Commissioned by

HIGH LEVEL PANEL *for*
A SUSTAINABLE
OCEAN ECONOMY

BLUE PAPER

The Human Relationship with Our Ocean Planet

LEAD AUTHORS

Edward H. Allison, John Kurien and Yoshitaka Ota

CONTRIBUTING AUTHORS:

Dedi S. Adhuri, J. Maarten Bavinck, Andrés Cisneros-Montemayor, Michael Fabinyi, Svein Jentoft, Sallie Lau, Tabitha Grace Mallory, Ayodeji Olukoju, Ingrid van Putten, Natasha Stacey, Michelle Voyer and Nireka Weeratunge

oceanpanel.org

About the High Level Panel for a Sustainable Ocean Economy

The High Level Panel for a Sustainable Ocean Economy (Ocean Panel) is a unique initiative by 14 world leaders who are building momentum for a sustainable ocean economy in which effective protection, sustainable production and equitable prosperity go hand in hand. By enhancing humanity's relationship with the ocean, bridging ocean health and wealth, working with diverse stakeholders and harnessing the latest knowledge, the Ocean Panel aims to facilitate a better, more resilient future for people and the planet.

Established in September 2018, the Ocean Panel has been working with government, business, financial institutions, the science community and civil society to catalyse and scale bold, pragmatic solutions across policy, governance, technology and finance to ultimately develop an action agenda for transitioning to a sustainable ocean economy. Co-chaired by Norway and Palau, the Ocean Panel is the only ocean policy body made up of serving world leaders with the authority needed to trigger, amplify and accelerate action worldwide for ocean priorities. The Ocean Panel comprises members from Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau and Portugal and is supported by the UN Secretary-General's Special Envoy for the Ocean.

The Ocean Panel's approach is both ambitious and practical. Collaborative partnerships are essential to converting knowledge into action. To develop a common understanding of what a sustainable ocean economy looks like, the Ocean Panel gathers input from a wide array of stakeholders, including an Expert Group and an Advisory Network. The Secretariat, based at World Resources Institute, assists with analytical work, communications and stakeholder engagement.

In the spirit of achieving the UN Sustainable Development Goals (SDGs), providing value to the UN Decade of Ocean Science for Sustainable Development and meeting the objectives of the Paris Agreement, the Ocean Panel commissioned a comprehensive assessment of ocean science and knowledge that has significant policy relevance. This includes a series of 16 Blue Papers and various Special Reports that offer a synthesis of knowledge, new thinking and perspectives, and opportunities for action. This body of work is informing a new ocean narrative in the forthcoming Towards a Sustainable Ocean Economy report. Together, this research and new narrative serve as inputs to the Ocean Panel's deliberations for its forthcoming action agenda.

Ultimately, these papers are an independent input to the Ocean Panel process and do not necessarily represent the thinking of the Ocean Panel, Sherpas or Secretariat.

Suggested Citation: Allison, E.H., J. Kurien, Y. Ota et al. 2020. *The Human Relationship with Our Ocean Planet*. Washington, DC: World Resources Institute. https://oceanpanel.org/blue-papers/HumanRelationshipwithOurOceanPlanet

Table of Contents

Foreword

The High Level Panel for a Sustainable Ocean Economy (Ocean Panel) commissioned us, the co-chairs of the Ocean Panel Expert Group, to produce a series of Blue Papers to explore pressing challenges at the nexus of the ocean and the economy to ultimately inform a new ocean report and the Ocean Panel's action agenda. The Ocean Panel identified 16 specific topics for which it sought a synthesis of knowledge and opportunities for action. In response, we convened 16 teams of global experts—over 200 authors from nearly 50 countries—who reviewed and analysed the latest knowledge. They then provided new thinking and perspectives on how technology, policy, governance and finance can be applied to catalyse a more sustainable and prosperous relationship with the ocean. In short, these Special Reports and Blue Papers provide the information needed to transition to a sustainable ocean economy.

The Expert Group, a global group of over 70 experts, is tasked with helping to ensure the high quality and intellectual integrity of the Ocean Panel's work. All Blue Papers are subject to a rigorous and independent peer-review process. The arguments, findings and opportunities for action represent the views of the authors. The launches of these papers, which are taking place between November 2019 and October 2020, create opportunities for exchange and dialogue between political leaders, policymakers, the financial community, business leaders, the scientific community and civil society.

The COVID-19 pandemic has revealed many things about well-being, as social distancing and travel restrictions have reconfigured how we relate to other people and with nature, and our sense of what is important for a good and meaningful life. This reconfiguration has also affected the ocean sector, further highlighting that diverse and complex human-ocean relationships go far beyond the provision of economic goods and services.

We are delighted to share the latest in the Blue Paper series, 'The Human Relationship with our Ocean Planet', which identifies means we can use to ensure that a sustainable ocean economy is inclusive of the diverse range of human-ocean relationships. This paper suggests that governing the ocean is a collective responsibility of humanity and can only be achieved by ensuring that all those who closely interact with it are included in decisions regarding its future governance. It not only unpacks which relationships with the ocean contribute to human well-being but also provides a set of actions to be taken to support and enhance those relationships for the benefit of current and future generations through the achievement of a sustainable ocean economy.

As co-chairs of the Expert Group, we are excited to share this paper and wish to warmly thank the authors, the reviewers and the Secretariat for supporting this research. We are also grateful for the vision of the Ocean Panel members in commissioning this important body of work. We hope they and other parties act on the opportunities identified in this paper.

Hon. Jane Lubchenco, Ph.D.
Oregon State University

Professor Peter Haugan, Ph.D.
Institute of Marine Research, Norway

Hon. Mari Elka Pangestu, Ph.D.
University of Indonesia

Highlights

- The human relationship with the ocean is diverse and complex. It is built on values that are often non-monetary, and which contribute to non-material dimensions of well-being. These values are essential to broader human flourishing. They include contributions to cultural and social and legal identity; a sense of place; occupational pride and self-respect; spirituality; mental and bodily health; and human security. The plurality of these values and interests matters to individuals and societies and could be more strongly represented in high-level ocean policy discussions.

- A sustainable ocean economy must be built on these diverse relationships, in ways that encourage equity and inclusion and that recognise the non-material aspects of well-being.

- How we govern the ocean will determine who accesses and benefits from the ocean space. A heavily privatised, zoned and securitised ocean undermines the human-ocean relationship. Building upon existing institutional foundations, ones that provide livelihoods and well-being benefits to all citizens, will foster a more constructive long-term engagement with the ocean.

- There is no sole human relationship with the ocean with which all people will identify: each individual has different interests, experiences, economic stakes, emotional investments and cultural and social ties to different aspects of the ocean. To increase the ocean's contribution to both material and non-material well-being globally, we need to build a sustainable ocean economy based on this plurality of values.

- This paper identifies and focuses on the relationships with the ocean that contribute to human well-being. In doing so, it outlines these relationships in new ways and identifies the means to ensure that the plurality of 'ocean values' is represented in processes of planning and implementing a sustainable ocean economy.

- The paper suggests five key actions to assist states and international organisations in supporting and improving humanity's diverse relationships with the ocean by fostering participatory democratic governance: (1) humanise the new ocean narrative by focusing economic development on the objective of increasing human well-being; (2) foster diversity and inclusion in the sustainable ocean economy; (3) engage in partnerships with a broad constituency of ocean supporters, including small-scale fisherfolk, community elders and next-generation social and environmental activists, Indigenous Peoples, and women who work in the maritime economy and who steward marine environments; (4) build the capacity of meso-level institutions below the level of the national government and above the level of the individual citizen-consumer; and (5) ensure that responses to COVID-19 consider the well-being of ocean-dependent people and economic sectors.

- Governing the ocean is a 'collective responsibility of humanity' and can only be achieved by ensuring that those who have lived in, worked on and stewarded coastal and continental waters for centuries or millennia—prominent among them small-scale fisherfolk—are included in decisions on its future governance. These 'ocean citizens' and the institutions they have forged are pivotal to achieving a sustainable ocean economy. As such, maintaining ocean health and maintaining ocean access should be the dual aims of governing the future ocean.

1. Introduction

People across the world have diverse economic, socio-legal, institutional, social and cultural relationships with the ocean—both its littoral zones and the open sea spaces through which people have traditionally navigated, migrated, fished, traded, played and sought solace, spiritual enlightenment, adventure, material enrichment, social identity, cultural expression, artistic inspiration or good health. These relationships are reflected in formal and informal institutions (polices, laws, social norms) that regulate many of these activities, including those that regulate access to resources. These institutions represent a series of prior claims and rights to the use and enjoyment of the ocean by coastal and maritime societies.

By taking account of the range of ways coastal and maritime societies use, enjoy and govern coastal seas and ocean basins, we are better placed to design a sustainable ocean economy that is fair and equitable and that reflects 'the future we want' (UNCSD 2012). This paper argues that policymakers should consider the full range of human relationships with the ocean. The economic investment strategies and governance actions envisaged in contemporary ocean policy and planning can transform those relationships (Swilling et al. 2020) and will thus change the nature and distributions of the values that humanity derives from its interactions with the oceanic realm.

How can humanity's diverse relationships with the ocean be supported to flourish in the future, so that the ocean can make sustainable contributions to human well-being? This is the overarching policy question to which this paper responds. Policy research has made significant advances in assessing the ocean's ability to generate economic goods and services (e.g. OECD 2016). The complementary perspectives presented here aim to draw attention to the wider role that the ocean has played—and will continue to play—in sustaining and reproducing other human values such as social and cultural identity, individual and collective well-being, sense of place and belonging, and human emotions such as curiosity, spirituality, awe and a sense of adventure.

> Just as the sea is an open and ever flowing reality, so should our oceanic identity transcend all forms of insularity, to become one that is openly searching, inventive, and welcoming.
>
> —Epeli Hau'ofa (2008)

From a brief survey of the past and current range of human relationships with the ocean and how they contribute to human well-being, and by examining the economic and policy implications of these relationships, we will argue that a sustainable ocean economy can contribute not only to the sustainable and equitable growth of economic goods and services but also to human well-being and flourishing more generally. Thus, the ocean can play a catalytic role in the next phase of human development, enhancing human capabilities and freedoms (Sen 1999, 2001), and thereby contribute to meeting the UN Sustainable Development Goals (SDGs) (Singh et al. 2018; Nash et al. 2020).

It is not our intent here to document every way that people and the ocean interact, for good or ill. Other papers in this series examine in detail how we might sustain and grow marine food production (Costello et al. 2019); how climate change has impacted the ocean and how humanity may respond (Gaines et al. 2019); how we might better deal with human rights violations and other criminal activities and inequities at sea (Widjaja et al. 2019; Österblom et al. 2020); how pollution threatens the ocean and how we might control it better (Jambeck et al. 2020); what opportunities exist to improve the financing (Sumaila et al. 2020) and governance (Swilling et al.

2020; Winther et al. 2020) of the ocean economy, and so on. These issues and solution pathways all impact the plurality of people-ocean relationships and may undermine some and enhance others, in part depending on how they affect existing ocean-related economic inequalities (Österblom et al. 2020). Our point here is that the relational and subjective elements of people-ocean relationships have not yet been fully articulated in policy arenas and are therefore not yet fully considered in plans to respond to these ocean threats or to seize ocean economic and conservation opportunities.

Drawing on brief overviews of representative social and legal institutions that have developed in different maritime societies, we identify how different societies have governed oceanic spaces and volumes and how these governance mechanisms reflect the diversity of 'ocean values' held by different peoples. We use these overviews of the diversity of human relationships with the ocean, the examples of historically and culturally grounded sea tenure arrangements, and contemporary policy debates around the 'blue economy' (Voyer et al. 2018), 'blue justice' (Bennett et al. 2019) and 'blue degrowth' (Ertör and Hadjimichael 2020), to identify a series of opportunities for action to build a sustainable ocean economy and a future human relationship with the ocean that reflects the breadth and plurality of world views and values of current and future ocean citizens, and that acknowledges the diversity of social identities of the people for whom the ocean matters.

At the time of this writing, the world was reeling from the impacts of the COVID-19 pandemic, which, by 16 August 2020, had infected around 21.3 million people and resulted in 761,779 deaths (WHO 2020a). We felt it necessary to consider how relationships between people and the ocean may be affected by the public health measures taken to slow the spread of the virus and the economic and social consequences of both the disease itself and measures taken to contain it. Accordingly, we briefly consider what is known about impacts on the maritime economy and on human-ocean relationships.

It also cannot be overlooked that humanity is embarking on an ocean governance transformation at a time when action on climate change is critical. The ocean offers many opportunities to reduce greenhouse gas emissions and increase carbon capture and storage (Hoegh-Guldberg et al. 2019). Ocean-related climate change impacts are likely to exacerbate existing inequalities within coastal communities, with vulnerable populations being those living in low-lying areas of the tropics, on small oceanic islands and in the Arctic, as well as those whose livelihoods are tied to fisheries affected by global environmental change (Adger et al. 2005; Barbier 2015). Most sectors of the ocean economy will be negatively impacted by climate change, and tele-connected climate and economic processes mean that oceanic changes also have impacts inland (Allison and Bassett 2015). Investments in building adaptive capacity in ways that respond to different peoples' values will be required, and these should be kept in mind when considering how the human relationship with the ocean is understood, assessed and governed.

1.1 Conceptual Development

This paper draws on multiple disciplines, theories and conceptual frameworks, reflecting the wide scope of the paper's subject and the wide range of the authors' disciplinary backgrounds. Grounded largely in human, cultural and economic geography, economic history, economic and legal anthropology and political ecology, the paper also includes contributions from critical literary studies, rural sociology, psychology, Indigenous studies and development studies, as well as fisheries science and conservation biology.

The way the ocean is being studied and thought about is changing, with a 'new thalassology'[1] emergent that draws on cross-cultural world histories to examine ocean basins from a human historical perspective (e.g. Paine 2013). This has particularly enriched the study of the Mediterranean and Indian Ocean regions (Horden and Purcell 2006; Vink 2007). Earlier foundational work on oceanic trade, from the perspective of historical economic anthropology, concerns itself with studies of mercantilism and colonisation and its continuing societal impacts (Curtin 1984). This scholarship is expanding into a more socially differentiated research agenda, teaching us more about how gender, class, ethnicity, race and colonial history—and their intersections—have shaped the experiences and either constrained or enhanced the possibilities of different people's encounters with the ocean (e.g. Amrith 2013; Caterall and Campbell 2012; McKay 2007).

The recent 'blue turn' in human and cultural geography (Peters and Anderson 2016) has brought the analysis of human-nature spatial relations into the oceanic realm, informing the emergent interest in marine spatial planning (Fairbanks et al. 2019) but also explaining why the realities of ocean space—its fluidity, its fourth dimension (volume) and the challenges in identifying fixed boundaries—are important determinants of our maritime imaginings and our practical ability to govern the ocean (Steinberg and Peters 2015). The arts and humanities have gone blue, too, with an immersion into how the ocean has shaped our history, science, languages, aesthetics and sensibilities (Mentz 2009; Guo-jun 2013; Mack 2013; Alaimo 2019). More broadly, recent influential dialogues in the humanities and social sciences have also disrupted binary distinctions between the categories of nature and culture, generating new possibilities for living in the 'Anthropocene' (Tsing et al. 2017).

We also note a flourishing of scholarship on and policy attention to the question of Indigeneity and Indigenous knowledges in what heralds an 'indigenous resurgence' (Alfred 2009; Corntassel 2012). Some of this analysis and activism for 'decolonisation' is focused on the interactions of Indigenous and colonised peoples with the ocean (e.g. Hau'ofa 1994; von der Porten et al. 2019). Parallel to this we see a growing interest in the legal pluralism that affects coastal and oceanic regions (Bavinck and Gupta 2014).

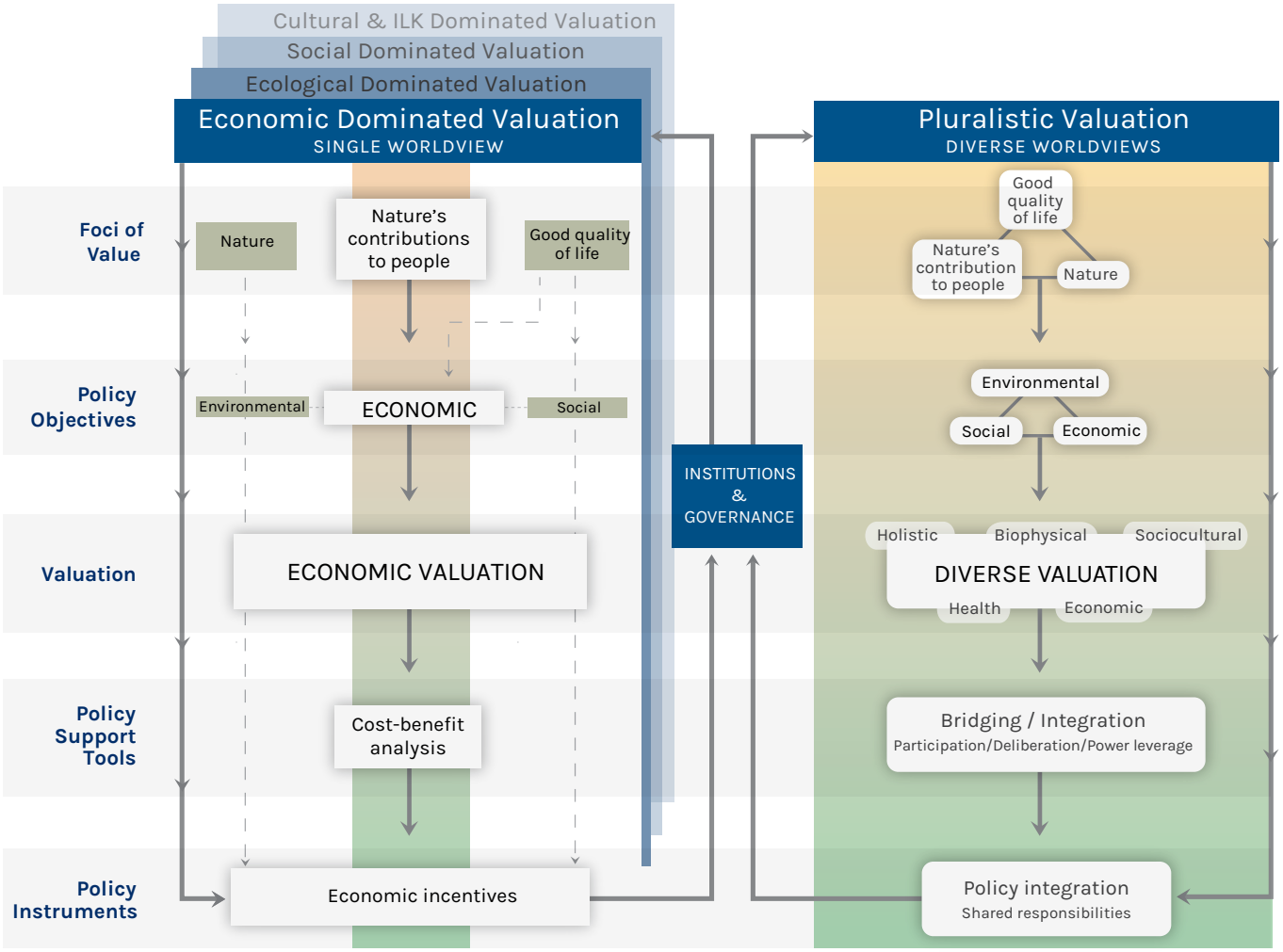
We see an opportunity to bring all this vigorous and exciting intellectual and political endeavour to bear in discussing the economic development and governance of the future ocean in high-level and intergovernmental and governmental forums.

Drawing on a range of disciplines beyond economics to address the issue of ocean futures highlights a range of values beyond monetary or market ones. It allows the exploration of human relationships with the ocean in terms of what people value about it and their societies' interactions with it, and what motivates their actions with respect to future ocean governance. This shift from thinking about (economic) value to thinking about human values more broadly is in part informed by cross-cultural studies in psychology (e.g. Schwartz 2012) which examine individuals' motivations to act in ways that either oppose or embrace change, satisfy their own needs or the needs of others and of nature. These ideas have had few direct applications in ocean decision-making to date (e.g. Slimak and Deitz 2006; Bidwell 2017) but are likely to become more important as public attention turns towards the ocean and concepts such as the 'social license to operate' (Voyer and van Leeuwen 2019) inform decision-making on what kind of oceanic economic activities different societies will support or oppose.

This shift in thinking also responds to calls from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to develop further the concept of 'ecosystem services' so that plural world views, values and knowledges can be better recognised in assessments of nature's contributions to people (and indeed people's contributions to non-human nature), alongside scientific and economic assessments (Figures 1a, b, c; Pascual et al. 2017).

Here we adopt a pluralistic valuation approach (Figure 1a), drawing on multiple world views, knowledges and values. Our focus is on anthropocentric values, as we are concerned with the human relationship with the ocean, rather than intrinsic values (Figure 1b). We include instrumental values (see Section 2.2, Table 1), but our focus is on relational and subjective values (Figure 1b, orange shading), which we further unpack using a social well-being framework (see Section 1.2). Our purpose is to raise awareness of the diversity, range and nature of the ocean's contributions to people (Figure 1c, step 1). Our analysis highlights differing world views and types of value (Figure 1c, step 2), we draw on a range of disciplines, methods and knowledge systems and we highlight and discuss (but do not fully assess) key potential trade-offs among types of values and power relations among holders of values (Figure 1c, step 3). We begin the process of integrating and bridging Indigenous and local knowledge, the arts, humanities, social sciences, policy and management sciences and natural sciences (Figure 1c, step 4) to communicate the range and nature of ocean values that contribute to human well-being in all its dimensions (Figure 1c, step 5). We recognise that much work remains to be done on enumerating and identifying these values and their ranges in specific local, national and regional contexts.

Figure 1a. Contrasting Approaches to the Process of Valuation

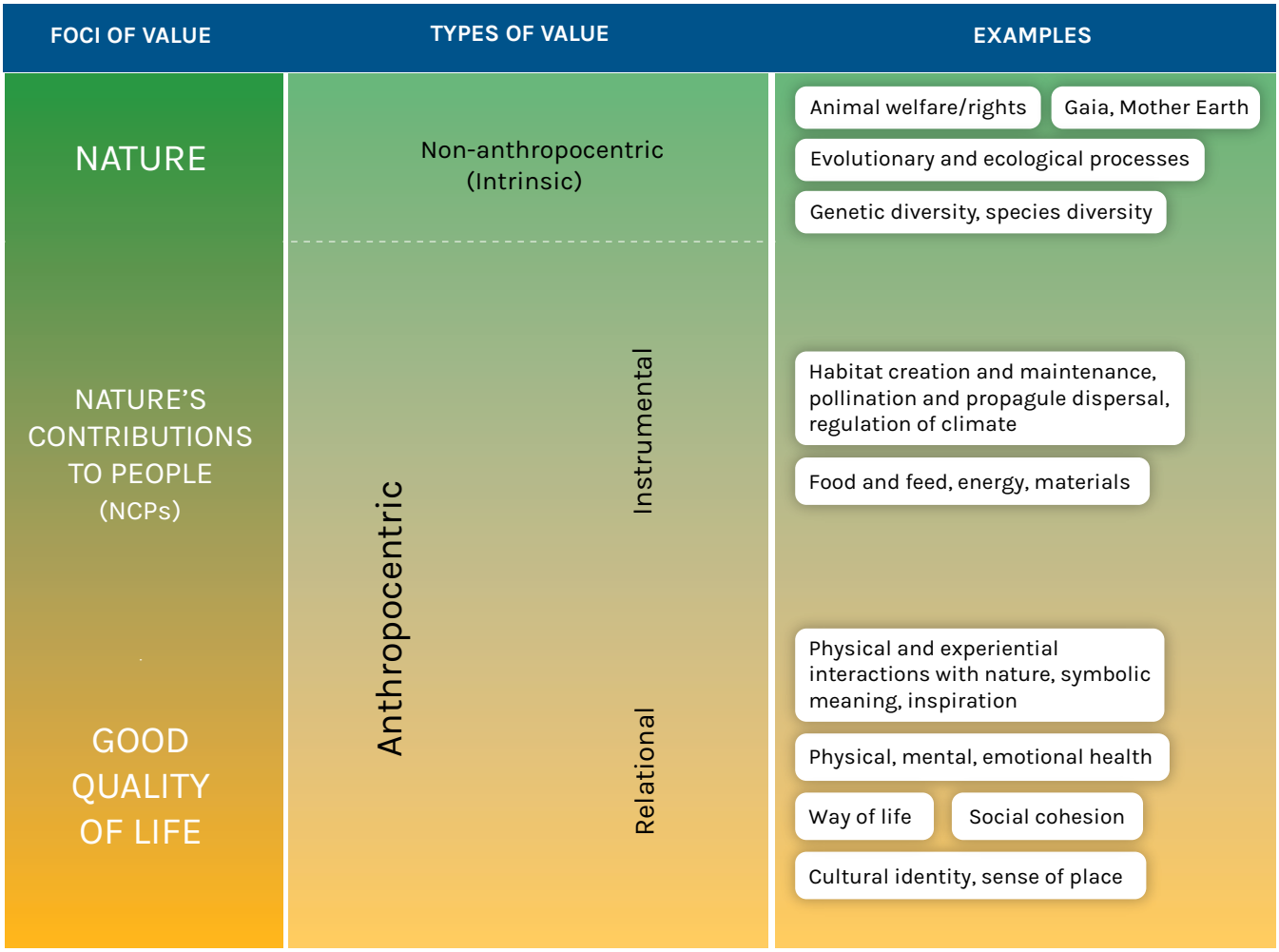


Notes: The panel on the right emphasises the importance of a pluralistic valuation approach, compared with value monism or unidimensional valuation approaches to human–nature relationships represented in the panel on the left. The pluralistic approach is adopted in this paper.

ILK = Indigenous and local knowledge.

Source: Redrawn from Pascual et al. 2017, for IBPES.

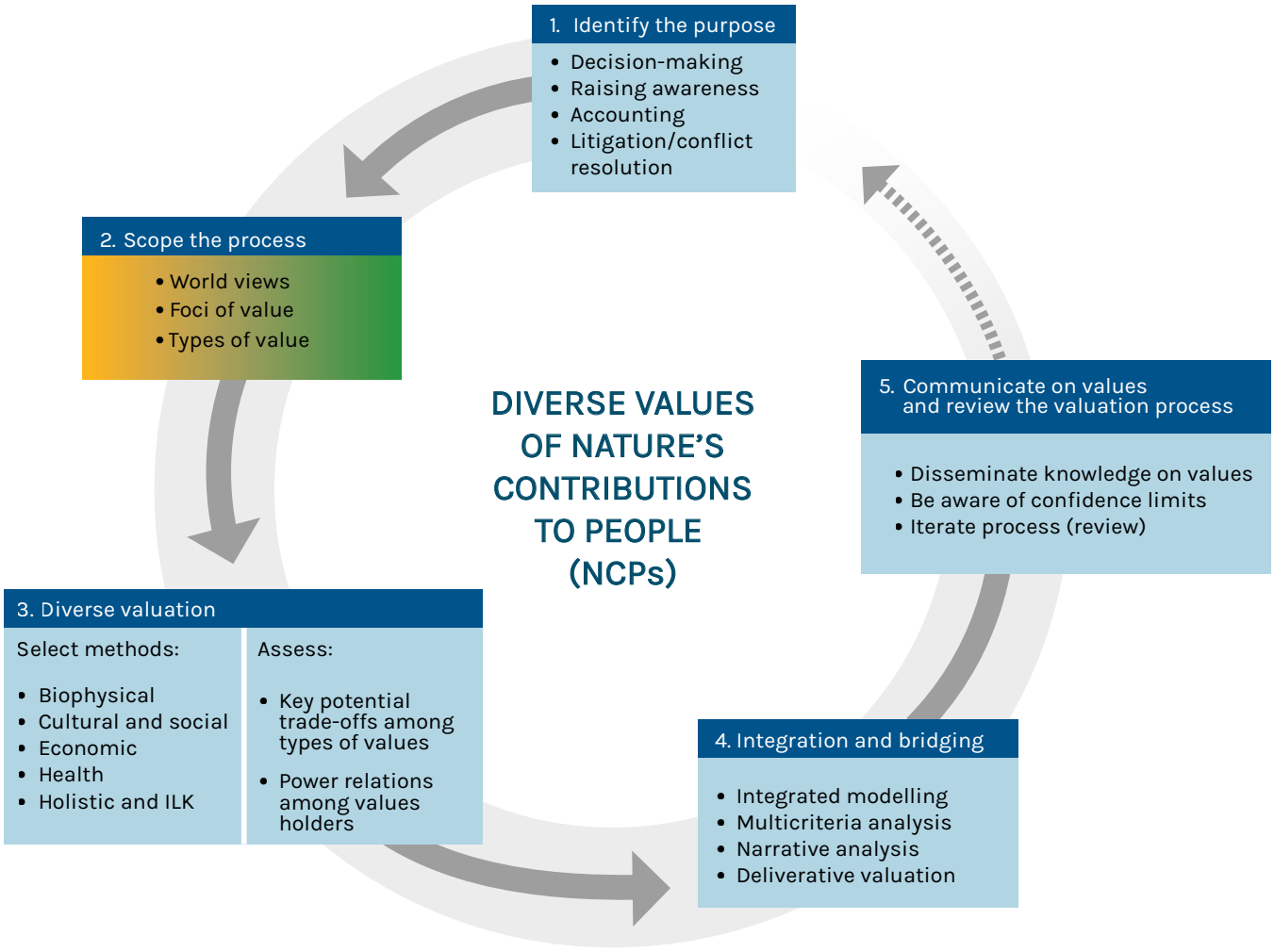
Figure 1b. Diverse Values Related to Nature, Nature's Contributions to People and a Good Quality of Life



Note: The grading in the colours indicates that both instrumental and relational values can be ascribed to the value of NCPs, and to highlight that NCPs are intertwined with nature and a good quality of life. In this paper, we emphasise the anthropocentric relational values.

