sustainable fisheries		Food security
			Aquaculture	Multi-species aquaculture	Demand for protein
	Marine bio-technology		Pharmaceuticals, chemicals		R&D in healthcare and industry
Extraction of non-living resources, generation of new resources	Minerals	Seabed mining			Demand for minerals
			Deep seabed mining		
	Energy	Oil and gas			Demand for alternative energy sources
	Fresh water		Desalination		Freshwater shortages
Commerce and trade in and around the ocean	Transport and trade	Shipping			Growth in seaborne trade
		Port infrastructure and services			International regulations
	Tourism and recreation	Tourism			Growth of global tourism
		Coastal development			Coastal urbanisation
			Eco-tourism		Domestic regulations
Response to ocean health challenges	Ocean monitoring and surveillance		Technology and R&D		R&D in ocean technologies
	Carbon sequestration		Blue carbon (i.e. coastal vegetated habitats)		Growth in coastal and ocean protection and conservation activities
	Coastal protection		Habitat protection, restoration		
	Waste disposal			Assimilation of nutrients, solid waste	

Activities that can contribute to restoring ocean health

context where environmental considerations and principles of sustainable natural resource management could shape the investment environment.

In this briefing paper, we present our interim thoughts and findings to participants at the World Ocean Summit 2015 as a means of furthering discussion and debate and of soliciting feedback from the many different stakeholders at the event. We very much look forward to your input and your insights, and subsequently to crafting a unique duo of reports, which we expect to release following the event. ■

BOX 1

Defining the blue economy: A working definition

What is the difference between the ocean economy and the blue or sustainable ocean economy? Is it simply that a sustainable ocean economy is one where the environmental risks of, and ecological damage from, economic activity are mitigated, or significantly reduced? Is it enough that future economic activity minimises harm to the ocean, or rather, should the aim be to restore its health?

The following is an adapted working definition:

A sustainable ocean economy emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support this activity and remain resilient and healthy.

2

State of the blue economy

The elusive quest for sustainability

The ocean is becoming a new focal point in the discourse on growth and sustainable development, both at national and international levels. The world is in many ways at a turning point in setting its economic priorities in the ocean. How this is done in the next years and decades, in a period when human activities in the ocean are expected to accelerate significantly, will be a key determinant of the ocean's health and of the long-term benefits derived by all from healthy ocean ecosystems.

The idea of the "blue economy" or "blue growth" has become synonymous with the "greening" of the ocean economy, and the frame by which governments, NGOs and others refer to a more sustainable ocean economy—one, broadly, where there is a better alignment between economic growth and the health of the ocean. Increasingly, national ocean development strategies reference the blue economy as a guiding principle, while policy-makers busy themselves filling in the gaps. These gaps are very considerable. Stimulating growth in the ocean economy is comparatively straightforward; but it is not always clear what a sustainable ocean economy should look like, and under what conditions it is most likely to develop.

This upcoming white paper examines the way in which countries are framing the development of their ocean resources, those within their

exclusive economic zones (EEZs), and the extent to which their blue strategies offer a vision of a sustainable ocean economy. In doing so, it takes stock of the economic activities in and around the ocean, and the degree to which they are likely to ramp up. It asks how countries seek to balance growth and sustainability prerogatives, thus enabling the optimal use of ocean resources with maximum benefit to ocean ecosystems. It looks at what is needed, from a policy perspective, to bring to life a more sustainable ocean economy.

A wide array of thinking is being brought to bear on the blue economy, and it is a sure sign of progress that many countries are now adopting or exploring sustainable frameworks for their ocean economies. But the difficult work has only just begun. Defining the blue economy, then articulating how to piece together the enabling legal, governance, investment and financing arrangements—and implementing these—will be a major challenge.

The ocean will become an economic force this century

The economic contribution of the ocean is significant but remains undervalued.