Source: Redrawn from Pascual et al. 2017, for IPBES.

Figure 1c. The IPBES Approach for Assessing Values and Conducting Valuation



Notes: Orange and green colours in step 2 indicate that the scoping applies to methods for both valuation and integrating or bridging diverse values (steps 3 and 4).

ILK = Indigenous and local knowledge.

Source: Redrawn from Pascual et al. 2017, for IPBES.

1.2 Methodology

We use a social well-being framework (Figure 2) to weave together the multiple strands of inter- and trans-disciplinary scholarship outlined in Section 1.1. A key point of origin for the concept of well-being in an economic development context lies in the work of Amartya Sen. Well-being represents a broadening of welfare economics and a further development of Sen's 'capabilities approach' (Sen and Nussbaum 1993). The material dimensions of well-being (adequate food, health, shelter, income) have been the focus of much economic policy, but it is now well known from work on the 'economics of happiness' that material wealth alone does not deliver improvements in human well-being once basic material needs are satisfied (Kahneman and Krueger 2006; Kahneman et al. 2006). This implies a need to consider how to avoid an overly narrow focus on the generation of material wealth from the ocean and thereby risking trading off ocean contributions to the other dimensions of well-being in societies.

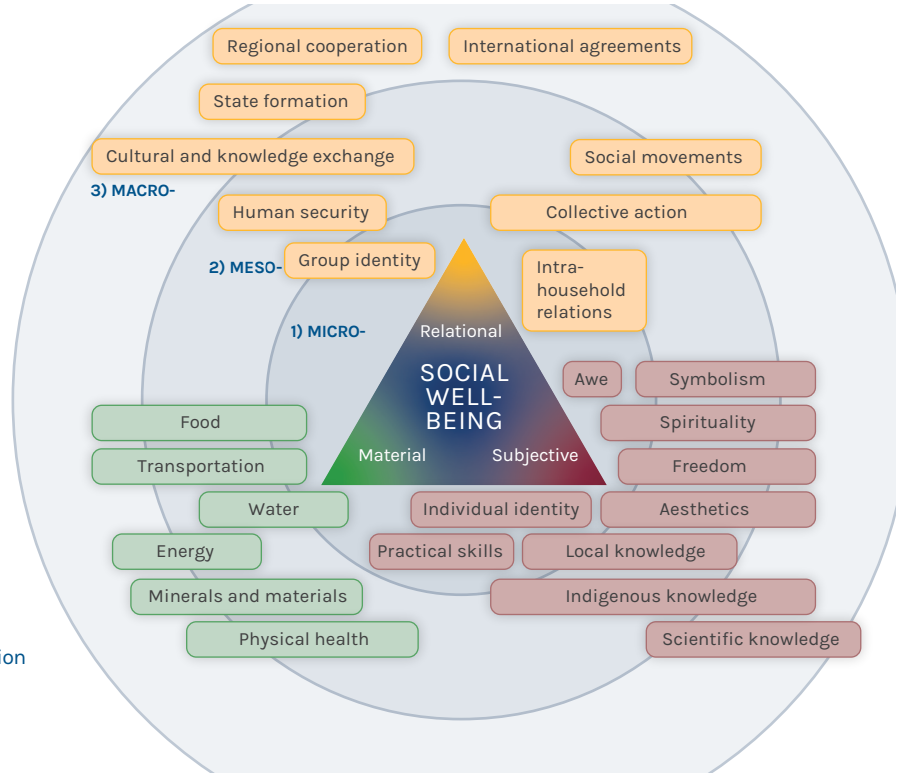
A sense of belonging, having social status, good social relations and a sense of personal fulfilment are key contributors to human well-being. To elucidate the concepts, the framework we have chosen here is the three-dimensional social well-being framework widely applied in the field of international development (e.g. White 2010) and in the study of small-scale fisheries (e.g. Weeratunge et al. 2014; Johnson et al. 2018). It has mostly been applied at the individual, household and community level, while here we extend the concepts to include higher levels of political, social and economic organisation (Figure 2). In doing so, we build on the Millennium Ecosystem Assessment (MEA) and its coupling of 'ecosystem services' with 'human well-being' (Leemans and de Groot 2003).

Figure 2. Framework to Identify Human Relationships with the Ocean

1) Micro-
Individual
Household
Small to medium enterprise

2) Meso-
Community
Municipality
District
Civil society organization
Habitat
Local commons
Local knowledge

3) Macro-
Global Ocean
Ocean basin
Regional Sea
Nation State
Archipelago
Global/regional commons
Big International non-governmental organization
Intergovernmental organizations
Scientific knowledge
Global and Regional Trade



Note: Scales at which these relationships take place range from the micro (individual, community, local place or small enterprise) to the macro (nation, citizenry, region, ocean basin or whole ocean, large domestic or multinational firm).

Source: Modified from Weeratunge et al. 2014.

The ecosystem services concept acknowledges and values non-monetary human uses of nature, including 'cultural ecosystem services'. We extend the MEA's conceptualisation of human well-being by further unpacking its multiple dimensions. Responding to perspectives from Indigenous Peoples, we also adopt the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) language of 'nature's contribution to people' (Díaz et al. 2018) to reinforce the shift towards considering multiple value systems in human-relationships on an equal footing, rather than using economic values as the benchmark against which to compare all others (see Figure 1 and Section 1.1). The intent here is not to replace economic valuation and ocean accounting as tools for ocean governance but to draw attention to other values, so that they may, in the future, also be fully accounted for. We therefore refer to a plurality of 'values' but we make no attempt to convert them to a universal monetary equivalent value.

The High Level Panel for a Sustainable Ocean Economy acknowledges that no one-size-fits-all solution is appropriate for the ocean. A similar case for a diversity of solutions to fisheries governance problems has also been made (Young et al. 2018). People with an interest in the ocean include those in traditional maritime occupations such as merchant seamen and fisherfolk, workers in newer offshore economies such as the energy sector, coastal Indigenous Peoples, seaside residents and tourists, the cosmopolitan populations of port cities, and seafood consumers everywhere. A common vision for the relationship between humanity and the ocean must be broad enough to accommodate this diversity of interests. It must also be democratic enough to include the interests of those who have little influence on global economic systems, state and intergovernmental policies or global ocean science. This paper brings some of those voices to the surface.

After considering the variety of relationships humanity has with the ocean from a well-being perspective (Section 2), we identify some examples from the huge variety of existing, remnant or (re)nascent regional and local governing systems (Section 3) that have evolved in response to this diversity of ocean values. We then turn to how a more beneficial and sustainable human relationship with the ocean can be pursued by building on these values and institutions, to develop a global commitment to a sustainable ocean economy and future (Section 4).

2. Human Relationships with the Ocean and Their Contributions to Well-Being

2.1 The Ocean Economy and Its Acceleration

The 'blue economy'—a term that has emerged in the past decade—attempts to embrace the opportunities associated with the ocean, whilst recognising, accounting for and addressing the threats posed by such an economy. It is essentially the ocean equivalent of the 'green economy'—a vision for a decarbonised, regenerative and more equitable economic system. The 'blue economy' gained prominence at the 2012 UN Convention on Sustainable Development (UNCSD), or Rio+20 conference, when small island developing states began emphasising the importance of the ocean and marine economy in response to land-focused calls for a 'green economy' (Silver et al. 2015; Dornan et al. 2018). Since then use of the term has become increasingly common (Mulazzani and Malorgio 2017), although the narratives surrounding the blue economy diverge considerably across different actors (Voyer et al. 2018). Strategies for implementing the blue economy vary enormously across jurisdictions and organisations. Despite this, they commonly focus on encouraging private sector development of the ocean using innovation and investment strategies, supported by macro-level calculations and projections of the current and future 'worth' of maritime industries to global markets (Hadjimichael 2018).

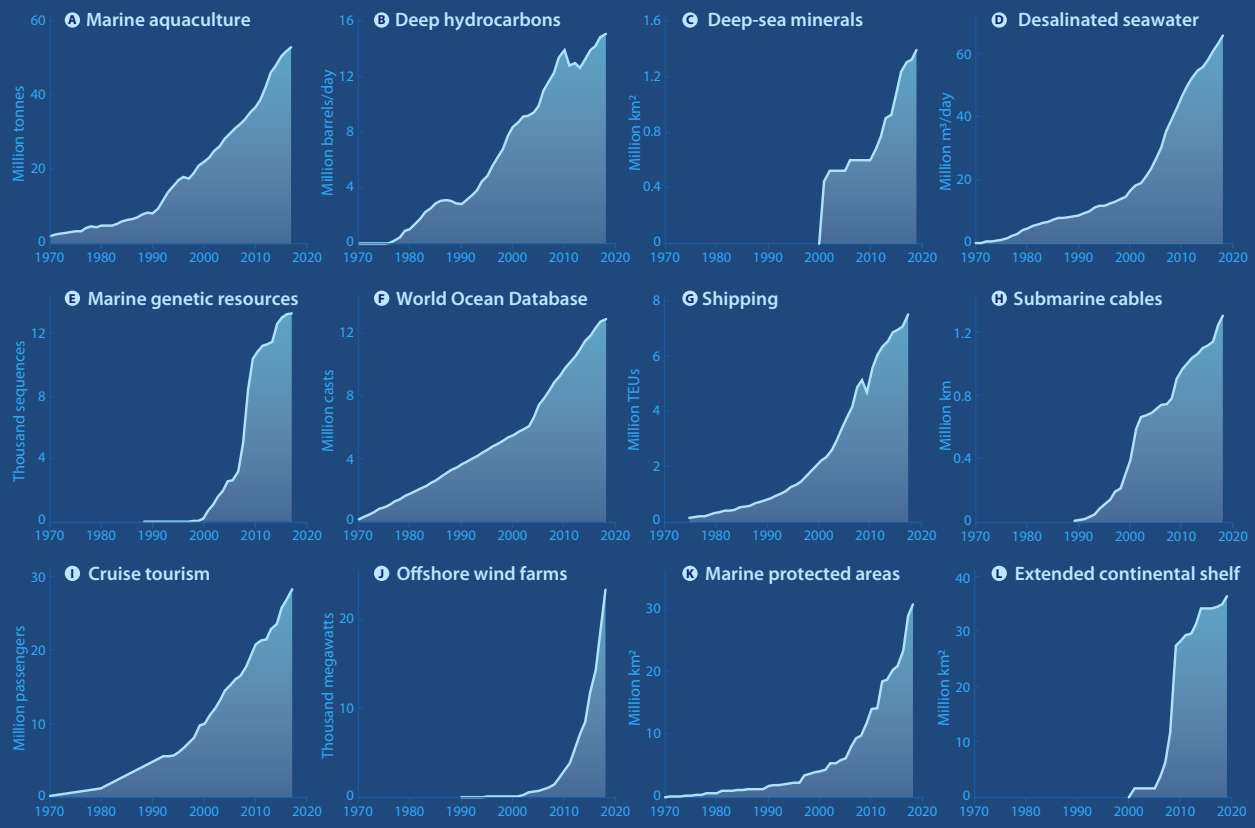
It is clear that the ocean is entering a new phase of large-scale industrialisation (Box 1). This creates challenges for ocean governance in how to manage the increasingly private use of what has traditionally been considered a common pool resource (Arbo et al. 2018; Hadjimichael 2018). A key question for the blue economy is how to manage this acceleration without also accelerating unintended societal costs (Arbo et al. 2018; Kooiman et al. 2005; Jentoft et al. 2010; Alongi et al. 2015). This requires active consideration of questions of power and marginalisation, agency and values (Ratner 2004). Without adequate and integrated consideration of social and cultural objectives, the blue economy may become a tool for 'ocean grabbing' and marginalisation and dispossession of traditional cultural, recreational and small-scale commercial uses and users (Bennett et al. 2015; Hadjimichael 2018). Adopting a well-being perspective and emphasising the achievement of SDGs can help ensure that this does not happen.

The cumulative process of marginalisation can often be unintended, incremental and hidden. For example, as our coasts and shorelines are increasingly enclosed and developed for luxury residential and tourist uses, this 'coastal squeeze' (Cohen et al. 2019) reduces the operating space of those using the ocean and coastal commons. In particular, it marginalises small-scale fishers and lower-income recreational visitors to the coast, and confines them to less desirable, more polluted or industrialised and degraded sites. It thus risks reallocating the well-being benefits of the ocean—that common heritage of humankind—to the wealthy.

Whether we use the terms *blue economy*, *blue growth* or *sustainable ocean economy*, there is an urgent need to focus on equity—both currently and intergenerationally—as a crucial component of ocean development (Cisneros-Montemayor et al. 2019; Österblom et al. 2020). Mainstreaming and foregrounding equity within sustainability narratives will require active consideration of alternative and

Box 1. ‘Blue Acceleration’: The Urbanisation and Industrialisation of the Ocean

In the last 50 years, there has been rapid growth in new ocean industries such as mariculture, deep ocean drilling for hydrocarbons and minerals, desalinisation and offshore wind farms. Existing maritime communications, transport and tourism industries have expanded rapidly, as have the territorial claims and information needs around the ocean. Together, these have been described as a ‘blue acceleration’ (Jouffray et al. 2020). The impacts of this economic growth on ocean-dependent people and economies have not yet been assessed.



Note: Global trends in (A) marine aquaculture production; (B) deep offshore hydrocarbon production, including gas, crude oil and natural gas liquids below 125 m; (C) total area of seabed under mining contract in areas beyond national jurisdiction; (D) cumulative contracted seawater desalination capacity; (E) accumulated number of marine genetic sequences associated with a patent with international protection; (F) accumulated number of casts added to the World Ocean Database; (G) container port traffic measured in 20-foot equivalent units (TEUs); (H) total length of submarine fibre-optic cables; (I) number of cruise passengers; (J) cumulative offshore wind energy capacity installed; (K) total marine area protected; and (L) total area of claimed extended continental shelf.

Source: Redrawn from Jouffray et al. 2020, where further information on data sources can be found.

diverse visions for the future ocean economy. Some of these 'counter-narratives' are already being articulated and include steady-state economics (Daly 1991) and de-growth (Kallis 2011; Ertör and Hadjimichael 2020). These merit critical consideration alongside promising but less radical alternatives for future environmental sustainability, such as the circular economy, which calls for 'a new relationship with our goods and materials', emphasising a shift away from disposability and planned obsolescence towards durability and reuse (Stahel 2016). Other alternative visions, such as Indigenous ocean economies, likely exist, but uncovering and understanding them may require work with a diverse array of stakeholders.

Here we aim to ensure that any blue economy or future ocean economy vision considers the objectives of the ocean economy in social terms. An economy ultimately exists to support people's needs and aspirations. People's needs and aspirations are more than monetary, so it follows that the economy should be built upon broader values too. Here we suggest that economic policy consider social well-being as a way to identify and categorise human relationships with the sea.

2.2 Social Well-Being and How the Ocean Contributes to It

Economic activity in the ocean is growing rapidly (Box 1). If the upsurge in economic activity is to lead to an upsurge in human well-being, then its emergent and potential future impacts must be understood. In order to build that understanding, we must first 'unpack' the concept of well-being and identify the ways the ocean contributes to well-being in all its dimensions. It is these 'human relationships with the ocean' that we seek to characterise, drawing on the framework introduced in Section 1.2.

Ocean values and their contributions to human well-being at multiple levels are outlined in Tables 1–3, with the material (Table 1), relational (Table 2) and subjective (Table 3) dimensions outlined. These tables provide explanation and examples of the concepts outlined in the methodology (Figure 2). Although we include an outline of ocean contributions to material well-being (Table 1), the focus of this paper is on the ocean's contribution to relational and subjective dimensions of well-being (Tables 2 and 3). Other Blue Papers focus mostly on the material dimensions of well-being when they connect to human values. However, human well-being is only achieved if attention is paid to all three dimensions. Different individuals and cultures ascribe different levels of priority to these values, but no society discounts them entirely.

Subjective well-being has entered national economic policy as measures of economic and social performance (Stiglitz et al. 2018), also popularly known as the 'economics of happiness' (Easterlin 2001; Clark 2018). The material, relational and subjective dimensions of well-being are, however, interconnected or 'co-constitutive' (White 2017), and, like all such classifications, the boundaries between categories are porous. For example, seafood provides for material needs for nutrients, protein, energy, income and profit, particularly in maritime South and Southeast Asia, coastal West Africa and the Pacific islands. But it also contributes to relational and subjective well-being through association with religious observance (e.g. fish at Easter in Catholic societies in South America), status (e.g. seafood banquets in Chinese culture) and feelings of connection to place (e.g. the importance of wild salmon to both Native/First Nation and settler coastal populations in the U.S. and Canadian Pacific Northwest). Note also that most well-being classifications are made at a single scale (e.g. the individual, household or nation-state) while here we consider multiple scales. This classification is therefore schematic and each dimension and scale is illustrated by a small number of examples only, due to considerations of space.

The aim here is to establish a new conceptual framework that links ocean services or benefits to human well-being in ways that account for the plurality of human values. Note that ocean services or benefits described here extend beyond ocean *ecosystem* services. An ecosystem services approach values only some of what the ocean contributes to human well-being. Many of the ocean's contributions are not directly related to its ecology but instead relate to the ocean as a space—both material (having area, volume and fluidity) and non-material (as a place of consciousness and imagination). These distinctions and their importance will become clear through examination of the processes and examples in Tables 1–3.

Table 1. Ocean Contributes to Material Dimensions of Well-Being

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISM OR RATIONALE	EXAMPLES OF CONTRIBUTIONS
Food	Seafood is rich in essential micro-nutrients and a key component of the human diet, particularly for coastal and island societies. Healthy diets reduce risks of non-communicable diseases such as cancer, diabetes and poor heart health (Golden et al. 2016; Hicks et al. 2019).	Calls for a global transition to sustainable food systems include increasing seafood consumption and decreasing that of land-based meats (Willett et al. 2019). The ocean offers great potential for improved food productivity, particularly from aquaculture of low tropic-level species such as bivalve shellfish (Costello et al. 2019).
Water	Freshwater supplies are becoming limited in some parts of the world as groundwater is depleted and surface water intensively used or contaminated. Large-scale desalinisation is a potential solution (Elimelech and Phillip 2011).	Large-scale desalinisation provides an increasing contribution to freshwater needs of coastal and small island states in dry areas: 48 percent of the world's 95 million m3 daily production for human use is in the Middle East and North Africa region. The large volume of brine produced as a result is an environmental concern (Jones et al. 2019).
Energy	Clean sustainable energy sources are needed to decarbonise the economy and, more generally, to help decouple economic growth from increasing demand for environmental goods and services (Sachs et al. 2019). The ocean provides a range of opportunities for generating energy from clean and renewable sources.	Wind energy has traditionally been used for voyaging at sea but is now increasingly used to generate electricity for land-based human activities through offshore wind farms (Esteban and Leary 2012). Where land for solar panels is limited, ocean-based solar power is an option (Sahu et al. 2016), and there is increasing interest in using tidal, current and wave energy (Khan et al. 2017; Weiss et al. 2018). Sub-sea fossil-fuel reserves provide about a third of the world's current oil and gas and remain a target for exploration and exploitation, with 42 percent of the estimated undiscovered oil and gas reserves being offshore (Narula 2019). Macroalgae are potential sources of marine bioenergy (Ghadiryanfar et al. 2016).
Materials and minerals	Human societies use a wide range of non-food materials to sustain and improve quality of life and for building homes and infrastructure. Minerals are used in a wide range of industries and commodities. These include rare earth minerals needed for a transition to a renewable energy economy (Takaya et al. 2018). The ocean is seen as an underutilised source of raw materials for contemporary societies.	The ocean's calcified organisms, such as corals and molluscs, have long been a source of building materials; lime and 'coral rag' have been used to construct Mayan and Swahili cities, for example (Russell and Dahlin 2007; Fleisher et al. 2015), and are still in use today in places such as East Africa (Dulvy et al. 1995) and Indonesia (Caras and Pasternak 2009). Deep-sea mining for rare earth minerals receives a lot of policy attention (Carver et al. 2020), but much more significant, in both economic and environmental terms at present, is coastal and shelf-sea gravel extraction to meet the construction demands of rapidly urbanising and industrialising nations that are investing heavily in infrastructure development (Peduzzi 2014).

Table 1. Ocean Contributes to Material Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISM OR RATIONALE	EXAMPLES OF CONTRIBUTIONS
Transportation of people and goods	The ocean provides a key means of transporting goods and people. Trade and human mobility are seen as necessary to sustain our current economic system—one that has lifted billions of people out of poverty, despite its shortcomings in addressing inequality. Containerisation of goods has greatly reduced the cost and improved the reliability of sea transport (Notteboom and Rodrigue 2008).	Maritime transport enabled the generation and accumulation of capital through state-sponsored trading firms like the British and Dutch East India Companies. Mercantilism provided one of the foundations of modern economies but also began the process of resource exploitation and colonisation (Wallerstein 2011). The sea has enabled the conversion of natural resources to wealth by bringing labour to exploit the resources: the migrations of Europeans to settler colonies in the Americas, Oceania and South Africa, and the involuntary migrations of enslaved Africans, are the best-known (Gillis 2012), but there are others: between 1840 and 1940, 25 million Indians migrated to Ceylon (Sri Lanka), Malaya and Burma, with others moving to Indonesia and Indochina (Amrith 2013, 62).
Income, business profits and resource rents	Shipping and fishing have long been contributors to generating wealth and jobs and supporting livelihoods in coastal and island economies. Licenses and taxes of these maritime activities have helped finance governments. The blue economy embodies a set of principles to guide the next phase of maritime economic development for human well-being.	Income, livelihoods, profits and resource rents (access and license fees, tax revenues) are generated by jobs and investments in established maritime industries such as fishing, shipping, oil and gas extraction, military and security forces, coastal and marine tourism, as well as emergent ones such as offshore renewable energy, mariculture, deep-sea mining and bioprospecting (OECD 2016).
Physical health	A healthy population is the basis for a productive workforce and economy. The ocean contributes to health through three main pathways: (1) as source of healthy food (see above); (2) as a source of pharmaceutical compounds for the prevention and treatment of disease; and (3) as an arena to enjoy outdoor physical activity.	The ocean has provided anti-cancer drugs and other medically useful biocompounds that contribute to human health. Coordinated plans for bioprospecting and pharmaceuticals development are underway in India (Malve 2016) and Europe (PharmSea, a program discussed in Jaspars et al. 2016). People's interactions with a healthy ocean—as tourists, recreationalists, retirees and incomers to coastal communities—have measurable benefits to their health, with the seaside sometimes referred to as a 'therapeutic landscape' (Finlay et al. 2015) or a 'blue gym' (Depledge and Bird 2009).
A physical and biological environment conducive to human flourishing	Coastal ecosystems provide services to humanity which are not easily included in monetary-based decisions, such as coastal stabilisation, regulation of coastal water quality, biodiversity conservation, spawning habitats, carbon sinks, dilution of pollution and buffering of changes in biogeochemical cycles (Baker et al. 2019).	A healthy ocean is critical to stabilising the global climate. Ocean-based mitigation options could reduce global greenhouse gas emissions by nearly 4 billion tonnes of CO2 equivalents per year in 2030 and by more than 11 billion tonnes per year in 2050, relative to projected business-as-usual emissions. The five main options for doing so are in ocean-based renewable energy, ocean-based transport, coastal and marine ecosystems, shifting human diets towards food from the ocean while improving fisheries and aquaculture, and carbon storage in the seabed (Hoegh-Guldberg et al. 2019).

Table 2. Ocean Contribution to Relational Dimensions of Well-Being

The ocean does not divide us, it connects us.

—Pacific island aphorism that has become a contemporary cultural meme

CONTRIBUTION TO HUMANWELL-BEING	MECHANISM OR RATIONALE	EXAMPLES
Cultural and knowledge- exchange	The ocean has played a key role in sustaining the flow of knowledge and social and cultural exchange among societies and countries. Sea-voyaging, exploration and coastal trade and population interchange have provided key pathways for such exchanges. Before the rapid growth of air travel and the internet in the late 20th century, ships were the most important tool of globalisation (Frykman et al. 2013). Port cities, receiving and sending ships to different destinations, were and are sites of cosmopolitanism and multi- or polyculturalism, of coastal and maritime trading societies that have been and could once again be a foundation for efforts at improved labour force diversity and inclusion, regional and global cooperation, the building of a shared ocean vision and a reinvigorated multilateralism.	Coastal trade gave rise to distinctive seaboard civilisations in the Red Sea, Arabian Sea and Bay of Bengal. These societies began to connect, some 5,000 to 3,000 years ago, when traders learned to use the monsoon to trade across the ocean rather than along coasts (Gillis 2012). These movements of people created relationships and exchanges of ideas and languages as well as goods and services. Religions spread along coasts more readily than between inland civilisations, and local and universal religions blended to create distinct cultures like the Swahili of coastal East Africa (Fleischer et al. 2015). Mediterranean port cities have frequently been described as 'cosmopolitan', with their merchants and populations being diverse, tolerant, multilingual and outward-looking, in contrast to land-based elites in the nation-states in which they were located. While such generalisations bear closer critical scrutiny, cities such as Izmir, Alexandria and Trieste flourished, to some degree, as centres of cultural and intellectual as well as material exchange—functions that port cities may still play, despite increasing physical separation of ports from downtown cities, under containerisation (Driessen 2005).
International agreements	Because of the fluid and interconnected nature of the ocean, and because areas beyond natural jurisdiction are both the 'common goods of humanity' and the 'collective responsibility of humanity', the ocean has played a prominent role in building the system of international law—particularly environmental law—needed to sustain humanity in the long term.	Small island developing states have led advocacy for strong climate action, notably through the Alliance of Small Island States (AOSIS), and were a key group in negotiations leading up to the Paris Agreement on Climate Change. Despite their heterogeneity, they built a common diplomatic discourse and strategy for influencing policy, enabling them to mobilise political leaders, negotiators and advisers (Ourbak and Magnan 2018).
Regional cooperation	While there is 'one ocean', there are four ocean basins (Atlantic, Arctic, Indian, Pacific) and many seas. Regardless of the extent of globalisation, there are long-standing and continuing relationships between countries sharing an ocean basin or a semi-enclosed sea. Sharing these resources can help maintain regional political and economic stability, which contributes to well-being of populations around regional seas and ocean rims.	The European Union binds together in economic and political union a region housing historically warring nation-states. By extending its collaborative governance arrangements into its shared seas, regional cooperation is further reinforced. The European Union has a legally binding framework, supported by EU financing and technical capacity, for establishing maritime spatial plans in the exclusive economic zones of its member states by 2021 (Friess and Grémaud-Colombier 2019). This provides the basis for creating lasting mechanisms for cross-border cooperation.

Table 2. Ocean Contribution to Relational Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMANWELL-BEING	MECHANISM OR RATIONALE	EXAMPLES
State formation	The ocean has played an important role in the formation of modern states, with the extension of maritime territory into exclusive economic zones (EEZs), providing the basis for future national projects in the blue economy, future prosperity and therefore future well-being.	The sea has been particularly important to countries labelled as 'small island developing states'. The law of the sea has enabled them to claim large EEZs, which, together with their historical connections to the ocean, has encouraged them to position themselves in ocean policy dialogues as 'large ocean states' (e.g. Chan 2018). This relational repositioning has enabled oceanic island nations to shift from an emphasis on their vulnerability and small size to highlighting their stake in—and sovereignty over—30 percent of the ocean, thereby positioning them more strongly in ocean economy and governance policymaking.
Human security	Ocean peoples have long shared many social norms, many of which are now codified in modern law. These maritime codes of conduct were designed to improve safety and well-being at sea and facilitate travel and commerce. Global norms around neutrality, calling truces and the practice of rendering assistance to those in distress all have maritime origins and provide important contributions to human security and to our frameworks for moral conduct more generally.	The early 20th-century Hague Conventions on Neutrality are based on the rules set out in the Consolato del Mare of 1494, which in turn is partly based on ancient Greek (Rhodian) sea law (Bauslaugh 1991, xiii). The dangers and solitudes of sea voyages in the ancient world led to a set of unwritten codes of maritime conduct, including those regarding the 'sacred duty of hospitality' included in Hugo Grotius's Mare Liberum. This, in turn, forms the basis for the 1979 Convention on Maritime Search and Rescue and the 1974 International Convention for the Safety of Life at Sea. There is much concern that these principles are being eroded with the rise of human trafficking, with coastal states failing in the legal duty to assist migrants and others lost at sea, and in their obligations to disembark rescued persons in a place of safety (e.g. Aalberts and Gammeltoft-Hansen 2014). These dialogues point to the continuing importance of maritime social norms in shaping the moral basis for governing human affairs.

Table 2. Ocean Contribution to Relational Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMANWELL-BEING	MECHANISM OR RATIONALE	EXAMPLES
Social movements	Shared experience of the ocean can help to build solidarity among boat crews, among port cities and between maritime nations that give rise to 'social movements'. Such social movements—and their protests—are a primary means by which social justice has been achieved historically. The equity dimension of the blue economy can be fulfilled by working together to overthrow tyranny; or to create safe working conditions, fair wages and equitable access to the benefits of the sustainable ocean economy, and to exert influence on democratic governance. Social movements may coalesce into representative organisations, such as the International Transport Workers Federation, the World Forum of Fisherpeople and the World Forum of Fishworkers. The Missions to Seamen, which provides spiritual, pastoral and practical care for seafarers, has become particularly important to crews stranded on ships amid the COVID-19 pandemic (Rynd 2020).	A series of connections, formed over centuries of trade among seafaring peoples of the Americas, Europe and Africa, led to loose coalitions of fugitives from state violence and exploitative work. These maritime societies, and the experiences embodied in their stories, existed over 'vast spaces and spans of time' (Linebaugh and Rediker 2000) and were characterised by their mobility and multi-ethnicity—giving rise to the expression 'a motley crew'. They nurtured an Atlantic 'maritime radicalism' characterised by collectivism, anti-authoritarianism and egalitarianism, that connected revolutionary impulses in the United States, France and Haiti (Frykman et al. 2013). These values and the transnational coalitions that spread them are models for today's globalised anti-racist and anti-capitalist protests. Social movements have long begun in seaports, including the Solidarity movement that eventually led to the election of one of its leaders, Lech Walesa, as Polish president. It began among workers in the Gdańsk shipyard in 1980 and, in 1989, succeeded in ending Soviet communism in Poland (Garton Ash 2002).
Group identity and 'belongingness'	Identifying with a nation, ethnic group, community or locality ('belongingness') is associated with well-being (Helne and Hirvilammi 2015). Some societies and cultures identify strongly with the ocean as their 'place' and with fellow ocean users as their people; the well-being of these maritime societies and sea people depends on their access to a healthy ocean, a maritime lifestyle and to relationships with each other.	Many of the Solomoni of Fiji are descended from 19th-century indentured labourers. They have acquired and negotiated their sense of belonging through active engagement with their oral history (tukuni), particularly around the notion of tauvu ('springing from the same ancestor') with taukei (Native/Indigenous Fijian). This has helped to break down group stereotypes, overcome initial disadvantage and enable coexistence and intermarriage (Mateiviti-Tulavu 2013). The construction of shared Pacific Islander identity continues at larger scales as the region faces common threats, such as climate change, and as Islanders meet in regional forums and diaspora populations extend across the world—particularly in Australia, New Zealand and the United States. A shared history with the ocean forges an evolving trans-Pacific identity (Hau'ofa 1994).

Table 2. Ocean Contribution to Relational Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMANWELL-BEING	MECHANISM OR RATIONALE	EXAMPLES
Cooperation and collective action	Because the ocean is largely governed as a commons, most ocean users cooperate to share access to ocean resources and spaces, and to reduce conflict. This is particularly the case with fishing communities. Building good relationships within and between communities contributes to well-being.	Many coastal fishing societies around the world have at some time developed cooperative ways to manage the marine resources upon which they depend. These social institutions do more than regulate access to resources; they provide the basis for harmonious community life; they perpetuate culture and they provide social security through risk-sharing and asset-sharing mechanisms (Ruddle 1998; McGoodwin 2001). Some of these traditional institutions have been eroded by the switch to state-based fisheries management, but there is revival of traditional management blended with formal government in a range of 'co-management' arrangements, including locally managed marine areas networks in the Pacific (Techera et al. 2009) and territorial use rights for shellfish in Chile (Fernández et al. 2011). Further examples of traditional institutions for marine resource management are given in Section 3 of this paper.
Intra-household and intra-community relations	In many contemporary cultures, beaches and the seaside have strong associations with family holidays and childhood memories (Marschall 2015), with romance and with togetherness in old age (Huntsman 2001). Within fishing communities, boats crews often have strong kinship and friendship ties. These are all forms of 'social capital' that contribute to relational well-being at more intimate levels, as well as ensuring the intergenerational exchange of knowledge and skills in maritime households.	Australians make or break romances at the beach, they marry and take honeymoons at the beach, they go on holiday with their children at the beach, and in vast numbers retire by the sea. —Robert Drewe, quoted in Huntsman (2001, 2) In the artisanal fishing community of Lobitos, Peru, 'fishermen spend a great deal of time socializing with each other at the harbor, during communal celebrations and activities, on boats and at the usual meeting places, talking about the state of the sea and fishing activity', but they only share fishing secrets among kin. The boats are often crewed by kin: the most common crew combinations are groups of brothers (30.6%) and parents and children (26.5%). Fishing tasks are taught and learned through these family and community relations, with children involved from their pre-teens (Maya-Jariego et al. 2017).

Table 3. Ocean Contributions to Subjective Dimensions of Well-Being

> When anxious, uneasy and bad thoughts come, I go to the sea, and the sea drowns them out with its great wide sounds, cleanses me with its noise, and imposes a rhythm upon everything in me that is bewildered and confused.
>
> —Rainer Maria Rilke (1969 [1903])

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISMS OR RATIONALE	EXAMPLES
Scientific and scholarly knowledge	The scientific exploration of the ocean has provided the foundations to secure a sustainable and prosperous future for the ocean economy. It allowed the exploration of the ocean in search of the materials that support contemporary human societies. Ocean science has also identified the nature and scale of threats to human well-being posed by ocean ecosystem degradation and has illuminated a number of solution pathways in the form of conservation measures, pollution control and abatement technologies. While ocean sciences provide indirect support to the realisation of relational and subjective well-being, they are not primarily suited for this purpose; additional scholarly disciplines, such as the ones we draw on in this paper, are also required to identify ways to support ocean values and their contributions to well-being. Conceiving of the ocean as a peopled space has been an important first step towards attracting the social sciences and humanities to study the ocean (Steinberg 2001) and how it might be better governed to support human well-being.	Scientific knowledge of the ocean has helped find ways to support sustainable fisheries (Hilborn and Hilborn 2019), ocean-based climate change mitigation solutions (Hoegh-Guldberg et al. 2019), countering pollution threats and conserving biodiversity (Knowlton 2020). Science underpins the search for ways to ensure that material well-being is sustained. Beyond the ocean (natural) sciences, the social sciences, arts, humanities and professional disciplines (e.g. law, finance, management and policy studies) can provide insight into how to support all three dimensions of ocean-related human well-being. Inter- and trans-disciplinary research facilitates knowledge integration and the provision of useful policy advice (Claudet et al. 2020).

Table 3. Ocean Contributions to Subjective Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISMS OR RATIONALE	EXAMPLES
Local, Indigenous, and traditional knowledge	Local or Indigenous knowledges of marine and coastal ecosystems are grounded in specific places or locations, encompassed in wider cosmologies and embodied in people's practices. They often support the sustainable use of resources to pursue livelihoods. In contrast to Western science, which has become separate from moral, spiritual and practical thought, Indigenous and traditional knowledge systems retain a unified metaphysics (Deloria and Wildcat 2001; Herman 2016). Governance systems based on such knowledge are therefore more likely to reflect multiple dimensions of well-being.	The Makah, a Coast Salish tribal nation in the U.S. state of Washington, place the ocean at the centre of their culture (Reid 2015). Their livelihood patterns, diets, ceremonies, stories and material culture all demonstrate a deep understanding of oceanic currents, nutrient cycles and the process of upwelling. Indigenous Peoples like the Makah understand people as part of, rather than separate from, the rest of nature—a world view that now also informs integrated conservation and development thinking. Pacific Islanders have traditionally navigated using star and wind compasses instead of magnetic ones. Traditional navigation skills involve not just a detailed knowledge of the stars, winds and currents but an intricate knowledge that enables practitioners to plot their course, know their position and detect land, allowing them to navigate in unknown waters. These skills included close reading of wave forms, cloud patterns, marine phosphorescence and marine life (Lewis 1972). Today, Pacific navigation skills are being revived as part of a Pacific cultural resurgence associated with voyaging, to ensure that these cultures and their relationship to the ocean continue to thrive and adapt to change (Finney 2003).
Phronetic (practical) wisdom and skills	Knowing how to row a boat, fix an engine, cross the surf or spear a fish are among the many practical skills that imbue a sense of pride in maritime occupations. Skills and practical sea knowledge are useful for sustaining material well-being from the ocean, for gaining admission to maritime society by earning the respect and recognition of other mariners, and as a source of personal pride and of belonging to the ocean. These apply whether you are a navigator, fisher, diver, surfer or marine biologist.	In the highly gendered world of commercial fishing, women in Alaska's Bristol Bay salmon fishery take pride in their seagoing and fishing skills as well as their role in safeguarding and deepening traditional knowledge in their fishing communities. They have earned the right, in their view, to be called 'fishermen' (Lavoie et al. 2019).

Table 3. Ocean Contributions to Subjective Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISMS OR RATIONALE	EXAMPLES
Freedom and adventure	A sense of freedom and a sense of adventure both contribute to autonomy, which is an important component of subjective well-being. Freedom evokes a sense of choice and possibility, as well as agency. Adventure involves challenging oneself mentally and physically, learning to calculate and confront risk, and experiencing contrast with everyday life. Exposure to nature is correlated with a sense of autonomy (Passmore and Howell 2014). The search for these subjective mental states has motivated individuals and societies to embark on ocean voyages, to explore the coast and undersea environments and to challenge themselves by big wave surfing, deep-sea exploration or blue ocean sailing.	The sense of freedom and adventure of being on or in the ocean is described by well-known and accomplished participants in marine adventure sports as restorative, connective to nature, and contributing to building their autonomy and resilience (MacIntyre et al. 2019). Fishers often emphasise their need for independence and choose to stay in the fisheries, even when more lucrative work is available, because they value the independence and freedom of working for themselves, or with friends and family, and are unwilling to submit to working indoors, being bound to a timetable and reporting to a boss (Pollnac and Poggie 2008). In contrast, 'adventure' is not one of the reasons listed for the revival of Pacific voyaging, though such voyages through the vast ocean in a small craft would be most people's idea of an adventure. Instead, the 'five values' motivating such voyages are a mixture of the relational and the subjective: knowledge, the pursuit of excellence, the exercise of rights and responsibilities, acting morally and selflessly, and nurturing relationships to the ocean and nature (Herman 2016).
Awe	To land-based people, the ocean inspires a range of emotions, from fear to curiosity. The human psyche flourishes when there is opportunity to confront our anxieties, reflect on our place in the cosmos and experience a feeling of something larger and more permanent than ourselves. The ocean seems to prompt such reflection, due to its vastness and relative unknowability.	Feelings of fear and awe have characterised some of our land-based cultures' views of the ocean, such as Judeo-Christian and Hindu ones (Connery 2006; Andaya 2017), while for those more at home on the waves, the ocean invites awe and respect but is also regarded as a source of comfort and familiarity (King and Robinson 2019). Fear gave way to fascination through the 18th- and 19th-century notion of the 'sublime' in European culture, where rough seas, ocean depths and rocky coasts are reinvented as sources of aesthetic and sensory pleasure (Gillis 2012).
Aesthetics	The ocean and coasts have inspired the visual and creative arts, and humans have felt the need for aesthetic expression since at least the time the first cave paintings were created. A continuing cultural relationship with the ocean is important to sustaining this inspiration in future generations.	Marine animals appear in early rock paintings, even in continental interiors in Africa and Australia. Perhaps one of the most recognised marine images comes from Japan: The Great Wave off Kanagawa, an early 19th-century woodblock print by Hokusai. Paintings of ships and beach-side scenes are popular in European art. See Annex B for sources and further discussion.

Table 3. Ocean Contributions to Subjective Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISMS OR RATIONALE	EXAMPLES
Belongingness (subjective elements)	While belongingness has relational components (being part of a group, see Table 2), the sense of belonging with the ocean and being 'of the sea' also has subjective elements that contribute to self-actualisation and well-being.	It is often said that the Bajo-Laut people of maritime Southeast Asia feel sick if they spend too much time on land, or away from the ocean. They maintain a rich Indigenous marine cosmology and ritual practice, with belief in supernatural beings—ancestors of the ocean—that live in and control the universe of the ocean, and all the creatures in it (Stacey 2007). See Annex A for a more in-depth review. A sense of well-being that comes from feeling at one with the ocean may also be achieved by those who are not of the ocean: 'The term "blue mind" describes the mildly meditative state we fall into when near, in, on or under water. It's the antidote to what we refer to as "red mind," which is the anxious, over-connected and over-stimulated state that defines the new normal of modern life . . . spending time near the water is essential to achieving an elevated and sustained happiness' (Nichols 2015).
Ocean identity	While the ocean is the place where you go to do your job, it may also be where you feel most free, most in control of your own destiny, most competent and most valued by others. When jobs are evaluated and compared only in terms of returns on investment or labour productivity, they are seen as fully substitutable; they are not (Pollnac and Bavinck 2008). Occupational pride and place attachment are associated with well-being. To know yourself, to be known and respected by others, and to belong to a place are all important to people's subjective well-being. Maritime identities, whether as fisherfolk, fish traders, mariners, islanders or 'waterpersons' contribute to these feelings.	'Fish mammies' are wealthy and respected independent entrepreneurs who finance the fishing operations of men in coastal West Africa, as well as run fish processing and trading operations (Ameyaw et al. 2020). It is a title and social position adopted with pride and not one that comes from working as an employee in an industrial fish processing plant. The identity of a person of the ocean or a 'waterman', first associated in wider culture with Hawaiian surfing pioneer Duke Kahanamoku (Davis 2015), has been applied both to those whose work involves physically entering the water (maritime rescuers, commercial divers) and to dedicated practitioners of marine sports, whether they are amateur or professional. It indicates both high levels of competence in and affinity with the ocean.

Table 3. Ocean Contributions to Subjective Dimensions of Well-Being (continued)

CONTRIBUTION TO HUMAN WELL-BEING	MECHANISMS OR RATIONALE	EXAMPLES
Symbolism	All human cultures create and value symbols, as material representations of abstract or subjective concepts that are important to us, like love, loyalty, faith, belonging, status and power (Callahan 2013). Many important cultural symbols relate to the ocean and ocean animals. The ocean's power to inspire symbols contributes to our well-being.	Sharks in the Pacific islands were imbued with spiritual powers, considered as ancestor guardians and/or gods who offered protection from the unpredictable forces of the ocean. As symbolic animals, sharks appear to signify both the fear of the unknown vastness and depths of the ocean as well as its bounty to those who respect its ways and powerful creatures. See Annex C for sources and further details. At independence, the Caribbean island nation of Barbados adopted an everyday food item of the poor, the flying fish, as symbolic of Bajan identity; it appears on flags, as the name of national sports teams and as the personification of national identity; a person is said to be 'as Bajan as flying fish' if he or she exhibits traditional mores and behaviours (Cumberbatch and Hinds 2013). See Annex D for sources and further details.
Spirituality	Spirituality and religiosity are positive predictors of subjective well-being (Villani et al. 2019). The ocean has played an important part in the development of human spirituality—for example, many cultures have 'sea gods', some of which are benign and others which warn of dangers (Andaya 2017). Both benign and danger-warning deities help make sense of fate and provide a psychological means to cope with mortality. Judeo-Christian religious texts are generally hostile to the ocean (Connery 2006), but many non-Western maritime cultures and religions have more complex and affirmative spiritual relationships with it (Andaya 2017; Hau'ofa 2008).	In Nordic mythology, the sea exceeds the land, in power and expanse, and is depicted as 'a treacherous surface to be traversed for fame and gain', its treachery personified by the female sea-deity Rán. A robber of life from men, she personifies death by drowning (Quinn 2014). The lives of peoples reliant on the ocean are fraught with unpredictability; belief in and appeal to sea gods and spirits are means of ensuring both good fortune and protection (Andaya 2017). The ocean people of Southeast Asia believe well-being is assured by seeking protection from benign spirits and gods, and offering propitiation to malign ones. With the advent of long-distance trading and voyaging into the oceanic realm, spirituality has been extended to include the gods of the major religions, notably Islam and Christianity, whose protection is sought in distant reaches of the ocean (Andaya 2017).

Tables 1–3 illustrate the many ways the ocean has and will continue to contribute to human well-being. While many of these contributions, across all three dimensions, rely on maintaining ocean ecosystem health, it is too simple to say that all of them do. Ensuring ocean health is, by itself, not enough to safeguard and improve human well-being. It is also important to continue to maintain and build the kinds of social and cultural connections to the ocean that have improved human knowledge, understanding, cooperation, security, meaning and happiness in the past. If the majority of those who would benefit from an ecologically healthy ocean are excluded from it, this will not lead to improved human well-being for all. Thus, maintaining ocean health *and* maintaining inclusive ocean access should be the dual aims of governing the future ocean.

Although we have separated out the dimensions of well-being in order to explain and explore them, it is important to reinforce that they are interrelated or 'co-constitutive' (i.e. each dimension builds on the others). As Sarah White (2017, 133) notes, 'Rather than dividing "subjective" from "objective", subjective, material and relational dimensions of wellbeing are revealed as co-constitutive. Wellbeing is emergent, the outcome of accommodation and interaction that happens in and over time through the dynamic interplay of personal, societal and environmental structures and processes, interacting at a range of scales, in ways that are both reinforcing and in tension' (White 2017, 133).

Such reinforcing feedbacks between dimensions of well-being can be found in the ways Pacific Islanders think about their relationship with the ocean. As Epeli Hau'ofa (1994, 153) wrote, the ocean provides material, relational and subjective 'goods' in inseparable and historically constructed ways: '"Oceania" denotes a sea of islands with their inhabitants. The world of our ancestors was a large sea full of places to explore, to make their homes in, to breed generations of seafarers like themselves. People in this environment were at home in the sea.'

Similarly, a sense of being part of a community and a sense of place contribute to the 'social embeddedness' of coastal communities engaged in small-scale fishing (Jentoft 2019). Coastal and sea-dwelling communities have strong social ties and distinct cultures from which they derive well-being. These identities and concepts of embeddedness straddle both the relational and subjective dimensions of well-being—the sense of belonging to a group, such as fishers or a coastal community, of being able to depend on your group during emergencies, times of loss and crisis due to the strength of social relations and networks, but also subjective feelings of pride and self-worth in one's occupation, community or ethnicity.

In Section 3 of this paper, we will outline some case-study examples of institutions—both contemporary and traditional—that illustrate how the different dimensions of well-being and the multiple spatial scales at which they accrue and are intertwined in the institutions that have evolved to govern human-ocean interactions in practice. First, we consider each set of relationships separately.

Table 1 summarises the many ways the ocean contributes to provisioning human needs and regulating the earth's environment to ensure human flourishing and biodiversity conservation. These contributions are linked to the ocean as both a place and as an ecological system. While the ability to extract minerals or transport goods is largely independent of ocean ecosystem health, these activities certainly impact upon it. The challenge for the future ocean economy is to ensure that governance of provisioning and regulatory goods and services—such as food production and climate mitigation measures—do not threaten ocean health. Future ocean governance also has to ensure that human relational and subjective well-being are supported rather than undermined by the 'blue acceleration'. Most modern, state-based and global ocean governance institutions have formed with the goal of managing access to and use of ocean resources and ocean space for material use and, to a degree, to regulate relationships between private enterprises (e.g. property rights and trade and commercial laws) and between states (e.g. regional seas agreements, freedom of navigation agreements). They seldom consider subjective well-being.

Ocean governance institutions are also mostly designed to regulate commercial activity at sea. However, people do more than extract resources, trade goods or migrate across the ocean, they also interact with the marine environment and the marine species and ecosystems in a multitude of ways that may be rooted in material elements of the ocean, such as seafood, beaches, waves and reefs, but which are enjoyed, both consumptively

and non-consumptively, for non-material purposes. These interactions—whether we experience them directly as beachcombers, rock-poolers, snorkelers, divers or recreational fishers, or vicariously through aquarium visits or viewing television series such as David Attenborough's *The Blue Planet*—create sets of relationships with ocean nature that respond to a range of human material, relational, spiritual and emotional needs. As people rise out of poverty globally, such interactions may engage an increasing number of us.

Prior to COVID-19, a burgeoning area of tourism research was devoted to understanding ways to cater to the preferences of China's growing number of newly middle-class beach tourists, both domestically and internationally (e.g. Liu et al. 2019; Jie Li and Carr 2004; Liao and Aguilera 2020). It is encouraging that over 80 percent of surveyed beach tourists in Qingdao, China, would be willing to pay a tourist tax in order to maintain beach and water quality at their destination (Liu et al. 2019). The global rise of beach and marine tourism, instead of being seen solely as a threat, might be considered an opportunity to bring the well-being benefits of the ocean to a growing proportion of the global population, and to engage ever more people in the cause of sustaining the global ocean.

The ways the ocean contributes to relational well-being (Table 2) are more concrete and better understood at smaller scales: the social cohesion of traditional fishing communities and how this contributes to economic, social and cultural life is well-studied, understood and increasingly legally mandated in the form of devolved management and community resource rights. At higher spatial scales, the relationships are more abstract but nevertheless important: for example, the need to share the oceanic realm has fostered certain moral norms that have spread onto land, such as the principles of neutrality, truce and rendering assistance to others in need. These were all codified at sea before they became part of the broader moral and legal framework for inter-state governance, and in some cases (e.g. rendering assistance to others in need) they remain more strongly upheld in oceanic than terrestrial contexts. This became very evident when fishers in the Indian state of Kerala took the lead to rescue thousands of inland folk in the 2018 floods because they felt it was the 'right thing to do' (*OnManorama* 2018).

Of the three main dimensions of well-being, the elements of 'subjective' well-being described in Table 3 are the most difficult to ascribe monetary value to and therefore to incorporate into traditional sectoral economic planning, though some of them have been considered in social accounts and happiness and well-being indices (e.g. Stiglitz et al. 2018). We know that these are some of the concepts and emotions that give life meaning, purpose and value beyond the meeting of basic physiological and economic needs and beyond the sociopolitical necessities of cooperating with others. For these reasons, they are worthy of policy consideration.

Because they are difficult to value—and even to articulate—the subjective elements of well-being may be dismissed as unimportant. Yet people have used symbols of belief or identity as a pretext to fight wars or have gone to war driven by socially constructed moral concepts such as honour (O'Neill 2001). Political and legal regimes are built around symbols such as flags (Posner 1998). As this paper is being written, statues that symbolise economic and social progress to some and colonial oppression and enslavement to others are being fought over as the U.S.-initiated Black Lives Matter movement ignites a worldwide reckoning on racism and colonial history (Grovier 2020). The symbolic value of the ocean and its organisms to coastal societies—and the extent to which people from these societies are willing to defend them—should therefore not be dismissed lightly, since it provides opportunity for both conservation and development.

Several policy implications arise from an understanding of the symbolic value of marine organisms. The first is that dominant global sensibilities and relationships to animals may be regarded as an imposition of cultural values if forced upon all people. There are lessons for wider global ocean governance from attempts to implement universal bans on the harvest of whales and other marine mammals, with nation-states and Indigenous Peoples who pursue traditional whaling activity resisting these bans in various ways and maintaining their cultural relationship to whales as food as well as cultural keystone species invested with complex symbolic meaning (Paul 2000). The principle of free prior informed consent (PIC) is relevant here. PIC is a negotiated or treaty-based procedural right for Indigenous Peoples in relation to development or

natural resource exploitation proposals and their effect on Indigenous lands, culture and traditions (Rosenthal et al. 2006). PIC relates to the public trust doctrine—the main legal concept for governments' fiduciary obligation to protect and sustainably manage natural places held in common by the public citizenry. It is especially relevant as legal support for citizen participation in official decisions made about the marine space when government trustee obligations are breached.

Subjective well-being is also driven by anxieties, with psychologists identifying six existential ones: identity, happiness, isolation, meaning in life, freedom and death (Passmore and Howell 2014). All these anxieties can be either confronted or relieved (or both) in our relationships with the ocean—and with nature more generally—whether that relationship is professional, residential, consumptive or recreational (Tables 1–3). We observe that groups whose lives are closely entwined with marine resource use (fisherfolk, mariners, Indigenous Peoples, marine tourism and recreation professionals) have complex, multidimensional relationships with the ocean which are often deeply spiritual (in Southeast Asia; see, e.g., Andaya 2017) and strongly inform social and cultural identities (in the Pacific islands; see, e.g., Hau'ofa 2008).

While separating out the different dimensions of well-being enables them to be identified in any policy context, it is also useful to consider how they relate to and reinforce each other in a sectoral context. Consider, for example, the values embodied in small-scale fisheries (Box 2).

Human health also combines all three dimensions of well-being. The physical and mental aspects of people's health is affected positively by a clean ocean, which can be enjoyed by seafood consumption, trips to the seaside, swimming or pleasure cruises on the ocean. It is negatively affected by a polluted ocean (mercury and microplastics in seafood chains, oil spills, coastal industries, etc.). The relational aspect of health has to do with a sense of community, social cohesion, and so on, for example following the disintegration of coastal communities due to loss of fish stocks, as happened with the collapse of the Canadian cod in Newfoundland in the 1990s (Glen 2000). The subjective aspect of health has to do with the emotional state of being, in this case with the kind of feelings towards the ocean that are evoked by relationships to the environment and to marine species. By examining issues from both a sectoral perspective (in this case, health) and a well-being perspective, the ramifications of different policy choices can be examined, and synergies and trade-offs between dimensions of well-being can be identified.

Box 2. Ten New Ways to Valorise Small-Scale Fishers

- For their phenomenal vernacular ecological knowledge.
- For their innate contribution to biodiversity conservation through convivial technologies.
- For their largely owner-operated and collegial harvesting which fosters greater equity and comradery in work.
- For their cost effective and energy-efficient operations with lower carbon footprints.
- For their entrepreneurial prowess in providing high private and social returns despite limited means.
- For their greater contribution to food security and wholesome nutrition for local rural consumers at affordable prices.
- For their generation of inclusive livelihoods—particularly among women—along these short value chains.
- For their provision of localised physical protection and security to coastal and riparian territory.
- For their vital contributions to the economy of their countries with minimal subsidies.
- For their protection of balanced life both below and above water.

Source: Kurien 2019.