Measuring the ocean economy gives a country a first-order understanding of the economic importance of the seas. China's ocean economy

contributed US\$962bn, or 10% of GDP, in 2014, employing 9m people.¹ The US valued its ocean economy at US\$258bn in 2010, or 1.8% of GDP. Estimates for Indonesia are a sizeable 20% of GDP, a similar ratio to other low-middle-income countries with large ocean territories.

Measurement is difficult, not least because the lines between coastal and ocean economies are often blurred. And comparisons between countries are complicated by differences in measurement systems, income and geography. It is also likely that the economic contribution of the ocean is undervalued in many countries. National accounting systems often treat large sectors, such as oil and gas and coastal real estate separately. Meanwhile, few estimates give any sense of the value of non-market goods and services, such as carbon sequestration, to the ocean economy.

A new wave of “industrialisation” of the ocean and coasts is under way, the scale of which is only now becoming apparent. Trends point to accelerating economic activity in and around the ocean, against the backdrop of a soaring global population, growing affluence and consumption, and the need for new sources of food, energy and minerals. By 2030 two out of every three fish on our plates will have been farmed, much of it at sea.² Offshore wind capacity is forecast to rise almost tenfold by 2030, and seaborne trade is expected to quadruple by 2050.³ On land, the ocean-related economy will experience a surge in investment in coastal infrastructure, industry and tourism as the global migration to cities, and coasts, deepens. At the same time, the risks to coastal populations of rising sea levels and storm surges as a result of climate change will drive a wave of defensive infrastructure development.

A strategic focus on the development of national ocean resources will be an important driver and enabler of the ocean economy.

Ocean economies, both large and small, are looking to their seas to bolster slowing growth in their terrestrial economies, discover new opportunities for investment and employment, and build competitive advantage in emerging industries such as deep seabed mining and marine biotechnology. New strategic ocean development plans and policies, sometimes referred to as “blue economy” plans (see below), are being drafted to stimulate growth in and around countries’ exclusive economic zones (EEZs). Should these public policy ambitions prove successful at enabling investment, the scale, size and type of economic activity in the ocean will be of an entirely new order.

Human activities are driving the decline in ocean health

There has been a shocking plunge in ocean health that has been directly linked to human activities. The “great acceleration”, the extraordinary burst of economic and industrial activity that began in the second half of the 20th century, has led to unprecedented changes in ocean ecosystems. The G7 Science Academies’ Statement for the meeting of the G7 group of major industrialised nations in Germany in June 2015 is the most recent example of the emerging consensus that carbon dioxide emissions have been a driver of damage to ocean ecosystems, alongside nutrient, chemical and plastics pollution, overfishing and the spread of invasive species. Human activities on the land and sea, the academies conclude, are leading to changes in the ocean that will profoundly affect human well-being and societies.

¹ “Defining and quantifying China’s ocean economy”, *Marine Policy*, Vol. 43, January 2014, pp. 164–173.

² *Fish to 2030: Prospects for Fisheries and Aquaculture*, World Bank, December 2013.

³ “Global trade: International freight transport to quadruple by 2050”, *International Transport Forum*, January 27th 2015.

The urgency of the ocean health challenge is becoming more prominent in the global policy discourse. For the first time the ocean is on the G7 agenda, and in 2015, the first comprehensive review of the impact of human activities on the ocean, the UN's World Ocean Assessment, will be finalised. In the two decades since the first Earth Summit in 1992, the efforts of the conservation and science communities, as well as a handful of visionary political and business leaders, have succeeded in elevating the issue of ocean health to the highest levels of global policymaking. The opportunity for meaningful progress has never been greater, even if the record suggests cautionary optimism. Over 80 goals and targets for solving ocean ills have been proposed, and only scattered progress made. The latest, a proposed post-2015 UN sustainable development goal (SDG) for the ocean, is potentially the most important.