Finally, it is important to reinforce that cultures, along with their symbols, spirituality, aesthetics and ethics, are not static. Even the ways emotions are elicited and expressed—how we show anger, fear, hope or love—change over time (Zeldin 2012). Governing the ocean to maintain well-being is not, therefore, about preserving the status quo or returning to the past. It is about finding ways to maintain a diverse and inclusive set of relationships with the ocean and among ocean nations and peoples. It is these relationships that have generated—and will continue to generate—curiosity, awe, wonder, spirituality and aesthetic appreciation, as well as food, energy and wealth. Supporting these 'ocean contributions to people' means allowing people to (re)discover and interact with the ocean in ways that build on their own histories and their existing maritime relationships. Such relationships may be highlighted and promoted under existing slogans and campaigns such as those extolling 'ocean pride' (Indonesia Ocean Pride 2020), 'ocean optimism' (Knowlton 2020) and 'ocean literacy' (Schoedinger et al. 2010), though they may need extending to become more inclusive. The aim of such campaigns should be to reconnect people with the ocean, and raise awareness of its importance to our history, our present and our future.

2.3 Addressing Social Difference within Maritime Societies: Towards a Diverse and Inclusive Future Ocean Economy

Moving towards a more diverse and inclusive future ocean economy, and understanding how plans to develop a sustainable ocean economy might affect people with different identities and circumstances differently, requires that we understand a diversity of people's experiences and relationships with the ocean. Such analyses of the contemporary ocean economy are few, and collating the scattered accounts of diverse people's lives at and with the ocean, upon which such an analysis could be based, is beyond the scope of this study.

There is, for example, no substantive analysis of gender dimensions of the blue economy beyond calls for gender-inclusive development (Box 3), though there is a growing historical appreciation of the role of gender relations in shaping the maritime past (e.g. Creighton and Norling 1996) and an evolving historiographic gender research agenda (Stanley 2002). There is an extensive literature on gender and fisheries (e.g. Frangoudes et al. 2019) and an emergent one on gender, ports and shipping, much of it

Box 3. How Are Blue Economy Narratives Gendered?

The 2019 World Oceans Day (June 8) focused on promoting gender equality in all ocean-related activities, linking UN Sustainable Development Goals 5 and 14:

- An inclusive blue economy must, by definition, place fairness and equity at its core. It must consider the different needs and challenges faced by women and men. Research that includes gender data disaggregation or women specific studies, while valuable, is not enough.
- In research and policymaking, gender must be mainstreamed, from project inception and design to implementation, whether talking about fiscal policy and incentive-based management, or natural capital accounting, or impact investment or plastic pollution. (Merayo 2019)

the work of the gender research group at the UN World Maritime University (Kitada et al. 2015). This work could be extended to understand the different relationships men and women (and other gender identities) have with the ocean, how they can inform and enrich governance, and the ways future economic growth and governance reforms could influence those relationships to improve women's social and relational well-being as well as their material economic circumstances.

The idea of maritime work as the domain of men is relatively recent and not present in every culture (Gillis 2012). Prior to the 19th century in Europe, women had been very much a part of the coastal world, involved in virtually every aspect of trading and fishing. This was forgotten as the ocean came to perform the metaphorical service of reinforcing and intensifying gender differences that were being eroded on land as women gained access to education, political power, rights to land and professional employment (Steinberg 2001, 191).

Gender inequality is a continuing constraint to improving well-being and meeting the UN Sustainable Development Goals, but it is not the only one. Wealth inequality, after falling in much of the world during the mid-20th century, has risen once again, particularly in the 'anglosphere' (the United States, United Kingdom and Australia), as growth has proved not to be the 'rising tide that lifts all boats' (Österblom et al. 2020). The ocean, central to capitalist wealth accumulation through mercantilism, colonialism and globalisation, has not historically offered equal opportunity to improve well-being.

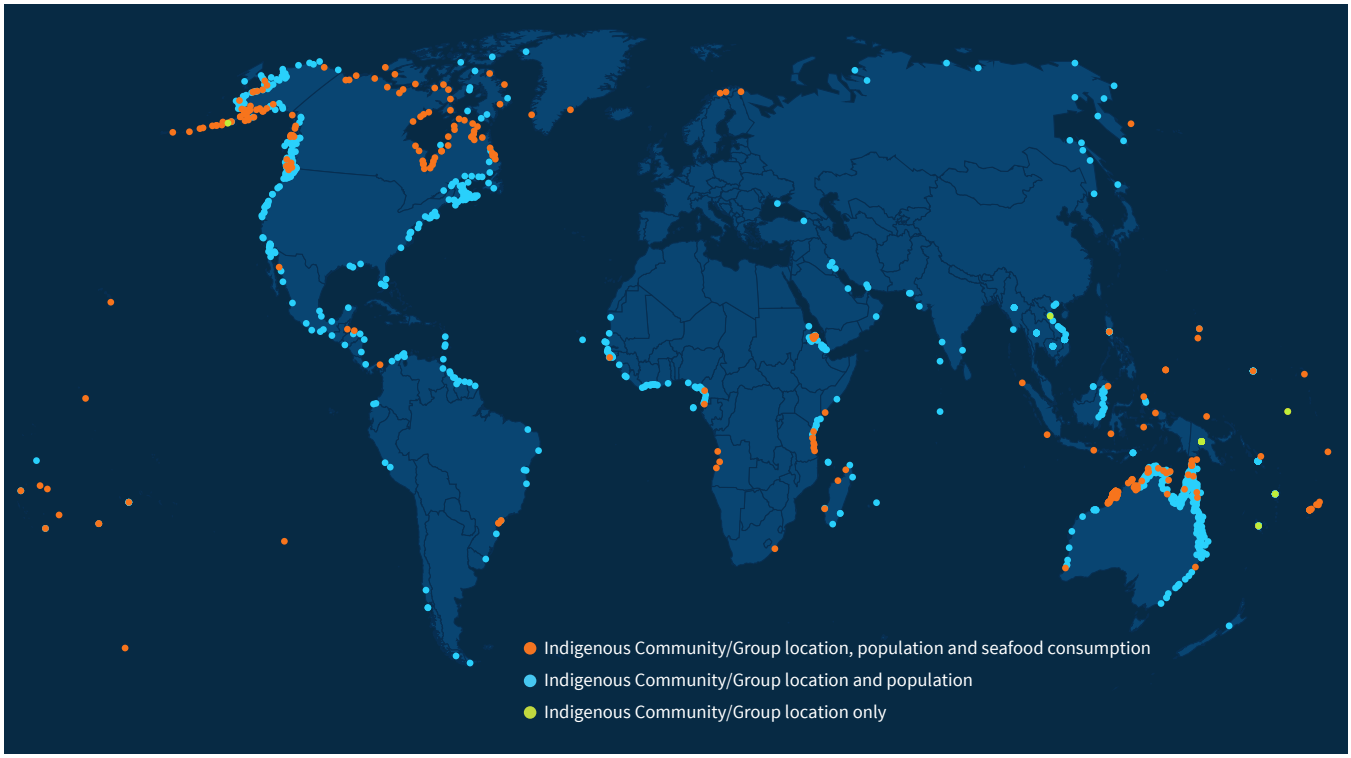
Recent work on equity and inclusion in Washington State's maritime economy (Maritime Blue 2020; Arbow 2019) points to the need to diversify the state's maritime workforce—which is aging, white and male, and faces potential labour shortages that may limit its growth potential. Workplace barriers to greater inclusivity include a climate of discrimination against women and people of colour in the sector and maritime labour unions, with a history of protecting jobs by limiting access to certain ethnic or racial groups. This has led to a pattern familiar throughout the global economy: recent immigrants, people of colour and women are all overrepresented in seafood processing and other low-wage, low-status jobs but underrepresented in senior and middle management positions and skilled or better-remunerated jobs, such as longshoremen in ports. This is likely to be a wider issue in the maritime sector and planning, for a sustainable ocean economy will require specific attention to equity and inclusion in the expanding maritime workforce. The development of new offshore industries provides an opportunity for inclusive maritime vocational training to create a diverse workforce in this emergent maritime economy.

We have so far provided a few illustrative examples of social differences *within* coastal societies and maritime workforces. However, there are also inequalities in ocean-related well-being among geographies. In a sea of exclusive economic zones (EEZs) and nation-states, among the most vulnerable 'ocean citizens' are, ironically, those with the longest histories and closest ties to the ocean. These include Indigenous coastal people around the world (Figure 3) and mobile populations who cross national frontiers or live upon the ocean, like the Sama-Bajau people in Southeast Asia (see Annex A). Diverse relationships with the ocean in different cultural and geographical settings are explored further in Section 3.

While we have emphasised sense of freedom, adventure, autonomy and self-actualisation as part of the ocean's contribution to subjective well-being (Section 2.2, Table 3), it is important to recognise that inequalities—and the histories of how these have been produced and reproduced—shape this aspect of our relationship with the ocean. Western literature portrays the ocean as a source of freedom, but in doing so it does not represent the experience of the millions of men, women and children who crossed the ocean in shackles, as slaves. For them, and 'for the indentured labourers, convicts and refugees, oceans have never figured as spaces of freedom, exchange and connectedness, but of unfreedom, objectification and a separation from family and homelands' (Bartels et al. 2019, 81).

Discourses about shared ocean values and campaigns for greater ocean literacy should not neglect the legacies of past exploitation and the denial of others' values and knowledges. Nations that built their economies and societies through mercantilism and colonialism, and the nations that were exploited or colonised by them, will have differing perspectives and priorities in governing their ocean estate. Ocean governance futures are likely to be negotiated amid calls for continuing decolonisation (Vásquez-Fernández 2020), strengthening moral and

Figure 3. Global Map of the Location of Known Indigenous Coastal Populations, Prepared in Order to Estimate Their Seafood Consumption



Note: Groups for whom fish catch and population data are known are differentiated from those for whom only location is recorded.

Source: Cisneros-Montemayor et al. 2016.

legal arguments for reparations to the descendants of slaves (Araujo 2017) and upholding the rights of formerly colonised states to fully develop resources in their EEZs without hindrance from former colonising powers. Such a 'right to development' (Udombana 2000) is difficult to deny on moral grounds when these nations were denied the right to use their land-based resources for autonomous development, and when that land and those resources were taken by colonisers who also subjugated, displaced or killed the original inhabitants. The legacy of past injustice remains visible in the greater vulnerability of marginalised populations to COVID-19's health and economic impacts (see Section 2.4), and it drives current global anti-racism protests. An ocean-based governance reform process that learns from these land-based upheavals will be more successful at addressing the linked problems of inequity and unsustainability than a process that ignores them.

2.4 The Emergent Impact of COVID-19 on Human-Ocean Relationships

On 16 August 2020, confirmed infections with SARS-CoV-2 approached 21.3 million people, resulting in 761,779 deaths (WHO 2020a). As of this date, the pandemic was still growing, in the United States, Latin America, the Middle East, India and parts of sub-Saharan Africa, while much of South and Southeast Asia, Oceania and Europe were seeing control measures decreasing the number of new cases, though with signs of a 'second wave' of infections leading to a return to more stringent social distancing. No vaccine has yet been developed. Making a rapid assessment of its impacts is complicated by the 'infodemic'—the viral proliferation of information, some of it accurate, some not, that confronts the policy analyst.[2]

As well as the human and economic costs of the public health crisis, the measures to contain the spread of the virus—which have included the closure of businesses, workplaces and schools, and restrictions on travel—have led to mass unemployment, large-scale government expenditures on bailout and stimulus packages, a decrease in trade and economic activity, a fall in the value of financial markets and a global recession (Fernandes 2020). The International Monetary Fund estimates that the global GDP will shrink by 4.9 percent in 2020 and grow by 5.4 percent in 2021, to attain a value 6.1 percent below its pre-COVID 19 projected value (IMF 2020). Low-income households are particularly imperilled, reversing the significant global progress made in reducing extreme poverty since the 1990s (IMF 2020). This makes achieving the SDGs that much harder. The crisis has also prompted much thought about what kind of society is to be rebuilt in future, with an exhortation to 'build forward better' and to invest in making our societies more equitable and sustainable and more resilient to future pandemics (van Barneveld et al. 2020).

Table 4 summarises documented impacts and responses to the COVID-19 pandemic by the maritime economy. While impacts by country will vary depending on the role that the maritime economy plays, the three most prominent global impacts are on (1) global trade, where over 80 percent of the world's goods (by weight; 70 percent by value) are transported by sea (UNCTAD 2020); (2) the global food system, where 3.3 billion people depend on seafood for at least 20 percent of their animal protein intake (FAO 2020a, 67); and (3) the world's tourism and leisure industries, 50 percent of which are coastal and marine-associated. As a whole, worldwide tourism and leisure, pre COVID-19, generated nearly $1.5 trillion in receipts and $250 billion in transportation (totalling around 10 percent of global GDP in 2008) and employed 319 million people (UNCTAD 2020; TNC 2019). The impacts on each of these sectors, and the societies and economies that depend on them, are complex and take place through multiple pathways, as Figure 4 illustrates for the seafood system.

Figure 4. COVID-19 Disruptions and Impacts on Seafood Supply Chains

Note: Disruptions to production, labour, distribution, supply and demand create a range of impacts. The colour gradient indicates the hypothesised relative impacts to different components of, or actors within, seafood supply chains. The ordering of groups is based on multiple data streams collected through May 2020 but is not intended to be a quantitative or absolute ranking.

Source: Love et al. 2020.

Table 4. Some Observed COVID-19 Impacts, Responses and Proposed Longer-Term Outlooks for Maritime Economic Sectors and Their Governance

SECTOR OR ISSUE	IMPACTS	RESPONSES	POSSIBLE FUTURES
Fisheries and aquaculture	Demand impacts of COVID-19-related lockdowns first hit high-value seafood in the restaurant sector in China and then worldwide. Job losses and supply disruptions affected low-income households' ability to access fish and other nutrient-rich foods, particularly in developing countries. In wealthier countries, demand for tinned and frozen fish has risen. Industrial fishing activity fell by 50% in several European countries in February–April 2020; several epidemics broke out on fishing vessels and in fish-processing factories. (Summarised from Love et al. 2020.)	Governments (e.g. Russia, Canada, South Africa) designated fishers, processors and retailers as 'essential workers' during the pandemic lockdown, allowing many in the sector to keep working. Multilateral organisations (Food and Agriculture Organization of the United Nations, World Bank, etc.) are providing technical, policy and financial support to the sector for adaptation, with a focus on fish-dependent, low-income, food-deficit countries. In the private sector, companies are investing in personal protective equipment for their workers, redesigning workplaces for social distancing and quarantining fishers before they set out for distant waters. Small-scale fisher organisations, marketing cooperatives and local catch schemes have mobilised to support small producers reach local consumers with their produce, to support livelihoods (e.g. in the Indian state of Kerala and the United States). (Summarised from Love et al. 2020.)	Policy emphasis is on building resilience by continuing to address pressures on wild fish stocks (including IUU fishing, subsidies and habitat degradation), building resilience to climate change, investing in mariculture, focusing on small-scale producers most vulnerable to economic shocks, improving traceability of seafood and biosafety protocols, and maintaining diverse product forms in seafood (e.g. by canning, drying, smoking, freezing) as fresh value chains are more vulnerable (e.g. Love et al. 2020; FAO 2020a; Bennett et al. 2020; McCauley et al. 2020). Aquaculture futures depend on whether the post-COVID-19 world is oriented more towards growth or more towards sustainability, and whether trade is globalised or localised (Gephart et al. 2020).
Marine trade and transportation	13 to 32% downturns in container ship traffic in 2020, relative to 2019, due to slowdowns in both production of and demand for goods. Secondary effects include impacts on the marine insurance industry (Willis Towers Watson 2020). The International Labor Organization (ILO 2020) reports that seafarers face considerable problems joining and leaving their ships in port (each month around 100,000 seafarers are involved in crew changes), due to quarantine and movement restrictions.	Governments have supported continued marine transportation of food, medicines and other essential supplies to land-based populations. Measures have been taken by governments, the private sector and civil society organisations to protect the health and well-being of seafarers and port workers, classified as essential workers (UNCTAD 2020; ILO 2020).	Maritime trade is likely to continue to grow, but the rate at which it does so will depend on demand-recovery as economies reopen. Given its importance, the sector is likely to receive policy attention in areas such as opportunities for decarbonisation, improved crew working conditions and quarantine and sanitary measures on ships and in ports.

Table 4. Some Observed COVID-19 Impacts, Responses and Proposed Longer-Term Outlooks for Maritime Economic Sectors and Their Governance (continued)

SECTOR OR ISSUE	IMPACTS	RESPONSES	POSSIBLE FUTURES
Marine tourism and leisure	Cruise tourism slowed dramatically in the first quarter of 2020 and has halted this $40-billion-a-year industry in the second quarter, as early shipboard epidemics drew attention to the vulnerability of cruise ships to epidemic disease outbreaks. Tourism revenue is forecast to decrease by between $300 billion and $2.1 trillion (UNCTAD 2020), with up to half of that value represented by coastal and marine tourism. With 80% of the tourism sector's 319 million employees being seasonal and/or in small and medium enterprises, the welfare impacts of this decline are substantial.	Where tourism is an important source of revenue, states have used stimulus payments to support tourist sector businesses. Airlines, hotel and restaurant groups have moved quickly to monopolise the bailout funds (Renaud 2020). As lockdowns eased in many countries in May and June 2020, businesses reopened while maintaining new distancing and hygiene regulations that restricted their profitability. Populations in lockdown have flocked to beaches when allowed to do so, causing concerns that a second wave of COVID-19 infections would manifest in the Northern Hemisphere summer. Meanwhile, island nations such as Fiji that were virus-free encouraged exclusive 'billionaire tourism' to restart their industries (Doherty 2020).	The need for 'blue space' for health and well-being has been reinforced by lockdowns. Crowding on beaches has exposed the effects of the creeping privatisation of coastal zones around the world, exemplified by the United States (Rao 2020). Investment in improving public access to the foreshore and coast could be part of a strategy to protect public access to natural landscapes for well-being. The COVID-19 crisis has prompted critical examination of 'overtourism', the environmental costs of air travel, and, in the maritime context, the social and ecological impacts of cruise tourism. In addition to overcoming its ships' reputation as 'floating petri dishes', the cruise ship industry will need to examine its impacts on the marine environment, destination ports and their resident populations, and its own labour force, as well as on the safety of passengers (Renaud 2020).

Table 4. Some Observed COVID-19 Impacts, Responses and Proposed Longer-Term Outlooks for Maritime Economic Sectors and Their Governance (continued)

SECTOR OR ISSUE	IMPACTS	RESPONSES	POSSIBLE FUTURES
Marine biodiversity conservation	Reports of the return of marine wildlife to heavily used inshore and coastal habitats were widespread, with quieter areas of the ocean being good for whales, too (McVeigh 2020). A reduction in at-sea observers raises the possibility of increased IUU fishing, endangering seabirds and marine mammals. The COVID-19 pandemic has disrupted what was to have been 'a big year for ocean conservation' (Dineen 2020), leading to the postponement of the UN World Ocean Conference, the World Conservation Congress and the Glasgow meeting of the Intergovernmental Panel on Climate Change, at a critical time for the ocean and climate change.	The probable origins of the SARS-CoV-2 virus in the wild animal meat trade have drawn global attention to wildlife conservation (Dineen 2020). While seafood is not implicated in SARS-CoV-2 transmission (Bondad-Reantaso et al. 2020), the wider focus on zoonotic disease risks from animal source foods is impacting confidence in seafood safety too, prompting greater investment in food safety procedures. The inability to directly monitor fisheries and conservation is leading to greater use of remote sensing technologies and calls for greater traceability in wildlife meat and seafood sectors.	The COVID-19 pandemic seems likely to lead to renewed focus on environmental conservation and the linkages between environmental health and human health. If this is translated into effective policies, it could strengthen the case for investment in ocean health to support human well-being (Franke et al. 2020).
Multilateral ocean governance	Cancellation of in-person meetings, including the 2020 UN Ocean Summit, may have slowed the building of ocean policy constituencies. The COVID-19 pandemic has diverted policy attention away from the ocean at a critical time.	The rise of virtual conferences and meetings, online shared working platforms for routine meetings of regional fishery management agencies, transnational corporations, international agencies and nongovernmental organisations have shown that multilateralism can be pursued with less travel cost. The Virtual Ocean Dialogues and related processes have kept the ocean visible in policies for sustainability beyond the current COVID-19 pandemic.	It is too early to say how the current crisis will affect multilateral governance. The world's focus on our interconnectedness and the fragilities this brings could either lead to more investment in making multilateral governance and globalised economies work, or to a retreat from both of them. Some analysts have predicted the rise of China in global affairs and the decline of U.S. influence (Campbell and Doshi 2020), which would change the direction of multilateral ocean governance. In the arena of marine biodiversity conservation, 'the potential of multilateral spaces to . . . change the world order for the better is the main reason why we should care about their future after the COVID-19 crisis has passed and find ways to strengthen their legitimacy' (Vadrot 2020).

What are impacts of this linked public health and economic crisis on the current and future ocean economy? Who in the ocean economy is most vulnerable? How have governments and ocean economy sector actors responded? How have these impacts and responses affected our future relationships with the ocean? These questions deserve more scrutiny than we can give them here (but see Table 4). We therefore recommend, as an opportunity for action (see Section 4), the application of a social well-being approach to understanding how to build a resilient and equitable set of relationships with the ocean, to complement the more ecological and economic focus of policy advice to date (McCauley et al. 2020; UNCTAD 2020). Bennett et al.'s (2020) proposals for small-scale fisheries address some of the relational and subjective elements of COVID-related impacts on well-being, as does the ILO's (2020) policy briefing for maritime industry employees. The ILO documents mariners' inability to go ashore for medical treatment, to receive medical and safety equipment and to return home. All of these have led to increased fatigue, stress, isolation and social pressures for seafarers and their families.

The COVID-19 pandemic has revealed many things about subjective and relational well-being, as social distancing and travel restrictions have reconfigured our human relationships, our relationships with nature and our sense of what is important for a good and meaningful life. One piece of evidence for the importance of the ocean to our quality of life is that, as COVID-19 lockdowns eased in May 2020, people in Europe, the United States and Australia rushed to beaches (e.g. Wood 2020). The sense of freedom, of tranquillity or sociability, the sense of renewal and new possibility that being by the ocean invokes are powerful and continue to have value. If anything, this highlights that such non-material values are more resilient than the material ones. Much has been made of the monetary value of ocean ecosystem services—estimated at $2.8 trillion a year (McCauley et al. 2020). And yet the initial economic stimulus package to address short-term economic losses from COVID-19 in the United States alone, was over $3 trillion (Delevingne and Schneider 2020)—more than the whole of the ocean is apparently worth, in monetary terms, to the whole of humanity. Given this, perhaps the call to calculate ocean ecosystem service values is not the best or only way to draw policy attention to the values of the ocean to humanity.

As thoughts turn to how to rebuild economies and restart social life, the coming months will provide opportunities to reinforce how important 'blue spaces' are to people and to ensure that people have access to them for their well-being.

2.5 Avoiding 'Taboo Trade-Offs' and the Need for Inclusive Ocean Policymaking to Improve Human Well-Being

Once a largely coastal species (Gillis 2012), we are once again returning to the littoral. Coastal populations have been growing about twice as fast as national growth rates, and population densities there (ca. 80 persons km^2) are twice the world's average (Steven et al. 2020). Many of the world's megacities are coastal, and seafront land and properties with sea views attract price premiums in real estate markets all over the world (e.g. Jim and Chen 2009). While the majority of the world's people—even the coastal ones—experience the ocean as an alternative to a largely terrestrial existence, there are people who are 'at home on the waves' and for whom 'oceans persistently constitute the principal organizing spaces through which many communities dwell in the world' (King and Robinson 2019, 1). This range of 'ocean citizens' and the rest of humanity, all of us directly or indirectly connected to the ocean though our climate, trade, economic and food systems, derive well-being from very different material, relational and subjective relationships with the ocean.

The examples in Tables 1–3 represent some of the many ways people interact with and benefit from the ocean. All these interactions have economic dimensions and policy and legislative implications. Governing them needs to go beyond regulating the flow of material goods. Our ocean relationships engage with all the other things that make us human: our need for identity, a sense of social belonging, an attachment to place, our sense of being and doing good in our community or our world, of fulfilling our varying needs for adventure, inspiration, comfort, calm, satisfaction of curiosity and refuge from fear (Schwartz 2012).

Whether they were surfers thousands of years ago in the Hawaiian Islands (Finney and Houston 1996), fishers and coastal traders decorating their canoes in Ghana (Verrips 2002) or Inuit hunters in the Arctic making miniature carvings out of the bones of the marine mammals they caught (Laugrand and Oosten 2008), our forebears had relationships with the ocean that were complex, emotional, spiritual and artistic, as well as material and transactional. We, their descendants, will continue to forge these complex relationships with the ocean, provided we have continuing access to it.

A key planning challenge is to find ways to consider this plurality of ocean-experience and ocean-values in formulating economic development and marine conservation plans. The perspectives of the people most familiar with, most socially and culturally attached to, and most dependent upon the ocean—namely, small-scale fisherfolk, coastal Indigenous Peoples, island peoples and sea-dwelling peoples—must surely feature prominently in marine spatial and economic planning and the formulation of maritime policy and law, both within nation-states and globally. In the interests of legitimacy and equity, this should be so even when utilitarian ethics are applied and the greatest good for the greatest number of people is sought. Recognition of this diversity of interest and incorporation of the knowledge systems and values of this broad 'ocean citizenry' is an important first step towards an equitable and sustainable ocean economy.

In addition to traditional ocean users, the contemporary industrial ocean has its temporary sea-dwellers such as cruise-ship passengers, oil rig workers, merchant and naval seafarers and deep-sea fishers, each of whom may be drawn from less maritime populations and may not share the same set of 'ocean values' as those with longer and more culturally embedded relations. The future ocean may also include blue carbon investors, offshore aquaculturalists, workers in the renewable energy sector and deep-sea miners, each of whom will bring new conceptions of the ocean, new values and new priorities. Ecomodernist visions of the future ocean often incorporate plans for floating cities in coastal and open waters (Riffat et al. 2016), or on insulated ice floes (Bolonkin 2011); these too, have governance implications. While considering how to add new ocean populations and their values to ocean accounting and management, including those who may live or work beyond national exclusive economic zones, there are opportunities to support and learn from the dwindling numbers of historically maritime populations, including those whose extraterritoriality has posed challenges for land-based governments and left them marginalised and sometimes without sovereignty (Stacey and Allison 2019).

The decisions societies make on how to govern the ocean will not be determined entirely by monetary cost-benefit analysis. Power struggles have shaped the ocean governance regime and will continue to do so. Relational and subjective considerations will play their part too: the role of emotion in policy decision-making is often overlooked, but, for example, much of our nation-building seeks to draw on emotional responses to symbols of nationhood (flags, anthems, commemorations and celebrations), and our global stock markets are governed by traders' moods ('behavioural finance'; Nofsinger 2005). Our emotional responses to the ocean are thus also likely to shape our decisions on how to govern it.

While expanding the ocean economy can create new opportunities to improve welfare, it can also lead to unequal endowments, reinforced discrimination, or inequality of status (Satz 2004). Trade-off decisions between use and users will need to be made in an increasingly busy 'blue future'. Ideally, we solve trade-off decisions with the constructive objective of equitable outcomes, where the allocation distribution is envy-free and where no individual would prefer having what another person has (Arrow 1951; Kolm 1972). But even when a socially inclusive and holistic view of a blue future is taken, it is likely to show that trade-offs are pervasive, some are hidden and some are 'taboo' (see Box 4). Trade-off analysis has to adequately consider ethical and moral values to prevent individuals and societies from having to make such 'taboo trade-offs'.

Box 4. Taboo Trade-Offs at Sea

Taboo trade-offs result when a sacred value is asked to be traded for values that are secular. Sacred values possess infinite or transcendental significance and are inviolable and absolute. Sacred values preclude comparisons with bounded or secular values (Tetlock 2000). Taboo trade-offs are often ignored by managers because the sacred values that people ascribe (whether to possessions or natural assets) are likely to be very different. Not only do the sacred values differ in measure, but the actual values they consider sacred are likely to vary culturally, spatially, and demographically. Generalisation of sacred values is therefore near impossible, and this diversity can breed substantial conflict. Nevertheless, social values and the psychological context within which taboo trade-offs decisions are made must be considered to ensure an equitable, envy- and conflict-free blue future.

When people are asked to trade their sacred values for secular values, they often experience this as deeply offensive. People have an aversion to making taboo trade-offs (Stikvoort et al. 2016), and they are likely to display insensitivity to a strict cost-benefit analysis of the exchange. They are likely to exhibit moral outrage, express anger and disgust, and become increasingly inflexible in negotiations. Examples of taboo trade-offs include being asked to exchange locally held cultural values for something secular like the profit of a fishing or oil exploration company, or, for Indigenous communities, being offered money not to fish or have access to their traditional waters. Contrary to classic economic theory's assumption that financial incentives motivate behaviour, bringing economics into the equation and trading sacred values for money can make people recoil.

Ecosystem management that doesn't acknowledge uncomfortable truths and the taboo nature of some trade-offs is likely to fail. In order to deal better with trade-off decisions, we must be cognisant of how we present and frame decisions and aim to predict decision difficulty and better anticipate resultant behaviour (Daw et al. 2015).

How we feel about the ocean will influence what we choose to do with it, in it and on it. Within and between nation-states, there is heterogeneity in people's emotional response to the ocean, so it follows that there will not be complete agreement within or between countries about what kind of sustainable ocean economy we want. Emotive relationships with the coast and the ocean will influence the 'social license' granted to governments and private sector actors to develop new ocean uses. Understanding people's values (Schwartz 2012)—and the emotional responses elicited when those values are challenged—therefore become a key part of the ocean governance process.

3. Governing Humanity's Relationships with the Ocean: Some National and Regional Perspectives

Governance systems for coastal waters, territorial waters, regional seas and ocean basins have emerged from the turbulent mixing of historic, geographical, sociocultural, legal, political and economic relations. They are based on a rich foundation of traditional or local ecological knowledge and reflect the attempts of different societies to ensure that their relationships with the ocean support their well-being in all dimensions. These governance systems are under threat, but they are part of humanity's social and legal legacy, and they are now being overlaid by governmental and international law. A just and equitable, diverse and inclusive sustainable ocean economy will not allow this legacy to be swept aside but will nurture and support it.

Legal and customary systems in the ocean have also evolved through struggle and litigation. In some cases, modern states have neglected or actively undermined pre-contact and pre-colonial institutions and sovereign systems and attempted to replace them with newer forms of state-based governance. States' capacity to govern their 'marine estates' is limited, particularly in the large ocean states and in low-income, food-deficit countries where ocean governance competes with many other priorities for limited government spending. In these circumstances, instrumental as well as moral reasons may justify encouraging the revival and continued evolution of the traditional institutions of governance that predated modern state-formation.

There is increasing recognition that the knowledges, cosmologies and traditional institutions for environmental governance developed in Indigenous and traditional coastal societies are empirically valid, have contemporary relevance and can be (and have already) been mobilised for current contexts (Eckert et al. 2018; Jentoft et al. 2019). This is complicated by the history of active denigration and suppression of these practices (see, e.g., Maldonado 2014). The current wave of 'decolonisation' of thought systems (as well as territory) responds to this recognition that colonisation has marginalised local and Indigenous people and their knowledge systems and replaced them with human-environment relationships that are less functional and responsive. Other national and international environmental programs have begun to respond to these calls for decolonisation—notably the Intergovernmental Panel on Biodiversity and Ecosystem Services with its shift from talking about ecosystem services to 'nature's contributions to people' (Díaz et al. 2018).

Here we briefly introduce some of the different ways people around the world have built and institutionalised a 'human relationship with the ocean'. We do not present them as blueprints or exemplars of good practice. We merely offer them to illustrate a few of the diverse ways different (non-Western) societies with long histories of living with the ocean have developed ways of life and institutions that could be built upon in the places where

they occur. They also illustrate that large economies like China and the African Union have their own plans for the ocean economy; these may differ from a vision that comes from a model of global collaboration and consensus. Finally, we also indicate how contemporary international instruments—in this case the World Heritage process of the UN Educational, Scientific and Cultural Organization (UNESCO)—can support relational and subjective elements of well-being that are embodied in traditional maritime cultures, societies and practices.

We have picked only a few examples to illustrate a diversity of approaches and highlight whether and how (or how not) the institutions of these groups and nations support the relational and subjective dimensions of well-being derived from human-ocean interactions. Space precludes a more comprehensive or globally representative treatment. Every coastal and maritime society will have its own historical and cultural foundations to build upon when it comes to developing an equitable, diverse and inclusive ocean economy that supports human well-being. Whatever those foundations, a guiding principle for 'blue justice' can be that of 'participatory democracy', which implies decision-making devolved to more local scales (communities, municipalities and districts), active roles for a civil society distinct from governmental politics, and a more active engagement of citizens in the political process than is the norm in 'representative democracy' (Barber 2014).

3.1 An Indigenous Perspective: Aboriginal and Torres Strait Island Peoples' Connection to 'Saltwater Country'

Identified as Aboriginal or Torres Strait Island people, Indigenous Peoples in Australia comprise approximately 3 percent (or about 650,000) of the total population. The majority of coastal Indigenous Peoples live in remote or very remote locations, most of which are part of the Indigenous estate, Aboriginal-owned and managed land and sea, held under some form of Indigenous tenure. Indigenous Peoples view the ocean, islands and coastal environments as part of their 'sea country' or 'saltwater country' and often refer to themselves as 'saltwater people' (Smyth and Isherwood 2016).[3]

These features relate to ownership of traditional clan estates and marine resources under traditional law, and recognised in some state, territory and commonwealth legislation. The saltwater peoples of the Arnhem Land region continue to rely on coastal and marine environments and resources providing food, cultural identity, health and well-being, and as part of domestic and commercial trade economies. Opportunities for employment are very much determined by good land and sea management and the ability to harvest natural resources. The harvesting of plants and animals for food, ceremonial or celebratory purposes (community feasts), art production or the performance of sacred duties in natural and cultural management, including maintaining social and economic relationships within and between tribal groups, all play an important and central role in Aboriginal livelihoods, belief systems and well-being in Australia's Northern Territories.[4]

There is no overarching legal fisheries management framework for Indigenous customary fishing rights in Australia. Instead, fishing rights have been intricately tied to developments in land and native rights with different local arrangements across states and territories (Schnierer and Egan 2016).[5] This has meant that in most cases Indigenous customary fishing is exempt from fisheries management frameworks and laws. The effect is that Indigenous fishing has not been recognised and consequently engages low numbers of Indigenous people in fisheries and associated businesses (Fleming et al. 2015; Productivity Commission 2016). In most cases,[6] a definition of Indigenous customary fishing does not include fishing for commercial purposes, even though it is recognised that Aboriginal people have fished commercially (i.e. to sell, exchange or barter fish) according to traditional laws and customs. As such, land or Native title-holders who fish commercially have been subject to the same commercial fishing laws and regulations as the rest of the population. In this case, the Australian state's fisheries governance system fails to adequately understand, account for and support the relational and subjective benefits associated with Aboriginal marine resource use.

3.2 A 'Big State' Perspective: China's 'Ocean Dream'

While China's coastlines have historically hosted diverse peoples and cultures (e.g. Anderson 1970; He and Faure 2016), the Chinese state had until recently directed its attentions mainly to the land. In the last four decades, however, state policy has turned increasingly towards the ocean. This recalls the early 15th-century voyages of the great Chinese navigator, diplomat and maritime leader Zheng He, whose seven voyages, with a flotilla of 'treasure ships' and a retinue of 20,000, sought to extend China's trading influence throughout the Indian Ocean and strike awe in all who saw them (Dreyer 2006). Almost a century before Columbus and Vasco da Gama, Zheng He's flotilla sailed throughout the Indo-Malayan archipelago, to India, to the mouth of the Persian Gulf and to the East African coast. As China turns to the ocean once more in the 21st century, Heng Ze's exploits are part of a state narrative of a tradition of peaceful trading and knowledge-sharing that China contrasts with European imperial sea voyaging (Holmes 2006). As Western disquiet grows over China's growing modern maritime presence—not least in the disputed territories of the South China Sea—so too does Western historical research that seeks to reinterpret Zheng He's voyages as more overtly imperialistic in intent (Wade 2005).

China's overall domestic strategy aims to mobilise its people to support the 'Chinese Dream': achieving 'national rejuvenation', after what the central authority views as a period of global domination and humiliation by the West, and building a 'moderately prosperous society'. Thus, the national development policy has both relational, subjective and material dimensions. China's 'ocean dream', therefore, is to achieve the 'Chinese Dream' through an ocean-based economy. As such, China's 'blue economy' is state-led, rather than private-sector-driven, and ultimately serves the purposes of the state and bolsters the legitimacy of the Chinese Communist Party.

The Chinese central authority referred to the 'blue economy' in the 13th five-year plan in 2016, but contemporary policy on China's ocean economy dates to the start of the 'opening and reform' period in the late 1970s. Blue economic development in China accelerated around the turn of the 21st century. Since China ratified the UN Convention of the Law of the Sea (UNCLOS) in 1996, the state has established numerous exclusive economic zones, called for 'implementing ocean development' and issued various five-year plans for ocean economic development. The focus has culminated with the explicit goal of becoming a 'maritime power' (海洋强国), possessing military defence capabilities, a strong ocean economy and advanced marine science and technology. In 2019, Premier Li Keqiang summarised the state vision of China's blue economy as to 'vigorously develop the blue economy, protect the ocean environment, and construct a great maritime nation' (大力发展蓝色经济，保护海洋环境，建设海洋强国) (Li 2019).

Development of China's 'blue economy' has indeed been vigorous: In 2018, it accounted for 9.3 percent of GDP. China has focused on transforming its ocean economy from the primary production of raw commodities, such as capture fisheries, to secondary and tertiary production and service industries, such as processing and tourism. The country is also placing increasing emphasis on developing ocean-related technology and innovation; 'blue economic pilot zones', such as the Qingdao Blue Silicon Valley (青岛蓝色硅谷), are built so that demarcated parts of the coast can serve as (industrial or technological) parks for ocean-focused research and development.

The state-led nature of China's blue economy is also apparent in its more ideologically oriented policies. To bolster blue economic development and China's identity as a maritime power, the state has endeavoured to increase 'ocean consciousness' among the citizenry. Through outreach and education, the state is working to raise public knowledge about China's ocean nature, economy, culture and politics. Museums dedicated to cultural relics like Mazu, a goddess of the sea, have been newly created. Tourist destinations have likewise been established elsewhere in the country, such as fishing villages and festivals, in an effort to build interest in and understanding of China's maritime heritage. While this might at first sight appear to be directed at building non-material values and recognising tradition, these aims are martialled to support a top-down vision, and their instrumental nature is unlikely to confer the types of well-being that a bottom-up approach to culture and tradition might foster.

China also dreams of achieving marine environmental sustainability. Policy rhetoric certainly emphasises environmental sustainability; 'ecological civilisation' (生態文明), a framework to live in harmony with nature, is highly promoted, even constitutionalised. However, much of 'ecological civilisation' acts as a means to intensify production in some areas while restricting production activities in other, mostly rural, landscapes (e.g. Brown 2014; Hong 2018). This policy better protects some ecologically sensitive areas but also presents social and economic challenges, as it can displace livelihoods (Chen et al. 2017). Challenges in marine environmental governance also remain, including pollution, overfishing, subsidies, implementation and enforcement, and varied levels of government capacity (Zhang et al. 2016; Cao et al. 2017; Mallory 2016).

China's focus on its ocean economy also has international dimensions. The 21st-century Maritime Silk Road, a component of China's Belt and Road Initiative, aims to recreate historical international partnerships through investments, trade and aid. China's aspirations to become a maritime power have intensified a range of maritime disputes, such as in the South China Sea. China is also increasingly involved in ocean developments in the global commons, such as in the polar regions and on the high seas (e.g. seabed mining and distant water fishing), where it sees significant security and resource opportunities (Brady 2019; Mallory 2013).

In particular, the increasingly international scope of China's ocean economy means that its vision of becoming a strong maritime power is now interacting with alternative visions for a sustainable ocean economy currently being developed. While elements of relational and subjective well-being are addressed in China's 'Ocean Dream', they are invoked in the service of state power rather than individual or group agency and well-being.

3.3 Japan's *Satoumi* System: A Socially Negotiated Institution for Sub-national Governance

Satoumi is a Japanese concept describing a mosaic of interacting marine ecosystems and coastal human communities, where the livelihoods of people and the blessings of nature harmoniously co-exist. They are built on traditional ecological knowledge. It therefore addresses several facets of social well-being outlined in Tables 1–3. It emphasises ecosystem linkages and thus is somewhat incompatible with the species- or stock-based approach of more conventional fisheries management. The delineation of ocean space under *satoumi* is driven not by the need to differentiate ocean space based on user purposes but by the zoning promoted by fishers and other stakeholders to manage and conserve ocean resources and the ocean environment. Thus, there are fundamental differences in both objectives and approaches between spatial management and *satoumi*.

Attempts to characterise *satoumi* as a model of co-governance are inappropriate as they fail to fully appreciate the historic context and social dynamics encapsulated in the decision-making process. Specifically, unlike the self-governance framework, which limits their scope to collective decision-making by a stakeholder 'community', the scope of *satoumi* extends beyond ocean policymaking, as a greater, regional governance framework. A key feature of *satoumi* is that it is explicitly based on information-sharing among social actors, both administrative and economic. Through a system of information-sharing—including among fishers—*satoumi* facilitates management consensus. It also builds on the belief that fishers must be the stewards and protectors of the ocean; it defines their role and thus the objectives of local coastal governance and marine conservation efforts (Takehiro 2018).

Administratively speaking, Japan's Fisheries Act was the institutionalisation of a historic system of localised fisheries governance and provided rights to local coastal communities. Collective fishing rights are allocated to fishers and fisheries cooperatives, which are responsible for managing their adjacent waters. *Satoumi* can, therefore, be considered a social contract between fishers and local communities founded upon the awareness of complex interactions between ocean and humans. Nevertheless, *satoumi* is not a concept

that is universally recognised or defined but rather one that is dynamically applied on a case-by-case basis. Ocean management that is described as *satoumi* does not implement a specific set of measures. While *satoumi*'s key functions are described as 'productivity enhancement', 'conservation of environment', 'promotion of communication' and 'cultural succession', it is not necessary for all these functions to be explicitly identified in a system described as *satoumi*. Under the *satoumi* model, conservation is a means to improve fisheries productivity and mobilise social networks for conservation effort, with the understanding that such effort supports fisheries. If *satoumi* is to be considered a form of social contract that transcends conservation and fisheries aspirations, it is critical that further discussions focus on the ocean as an integral part of the coastal community, rather than on the environment that the coastal community occupies and utilises.

3.4 Indonesia: Diverse Marine Ecosystems Support Diverse Maritime Cultures and Societies

Indonesia, a centre of global marine biodiversity and at the heart of the Coral Triangle, has five main maritime populations: Bajo, Bugis, Butonese, Makassarese and Madurese (from the Raas and Tondok islands in west Java), plus a number of smaller populations (Stacey 2007). Since before the earliest European presence in Indonesia, these populations have engaged in migratory behaviour as part of artisanal commercial fisheries for local (e.g. dried and fresh reef fish) and international trade (e.g. trepang, shark fin, live reef fish), the latter strongly driven by demand from China and other Southeast Asian countries for highly prized marine products. Since the 17th century, fishing, sailing, fishing and trading strategies have permeated as far south as northern Australia, throughout eastern Indonesia to the north to Malaysia and Singapore, and even as far east as the island of Palau in the northwest Pacific (Stacey 2007). Over the last three centuries, these groups have adapted diverse sailing, fishing and trading livelihood strategies in response to the island environment, political processes and alliances, and commercial trading networks.

Mobility and adaptability underlie the social and economic life of these maritime populations and are key features of these communities. People move regularly and frequently between home villages and transient or semi-permanent settlements across the archipelago, staying for short or extended periods in settlements. Mobility is facilitated by kinship, economic ties (patron-client) and historical antecedents (Stacey 2007). The most mobile and specialised of all seafaring groups are the Sama-Bajau (commonly referred to in the academic and popular literature as 'sea nomads'). They are also the most vulnerable and marginalised due to lack of secure sea tenure, landlessness and their status as a minority Indigenous group (ILO Convention no. 169 [1989]; see Annex A).

Mobility among Indonesian fishers does not mean an absence of resource governing institutions, however, and these provide the basis for both fisheries management and marine conservation and economic development, including the traditional community-based coastal resource management sasi system of the Maluku archipelago. Sasi, which means 'to prohibit', regulates the harvesting of certain biological resources in the estuarine and nearshore coastal areas, in an effort to protect their quality and population. Sasi also operates to maintain patterns of social life, through the equal distribution among all local citizens of the benefits from the surrounding natural resources (Kissya 1995). As an institution it has never been static, changing with the coming of state and church organisational structures into the islands and varying from village to village. The governing and enforcing authorities may be traditional, church, local government or private individuals holding the harvest rights to coastal land and aquatic resources. In certain areas sasi has evolved to accommodate significant commercial transactions involving the natural resources and a spectrum of claimants. Consequently, the rules that define how the players in sasi work together are a mixture of tradition and modern innovations and demonstrates attention to relational and subjective issues that make it more than a technical means to manage fishing effort. This has been important to the resilience of the institution and its continued relevance to culture and well-being.

The modern state apparatus in Indonesia was keen to make marine fisheries an important source of foreign-exchange earnings. Extending state control over the coastal waters of the archipelago was a prerequisite for this. State patronage of modern fishing technologies (such as the bottom trawl), with investors from the

Chinese communities taking the lead in the mid-1960s, resulted in the gradual and extensive spread of bitter conflict with coastal fishermen using small-scale, artisanal techniques. Institutions like sasi were initially deemed irrelevant to handling these new forms of conflict. State-supported legislation and zoning arrangements were introduced to contain the conflict, but these centrally administered regulatory regimes were costly to implement and largely ineffective in enforcement given the geographic spread of the islands of Indonesia. Moreover, they had no legitimacy in coastal communities that were marginalised from their traditional fishing grounds. This led to a revival of interest in the coastal villages for more community-oriented arrangements for protection and nurturing of the natural assets of the coastal waters. The sasi system takes on new meaning in this context.

Sasi does not cover the entire fishery. It is applied only in small inshore areas and to a few species. However, these areas and species can be considered to be keystones for the health of the ecosystem. This important ecological fact, together with the sociocultural foundations of *sasi* in Maluku, provides a robust rationale for supporting *sasi* where it continues to be vibrant, and for efforts to revive it where it faces extinction. Since collaboration, trust and legitimacy are the pillars of the sasi system, these are also crucial elements of any new institutional arrangements (Novaczek et al. 2001).

3.5 South India: Sea Courts and Legal Pluralism

Two case studies from South India illustrate the strong institutional 'interplay, fit and scale-relevance that characterise effective and resilient institutions' (Young and Gasser 2002). They also illustrate that the processes by which decisions on natural resource governance are made affect social well-being; having a voice, belonging to a group and exercising local autonomy are key values that support these institutions.

3.5.1 Kadakkodi: The court of the sea

Among the Hindu fishing communities scattered in the predominantly Muslim districts of Kozhikode, Kannur and Kasargode, in the Indian state of Kerala, the age-old traditional community institution called the *kadakkodi*, or 'sea court', is closely associated with the temples located on the beach. The fishery of the region exhibits great seasonality and is marked by bumper harvests. Confusion and conflicts among fishing units are inherent to the very nature of the fishery. The 'court' consists of the 'elders' and certain number of 'functionaries' who implement the decisions. The court meets openly. All fishers participate in the discussions on issues that relate to access, conservation and conflict resolution, thus nurturing senses of status and belonging and fairness. The elders make the decisions, which are considered final. The implementation and the sanctions against offenders are the responsibility of the whole community. The *kadakkodi* has more recently been subjected to considerable pressure by rapid technological changes, new organisational forms promoted by the government, new political divisions among fishing communities and the greater involvement of formally educated youth in fishing operations. Yet its basic scaffolding is still in place. With the government emphasising decentralised resource management and governance, there is latent interest in reviving and strengthening the institution, albeit in a new form. In this context, communities with a history of traditional institutions will have an important edge in the negotiation of any new stewardship contract between state and community (Kurien 2001).

3.5.2 Uur panchayats and legal pluralism

The Coromandel Coast of southeastern India has a long history of settlement and particularly strong expressions of customary law (Bavinck 2001a). The fishing communities belonging to the Pattinavar caste had established village councils (*uur panchayats*) for formulating and implementing a broad spectrum of customary laws. Along this coastline fishers law often prevails, with civil servants having to walk on tiptoe.

Uur panchayats' prime responsibility is social and territorial in nature and ultimately anchored in control over people as well as territory (Bavinck and Vivekanandan 2017). All adult men are considered members of the community and are considered equal—a fact mirrored not only in the structure of village meetings (members seated in a circle at the same level) but in the consensus approach to decision-making (Bavinck 2001b). All members contribute taxes to the village and not only follow the rules that are collectively adopted but also enforce them. The position of the elders used to

be hereditary. But today most councils organise regular elections to fill these positions.

The *uur panchayat* controls adjacent waters, regulating the kinds of fishing practiced and also taxing outsiders who wish to land their catches locally. Residential lands and common lands are in principle still held collectively under the jurisdiction of the *uur panchayat*. Beaches adjoining fishing settlements are also controlled by the village councils. All tenure rights are held under community common property regime, with rights flowing to members of the village population as a whole. These rights are not transferable and so protect the group against unwanted encroachment and infiltration.

According to India's constitution, the use of marine waters is regulated by the state alone. In the case of fishing, the clash between the state and the customary legal systems such as the *uur panchayat* has been pronounced and sometimes violent. The introduction of semi-industrial fishing by the state caused uproar in the *uur panchayats*, since this new category of fishers was blatantly infringing upon village fishing territories, causing significant damage and indignation. Recently *co-management* has become a buzz word in government circles, but though the *uur panchayats* are not considered legal and held in suspicion as a relic of the past, on an informal basis, government representatives have been shown to negotiate regularly with *uur panchayats*, recognising the need to come to terms with the legal plurality for the sake of maintaining peace, equity and better management of fishery resources.

3.6 African Maritime Economies: Historical Foundations and Contemporary Visions

African nations, under the leadership of High Level Panel member states Kenya, Ghana and Namibia, together with South Africa, are leading the global charge to embrace the growth possibilities of the 'blue economy'. The Seychelles has pioneered the use of 'blue bonds': an innovative financial instrument to support the conservation of its ocean estate and its associated ecosystem goods and services, building on debt-for-nature swaps (Schutter and Hicks 2019). While conservation benefits are a primary motivation for some of their development partners (such as The Nature Conservancy), African nations are looking at the blue economy largely in the context of an imperative to industrialise, grow their economies and provide employment opportunities and food for their citizens.

African nations' success at lifting their citizens out of poverty is crucial to meeting SDGs. But the ocean around Africa is not empty, and it has a history. That history—and the human relationships with the ocean that have persisted through or been shaped by the mercantile and colonial periods—provide a basis to build on. The Swahili, for example, are regarded as a coastal or maritime culture (Fleisher et al. 2015). While their languages, religion, customs and sailing technologies have reached the heart of the African continent, they are originally a cosmopolitan maritime trading society, whose East African port cities of Lamu (Kenya) and Stone Town Zanzibar (Tanzania) are listed as UNESCO World Heritage sites (see Annex E), attracting international tourism in the past 50 years. Plans to develop a new port near Lamu may make trans-oceanic trade once again its most important economic activity (Lesutis 2019). Whether Africa's future ocean economy is to be built on expanding ports and transportation infrastructure (much of it funded by China's Maritime Silk Road initiative; Lim 2015) or whether it will be built on 'blue bonds' and rationalised fisheries remains to be seen. What is clear, however, is that Africa's citizens will benefit most if any such development is also built on Africa's existing maritime cultures and institutions. Here we introduce the Yoruba littoral in Nigeria to illustrate that new ocean economy initiatives will be layered upon a rich tradition of maritime trade and interactions with and dependencies on the ocean, even in societies usually associated with land-based activities.

3.6.1 West Africa and the Atlantic: The Yoruba littoral

The Yoruba are found mainly in the western part of Nigeria, but also with substantial numbers in the neighbouring republics of Benin and Togo. Descendants of Yoruba slaves exported to the Americas between the 17th and 19th centuries live in Brazil, Cuba and several Caribbean and Latin American nations. With an estimated population today of around 56 million in Nigeria, the Yoruba have lived in large settlements for centuries—they were the most urbanised African ethnic nationality before European colonisation in the 19th century. The bulk of the Yoruba population lives in the

hinterland, while a much smaller percentage lives on the Atlantic coast.

The Yoruba littoral is not exclusively Yoruba. Other Nigerian and non-Nigerian coastal peoples also live, fish and trade in the zone. Among these are the Ijo (Izon) and Egun of Nigeria, the Ewe (Keta) of Togo and Ghana, and the Fante of western Ghana. It is claimed that migrant fishermen from Gold Coast/Ghana have been in the Lagos section of the Yoruba littoral since the late 18th century (Adewusi 2017, 165). The diversity of people speaks to the multicultural character of the Yoruba littoral and the range of criss-crossing migrations, over hundreds of kilometres across the Gulf of Guinea—westwards to Côte d'Ivoire and eastwards to Cameroon, Gabon and Angola. Fishing techniques and methods of fish processing have been borrowed or transferred by migrants as they fished and traded beyond their homelands. Migrations, economic enterprise, war and peace, and cultural exchanges have defined identity and inter-group relations in the Yoruba littoral. The zone was the site of power relations between proximate and distant neighbours, commercial enterprise, oracular and religious activities, all of which are critical to the daily lives of the people. There were hierarchies of power relationships, especially between political and economic nodes, on the one hand, and their satellites, on the other.

The sea (*okun*), lagoon (*osa*), lake (*adagun-odo*) and river (*odo*) are connected in Yoruba cosmology. The sea features in Yoruba legends of migrations and festivals. All over the coast, festivals dedicated to sea goddesses are commemorated either to celebrate fish harvests or to placate hostile natural forces so that the environment may be conducive to fishing. The association of the Yoruba with the ocean is embodied by the deity Olokun (Lord of the Sea) and Yemoja (the sea goddess). Rituals and festivals are performed by the Yoruba and non-Yoruba ethnic groups in Nigeria in honour of this deity. The iconic Ori Olokun mask—adopted as symbol of the global Festival of Black and African Arts and Culture in 1977—represents the Yoruba, though Olokun is not exclusive to the Yoruba. The deity is represented in the pantheon of the religious and cultural systems of the neighbouring non-Yoruba Edo, Itsekiri and Western Igbo communities in midwestern Nigeria. The multi-ethnic character of the Yoruba littoral has led to extensive mutual cultural borrowings and overlaps in language registers, broad similarities in songs and festivals, dress styles, family, personal and place names (though the same words might have different contextual meanings) and inter-ethnic marriages. Festivals for Olokun are celebrated across ethnic and social divides. Okosi, an annual festival of rowing and sailing, is a boat regatta to appease Olokun and thereby ensure a greater catch, as well as safety for fishermen on the lagoons and the ocean (Adeyeri 2012).

Ayelala, strongly entrenched among the Ilaje and their Ikale (fellow Yoruba) neighbours, is another sea-themed deity that cuts across the Yoruba littoral. Ayelala is 'not only worshipped with pomp and pageantry but also highly revered and respected by its worshippers. . . . [It] is linked to conflict resolution and retribution against societal impropriety' (Raheem and Famiyesin 2017, 233). It has a fearsome reputation among the Ikale, Ilaje and Ijaw-Apoi for dispensing swift justice in cases of sexual infidelity or murder. Its religious and oracular network extends far beyond the cultural and geographical boundaries of the Yoruba littoral. The deity thus plays a role in fostering peaceful inter-group relations among communities across the zone. 'Seeing the efficacy of Ayelala's powers,' it has been noted, 'other neighboring and distant communities such as Ikaleland were quickly attracted to the goddess and infused it as part of their traditional deity' (Raheem and Famiyesin 2017, 244).

An overview of the economic activities of the Yoruba coast, with an emphasis on fishing, is given in Annex F. Fishing has been the driving force behind the lateral movements along the coast. It remains the centre of littoral social and economic life. Fishing is the impetus behind Ilaje, Izon, Ogu and Keta migrations and settlement across the Gulf of Guinea and beyond. The fishing industry has witnessed significant innovations, while remaining largely artisanal, since the 1890s. Both Indigenous religion and Christianity have contributed to the political, economic and social development of the Yoruba littoral.

The key lesson from the way the Yoruba have institutionalised their relationship to the ocean is that coastal trading societies need ways to foster cohesion, cooperation and mutual understanding among distinct but regularly interacting groups if they are to benefit from trade relationships. Their cosmology is built on fostering and maintaining these interactions and attending to relational, spiritual and practical needs.