The blue economy is as yet a new paradigm in name only

The emerging concepts of the blue economy and blue growth are important public policy aspirations, but little more as yet. With sustainable growth the new focus of the global policy discourse, countries seeking to develop their ocean economies have, to varying degrees, acknowledged the need for policies that better align future economic growth in their seas with maintaining or even restoring ocean health. The terms blue economy and blue growth, used liberally in national ocean plans, imply just this—a measure of greening of the ocean economy. Welcome as this development is, these emerging concepts—and counterparts such as “sustainable ocean economy”—remain ill-defined and open to wide, and often different, interpretations. Fears of “blue-washing” abound.

The blue economy typically prioritises growth over sustainability. The idea that the blue economy is, in the minds of most policymakers, a relatively conventional “ocean economy” albeit blue tinged seems to be borne out by a more careful reading of national ocean development plans. The European Commission's Blue Growth strategy, for example, is designed “to steer the EU out of its current economic crisis” as a source of jobs, competitiveness and greater resource opportunity that can be tapped while “safeguarding” the health of European seas. China's idea of a blue economy, though evolving of late to include a new focus on “sustainable development and conservation”, prioritises bringing coastal and ocean resources into a broader integrated plan for national economic development and encouraging the marine industry to play a greater role in the economy. While the concept of the blue economy links economic growth with the conservation of ocean ecosystems, it seems clear that neither the conservation or sustainability component is the primary nor even necessarily the ultimate goal.

Without a common understanding of the blue economy and a clear framework for sustainable growth, even modest progress on ocean health will be a challenge. The chequered experience of greening on land, though several decades ahead of the ocean, is a salutary reminder of the difficulties and complexities of bringing sustainable growth to the ocean. While governments are clearly receptive to improving ocean health and building a sustainable ocean economy, the tendency to prioritise growth, and the prevailing view that a few judicious changes to policy, governance and enforcement should be sufficient to manage the impact of growing competition for ocean space, suggest that the scale of the ocean challenge is not yet fully appreciated. Bringing greater clarity to

the concept of the blue economy will be essential, but equally important is a robust framework for governance, institutions, investment and business innovation that will underpin a “bluer” economy.

Institutional support and capacity for a balanced approach to the governance of ocean space varies greatly, and quite a few are not yet ready for the challenge.

Sustainable growth is more likely to take place in a context of well-developed regulatory frameworks for integrated coastal and ocean management, but institutional support and capacity for such an approach vary greatly. A survey of 20 countries suggests that governance mechanisms are uneven, with big differences in legal and institutional provisions across developed and developing countries. The Economist Intelligence Unit’s Coastal Governance Index (see *Box 2*) indicates that the majority of countries—with the exception of Nigeria, Peru and Russia—have a domestic coastal management policy in place. However, a cross-sectoral implementation strategy is absent in some (India, Mexico, New Zealand, South Africa), while in Chile and France an implementation strategy was found to be lacking.

The transition from an ocean economy to a blue economy will be a complex, long-term undertaking

A sustainable ocean economy offers a path for considering economic development and ocean health as compatible propositions. It does not have to be a choice between growth and sustainability. Properly planned and managed ocean spaces should mobilise public- and private-sector investment and generate strong returns and ecosystem benefits. The advantages of such an approach mean that a diversity of activities, from traditional ocean sectors to new businesses focused on ocean health, can be managed in

a co-ordinated way, within a comprehensive framework of ecosystem-based management (based on balancing growth with the capacity of the ocean for it).

A clear policy and planning framework is essential, but it is not sufficient.

The devil, as always, is in the detail. A European Parliament study of the EU’s Blue Growth strategy, one of the better-articulated plans, notes that it falls short in several important respects: it lacks sufficient targets in terms of science, knowledge and technology; there are significant knowledge gaps on marine life, seabed resources and the risks and opportunities of further economic activity in European seas; a lack of scientists and other ocean specialists raises questions about how ocean policy can be implemented; and there is limited awareness of the potential of blue growth for businesses.