3.7 Island Communities' Leadership in Governing the Ocean Locally and Globally

Island nations in the Pacific, Caribbean, North Atlantic and Indian Ocean have featured prominently both in the redevelopment of local conservation and resource management institutions and in ensuring that the ocean is prominent in global governance mechanisms and policy discourses around 'greening' the economy and reaching agreement on global greenhouse gas emissions.

The nations of the Pacific Community have been at the forefront of campaigns for local autonomy in marine and coastal natural resource management and for local and Indigenous knowledges as the basis for systems of governance. The 'New Song', or Nouméa Strategy (SPC 2015), calls for an enhanced focus on coastal fisheries management and related development activities in the Pacific region. It is a community-driven approach built upon traditional Melanesian, Micronesian and Polynesian institutions, supported by national governments and all other stakeholders, to provide direction and encourage coordination, cooperation and an effective use of regional and other support services to develop management of coastal fisheries. At the regional level it coordinates initiatives and stakeholders with a shared vision of coastal fisheries management. At the national and subnational level, it seeks political recognition of the value of coastal fisheries to food security and rural development. It thus addresses what have been seen as key limitations of local governance initiatives: coordination and scalability.

Pacific island nations, such as Solomon Islands, have worked to include locally managed marine areas and other forms of customary marine tenure in their legal systems, which are based on state laws, themselves a mix of English law dating from the colonial era and post-independence legal development (Schwarz et al. 2020). This pluralistic legal system is itself also nested within regional treaties and agreements of the Pacific Community and international law, including the law of the sea. The 'New Song' supporting local coastal fisheries is mostly compatible with the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines) (FAO 2015), with areas of divergence occurring around gender relations and human rights (Song et al. 2019), illustrating both the strengths and weaknesses of global policy harmonisation: it fosters coordination but potentially undermines cultural autonomy. The governance regime for the Pacific is thus both polycentric and plural, with the complex legal and policy environment responding to evolving relationships between people and the ocean at multiple jurisdictional levels.

At the level of global environmental governance, the Alliance of Small Island States (AOSIS) has been prominent in four ocean-related arenas: global climate change agreements, evolving high seas fisheries governance, agreements governing deep-sea mining and the conceptual roots of the blue economy. In all these cases, the negotiating and diplomatic tactics employed by AOSIS have relied extensively on appeal to subjective and relational values, as we briefly discuss here with respect to climate change and the blue economy.

In the climate change arena, AOSIS, building on the work of many civil society advocacy groups and regional and international nongovernmental organisations (NGOs), built a narrative around islands as vulnerable to sea level rise and other ocean-related climate change but not responsible for climate change. This narrative also rejected victimhood and stressed resilience, equity, rights and justice as values embodied in their calls for industrialised nations to commit to curbing carbon emissions and funding adaptation. In doing so, they influenced the outcome of the UN Framework Convention on Climate Change's 21st Conference of the Parties, resulting in the Paris Agreement (McGregor and Yerbury 2019).

The blue economy was originally an appeal by the 'large ocean states' (as SIDS now prefer to be called) of the Pacific Community and the Caribbean for investment and policy attention around greening the economy to move beyond the land. AOSIS argued that most of the technologies, policy measures, investments and attention around greening the economy—through energy efficiency and decarbonisation, improved land-use and recycling materials—were focused on terrestrial technologies (Voyer et al. 2018). The blue economy narrative has since shifted and broadened to encompass a range of views (see Section 2.1), but it was originally conceived around ways small island states, with their small-scale community customary fisheries and

large ocean territories, might participate actively and equitably in the greening of the global economy. Thus, the blue economy concept was originally built on island nations' concerns for equity and participation as well as the growth potential and environmental sustainability of the ocean.

3.8 Maritime Examples of UNESCO's 'Intangible Cultural Heritage' Designations

While many traditional systems of ocean governance and some more recent state-driven ones demonstrate how ocean resources and the ocean economy are governed with relational and subjective elements of well-being in mind, the contemporary global governance instrument that most explicitly seeks to consider these non-material dimensions of ocean-related contributions to people is UNESCO's 1972 Convention Concerning the Protection of the World's Cultural and Natural Heritage.

UNESCO (2020a) defines heritage as 'our legacy from the past, what we live with today, and what we pass on to future generations. Our cultural and natural heritage are both irreplaceable sources of life and inspiration'. UNESCO evaluates, designates and maintains lists of natural and built-environmental sites as well as intangible (i.e. non-material) cultural heritage. While nation-states invest in protecting their own heritage, what makes the concept of World Heritage exceptional is its universal application. 'World Heritage sites belong to all the peoples of the world, irrespective of the territory on which they are located' (UNESCO 2020a). The process of identifying and designating such sites draws attention and resources to their conservation and to support their continued contribution to humanity as 'irreplaceable sources of life and inspiration'. These listings are supported by legislative protection derived from the Convention Concerning the Protection of the World Cultural and Natural Heritage, including the 2003 UNESCO Convention on Intangible Cultural Heritage. Sites and cultural systems may receive multiple UNESCO World Heritage designations due to their landscape or biodiversity significance, their historical and material significance or their contributions to less tangible elements of heritage such as ritual, belief, language, skills, identity and social organisation—many of which this paper has discussed.

The Marine program within the UNESCO World Heritage program (UNESCO 2020b), under which a number of marine and coastal sites have been designated, is helping to raise the profile of World Heritage designations in ocean and coastal governance. Although much of the program's work is focused on natural heritage, several designations of coastal and marine sites include either historical and archaeological heritage or living human cultural practices and meanings as criteria for listing. These include Papahānaumokuākea (United States), an isolated linear cluster of small, low-lying islands and atolls, with their surrounding ocean, roughly 250 kilometres (km) to the northwest of the main Hawaiian archipelago and extending over some 1,931 km^2. The area has deep cosmological and traditional significance for living Native Hawaiian culture, as an ancestral environment, an embodiment of the Hawaiian concept of kinship between people and the natural world, and the place where it is believed that life originates and to which the spirits return after death. On two of the islands, Nihoa and Makumanamana, archaeological remains testify to pre-European settlement and use. Much of the monument is made up of pelagic and deep-water habitats, with notable features such as seamounts and submerged banks, extensive coral reefs and lagoons. It is one of the largest marine protected areas in the world.

An overview of the application of UNESCO World Heritage designations to oceanic and coastal sites is given in Annex E, with examples of maritime- and ocean-associated inscriptions under the 2003 UNESCO Convention on Intangible Cultural Heritage.

4. Opportunities for Action to Support Pluralistic and Inclusive Ocean Values

There have been calls from scientific leaders for a new narrative about the ocean that replaces indifference or despair at the state of the ocean with optimism and innovation, to 'reset expectations and liberate ingenuity' (Lubchenco and Gaines 2019, 911). Calls for new narratives also come from the grass roots, with small-scale fishers' representatives calling for a more positive story about the role of small-scale fisheries in contemporary and future society (FAO 2020b). We suggest that both these narratives are calls for recognition of the many and diverse contributions the ocean makes to human well-being.

> In healing the ocean, we can heal ourselves. The ocean sustains and feeds us. It connects us. It is our past and our future.
> —Lubchenco and Gaines (2019, 911)

4.1 Synthesis and Conclusions

People have multiple economic, political, social, cultural, spiritual and emotional relationships with the ocean. These 'blue relationships' are a product of geography, history and human diversity—including diversity of economic circumstances. Because there is unprecedented attention to ocean policy at present, and because—amid a health and economic crisis—there is a wider global reflection on human values and trajectories and a rising tide of protest against economic and racial injustice, the present moment offers great opportunity to take the bold political actions needed to develop a sustainable ocean economy built on diverse relationships, in ways that encourage equity and inclusion and that recognise the non-material aspects of well-being.

The human relationship with the ocean tends to change with distance from land. More of humanity is acquainted with the coast than with the high seas. Our relationships with shorelines, estuaries and tidal waters are intimate, while our relationships with blue waters may be warier and more transactional. This gradation of relationships also requires a gradation in the scale of legal and policy frameworks. Local and traditional systems are prevalent in inshore waters and could provide a basis for building governing institutions with legitimacy and in ways that sustain both the material and non-material contributions the ocean makes to well-being. The legal regime governing EEZs and the high seas is largely in place and supported by UNCLOS, but it requires strengthening and dialogue to accommodate new ocean uses as countries make ocean economic plans and engage in marine spatial planning. It also requires recognition that all peoples and nations should have a say in how this 'common heritage of humanity' is governed. This principle—and the right to participate in decision-making about areas beyond national jurisdiction—is increasingly exercised by landlocked states, local coastal communities and Indigenous Peoples (Vierros et al. 2020).

A sustainable economy will be accessed through the land-water interface. How we govern coasts will determine who accesses and benefits from blue space. A heavily privatised, zoned and securitised coast will

exacerbate the separation of humanity and the ocean and risk alienating and reducing access for lower-income visitors and residents, as well as long-term ocean resource users and stewards, such as fisherfolk and Indigenous Peoples. An accessible coastal commons, built upon existing institutional foundations and providing livelihood and well-being benefits to all citizens, is likely to foster a more constructive long-term engagement with the ocean.

Our overarching conclusions from our review of the myriad human relations with the ocean, across time and space, are threefold:

First, there is no simple human relationship with the ocean with which all people will identify. Fishers inshore and offshore, refugees attempting to cross the Mediterranean, beach and adventure tourists, seaside condominium buyers, oil rig workers, Ghanaian fish mammies and the oceanographers all have different interests, experiences, economic stakes, emotional investments and cultural and social ties to different aspects of the coast and ocean. Building on this plurality of values to forge a diverse and inclusive sustainable ocean economy provides opportunities for increasing the ocean's contribution to both material and non-material well-being on a planetary scale. Doing this in practice is likely to require a participative style of democracy with the active engagement of ocean and coastal citizens.

Second, ocean economic development plans that specifically address equity and inclusion will help reduce existing gender, class, ethnic, North-South and racial inequalities. While the ocean's regulatory and support services benefit all humanity, it is particularly important to address the concerns and interests of the majority of those working on the ocean or stewarding the ocean, such as Indigenous Peoples using diverse natural resources, municipal authorities maintaining clean water and beaches, and those working in and managing fishery resources and conservation areas. Collectively, small-scale fisherfolk, sea nomads and coastal Indigenous Peoples are 'too big to ignore' (Chuenpagdee 2011).

Third, in the industrialising ocean, maintaining open and natural spaces such as coastal beaches and seas contributes to citizens' access to opportunities to gaze at, walk, swim or play near, in or on the ocean. These access rights and resources should be preserved as far as possible and extended where they have been eroded or unjustly encroached upon. Losing this access to 'blue nature' will result in an incalculable loss to human well-being.

This is therefore a once-in-a-generation opportunity to pause and carefully consider our complex relationship with the ocean, and to rethink it and remake it to meet the challenges future generations will face. The Sustainable Development Goals themselves represent more than a reduction in the incidence and prevalence of the material dimensions of poverty—important as these are. They represent a set of pathways to human well-being and a transition to planetary sustainability. Achieving them will require humanity to have a rich, diverse, engaged and evolving relationship with our ocean planet.

4.2 Opportunities for Action

We present action opportunities as linked steps, starting from a reframing of the human-ocean relationship, progressing through an engagement with a wider ocean constituency, and finally supporting that constituency to establish diversity and inclusion as core elements of a sustainable ocean economy.

4.2.1 Humanise the ocean narrative

Narratives motivate and inform political action (Lubchenco and Gaines 2019). Narratives that celebrate the rich diversity of human social, cultural, cognitive and emotional relationships with the ocean and emphasise the relationship between human well-being and ocean ecosystem flourishing could help broaden the political consensus around a sustainable ocean economy. We therefore suggest several ways that such narratives can be developed, progressing from short- to longer-term action.

SHIFTING LANGUAGE AND FRAMES OF REFERENCE

Three shifts in frames can help create a context for more inclusive actions in support of positive human-ocean relationships:

- *Reclaim the idea of the blue economy*. It has energised governments, NGOs and the private sector but alienated some in civil society. Originally developed as a means to bring the principles of equitable 'green growth' to small island developing states, it has been co-opted by many different interests. Its 'greenness' and its commitment to equity need to be reasserted, while the growth imperative itself requires critical scrutiny.
- *Reframe ocean ecosystem services as 'nature's contributions to people'* (NCPs), following the IPBES (Díaz et al. 2015; Díaz et al. 2018). The emphasis on converting all of nature's goods, services and gifts to humans to their equivalent in monetary values (even if only conceptually) is both politically polarising and problematic for many outside of Judeo-Christian cultural influences, particularly Indigenous Peoples. NCPs constitute a more inclusive frame that recognises a diversity of knowledges and value systems (Pascual et al. 2017).
- *Emphasise the ocean's contributions to meeting all SDGs.* Here it is particularly useful to move beyond the achievement of SDG 14 to consider potential ocean economy contributions not only to food security and poverty reduction but also to gender equity, youth employment and development partnerships. Tools for mapping ocean economy plans against potential contributions to SDGs are being developed and could be applied to sustainable ocean economy development plans at the national and subnational levels (e.g. Obura 2020).

BROADENING THE KNOWLEDGE BASE: INFORMING BLUE FUTURES

Local and Indigenous knowledges and the environmental humanities can, along with natural and social sciences, inform the sustainable ocean economy and reflect the diversity of human-ocean relationships. Here are tangible ways to achieve this representation:

- Ensure that historians, anthropologists and local and Indigenous knowledge-holders are part of national ocean economy planning teams.
- Allocate marine research funding to the arts and humanities as well as the natural and social sciences.
- Encourage institutions such as maritime museums to consider broader representations of the ocean sector.[7]
- Work with communities, municipalities and private sector sponsors to support cultural festivals that celebrate coastal and sea life, or arts, theatre and film festivals[8] with ocean themes.
- Identify coastal and maritime candidates for UNESCO World Heritage listing. Such listings not only help preserve and reproduce cultural and social values but also attract investment in tourism and renewal of coastal towns' housing stock and regeneration of waterfronts.
- Document fishers' knowledge to broaden the knowledge base. *The IUCN Guidelines: Gathering of Fishers' Knowledge for Policy Development and Applied Use* (to be published shortly) sets out protocols for doing this.

All these activities draw attention to both positive and contentious human relationships with the ocean and complement the more widely known public presentations of the ocean that focus on ocean wildlife or present the ocean as despoiled wilderness.

4.2.2. Engage key constituencies in the development of future ocean visions and planning processes at national and international levels

After some 40 years of global consensus on globalised and liberalised economies, vulnerabilities in that system revealed by the COVID-19 pandemic, concerns for rising inequalities and inadequate action on climate change are leading to radical calls for transformative economic and social policy. There are a diversity of visions and values for both the global economy and the global ocean being developed ('blue justice', 'blue degrowth') but these are largely outside the UN process. The proponents of these visions, which include small-scale fisher representative organisations, could be included

in dialogues and planning for the sustainable ocean economy. Specific actions may include the following:

- *Set up intergenerational dialogues on ocean futures at the national level*. Youth are taking a lead on global climate action and could bring that leadership to the ocean policy arena, in dialogue with elders who, in many Indigenous and traditional societies, are keepers of stories, knowledge and authority.
- *Engage with organisations proposing alternative visions for human-ocean relationships*. Civil society organisations representing some 'ocean citizen' interests have expressed concerns about the process and vision of developing the sustainable ocean economy. They have watched what has happened to their fellow citizens in previous agrarian and industrial revolutions and fear what follows from the 'blue acceleration'. Their concerns are legitimate, and their institutions, knowledge and policy advice could help prevent such outcomes in the future ocean economy. Indigenous Peoples are key constituents here in many ocean states; so too are trade unions and NGOs in the human rights, community development and environment and conservation arenas.
- *Choose between commons or private ocean*. This should include holding national-level dialogues on the institutional and financial means to achieve a diverse, equitable and sustainable ocean economy that delivers well-being to the greatest number of people. The debate centres principally on the use of communitarian, public sector or privatisation approaches to governance. Balancing local and global responsibilities is the critical challenge.
- *Support small-scale fisherfolk*. Small-scale fishers are currently the largest population group directly economically dependent on the ocean and are part of the private sector. They feel squeezed out of coastal zones that they have occupied, used and stewarded, in some cases for centuries. They could be powerful allies for ocean stewardship.
- *Engage port cities and coastal local governments in inclusive ocean governance.* Port cities have played major roles in shaping the human relationship with the ocean, often both driving economic growth and leading social change movements. Leaders of major cities are already key actors in global policy arenas such as climate action, sustainable food systems and equity and justice (Pearson et al. 2014), so they are well positioned to play a greater role in ocean governance. Ports, waterfronts and ocean tourism are key elements of many coastal city economies, which increasingly look to a 'blue urbanism' to improve their citizens' quality of life (Beatley 2014). Coastal local governments may also be better than national marine spatial planning processes at accommodating diverse local interests.

The dialogues with small-scale fishers and with coastal Indigenous people could be brokered through FAO's civil society platforms, through which they have been able to develop the SSF Guidelines (FAO 2015)—a voluntary global governance instrument with significant buy-in from the world's fishing communities and, increasingly, governments, coastal Indigenous Peoples and environmental NGOs (Jentoft et al. 2017). This process of engagement could begin with the 2021 meeting of the FAO Committee on Fisheries. An equally important mission is to ensure that the democratic and human rights–based guiding principles and provisions of the SSF Guidelines are mainstreamed and embedded in fisheries large and small, and in the numerous blue economy programs at the national and international levels.

Table 5 summarises the rationale for developing the knowledge base, narratives and engagement strategies described above.

4.2.3 Create policies and mobilise finance for actions in support of an inclusive ocean-society relationship

Inclusive governance is best supported by participatory democracy, which requires an active and capable civil society. We propose three actions to safeguard and facilitate engagement of, and action by, a wide spectrum of ocean interests, including those who have been historically or recently marginalised by the economic development process. This entails support for such communities and populations to enable them to participate fully in the sustainable ocean economy and to retain and expand their historical rights and responsibilities in the ocean. The effort will require the development of adaptive leadership in both the public and private sectors.

Table 5. Synthesis of Means to Foster Narratives, Dialogues and Knowledge to Mobilise Key Constituents to Support Inclusive, Pluralistic Ocean Governance

AREAS OF BENEFIT *GOAL FOR ACTION*	DISCOURSE	KNOWLEDGE	VALUE	ALIGNMENT
Enrich the diversity of ocean policy actions by humanising ocean narratives.	Reclaim the original meanings of the 'blue economy', centred on equity and sustainability. Stress the relational and subjective elements of ocean contributions to societal well-being.	Broaden the knowledge base informing 'blue futures' to include Indigenous and local knowledge, the arts and humanities. Ensure equity of access to information by marginalised and/or vulnerable groups.	Shift from valuing ocean ecosystem services to valuing the ocean's contributions to society.	Emphasise the contributions of the ocean to meeting all SDGs, not just SDG 14.
Ensure ocean inclusivity by engaging key constituencies.	Set up intergenerational dialogues on ocean futures.	Engage overlooked or marginalised constituencies for the ocean.	Engage with religions and spiritual beliefs about the oceans. Recognise the sovereign claims of Indigenous Peoples.	Develop dialogues with small-scale organisations representing fisheries. Engage with leadership of the governance bodies of major coastal cities.
		Dialogue and facilitation		**Mainstreaming and policy alignment**

1. **Create a publicly funded community-based knowledge depository for use in dialogue with new ocean economy interests**. In order to safeguard their own knowledge and perspectives that connect intergenerational interests and communities' needs for a sustainable ocean economy, we need to *build on traditional institutions, values and narratives of the ocean in different regions and nation-states and support communities* **to continue to evolve their ocean relationships**. Public funds to support these relationships could include support for scientific monitoring and data collection, maintenance of social institutional knowledge and practices, and support for civil society organisations and Indigenous governments as they chart their own courses in the future ocean.

   ACTION: Establish long-term public funding streams dedicated to the creation and maintenance of national-level knowledge repositories in which community-level experiences of disasters, toxic exposures and development in general can be archived. Build institutionalised connections between such repositories and communities or their legitimate representatives in order to increase community-level access to salient information and prior experience, and level the playing field for communities negotiating with external interests.[9]

2. **Provide statutory protection to prevent private equity from undermining community capacity and interests**. Powerful corporate interests have the capital and political influence to shape community-government relationships in their

favour. Governments have a duty of care to ensure that their citizens' interests are fairly considered in future ocean economic development. Governments need to create legal and expert support aid for ocean-dependent communities and civil society organisations to facilitate their capacity (including their internal decision-making process and legal base) to negotiate with external interests in order to represent their cultural world views in formal negotiation processes. Current ocean-related funding reflects global conservation and development values but leaves little space for local voices and values. The funding will prevent powerful actors from buying their 'social licence to operate'.

ACTION: In recognition of clear conflicts of interest, and in order to improve social license for development as well as development outcomes and impacts, disallow industry and development interests from funding the negotiators representing the communities and decision-makers whose interests they seek to influence. Instead, establish institutionalised, national-level sources of expert legal support that may be freely accessed by communities approached by development interests. Ensure that legal support is fluent in and supportive of the diverse priorities and cultural world views of the range of represented community groups.

3. **Re-evaluate development funding structures and mechanisms to support meso-level institutions**. In reformist agendas such as those explored by the Ocean Panel, there is a tendency to look to either high-level processes and powerful actors (technological change, global laws, standards and conventions, intergovernmental organisations, national governments, national policy instruments, market forces, large corporations or industry associations, international conservation NGOs) or shifts in individual behaviour (diversifying out of fishing, eliminating single-use plastics). These are the two extreme levels in multi-level governance. In between are devolved, municipal and local government, Indigenous sovereignty, community, civil society organisations, trade unions, pluralistic legal systems, public institutions, small and medium enterprises, and the trade and cooperative organisations that bind them together.

ACTION: Invest in the capacity of socially and culturally embedded meso-level institutions to govern both traditional and emergent ocean industries, in partnership with government and intergovernmental and international NGO actors where appropriate. This includes support for institutions that enable legal protection of sea tenure, uphold existing human rights (gender, labour, rights to food, rights to livelihood, etc.) and facilitate access to new opportunities in the ocean economy by marginalised groups in society.

4. **Ensure that responses to COVID-19 are based on an understanding of well-being in all its dimensions:** COVID-19 impacts are linked to many other issues, including building resilient economies and food systems and adapting to and mitigating climate change. This nexus of responses needs to build on an understanding of what is required to support subjective and relational well-being as well as material needs.

ACTION: Invest funding in social well-being assessments as part of COVID-19 recovery planning. Support inclusion of ocean-dependent communities in recovery planning in other sectors, principally transportation, tourism and fisheries.

Finally, the Ocean Panel has the opportunity to reassert a commitment to multilateralism as part of any attempt to bring greater order to the ocean and to use the members' diplomatic channels to engage other states in this endeavour: The 14 countries' call for harmonised ocean governance comes at a time of resurgent nationalism, when many of the world's largest economies are either turning away from multilateral treaties and institutions or seeking to control and influence them in their own interests. There is a delicate balance between recognising countries' rights to use their ocean assets for their national priorities, on the one hand, and representing the 'common good of humanity' and the rights of non-human nature, on the other. It will take bold political and social leadership to develop such a governance architecture.

Annex A. Social Well-Being and Values of Sama-Bajau

Scattered throughout island Southeast Asia are three groupings of specialist maritime populations commonly referred to in academic and popular literature as 'sea nomads' and 'sea gypsies', 'a designation at once romantic and derogatory' (Gaynor 2005, 90). These ethno-linguistic groups are the Moken, Orang-Laut and the Sama-Bajau. Each of these groups is geographically, linguistically and culturally distinct and has developed its own modes of adaptation and livelihoods on Southeast Asia's highly biodiverse island, coral reef and ocean environments to support its livelihoods. The Sama-Bajau are the most widely dispersed ethno-linguistic group indigenous to insular Southeast Asia, scattered over a maritime zone 3.25 million square kilometres in extent, stretching from the Philippines to Indonesia. Between 750,000 and 1.1 million Sama-Bajau speakers are estimated to live in Southeast Asia (Stacey and Allison 2019). Generally landless, the Sama-Bajau spend their entire lives in the vicinity of the ocean, in a marine environment that constitutes 'culturally defined living spaces' (Chou 1997). It is often said by Sama, and by other Indigenous groups with whom they reside, that Sama feel sick if they spend too much time on land, or away from the ocean. They maintain a rich Indigenous marine cosmology and ritual practice, with belief in supernatural beings—ancestors of the ocean—that live in and control the universe of the ocean and all the creatures in it for Sama-Bajau people (Stacey 2007).

Sama-Bajau culture is intimately connected to marine environments on which they depend for subsistence and cash income, as well as their cultural identity. Culturally defined patterns of fishing activity (including migratory expeditions) unite all sectors of Sama-Bajau communities through catching, consuming, processing and trading of marine resources. Fishing and gathering of shellfish and other strand resources provide the focus for individual and communal relations within villages and across extensive kin and trading networks. The maintenance and transmission of Indigenous language and knowledge from one generation to the next occurs through socialisation into livelihoods and related social and cultural activities. As such, customary beliefs and practices in relation to boats and sea spirits endure among the Sama-Bajau, and are primarily oriented to ensuring return on fishing effort (Stacey et al. 2018).

The perception of the ocean as an open space of living and trading, as well as the Sama-Bajau's notion of freely moving through that space as performing their identity and generating their world (Pauwelussen 2015), stands in contrast to the politically fragmented seascapes we see on maps. As Cynthia Chou (2006, 1) notes, 'Whichever translation one is inclined toward, the heart of the matter is that the space which others have named "Southeast Asia", comprising a number of bordered nation-states, is, in contrast, a space of deep emotional and personal meaning for the sea nomads'. The islands and sea which they occupy constitute 'living spaces' (Chou 1997, 613) for the generally landless Sama-Bajau. The movement of Sama-Bajau is entirely over water, whether commuting in dugouts between neighbouring households, visiting the 'mainland' or going fishing.

Extensive pressures undermine Sama-Bajau fishing practices and their way of life, which in turn erode values of social well-being. The majority of Sama-Bajau in Southeast Asia are marginalised Indigenous groups, and in many instances their contributions as fishing peoples are not recognised by the region's governments. In many cases, they remain on the outskirts of mainstream societies in the countries they inhabit and are often stigmatised as being unruly, lazy and backward aliens. It is unlikely, then, that mainstream societies will recognise the societal loss associated with the erosion of the Sama-Bajau access to fisheries and the consequent transformations in Indigenous knowledge, cultural practices and diversity. However, loss of the fundamental values that underpin Sama-Bajau culture and social well-being will have significant impact beyond obvious implications for the Sama-Bajau themselves. In a country like Indonesia, for example, which prides itself on the national motto *Bhinneka Tunggal Ika* ('Unity in Diversity') and the concept of *Nusantara* as an archipelago where seas connect society, the loss of a unique maritime way of life such as that of the Sama-Bajau is an erosion of the very principle that constitutes the nation's desired identity. Moreover, at a local level, many rural fish markets in areas where Sama-Bajau reside are largely stocked by fishing activities from these Sama-Bajau groups and provide land-based ethnic groups with important sources of nutrition. Furthermore, marine conservation and sustainable fisheries management initiatives across the region increasingly recognise that effective and locally relevant measures need to flow from increased ground-level co-production of knowledge and practices drawing from Western technical management principles and local traditional knowledge. The presence of the Sama-Bajau at sea and their knowledge of the ocean should be acknowledged as a significant asset not only for any marine resource management initiative but also for the national identities of the region's states.

Annex B. The Arts and the Ocean

The sea, the ships that navigate it and the fish and mammals that inhabit the marine space are a limitless source of artistic inspiration. Artistic representations of the ocean can create similar emotions that we experience from seeing, hearing, smelling and interacting with the ocean. Art can simply be a record of a place, time or event, but its purpose is usually to create an emotional response. Contemplating marine art can 'enrich . . . us, help . . . us see how precious all our lives are' (Krupinski 2019, 9).

Marine (or maritime) art has a prominent place in European history (and much has been written on this topic) but equally so in other parts of the globe. Perhaps one of the most recognised marine images comes from Japan: an early 19th-century woodblock print by the Japanese artist Hokusai, *The Great Wave off Kanagawa*. Marine art in Europe initially focused on harbours (e.g. *A Calm* [1654], by Dutch artist Jan van de Cappelle) and sea battles but gradually progressed to works where the ocean and the shores were depicted as playgrounds for recreation, bathing and sailing. Later a fascination with heavy industry and shipbuilding became a focus. The last century saw more depiction of things below the surface, as these have become more known and accessible.