Reform of institutions governing the ocean economy is required to keep pace with accelerating economic activity.

Historically, economic activity within EEZs has been managed on a sectoral basis, with only limited co-ordination between ministries, regulatory bodies and industry when overseeing, among other things, overlap of property rights (particularly licences for the exploration of extractive materials), shipping routes and fishing grounds. Governing a sustainable ocean economy will be far more complex. Ecosystem-based management in which both the economy and ecosystems thrive, and its most important implementing tool, marine spatial planning (MSP), requires a set of integrated governance and supporting conditions to be present. These include good laws and regulations, strong institutions and inter-ministerial co-operation, inclusive decision-making processes involving all stakeholders (including business), evidence-based support,

and credible arbitration mechanisms. For many countries, this will be a considerable challenge.

Better economic data and science are required—as is much-needed confidence in these metrics. Current approaches to valuing the ocean economy could mean that we are underestimating its contribution, particularly the value of non-market goods and services: ecosystem benefits such as the protection to coasts offered by coral reefs, or carbon sequestration. Despite improvements in accounting methods and techniques for valuing this natural capital, there remains gaps in the data and information required to price ecosystem benefits accurately, and at the level where the information can be used to better inform policy and investment decisions. A number of countries have adopted new green accounting methods that could be better customised for the ocean: for example, China's ocean economy accounting system includes a Gross Ocean Product as well as a Green Ocean Account.

Innovative financing will be needed to direct investments into those economic activities that can enhance ocean health. Many public and private economic activities that could serve to restore ocean health will carry higher upfront costs and returns that will not immediately be accrued to investors. This suggests the need for new and innovative financing mechanisms, more capital than is currently being deployed, and for a greater degree of collaboration between the public and private sectors. Here, there is potential for bolstering the development of those “emerging” and “new” industries focused on restoring ocean health (see *Table 1: Components of the ocean economy*).

Discussion points for participants:

- The definition of the blue economy is typically wide and loose, and open to different interpretations. What would a clear definition be?
- Blue economy policies are primarily focused on economic growth, with sustainability often a second-order priority. In what ways can policy be re-framed to realise a better balance between the twin objectives of growth and conservation of ocean ecosystems?
- What are the critical elements—governance, science or otherwise—that must be in place to successfully implement policies for a sustainable ocean economy?
- Where are the knowledge gaps for governments, businesses and other stakeholders in making the transition to a blue economy? ■

BOX 2

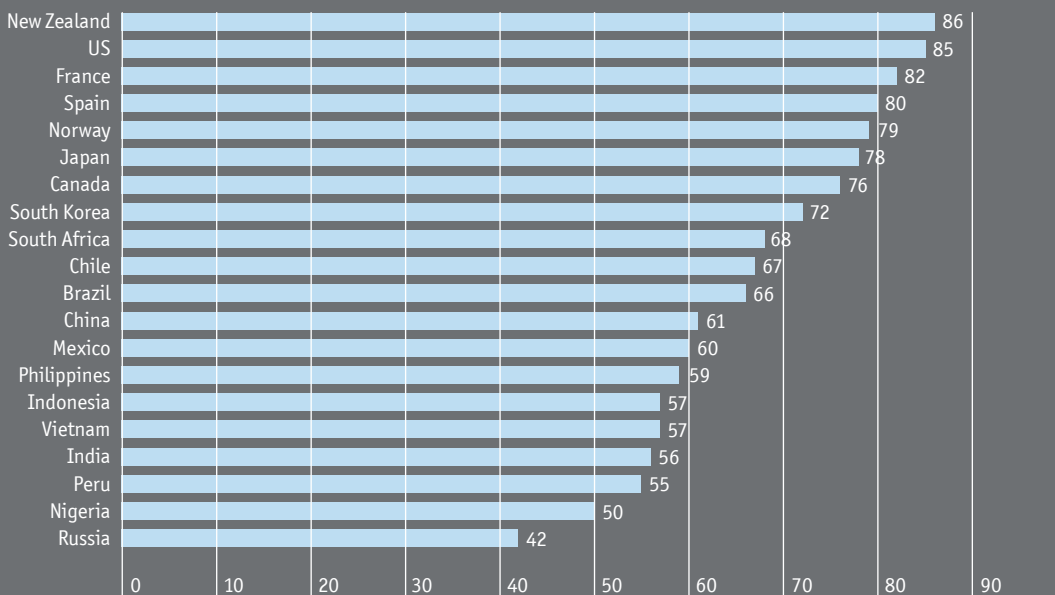
Balancing economy and conservation: A Coastal Governance Index