Marine art is not only produced near the ocean. Prehistoric rock paintings in the interior of Africa depict marine mammals and fish (van Riet Lowe 1947). In Australia, Indigenous art has historically been influenced by the *ocean, and it still is today. Indigenous Australian marine art has recorded many events in time*. For instance, in the Northern Territory rare Indigenous rock art may depict the first seafarers to reach Australian shores (Middleton 2013). Marine art can change history. It has played an important role in self-determination and gaining sea rights for a group of Australian Indigenous people. The success of the Yolŋu community's native sea title claim was underpinned by bark paintings that evidenced a long relationship with the ocean (https://hyperallergic.com/412659/sea-rights-bark-paintings-australia/).

Annex C. Sharks as Symbolic Animals

Shark binders and charmers in the Gulf of Mannar linking South India and Sri Lanka are believed to have operated for six centuries to protect pearl divers from shark attacks. In 1885 the then colonial administration forced them to discontinue what it saw as a superstitious practice linked to payments that exacted an undue toll on the pearl industry (Cordiner 1807; Kunz and Stevenson 2001 [1908]).

Sharks in the Pacific islands were believed to have spiritual powers, as ancestor guardians and/or gods offering protection from the unpredictable forces of the ocean, or as malevolent spirits in the form of shape-shifting 'shark men', who needed to be appeased so they would not devour human beings venturing into their domain (Beckwith 1970; Grimble 1972; Hviding 1996; Barry 2002; Montgomery 2006; Hilmi et al. 2016).

As symbolic animals, sharks appear to signify both the fear of the ocean's vast unknown depths and the bounty available to those who respect the ocean's ways and its powerful creatures.

Annex D. Flying Fish as Symbol of Barbadian Identity

As Bajan as flying fish.
—Local saying

To Barbados the flying fish (*Hirundichthys affinis* and other species) is a quintessential aspect of intangible heritage: a symbol of Bajan 'pride and industry' (the country's motto). It adorns the silver dollar coin and the logo of the Barbados Tourism Authority, as well as being the mascot for some national sports teams. Bajan cuisine has its own unique ways of preparing and cooking the flying fish. It is also a tangible part of Bajan culture, as a source of livelihoods and nutrition in an important fishery. Long a mainstay of local fisheries and diets (its bones have been found in archaeological digs of Indigenous people's middens), the flying fish was officially recognised as one of Barbados's icons after the island gained independence in 1966 and the government began looking for symbols that generated a sense of pride among the populace, something of which islanders could say, 'This belongs to us and nobody else'.

But the availability of flying fish is at risk, as are its associated traditions, and there is no regulatory framework to protect this icon of national heritage. Threatened by a maritime boundary and fisheries dispute, it struggles under the legacy of price controls that hamper the profitability of the fishing industry. It is uncertain whether 50 years from now there will still be people to harvest the species, or people who know how to de-bone it in the traditional way. Significant variability in abundance could affect Barbadians' access to flying fish, and climate change could even lead to the species' local extinction.

A small survey (100 people) of Barbadians' cultural attachment to flying fish showed that as a symbol of national identity it lags behind the broken trident on the national flag, is a close second (34 versus 35 respondents) to the much larger dolphinfish (*Coryphaena hippurus*) as the preferred fish to eat and as a staple food is challenged by the rising consumption of chicken throughout the Caribbean.

Source: Adapted from Cumberbatch and Hinds (2013).

Photo by Angie Torres from Flickr

Photo by Roshan Kamath from Pexels

Annex E. The Use of UNESCO World Heritage Instruments to Support the Conservation of Plurality of Values Humans Derive from Interactions with the Ocean

Marine and coastal world heritage sites that are UNESCO-listed also include St. Kilda and surrounding islands (Scotland, UK), Ibiza (Spain), the Trang An Landscape complex in the Red River Delta (Vietnam) and the Rock Islands Southern Lagoon (Palau). Some sites that could perhaps be listed as mixed cultural and natural heritage, such as the Sundarbans in Bangladesh or the Great Barrier Reef in Australia, are currently designated as Natural Heritage only.

Africa is generally underrepresented in the designation of World Heritage sites (Breen 2007). Its coastal and marine representation includes the port cities and island trading centres of Lamu Old Town (Kenya); Stone Town Zanzibar (Tanzania); the Island of Mozambique; Robben Island (South Africa); and the islands of Gorée and Saint-Louis (Senegal). Many of these are listed partly or mostly because of their historical role in the Indian Ocean and transatlantic slave trades or, in the case of Robben Island, because it is where Nelson Mandela, was held for much of his 27 years as a political prisoner of South Africa's apartheid-era government. More positive representation of cultural and maritime heritage is an unrealised (and so far, little-discussed) opportunity within the 'blue economy' movement in Africa.

Table E1. Examples of Maritime and Ocean-Associated Inscriptions under the 2003 UNESCO Convention on Intangible Cultural Heritage

COUNTRY, YEAR LISTED, LIST CATEGORY	MARITIME, COASTAL OR OCEAN-RELATED CULTURAL HERITAGE
China, 2009 (1)	**Mazu belief and customs**. As the most influential goddess of the sea in China, Mazu is at the centre of a host of beliefs and customs, including oral traditions, religious ceremonies and folk practices, throughout the country's coastal areas. Deeply integrated into the lives of coastal Chinese and their descendants, belief in and commemoration of Mazu is an important cultural bond that promotes family harmony, social concord and the social identity of these communities.
South Korea, 2016 (1)	**Culture of *Jeju haenyeo*** (women divers). In Jeju Island, there is a community of women, some in their 80s, who go diving 10 meters under the surface to gather shellfish, such as abalone or sea urchins, for a living without the help of oxygen masks. With knowledge of the ocean and marine life, they harvest for up to seven hours a day, 90 days a year, holding their breath for just one minute for every dive and making a unique verbal sound when resurfacing. Before a dive, prayers are said to the Jamsugut, goddess of the sea, to ask for protection and an abundant catch. Knowledge is passed down to younger generations in families, schools, local fishery cooperatives which have the area's fishing rights, *haenyeo* associations, a school and a museum. The culture of *Jeju haenyeo* has also contributed to the advancement of women's status in the community and promoted environmental sustainability with its eco-friendly methods and community involvement in management of fishing practices.
Indonesia, 2017 (1)	**Art of Pinisi boatbuilding, South Sulawesi**. *Pinisi* refers to the rig and sail of the famed 'Sulawesi schooner'. The construction and deployment of such vessels are part of the millennia-long tradition of Austronesian boatbuilding and navigation that has brought forth a broad variety of sophisticated watercraft. Shipbuilding and sailing are not only the communities' economic mainstay but also the focus of daily life and identity. The reciprocal cooperation between the communities of shipwrights and their relations with their customers strengthen mutual understanding among the parties involved.
Islamic Republic of Iran, 2011 (2)	**Traditional skills of building and sailing Lenj boats in the Gulf of Iran**. Lenj vessels are hand-built and used by inhabitants of the northern coast of the Persian Gulf for sea journeys, trading, fishing and pearl diving. The traditional knowledge surrounding Lenjes includes oral literature, performing arts and festivals, in addition to the navigation techniques and terminology and the weather forecasting closely associated with sailing, as well as the skills of wooden boat-building itself. The philosophy, ritualistic background, culture and traditional knowledge of sailing in the Persian Gulf are gradually fading.
Belgium, 2013 (1)	**Shrimp fishing on horseback in Oostduinkerke**. Brabant horses walk breast-deep in the surf, parallel to the coastline, pulling funnel-shaped nets held open by two wooden boards. A chain dragged over the sand creates vibrations, causing the shrimp to jump into the net. Shrimpers place the catch in baskets hanging at the horses' sides. A good knowledge of the ocean and the sand strip, coupled with a high level of trust and respect for one's horses, are the shrimpers' essential attributes. The tradition gives the community a strong sense of collective identity and plays a central role in social and cultural events. The shrimp fishers function on principles of shared cultural values and mutual dependence. Experienced shrimpers demonstrate techniques and share their knowledge of nets, tides and currents with beginners and the up to 10,000 visitors who attend the annual shrimp festival.
Cyprus, Croatia, Spain, Greece, Italy, Morocco and Portugal, 2013 (1)	**The Mediterranean diet** involves a set of skills, knowledge, rituals, symbols and traditions concerning crops, harvesting, fishing, animal husbandry, conservation, processing, cooking and particularly the sharing and consumption of food. Eating together is the foundation of the cultural identity and continuity of communities throughout the Mediterranean basin. It is a moment of social exchange and communication, an affirmation and renewal of family, group or community identity. The Mediterranean diet emphasises values of hospitality, neighbourliness, intercultural dialogue and creativity, and a way of life guided by respect for diversity. It plays a vital role in cultural spaces, festivals and celebrations, bringing together people of all ages, conditions and social classes. Women play an important role in transmitting knowledge of the Mediterranean diet: they safeguard its techniques, respect seasonal rhythms and festive events, and transmit the diet's values to new generations. Markets also play a key role as spaces for cultivating and transmitting the Mediterranean diet during the daily practice of exchange, agreement and mutual respect. Seafood and the ocean are vital elements.

Note: Three types of designation are included on these lists: (1) representative heritage sites and practices, (2) those in need of urgent safeguarding and (3) those representing good safeguarding practices.

Source: UNESCO 2020b.

Annex F. Economic Activities of the Yoruba Coast

F1 Commercial activities in coastal Yorubaland

Trade across the Yoruba littoral was anchored in the lagoon ports of Badagry, Lagos (well before modern port development began in the late 1890s), Epe, Ejinrin and Atijere. While slave trafficking dominated the external trade with the Americas up to the mid-19th century, forest produce, which accompanied the slave exports, became dominant in the second half of the century with British colonial rule. The lagoon ports were melting pots of culture, as epitomised by the history and peopling of Lagos, Epe and Ejinrin during the 19th and 20th centuries. In its formative years, Epe drew migrant hunters, fishermen and political adventurers from the Yoruba towns of Ile-Ife, Ilara, Ibeju and other outlying settlements in the Epe region, and from Benin, a non-Yoruba kingdom. The Ilaje from the waterside of Okitipupa Division and the non-Yoruba Ijo [Izon] were also represented in the population before 1900. Izon men caught fish, while their wives produced a local staple, *garri*, from cassava flour, and manufactured local gin, *ogogoro*, from palm wine.

Though Epe people engaged in other economic activities—cassava, rice and maize farming; boat-building (for deep-sea fishing and water transportation); and commerce—fishing has been their defining economic activity. This earned them the nickname 'Epe Eleja', meaning, 'Epe, community of fishermen'.

Ejinrin, the port of the Ijebu (a Yoruba kingdom) was 'a strategic link between Lagos and the rest of the southeastern Yoruba hinterland' (Olubomehin 1990: 128). It was also a point of convergence for traders from other lagoon settlements, such as Epe and Atijere, and from as far in the hinterland as Ode Ondo. The hinterland of Ejinrin expanded after the defeat of the Ijebu by the British in 1892: it received an influx of traders from the Yoruba hinterland towns of Ife, Oyo, Ilesha, Gbongan, Ado-Ekiti, Owo and Ilorin (Olubomehin 1990, 132). This made it an important feeder for the port of Lagos, which, until 1914, relied on the lagoon network for produce for local consumption and export, in which Ejinrin was a lynchpin.

F2 Fishing and other economic activities in littoral Yorubaland: Focus on the Ilaje

Coastal Yoruba exhibit occupational specialisation in accordance with variations in ecological setting and resource endowments. The people engage in seafaring, fishing, salt-making and boat-making, though on an artisanal scale.

However, fishing is the dominant activity in the zone. It is characterised by large-scale migrations of fisherfolk across the Gulf of Guinea, which have facilitated exchange of technology of fishing and fish processing. These migrations have been classified into six types: internal, short-term, seasonal, long-term, permanent and contractual. These have been further grouped into two broad categories: internal (within a country) and trans-border or international (Adewusi 2017, 165). Human migrations, especially seasonal ones, tend to follow the migration of fish species.

Fishing and commercial activities across the Yoruba littoral have generally been peaceful. The ecological context has promoted economic symbiosis between the upland areas conducive for arable farming and the littoral that is dominated by fishing. Foodstuffs, especially yams and cassava tubers, and palm oil produced outside of the coastal mangrove swamp, are exchanged for fish and salt produced in the latter zone. The range of migrations and commercial exchanges is indicated as follows: the 'agriculturally poor but fish-rich eastern Delta [homeland of the Ilaje] exchanged fish for agricultural products from the adjoining communities,

including the Ijebu in the west, the Ijaw in the north and the Ikale in the east, which supply most of the food items like cassava (gari), yam, plantain, and palm oil' (Onipede 2017, 181). These and other commodities of the lagoon trade, such as prawns, coconuts and cassava flour, are conveyed over a wide area beyond the coastal zone. The spatial spread of these activities runs hundreds of kilometres, reaching places as distant as Port Harcourt, Onitsha and Enugu in eastern Nigeria, and Lagos, Ibadan, Ondo, Oyo, Ode-Aye (Ikale) and several Ijebu and Ekiti towns (Onipede 2017, 182). A major item of trade during the twentieth century, second only to fish in importance, is local gin (*ogogoro*). Once declared illicit by the British colonial government and the successor nationalist government, it is now widely consumed in the coastal and upland areas of southern Nigeria, for both social and religious purposes (Oluwapayimo 2017).

The positive impact of non-Indigenous migrants on the domestic economy is indicated by claims that the arrival of the Fante 'boosted fishing' in Ijebu Waterside, while the arrival of the Keta (Ewe) and Ilaje had the same effect on Badagry (Olukoju 2000, 72). The Orimedu community east of Lagos also benefited from the settlement of Gold Coast/Ghanaian fishermen, from whom they adopted the seine 'drag net' fishing technique the Ghanaians introduced on their arrival in the 1890s. It is claimed that while the Yoruba hosts have continued to practice subsistence fishing for family consumption, the Ghanaians run theirs as a business. The Yoruba continue to fish in small canoes, unlike the Ghanaians, who employ 'boats fitted with outboard engines, synthetic nettings such as beach seiners, set nets, gill nets and long lines' (Adewusi 2017, 166–67).

However, occasional conflict interrupts peaceful commercial and social exchanges on the Yoruba littoral. The most protracted and catastrophic was the Ilaje-Ijo war of 1998–99, fought over claims to a territory rich in hydrocarbon deposits. The war proved ruinous to both parties, who suffered heavy human and material losses (Ehinmore 2014). Analysis has shown that conflicts are more intense in inter-group relations between Yoruba and non-Yoruba, and rarely between two Yoruba groups (Olukoju 2000).

The Ilaje are the most dominant fishing and migrant Yoruba subgroup in the zone. Outside of their homeland on the eastern edge of the Yoruba littoral, they have established colonies all over the Yoruba littoral and the entire Gulf of Guinea. Ilaje migrant fishermen and their families overlap with Indigenous communities as well as Izon and Ogu migrant fishing groups. In the port city of Lagos, the Ilaje occupy lagoon-side neighbourhoods, especially at Bariga, where a common Yoruba identity has ensured cordial relations with their Awori hosts. Ilaje have intermarried with the Awori and now bury their dead in Lagos, contrary to age-old practice.

Ilaje fishing enterprise and extensive migrations eastwards of their homeland towards the Congo, westwards to Senegal and southwards to Angola have been described as 'perhaps "the greatest inter-regional movement in the modern history of the Yorubas"'. It has been stated that they are 'always on the move . . . in search of fish' (Olukoju 2000, 70). Ilaje fishing enterprise is complex, comprising artisanal fishery, local aquaculture and industrial fishing (Ikuejube 2005). Artisanal fishing remains dominant, carried out in local canoes with traditional fishing instruments: *awo* (nets with hooks laced with bait of earthworms), *akase* or *eporo* (bamboo spears) and *iyanma* (baskets used in shallow streams and creeks) (Onipede 2017, 183). But Ilaje fishing has also incorporated innovations from external sources. The Ilaje learned the *dogbo* method of trawling from the Ijebu in the 1930s and borrowed the *itahun*, 'a new method of fishing net floatation,' from Gabon in the early 1970s (Ehinmore 1998, 31, 37). A turning point in Ilaje fishing enterprise was the 1960s expansion from freshwater to coastal fishing. This necessitated the use of larger watercraft, with carrying capacities varying with the distances covered and the quantity of merchandise carried. Engine-powered boats are now deployed in high-sea fishing, thus extending Ilaje fishing enterprise beyond the lagoon. In addition, the Ilaje in metropolitan Lagos have, since their initial settlement in the 1930s, expanded their fishing enterprise and diversified into other business ventures—quarrying sand from the lagoon, lumbering and water transportation (Olukoju 2000; Onipede 2017, 184).

Conclusion

The Yoruba littoral has experienced the profound impact of waves of human migrations over the centuries. Migrations took place along two axes: north-south, dominated by fellow Yoruba-speaking peoples; and east-west, dominated by the Ilaje, Izon, Ogu and Keta (Ewe).

The littoral is, therefore, 'Yoruba' only in the sense of the overwhelming dominance of Yoruba-speaking people in the zone. Most Yoruba littoral communities share social and cultural institutions and practices. These include the insignia of chieftaincy and traditional institutions; divination by individuals and communities; the Olokun, Malokun and Okosi festivals; and the pervasive presence of Ayelala. Nevertheless, non-Yoruba elements have contributed substantially to the zone's socioeconomic development. Hence, the region is a linguistic and cultural continuum, a pan-Yoruba commonwealth, which includes Yoruboid (Itsekiri and Edo) and non-Yoruba peoples as indigenes at both ends of the zone and as residents all over it.

Fishing has been the driving force behind the lateral movements along the coast. It remains the centre of littoral social and economic life. Fishing is the impetus behind Ilaje, Izon, Ogu and Keta migrations and settlement across the Gulf of Guinea and beyond. The fishing industry has witnessed significant innovations, while remaining largely artisanal, since the 1890s. Both Indigenous religion and Christianity have contributed to the political, economic and social development of the Yoruba littoral.

The Yoruba, with the exception of the Ilaje and Awori subgroups, are largely riparian landlubbers, but the ocean has shaped their world view (Olukoju 2000, 2017). The Ilaje are the only truly maritime community among the Yoruba, followed in importance by the waterside Ijebu and Awori. Ilaje colonies all over the Yoruba littoral, and far beyond, testify to their unique status in the zone.

The littoral has not been a dominant force in the geopolitical and economic systems of the Yoruba of western Nigeria. It has been marginal in terms of political influence and state formation. In pre-modern times, Indigenous communities in littoral Yorubaland were subject to political and cultural domination from hinterland power centres, such as Ife, Ijebu and Benin. Such control or influence varied over time. It was minimal in post-1800 Lagos but pronounced in the case of Ejinrin and other lagoon communities vis-à-vis the Ijebu Kingdom. Badagry and Epe were havens or rear bases for political fugitives from Lagos before 1862.

Inter-group relations between indigenes and residents of the Yoruba littoral are complex and dynamic. In general, ethnic affinity between host communities (Awori and Ijebu) and fellow Yoruba immigrants (especially the Ilaje) has mitigated potential conflict and produced generally cordial relationships. In contrast, ethnic diversity has compounded ordinarily tense relations centred on competition over land, fishing and other economic rights. This is illustrated by the Ilaje-Izon conflict in southern Ondo State in the late 1990s, and clashes between the Yoruba and Ogu in the Ajah axis of metropolitan Lagos in 2016.

Multifaceted relationships characterise the Yoruba littoral. These have been underpinned and moderated by homogenising forces of religious affinity, cultural exchanges, commercial relations, intermarriage and the linguistic and cultural accommodation of immigrant elements in local communities.

Endnotes

1. Before the ocean sciences became known as 'oceanography' (derived from Latin) they were sometimes referred to as thalassology (derived from Ancient Greek). This older term has been revived by scholars in the arts and humanities.
2. The World Health Organization held its first infoepidemiology conference in June–July 2020 (WHO 2020b).
3. Aboriginal interests also include inland waters and wetlands.
4. Sacred sites are also registered in these clan estates.
5. One exception is the Torres Strait Islands, where legal rights for customary and commercial fishing are recognised under Native Title legislation (Lalancette 2017).
6. Torres Strait is again an exception (Lalancette 2017).
7. Stories of the past are integral to shaping values and world views—as the current challenges to ethnocentric histories and cultural symbols are showing. Exhibitions on slavery, immigration and maritime labour unions are increasingly found in the maritime museums of former colonial powers (e.g. in Liverpool and Amsterdam), to balance the more traditional tales of heroic exploration and naval victories. These attract more diverse visitors and, through a better understanding of the past, allow a reimagined future.
8. Community theatre, dance, song and poetry are widely popular globally (e.g. Buck and Rowe 2017) and used to both celebrate and explore contentious issues. Pêcheurs du Monde (Fishers of the World) is a film festival held biannually in Lorient, Brittany, France. The 2019 British film *Bait*, about gentrification in a Cornish fishing village, has won a number of festival awards; see https://en.wikipedia.org/wiki/Bait_(2019_film).
9. Namati, who 'put the power of law in people's hands' around the world, is an example of such a group: https://namati.org.

References

Aalberts, T.E., and T. Gammeltoft-Hansen. 2014. "Sovereignty at Sea: The Law and Politics of Saving Lives in *Mare Liberum*." *Journal of International Relations and Development* 17 (4): 439–68.

Adewusi, A. 2017. "Ghanaian Settlers in Orimedu: Oju Ota, Gender, and Christianity in a Coastal Fishing Community." *Yoruba Studies Review* 2 (1): 161–75.

Adeyeri, J.O. 2012. "Socio-economic Significance of Cultural Festivals in Epe Division of Lagos State: An Overview." *International Journal of Research in Arts and Social Sciences* 4: 147–52.

Adger, W. N., T.P. Hughes, C. Folke, S.R. Carpenter and J. Rockström. 2005. "Social-Ecological Resilience to Coastal Disasters." *Science* 309 (5737): 1036–39.

Alaimo, S. 2019. "Introduction: Science Studies and the Blue Humanities." *Configurations* 27 (4): 429–32.

Alfred, T. 2009. *Peace, Power, Righteousness: An Indigenous Manifesto*. 2nd ed. Don Mills, ON: Oxford University Press Canada.

Allison, E.H., and H.R. Bassett. 2015. "Climate Change in the Oceans: Human Impacts and Responses." *Science* 350 (6262): 778–82.

Alongi, D.M., D. Murdiyarso, J.W. Fourqurean, J.B. Kauffman, A. Hutahaean, S. Crooks, C.E. Lovelock et al. 2015. "Indonesia's Blue Carbon: A Globally Significant and Vulnerable Sink for Seagrass and Mangrove Carbon." *Wetlands Ecology and Management* 24 (1): 3–13.

Amrith, S.S. 2013. *Crossing the Bay of Bengal: The Furies of Nature and the Fortunes of Migrants.* Cambridge, MA: Harvard University Press.

Andaya, B.W. 2017. "Seas, Oceans and Cosmologies in Southeast Asia." *Journal of Southeast Asian Studies* 48 (3): 349–71.

Anderson, E.N. 1970. "The Boat People of South China." *Anthropos* (H. 1./2): 248–56.

Araujo, A.L. 2017. *Reparations for Slavery and the Slave Trade: A Transnational and Comparative History.* New York: Bloomsbury Academic.

Arbo, P., M. Knol, S. Linke and K. St. Martin. 2018. "The Transformation of the Oceans and the Future of Marine Social Science." *Maritime Studies* 17: 295–304.

Arbow, T. 2019. "Washington Maritime Blue and the Blue Economy: Using Diversity and Inclusion to Advance Social Justice in the Maritime Industry." MA thesis, University of Washington, Seattle.

Arrow, K.J. 1951. *Social Choice and Individual Values.* New Haven, CT: Yale University Press.

Baker, E., A. Mensah, J. Rice, J. Grellier and A.A. Alkhatlan. 2019. "Oceans and Coasts—Global Environment Outlook (GEO-6): Healthy Planet, Healthy People." In *Global Environment Outlook (GEO-6): Healthy Planet, Healthy People*, chap. 7, 175–98. Nairobi and Cambridge: United Nations Environment Programme and Cambridge University Press.

Barber, B.R. 2014. "Participatory Democracy." In *The Encyclopedia of Political Thought*, 2650–54. Hoboken, NJ: John Wiley & Sons.

Barbier, E.B. 2015. *Climate Change Impacts on Rural Poverty in Low-Elevation Coastal Zones*. Washington, DC: World Bank.

Barbosa, F., S. Nyquist, K. Yanosek, G. Bresciani and P. Graham. 2020. "Oil and Gas after COVID-19: The Day of Reckoning or a New Age of Opportunity?" McKinsey, 15 May. https://www.mckinsey.com/industries/oil-and-gas/our-insights/oil-and-gas-after-covid-19-the-day-of-reckoning-or-a-new-age-of-opportunity#.

Barry, R. 2002. "Voyaging and Interaction in Ancient East Polynesia." *Asian Perspectives* 41 (2): 183–94.

Bartels, A., L. Eckstein, N. Waller and D. Wiemann. 2019. "Postcolonial Oceans." In *Postcolonial Literatures in English: An Introduction,* 81–06. Stuttgart, Germany: J.B. Metzler.

Bauslaugh, R.A. 1991. *The Concept of Neutrality in Classical Greece*. Berkeley: University of California Press.

Bavinck, M. 2001a. *Marine Resource Management: Conflict and Regulation in the Fisheries of the Coromandel Coast*. Sage Publications.

Bavinck, M. 2001b. "Caste *Panchayats* and the Regulation of Fisheries along Tamil Nadu's Coromandel Coast." *Economic and Political Weekly* (India): 1088–94.

Bavinck, M., and J. Gupta. 2014. "Legal Pluralism in Aquatic Regimes: A Challenge for Governance." *Current Opinion in Environmental Sustainability* 11: 78–85.

Bavinck, M, and V. Vivekanandan. 2017. "Qualities of Self-Governance and Wellbeing in the Fishing Communities of Northern Tamil Nadu, India: The Role of Pattinavar Uur Panchayats." *Maritime Studies* 16 (1): 16.

Beatley, T. 2014. *Blue Urbanism: Exploring Connections between Cities and Oceans*. Washington, DC: Island.

Beckwith, M. 1970. Hawaiian Mythology. Honolulu: University of Hawai'i Press.

Bennett, N.J., H. Govan and T. Satterfield. 2015. "Ocean Grabbing." *Marine Policy* 57: 61–68.

Bennett, N.J., A.M. Cisneros-Montemayor, J. Blythe, J.J. Silver, G. Singh, N. Andrews, A. Calò et al. 2019. "Towards a Sustainable and Equitable Blue Economy." *Nature Sustainability* 2: 991–93.

Bennett, N.J., E.M. Finkbeiner, N.C. Ban, D. Belhabib, S.D. Jupiter, J.N. Kittinger, S. Mangubhai et al. 2020. "The COVID-19 Pandemic, Small-Scale Fisheries and Coastal Fishing Communities." *Coastal Management Journal* 48 (4): 336–47.

Bidwell, D. 2017. "Ocean Beliefs and Support for an Offshore Wind Energy Project." *Ocean & Coastal Management* 146: 99–108.

Bolonkin, A.A. 2011. "Floating Cities." In *Engineering Earth: The Impacts of Megaengineering Projects*, edited by S.D. Brunn, 967–83. Dordrecht, the Netherlands: Springer.

Bondad-Reantaso, M.G., B. Mackinnon, H. Bin, H. Jie, K. Tang-Nelson, W. Surachetpong, V. Alday-Sanz et al. 2020. "SARS-CoV-2 (The Cause of COVID-19 in Humans) Is Not Known to Infect Aquatic Food Animals nor Contaminate Their Products." *Asian Fisheries Science* 33 (1).

Brady, A.-M. 2019. "Facing Up to China's Military Interests in the Arctic." *China Brief* 19 (21), Jamestown Foundation. https://jamestown.org/program/facing-up-to-chinas-military-interests-in-the-arctic/.

Breen, C. 2007. "Advocacy, International Development and World Heritage Sites in Sub-Saharan Africa." *World Archaeology* 39 (3): 355–70.

Brown, W. 2014. "Mapping China's Latest Supercity." *Foreign Policy*, 30 May. https://foreignpolicy.com/2014/05/30/mapping-chinas-latest-supercity/.