Not only do many people choose to live on the coast or visit as tourists, but coastal areas are also a source of revenue-generating industries such as shipping, fishing, mining and oil and gas exploration, resulting in a number of competing interests over the use of its resources. With multiple pressures on coastal ecosystems and growing activity in and around the exclusive economic zones (EEZs) of many countries, effective coastal governance policy must consider environmental protection and the social goods that arise from it, while respecting sustainable business practices.

To understand the state of play in global coastal governance,⁴ the EIU measured the extent of governmental regulation and management across 20 key ocean economies, selected on the basis of the importance of coastlines to their economies and data availability (see Figure 1). This first-of-its-kind assessment of coastal governance identifies best practices and areas for improvement in two fundamental categories (policy and institutional capacity; the business environment for coastal activities) and four “asset” categories (water quality; minerals and energy; land; and living resources—fisheries and wildlife management).

The Coastal Governance Index finds that progress towards the integrated management of coastal areas around the world, as measured in 20 key ocean economies, has been uneven. Developed countries are

Figure 1. Countries in the Coastal Governance Index and overall scores



Source: Coastal Governance Index, Economist Intelligence Unit.

⁴ This research covers the coastal zone and, where appropriate, the exclusive economic zone (EEZ) of each country. The World Bank defines the coastal zone as “the interface where the land meets the ocean, encompassing shoreline environments as well as adjacent coastal waters”. We define “good governance” as governance that balances private investment’s interests and social and environmental concerns in coastal areas.

doing relatively well, but at the same time, there is room for improvement. In particular, all countries could do more to provide an integrated multi-stakeholder environment for coastal governance at the national level. Scores pertaining to the water quality and policy and institutional capacity categories of the index are weak overall, especially when compared with those in the land and living resources categories.

Among the key findings:

The majority of countries have made a strong start towards effective coastal governance, but all still require work. Most countries score in the top half of the index (score of 0–100, where 100 is best), indicating that all 20 governments have taken initial steps to balance the needs of the environment and economic development.

Democratic countries with inclusive policymaking lead the way. The high correlation (0.77) between the overall coastal governance score and the EIU's Democracy Index⁵ suggests that participatory inclusion in decision-making and accountability may contribute to better policies in this area. New Zealand ranks first in the Coastal Governance Index, followed by the United States.

Emerging markets lack the resources to keep up. The overall coastal governance score and levels of economic development—measured as GDP per capita in US dollars in purchasing power parity (PPP) terms in 2014—are highly correlated. On average, richer countries have better coastal governance policies. Russia languishes at the bottom of the index, behind Nigeria (19th) and Peru (18th).

Strong institutional support for coastal and EEZ management underpins “good governance”, although this does not always translate into practice. Concerns persist that not enough attention has been paid to the capacity required for the implementation of policies and strategies and their enforcement, no matter how well written. China scores well in the index's policy and institutional capacity category (tied for 8th place out of 20 countries), but fares poorly in protection of its living resources (20th). Similarly, Vietnam performs respectably on policy and institutional capacity (tied 8th place with China) having issued the first legal document related to marine integrated management in 2009, but ranks near the bottom of the index in the governance of its coastal and offshore minerals and energy assets (19th place).

Marine spatial planning (MSP) remains at an early stage of development. Some 11 countries have established a domestic legal or regulatory basis for MSP, whereas nine have not. In practice, the levels of implementation vary. There is no legal or regulatory basis for MSP in the United States, despite a 2010 Executive Order directing federal agencies to implement the recommendations of the Interagency Ocean Policy Task Force (IOPTF) under the guidance of a new National Ocean Council (NOC). Following a 2014 EU Directive to create a common framework for maritime spatial planning in Europe, countries such as France and Spain remain in their planning stages. Ahead of the pack is Norway, which has approved three such plans for its EEZ.

⁵ The EIU's Democracy Index is a leading measure of the state of democratic governance and political participation in 167 countries.

3

Investing in the blue economy

Unlocking new value from the ocean

The ocean remains one of the least-developed regions on earth. This is about to change, with the ocean increasingly being viewed as an underexplored and potentially lucrative opportunity for wealth creation. Given the damage to ocean ecosystems from existing human activities, the rush to new opportunities—and the related risk of accelerating ocean degradation—has led some to respond with calls to curtail, or even ban, new activities. But there may be an alternative path through the development of a “blue economy”, where economic expansion can take place in alignment with responsible and sustainable management of ocean ecosystems.

Three types of opportunities are consistent with this paradigm:

- Those where investments better account for environmental, social and governance (ESG) risk in the planning and execution of activities in the ocean, and where ESG management is both good for business and good for the environment.
- Those where there is a strong business case for investing in the ocean, and where a side benefit of the investment is improving the health of the ocean; and
- Those where investments are explicitly focused on ocean health and ecosystems. This

opportunity captures a whole new paradigm of investments which are “blue” from inception.

This upcoming report examines approaches to investing in an expanding ocean economy where environmental considerations could underpin—and in some cases drive—business activities in the ocean economy.

A unique economy is emerging in and around the ocean

The environment for ocean investments is changing. In an effort to manage growing competition, and the impact this will have on ocean ecosystems, governments will develop and deepen the laws, regulations, institutions and planning tools to govern their EEZs in an integrated manner. Done properly, this should provide a level playing field for investors, while greater certainty, transparency and stability should encourage new investment. At the same time, a wider recognition of the declining health of the ocean and the related risks for business is changing the way in which leading companies are managing their ocean investments. One dimension of this is how established ocean industries are transitioning to more environmentally responsible practices. There is emerging evidence of how such measures can lead to longer-term business and economic gains: better management of fish stocks lead to improved

productivity of fisheries and retrofitting ships for cleaner fuels bring better fuel management.

Investment opportunities are arising from the application of new technologies to harness the ocean's potential as a resource base

The ocean economy is diversifying, with new forms of economic activity emerging. Investments in the ocean have traditionally comprised those whose returns are linked to the ocean's living "renewable" resources (such as fisheries) as well as those who exploit the ocean's non-living, "non-renewable", resources (including extractive industries, such as dredging and offshore oil and gas). Large industries such as tourism, coastal development, shipping and port infrastructure and services are also reliant on the seas and the coasts as a setting for economic activities. Significant opportunities are now emerging from the application of new technologies to harness the ocean's potential as a nexus of resources. Three emerging industries are indicative of new opportunities arising from the ocean to invest in food, mineral and energy resources:

Advances in sustainable aquaculture will make it an important means of meeting the growing global demand for protein; better managed fisheries will help too. Marine aquaculture represented around 37% of aquaculture production as of 2012, according to the UN's Food and Agriculture Organisation (FAO). By 2030, the World Bank anticipates that total aquaculture will provide around two-thirds of global fish consumption (93bn tonnes),⁶ up from 53bn tonnes in 2008, and that it will be a significant part of the response to a growing global appetite. Improved productivity in wild-capture fisheries from ongoing management reform efforts offers a viable, if smaller, opportunity to meet anticipated demand. Investments around improved fisheries remain the prerogative of the development

banks, niche investors and innovative financiers—the challenge is to bring the opportunity to scale.

To meet future needs for minerals, momentum from both national governments and the private sector has catalysed the development of deep seabed mining. While mining activity in the form of near-shore dredging and the extraction of aggregates has long taken place, technological developments and ongoing work on an international framework for the industry, led by the International Seabed Authority, mean that the first commercial deep seabed mining project is slated to open in 2018 off the coast of Papua New Guinea. A lack of dedicated regulation and enforcement regimes across EEZs, with the potential for inconsistent standards to emerge, remains a risk for investors.

Bigger questions around national resource efficiency and security are driving research and development (R&D) and investment in alternative energy, some of which is being directed to the growing marine renewable energy sector. According to the International Energy Agency, global offshore electricity capacity is expected to rise from 8GW in 2014 to 29GW in 2020.⁷ Offshore wind currently represents some 2% of global installed capacity for the wind energy market, of which some 90% of capacity can be found in the EU. To mitigate upfront risks for commercial investors, innovative financing has already been applied in this market, with the involvement of development banks and export credit agencies taking on upfront risk. Ocean energy remains a much smaller player, but Europe will again be at the front line of developments, where private funding is driving wave and tidal energy projects.

There are new, and growing, opportunities to make money in the ocean economy. But the degree

⁶ *Fish to 2030: Prospects for Fisheries and Aquaculture*, World Bank, December 2013.

⁷ Baseline case. *Medium-term Renewable Energy Market Report 2014*, International Energy Agency, 2014.

to which environmental considerations underpin investment value varies across the spectrum

Awareness, and a more diligent incorporation of environmental, social and governance considerations in ocean economy investments, are evolving. Heightened exposure of companies to commercial, regulatory, ecosystem and reputational risks has compelled investors to consider the value of sound natural resource management for their ocean investments. Intensification of activity in the EEZs and growing competition for both existing and new industries will also see more efforts towards regulating and managing the ocean. Although such efforts are at an early stage, there are examples of how this has improved clarity and certainty for investors—for example, in the streamlined approval process for the first commercial offshore wind energy project in the United States in Rhode Island, due for completion by 2017.

Traditional industries could stand to gain from requirements to adapt and mitigate the impact of their activities. International regulations are setting the parameters for less impactful operating practices on and around the ocean, such as the upcoming regulations from the International Maritime Organisation for shipping fleets to meet sustainability standards. Industry players are financing technology businesses, while private equity funds are investing in a promising “solutions economy” to respond to new standards and meet the growing demand for environmentally sustainable goods and services. In the fisheries sector, recent research indicates that total wild fish production could rise by 15% if stocks were allowed to recover, while profits could be increased to US\$120bn per year (up 2.5 times) if fisheries were managed sustainably.⁸

New opportunities are emerging for investing

in ocean health and ecosystems. This comprises activities around mitigation and adaptation to climate-change challenges (building nature into coastal infrastructure for added resilience, for instance); marine protection infrastructure and services; wastewater and ocean nutrient pollution management, and ocean monitoring and surveillance. In addition, there are the new investment and financing mechanisms around non-market assets and services (investing in marine protected areas, blue bonds, and in the health of special ecosystems such as mangroves).

Commercial investors remain cautious, and the majority of investments targeted at ocean health to date have been financed by public-sector institutions and multilateral development banks, which have stepped in to take on the associated upfront risk. Innovative financing vehicles are materialising: for example, cities in the United States are issuing municipal green bonds to fund requirements for water waste management infrastructure. But observers highlight a dearth of financing mechanisms of significant scale. The challenge remains of how to create predictable cash flows for investors behind the valuable ecosystem services offered by the ocean.

Discussion points for participants:

- To what extent does the mainstream investment community see ocean investments as a distinctive asset class? If so, what are some examples?
- What are the barriers to investing in the ocean economy, and in the ways consistent with a blue economy paradigm?
 - > Why are environmental, social and governance (ESG) conditions not always taken into account?

⁸ *The Potential for Global Fish Recovery: How Effective Fisheries Management Can Increase Abundance, Yield and Value*, University of California, Santa Barbara, EDF and University of Washington. Forthcoming, 2015.

- > What ESG risk assessment tools do exist, and to what extent are they applicable for ocean investments?
- What are the potential benefits to an investor's portfolio from investing in a blue economy?
 - > In which ocean sectors, and when, are investors likely to see investable propositions emerge?
 - > What is required to improve the attractiveness of those new, emerging opportunities for investors? ■

BOX 3

Potential investment strategies for the ocean economy

A diverse and growing ocean economy indicates an investment landscape that is in flux. This offers investors an opportunity to apply different strategies to ocean investments at various levels and scales.

In the absence of governments moving quickly or where regulation lags, the global shipping industry has taken the initiative in advance of anticipated International Maritime Organisation regulations to reduce the environmental impact of shipping fleets. As a pre-emptive strategy to address future compliance issues and as a matter of corporate social responsibility, shipping companies are making investments into installing ballast water treatment systems and transitioning to cleaner fuels. In this context, “early movers” have led the way in aligning investments with sustainable practices and capitalising on information asymmetries.

The infancy of the deep seabed mining sector and the absence of a clear and integrated regulatory framework represent a risk for companies and have a bearing on their social licence to operate. A draft legislative framework for exploitation areas, issued by the International Seabed Authority for industry comment in March 2015, references the need for environmental impact assessments, an environmental management plan and a social impact assessment and action plan to be open to public review, as well as the need for agreement on workable environmental targets and “thresholds of harm” pertaining to the impact of mining on the marine environment.⁹ Companies have an opportunity here to play the role of “shapers”, pushing the entire context for sector development towards the incorporation of sustainability, while enjoying the security of moving as a group.

Created as a vehicle for financing environmentally sustainable infrastructure projects—including those related to coastal protection and wastewater management—green bond financial products were designed to meet requests from institutional investors seeking to add investments directed at climate-change mitigation and adaptation to their portfolios. Since its first green bond issuance of US\$410m in 2008 to the end of 2014, the World Bank has issued around US\$8bn across 40 transactions. Following in the footsteps of the multilateral banks, both municipal governments and corporations have also developed and marketed green bond products, the issuance of which has grown exponentially from US\$11bn in 2013 to US\$36.6bn in 2014, with a target of US\$100bn for 2015, according to data from the Climate Bonds Initiative, a not-for-profit investment promotion organisation. Driven by a confluence of policy factors and market interest, this trajectory indicates the potential to “scale” investments into a sector and pushes the proposition from a niche to a mainstream one.

⁹ Developing a regulatory framework for mineral exploitation in the area, International Seabed Authority, March 2015.

While every effort has been taken to verify the accuracy of this information, The Economist Intelligence Unit Ltd. cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report.

LONDON

20 Cabot Square

London

E14 4QW

United Kingdom

Tel: (44.20) 7576 8000

Fax: (44.20) 7576 8500

E-mail: london@eiu.com

NEW YORK

750 Third Avenue

5th Floor

New York, NY 10017, US

Tel: (1.212) 554 0600

Fax: (1.212) 586 0248

E-mail: newyork@eiu.com

HONG KONG

6001, Central Plaza

18 Harbour Road

Wanchai

Hong Kong

Tel: (852) 2585 3888

Fax: (852) 2802 7638

E-mail: hongkong@eiu.com

GENEVA

Rue de l'Athénée 32

1206 Geneva

Switzerland

Tel: (41) 22 566 2470

Fax: (41) 22 346 9347

E-mail: geneva@eiu.com