Buck, R., and N. Rowe, eds. 2017. *Moving Oceans: Celebrating Dance in the South Pacific*. London: Routledge.

Burmeister, G., D. Cherney, M. Mooren and Z. Pollock. 2020. “Heightened Focus on Decarbonization Likely Post COVID-19 Crisis.” *Utility Dive*, 8 April. https://www.utilitydive.com/news/heightened-focus-on-decarbonization-likely-post-covid-19-crisis/575487/.

Callahan, T. 2013. “Symbols and Symbolic Thought.” In *The Oxford Handbook of Developmental Psychology*, vol. 1, *Body and Mind*, edited by P.D. Zelazo, 974–1005. Oxford: Oxford University Press.

Campbell, K.M., and R. Doshi. 2020. “The Coronavirus Could Reshape Global Order: China Is Maneuvering for International Leadership as the United States Falters.” *Foreign Affairs*, 18 March. https://www.foreignaffairs.com/print/node/1125706.

Cao, L., Y. Chen, S. Dong, A. Hanson, B. Huang, D. Leadbitter, D.C. Little et al. 2017. “Opportunity for Marine Fisheries Reform in China.” *Proceedings of the National Academy of Sciences* 114 (3): 435–42.

Caras, T., and Z. Pasternak. 2009. “Long-Term Environmental Impact of Coral Mining at the Wakatobi Marine Park, Indonesia.” *Ocean & Coastal Management* 52 (10): 539–44.

Carver, R., J. Childs, J., P. Steinberg, L. Mabon, H. Matsuda, R. Squire, B. McLellan and M. Esteban. 2020. “A Critical Social Perspective on Deep Sea Mining: Lessons from the Emergent Industry in Japan.” *Ocean & Coastal Management* 193: 105242.

Catterall, D., and J. Campbell. 2012. *Women in Port: Gendering Communities, Economies, and Social Networks in Atlantic Port Cities, 1500–1800*. Leiden, the Netherlands: Brill.

Chan, N. 2018. “‘Large Ocean States’: Sovereignty, Small Islands, and Marine Protected Areas in Global Oceans Governance.” *Global Governance: A Review of Multilateralism and International Organizations* 24 (4): 537–55.

Chen, J.-C., J.A. Zinda and E.T. Yeh. 2017. “Recasting the Rural: State, Society and Environment in Contemporary China.” *Geoforum* 78: 83–88.

Chou, C. 1997. “Contesting the Tenure of Territoriality: The Orang Suku Laut.” *Bijdragen tot de Taal-, Land- en Volkenkunde* 153 (4): 605–29. doi:10.2307/27865391.

Chou, C. 2006. “Research Trends on Southeast Asian Sea Nomads.” *Kyoto Review of Southeast Asia* 7: 1–11.

Chuenpagdee, R. 2011. “Too Big to Ignore: Global Research Network for the Future of Small-Scale Fisheries.” In *World Small-Scale Fisheries Contemporary Visions*, edited by R. Chuenpagdee, 383–94. Utrecht, the Netherlands: Eburon.

Cisneros-Montemayor, A.M., D. Pauly, L.V. Weatherdon and Y. Ota. 2016. “A Global Estimate of Seafood Consumption by Coastal Indigenous Peoples.” *PLOS ONE* 11(12): e0166681. https://doi.org/10.1371/journal.pone.0166681.

Cisneros-Montemayor, A., M. Moreno-Báez, M. Voyer, E.H. Allison, W. Cheung, M. Hessing-Lewis, M. Oyinlola et al. 2019. “Social Equity and Benefits as the Nexus of a Transformative Blue Economy: A Sectoral Review of Implications.” *Marine Policy* 109: 103702.

Clark, A.E. 2018. “Four Decades of the Economics of Happiness: Where Next?” *Review of Income and Wealth* 64 (2): 245–69.

Claudet, J., L. Bopp, W.W. Cheung, R. Devillers, E. Escobar-Briones, P. Haugan, J.J. Heymans et al. 2020. “A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action.” *One Earth* 2 (1): 34–42.

Cohen, P.J., E.H. Allison, N.L. Andrew, J. Cinner, L.S. Evans, M. Fabinyi, L.R. Garces et al. 2019. “Securing a Just Space for Small-Scale Fisheries in the Blue Economy.” *Frontiers in Marine Science* 6 (MAR): 171. https://doi.org/10.3389/fmars.2019.00171.

Connery, C. 2006. “There Was No More Sea: The Suppression of the Ocean, from the Bible to Cyberspace.” *Journal of Historical Geography* 32 (3): 494–511.

Cordiner, J. 1807. *A Description of Ceylon: Containing an Account of the Country, Inhabitants and Natural Productions*, vol. 2. London: Longman, Hurst, Rees and Orme.

Corntassel, J. 2012. “Re-envisioning Resurgence: Indigenous Pathways to Decolonization and Sustainable Self-Determination.” *Decolonization: Indigeneity, Education & Society* 1 (1): 86–101.

Costello, C., L. Cao, S. Gelcich et al. 2019. “The Future of Food from the Sea.” Washington, DC: World Resources Institute. *www.oceanpanel.org/blue-papers/future-food-sea*.

Creighton, M.S., and L. Norling, eds. 1996. *Iron Men, Wooden Women: Gender and Seafaring in the Atlantic World, 1700–1920*. Baltimore: Johns Hopkins University Press.

Cumberbatch, J.A., and C.J. Hinds. 2013. “Barbadian Bio-cultural Heritage: An Analysis of the Flying Fish.” *International Journal of Intangible Heritage* 8: 118–34.

Curtin, P.D. 1984. *Cross-Cultural Trade in World History*. Cambridge: Cambridge University Press.

Daly, H. E. 1991. *Steady-State Economics: With New Essays*. Washington, DC: Island.

Davis, D. 2015. *Waterman: The Life and Times of Duke Kahanamoku*. Lincoln: University of Nebraska Press.

Daw, T.M., S. Coulthard, W.W. Cheung, K. Brown, C. Abunge, D. Galafassi, G.D. Peterson et al. 2015. “Evaluating Taboo Trade-Offs in Ecosystems Services and Human Well-Being.” *Proceedings of the National Academy of Sciences* 112 (22): 6949–54.

Delevingne, L., and H. Schneider. 2020. “U.S. Stimulus Package Is Biggest Ever, but May Not Be Big Enough.” Reuters, 30 March. https://www.reuters.com/article/us-health-coronavirus-fed-stimulus-analy/u-s-stimulus-package-is-biggest-ever-but-may-not-be-big-enough-idUSKBN21H0E7.

Depledge, M.H., and W.J. Bird. 2009. “The Blue Gym: Health and Wellbeing from Our Coasts.” *Marine Pollution Bulletin* 58 (7): 947.

Díaz, S., S. Demissew, J. Carabias, C. Joly, M. Lonsdale, N. Ash, A. Larigauderie et al. 2015. “The IPBES Conceptual Framework: Connecting Nature and People.” *Current Opinion in Environmental Sustainability* 14: 1–16.

Díaz, S., U. Pascual, M. Stenseke, B. Martín-López, R.T. Watson, Z. Molnár, R. Hill et al. 2018. “Assessing Nature’s Contributions to People.” *Science* 359 (6373): 270–72.

Deloria, V., Jr., and D.R. Wildcat. 2001. *Power and Place: Indian Education in America*. Golden, CO: Fulcrum.

Dineen, J. 2020. “COVID-19 Disrupts a Major Year for Biodiversity Policy and Planning.” *Mongabay*, 3 April. https://news.mongabay.com/2020/04/covid-19-disrupts-a-major-year-for-biodiversity-policy-and-planning/.

Doherty, B. 2020. “‘Escape the Pandemic in Paradise’: Fiji Opens Its Borders Seeking Billionaires.” *The Guardian*, 27 June. https://www.theguardian.com/world/2020/jun/28/escape-the-pandemic-in-paradise-fiji-opens-its-borders-seeking-billionaires.

Dornan, M., W. Morgan, T. Newton Cain and S. Tarte. 2018. “What’s in a Term? ‘Green Growth’ and the ‘Blue–Green Economy’ in the Pacific Islands.” *Asia and the Pacific Policy Studies* 5: 408–25.

Dreyer, E.L. 2006. *Zheng He: China and the Oceans in the Early Ming Dynasty, 1405–1433*. New York: Pearson Longman.

Driessen, H. 2002. “Mediterranean Port Cities: Cosmopolitanism Reconsidered.” *History and Anthropology* 16 (1): 129–41.

Dulvy, N.K., D. Stanwell-Smith, W.R. Darwall and C.J. Horrill. 1995. “Coral Mining at Mafia Island, Tanzania: A Management Dilemma.” *Ambio* 24 (6): 358–65.

Easterlin, R.A. 2001. “Income and Happiness: Towards a Unified Theory.” *Economic Journal* 111 (473): 465–84.

Eckert, L. E., N.C. Ban, A. Frid and M. McGreer. 2018. “Diving Back in Time: Extending Historical Baselines for Yelloweye Rockfish with Indigenous Knowledge.” *Aquatic Conservation: Marine and Freshwater Ecosystems* 28 (1): 58–66.

Ehinmore, O.M. 1998. “A History of Fishing in Ondo State, 1950–1997: A Case Study of the Ilaje Coastal Area.” MA research project, University of Lagos.

Ehinmore, O. 2014. “Boundary Conflict and Security Challenges in the Western Coast of the Niger Delta: The Ilaje-Ijo War Factor, 1998–99.” *International Journal of Humanities and Social Science* 4 (8): 276–83.

Ertör, I., and M. Hadjimichael. 2020. “Blue Degrowth and the Politics of the Sea: Rethinking the Blue Economy.” *Sustainability Science* 15 (1): 1–10.

Esteban, M., and D. Leary. 2012. “Current Developments and Future Prospects of Offshore Wind and Ocean Energy.” *Applied Energy* 90 (1): 128–36.

Fairbanks, L., N. Boucquey, L.M. Campbell and S. Wise. 2019. “Remaking Oceans Governance: Critical Perspectives on Marine Spatial Planning.” *Environment and Society* 10 (1): 122–40.

FAO (Food and Agriculture Organization of the United Nations). 2015. *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication.* Rome: FAO.

FAO. 2020a. *The State of World Fisheries and Aquaculture.* Rome: FAO.

FAO. 2020b. *Proceedings of the International Symposium on Fisheries Sustainability: Strengthening the Science-Policy Nexus*. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings no. 65. Rome: FAO.

Fernandes, N. 2020. “Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy.” *Social Science Research Network*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3557504.

Fernández, G.G., W Stotz, J. Aburto, C. Mondaca and K. Vera. 2011. “Emerging Commons within Artisanal Fisheries: The Chilean Territorial Use Rights in Fisheries (TURFs) within a Broader Coastal Landscape.” *International Journal of the Commons* 5 (2): 459–84.

Finlay, J., T. Franke, H. McKay and J. Sims-Gould. 2015. “Therapeutic Landscapes and Wellbeing in Later Life: Impacts of Blue and Green Spaces for Older Adults.” *Health & Place* 34: 97–106.

Finney, B. 2003. *Sailing in the Wake of the Ancestors: Reviving Polynesian Voyaging*. Honolulu, HI: Bishop Museum Press.

Finney, B.R., and J.D. Houston. 1996. *Surfing: A History of the Ancient Hawaiian Sport*. San Francisco: Pomegranate Artbooks.

Fleisher, J., P. Lane, A. LaViolette, M. Horton, E. Pollard, E.Q. Morales, T. Vernet, A. Christie and S. Wynne-Jones. 2015. “When Did the Swahili Become Maritime?” *American Anthropologist* 117 (1): 100–115.

Fleming, A.E., L. Petheram, L. and N. Stacey. 2015. “Australian Indigenous Women’s Seafood Harvesting Practices and Prospects for Integrating Aquaculture.” *Journal of Enterprising Communities: People and Places in the Global Economy* 9 (2).

Fleming, L.E., B. Maycock, M.P. White and M.H. Depledge. 2019. “Fostering Human Health through Ocean Sustainability in the 21st Century.” *People and Nature* 1 (3): 276–83.

Frangoudes, K., S. Gerrard and D. Kleiber. 2019. “Situated Transformations of Women and Gender Relations in Small-Scale Fisheries and Communities in a Globalized World.” *Maritime Studies* 18 (3): 241–48.

Franke, A., T. Blenckner, C.M. Duarte, K. Ott, L.E. Fleming, A. Antia et al. 2020. “Operationalizing Ocean Health: Toward Integrated Research on Ocean Health and Recovery to Achieve Ocean Sustainability.” *One Earth* 2 (6): 557–65.

Friess, B., and M. Grémaud-Colombier. 2019. “Policy Outlook: Recent Evolutions of Maritime Spatial Planning in the European Union.” *Marine Policy* 103428. https://doi.org/10.1016/j.marpol.2019.01.017.

Frykman, N., C. Anderson, L.H. van Voss and M. Rediker. 2013. “Mutiny and Maritime Radicalism in the Age of Revolution: An Introduction.” *International Review of Social History* 58 (S21): 1–14.

Gaines, S., R. Cabral, C. Free, Y. Golbuu et al. 2019. “The Expected Impacts of Climate Change on the Ocean Economy.” Washington, DC: World Resources Institute. https://www.oceanpanel.org/ expected-impacts-climate-change-ocean-economy.

Garton Ash, T. 2002. *Solidarity: The Polish Revolution.* 3rd ed. New Haven, CT: Yale University Press.

Gaynor, J.L. 2005. “The Decline of Small-Scale Fishing and the Reorganization of Livelihood Practices among Sama People in Eastern Indonesia.” *Michigan Discussions in Anthropology* 15: 90–149.

Gephart, J.A., C.D. Golden, F. Asche, B. Belton, C. Brugère, H. Froehlich, J. Fry et al. 2020. “Scenarios for Global Aquaculture and Its Role in Human Nutrition.” *Reviews in Fisheries Science and Aquaculture*, July, 1–17. doi:10 .1080/23308249.2020.1782342.

Ghadiryanfar, M., K.A. Rosentrater, A. Keyhani and M. Omid. 2016. “A Review of Macroalgae Production, with Potential Applications in Biofuels and Bioenergy.” *Renewable and Sustainable Energy Reviews* 54: 473–81.

Gillis, J.R. 2012. *The Human Shore: Seacoasts in History.* Chicago: University of Chicago Press.

Gien, L.T. 2000. “Land and Sea Connection: The East Coast Fishery Closure, Unemployment and Health.” *Canadian Journal of Public Health* 91 (2): 121–24.

Golden, C.D., E.H. Allison, W.W.L. Cheung, M.M. Dey, B.S. Halpern, D.J. McCauley, M. Smith and B. Vaitla. 2016. “Nutrition: Fall in Fish Catch Threatens Human Health.” *Nature* 534**:** 317–20.

Grimble, R. 1972. *Migrations, Myth and Magic from the Gilbert Islands: Early Writings of Sir Arthur Grimble*. London and Boston: Routledge and Kegan Paul.

Grovier, K. 2020. “Black Lives Matter Protests: Why Are Statues So Powerful?” BBC Culture, 12 June. https://www.bbc.com/culture/article/20200612-black-lives-matter-protests-why-are-statues-so-powerful.

Guo-jun, Y.A.O. 2013. “A Touch of Blue in Guangdong Literature: On the Sea Charm and Ocean Color of Zhanjiang Local Literature.” *Journal of Guangdong Ocean University* 33 (5): 10.

Hadjimichael, M. 2018. “A Call for a Blue Degrowth: Unravelling the European Union’s Fisheries and Maritime Policies.” *Marine Policy* 94: 158–64.

Hauʻofa, E. 1994. “Our Sea of Islands.” *Contemporary Pacific* 6 (1): 148–61.

Hauʻofa, E. 2008. *We Are the Ocean*. Honolulu: University of Hawai’i Press.

He, X., and D. Faure, eds. 2016. *The Fisher Folk of Late Imperial and Modern China: An Historical Anthropology of Boat-and-Shed Living*. Abingdon, UK: Routledge.

Helne, T., and T. Hirvilammi. 2015. “Wellbeing and Sustainability: A Relational Approach.” *Sustainable Development* 23 (3): 167–75.

Herman, R.D.K. 2016. “Traditional Knowledge in a Time of Crisis: Climate Change, Culture and Communication.” *Sustainability Science* 11 (1): 163–76.

Hicks, C.C., P.J. Cohen, N.A. Graham, K.L. Nash, E.H. Allison, C. D'Lima, D.J. Mills et al. 2019. "Harnessing Global Fisheries to Tackle Micronutrient Deficiencies." *Nature* 574 (7776): 95–98.

Hilborn, R., and U. Hilborn. 2019. *Ocean Recovery: A Sustainable Future for Global Fisheries?* Oxford University Press.

Hill, W. 2020. "Redoubling Our Resolve to Deliver Energy Transition." *Maritime Professional*, 4 June. https://www.maritimeprofessional.com/news/redoubling-resolve-deliver-energy-transition-359031.

Hilmi, N., T. Bambridge, A. Safa, B. Quinquis and P. D'Arcy. 2016. "Socioeconomic Significance of Fisheries in the Small Island Developing States: Natural Heritage or Commodity?" In *Fisheries in the Pacific: The Challenges of Governance and Sustainability*, edited by E. Fache and S. Pauwels, 175–97. Marseille, France: Pacific-Credo.

Hoegh-Guldberg, O., K. Caldeira, T. Chopin, S. Gaines, P. Haugan, M. Hemer, J. Howard et al. 2019. "The Ocean as a Solution to Climate Change: Five Opportunities for Action." Washington, DC: World Resources Institute. http://www.oceanpanel.org/climate.

Holmes, J.R. 2006. "'Soft Power' at Sea: Zheng He and China's Maritime Diplomacy." *Southeast Review of Asian Studies* 28: 95.

Hong, G. 2018. "Islands of Enclavisation: Eco-cultural Island Tourism and the Relational Geographies of Near-Shore Islands." *Area* 52 (1): 47–55.

Horden, P., and N. Purcell. 2006. "The Mediterranean and 'the New Thalassology.'" *American Historical Review* 111 (3): 722–40.

Huntsman, L. 2001. *Sand in Our Souls: The Beach in Australian History*. Melbourne: Melbourne University Press.

Hviding, E. 1996. *Guardians of Marovo Lagoon: Practice, Place, and Politics in Maritime Melanesia*. Honolulu: University of Hawai'i Press.

IEA (International Energy Agency). 2020. "The Covid-19 Crisis Is Hurting but Not Halting Global Growth in Renewable Power Capacity." Press release, 20 May. https://www.iea.org/news/the-covid-19-crisis-is-hurting-but-not-halting-global-growth-in-renewable-power-capacity.

Ikuejube, G. 2005. *Ilaje: The Yoruba Fishing People of the Niger Delta.* Ondo, Nigeria: Novec.

ILO (International Labor Organization). 2020. "Impact of Covid-19 on Maritime Shipping and Fishing." Policy brief. Geneva: ILO.

IMF (International Monetary Fund). 2020. *World Economic Outlook 2020.* 24 June update. Washington, DC: IMF. https://www.imf.org/en/Publications/WEO.

Indonesia Ocean Pride. 2020. "Join Us and Celebrate #PrideInTheOcean." https://sanctuaries.noaa.gov/heritage/pride-in-the-ocean.html.

Jambeck, J., E. Moss, B. Dubey et al. 2020. "Leveraging Multi-target Strategies to Address Plastic Pollution in the Context of an Already Stressed Ocean." Washington, DC: World Resources Institute. https://oceanpanel.org/blue-papers/pollution-and-regenerative-economy-municipal-industrialagricultural-and-maritime-waste.

Jaspars, M., D. De Pascale, J.H. Andersen, F. Reyes, A.D. Crawford and A. Ianora. 2016. "The Marine Biodiscovery Pipeline and Ocean Medicines of Tomorrow." *Journal of the Marine Biological Association of the United Kingdom* 96 (1): 151–58.

Jentoft, S. 2019. *Life above Water: Essays on Human Experiences of Small-Scale Fisheries*. TBTI Global Book Series 1. St. John's, NL: Too Big to Ignore.

Jentoft, S., P. Onyango and M. M. Islam. 2010. "Freedom and Poverty in the Fishery Commons." *International Journal of the Commons* 4: 345–66.

Jentoft, S., R Chuenpagdee, R., N. Franz and M.J. Barragán-Paladines. 2017. "Implementing the Voluntary Guidelines for Securing Small-Scale Fisheries." In *The Small-Scale Fisheries Guidelines: Global Implementation*, edited by S. Jentoft, R. Chuenpagdee, M.J. Barragán-Paladines and N. Franz, 3–13. New York: Springer.

Jentoft, S., N. Stacey, J. Sunde and M. González. 2019. "The Small-Scale Fisheries of Indigenous Peoples: A Struggle for Secure Tenure Rights." In *Transdisciplinarity for Small-Scale Fisheries Governance*, edited by R. Chuenpagdee and S. Jentoft, 263–82. MARE Publication Series 21. Cham, Switzerland: Springer.

Jie Li, J.W., and N. Carr. 2004. "Visitor Satisfaction: An Analysis of Mainland Chinese Tourists on the Australian Gold Coast." *International Journal of Hospitality and Tourism Administration* 5 (3): 31–48.

Jim, C.Y., and W.Y. Chen. 2009. "Value of Scenic Views: Hedonic Assessment of Private Housing in Hong Kong." *Landscape and Urban Planning* 91 (4): 226–34.

Johnson, D., T. Acott, N. Stacey and J. Urquhart, eds. 2018. *Social Wellbeing and the Values of Small-Scale Fisheries*. Cham, Switzerland: Springer.

Jones, E., M. Qadir, M.T. van Vliet, V. Smakhtin and S.M. Kang. 2019. "The State of Desalination and Brine Production: A Global Outlook." *Science of the Total Environment* 657: 1343–56.

Jouffray, J.-B., R. Blasiak, A.V. Norström, H. Österblom and M. Nyström. 2020. "The Blue Acceleration: The Trajectory of Human Expansion Into the Ocean." *One Earth* 2 (1): 43–54.

Kahneman, D., and A.B. Krueger 2006. "Developments in the Measurement of Subjective Well-Being." *Journal of Economic Perspectives* 20: 3–24.

Kahneman, D., A.B. Krueger, D. Schkade, N. Schwarz and A.A. Stone. 2006. "Would You Be Happier If You Were Richer? A Focusing Illusion." *Science* 312: 1908–10.

Kallis, G. 2011. "In Defence of Degrowth." *Ecological Economics* 70 (5): 873–80.

Kolm, S.C. 1972. "Justice et équité." Paris: Editions du Centre National de la Recherche Scientifique. English translation (*Justice and Equity*). Cambridge, MA: MIT Press, 1998.

Khan, N., A. Kalair, N. Abas and A. Haider. 2017. "Review of Ocean Tidal, Wave and Thermal Energy Technologies." *Renewable and Sustainable Energy Reviews* 72: 590–604.

King, T.J., and G. Robinson, eds. 2019. *At Home on the Waves: Human Habitation of the Sea from the Mesolithic to Today*. New York: Berghahn.

Kissya, E. 1995. *Sasi Aman Haru-Ukui: Traditional Management of Sustainable Natural Resources in Haruku*. Jakarta: SEJATI Publications.

Kitada, M., E. Williams and L.L. Froholdt, eds. 2015. *Maritime Women: Global Leadership*. Berlin: Springer.

Knowlton, N. 2020. "Ocean Optimism: Moving Beyond the Obituaries in Marine Conservation." *Annual Review of Marine Science* 13.

Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin, eds. 2005. *Fish for Life: Interactive Governance for Fisheries.* MARE Publication Series no. 3. Amsterdam: Amsterdam University Press.

Krupinski, L. 2019. "Of Fish and Fisheries: An Artistic Reverence for a Bountiful Sea." *American Society of Marine Artists* 41. https://americansocietyofmarineartists.com/resources/SiteGraphics/NewsnJournal/FullPDFs/2019FallJournal.pdf.

Kunz, G.F., and C.H. Stevenson. 2001 [1908]. *Book of the Pearl: Its History, Art, Science and Industry*. Mineola, NY: Dover.

Kurien, J. 2001. "The Socio-cultural Aspects of Fisheries: Implications for Food and Livelihood Security—A Case Study of Kerala State, India." In *Understanding the Cultures of Fishing Communities: A Key to Fisheries Management and Food Security*, edited by J.R. McGoodwin. FAO Fisheries Technical Paper 401. Rome: FAO.

Kurien, J. 2019. “Fisheries Sustainability Leaving None Behind: Three Key Policy Opportunities for the 21st Century.” Keynote Address to the FAO/UN International Symposium on Fisheries Sustainability, Rome, November (Summary published in FAO 2020).

Lake, J., and N. Hutchinson. 2020. “3 Reasons to Invest in Renewable Energy Now.” World Resources Institute blog, 5 May. https://www.wri.org/blog/2020/05/coronavirus-renewable-energy-stimulus-packages.

Lalancette, A. 2017. “Creeping In? Neoliberalism, Indigenous Realities and Tropical Rock Lobster (Kaiar) Management in Torres Strait, Australia.” *Marine Policy* 80: 47–59.

Laugrand, F., and J. Oosten. 2008. “When Toys and Ornaments Come Into Play: The Transformative Power of Miniatures in Canadian Inuit Cosmology.” *Museum Anthropology* 31 (2): 69–84.

Lavoie, A., J. Lee, K. Sparks, G. Hoseth and S. Wise. 2019. “Engaging with Women’s Knowledge in Bristol Bay Fisheries through Oral History and Participatory Ethnography.” *Fisheries* 44 (7): 331–37.

Leemans, R., and R.S. de Groot. 2003. *Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: A Framework for Assessment*. Washington, DC: Island.

Lesutis, G. 2019. “How to Understand a Development Corridor? The Case of Lamu Port–South Sudan–Ethiopia–Transport Corridor in Kenya.” *Area*. https://doi.org/10.1111/area.12601.

Lewis, D. 1972. *We, the Navigators: The Ancient Art of Landfinding in the Pacific.* Wellington, New Zealand: A.H. and A.W. Reed.

Li, K. 2019. Annual policy blueprint, Government of China (Press release).

Liao, X., and D.S. Aguilera. 2020. “Chinese Tourism in the Caribbean: Destination Image and Future Expectations.” In *Tourism Product Development in China, Asian and European Countries*, edited by Y. Luo, J. Jiang and D. Bi, 121–35. Singapore: Springer.

Lim, A.C.H. 2015. *Africa and China’s 21st Century Maritime Silk Road*. East Asian Institute, National University of Singapore.

Linebaugh, P., and M. Rediker. 2000. *The Many-Headed Hydra: Sailors, Slaves, Commoners, and the Hidden History of the Revolutionary Atlantic.* Boston: Beacon.

Liu, S. 2018. *Researches on Infrastructures and Strategies of National Innovative System about Ocean*. Beijing: Economic Science Press.

Liu, J., N. Liu, Y. Zhang, Z. Qu and J. Yu. 2019. “Evaluation of the Non-use Value of Beach Tourism Resources: A Case Study of Qingdao Coastal Scenic Area, China.” *Ocean & Coastal Management* 168: 63–71.

Love, D.C., E.H. Allison, F. Asche, B. Belton, R.S. Cottrell, H.E. Froehlich, J.A. Gephart et al. 2020. “Emerging COVID-19 Impacts, Responses, and Lessons for Building Resilience in the Seafood System.” Global Food Security Preprint, July 6. https://osf.io/preprints/socarxiv/x8aew/.

Lubchenco, J., and S.D. Gaines. 2019. “A New Narrative for the Ocean.” *Science* 346: 911.

MacIntyre, T.E., A. Walkin, G. Calogiuri, G. Oliver, A.A. Donnelly, S. Gritzka and G. Warrington. 2019. “Immersion, Watersports and Blueways and the Blue Mind.” In *Physical Activity in Natural Settings: Green and Blue Exercise,* edited by A.A. Donnelly and T.E. MacIntyre, 190–203. Abingdon, UK: Routledge.

Mack, J. 2013. *The Sea: A Cultural History*. London: Reaktion.

Maldonado, J.K. 2014. “A Multiple Knowledge Approach for Adaptation to Environmental Change: Lessons Learned from Coastal Louisiana’s Tribal Communities.” *Journal of Political Ecology* 21: 61–82.

Mallory, T.G. 2013. “China’s Distant Water Fishing Industry: Evolving Policies and Implications.” *Marine Policy* 38: 99–108.

Mallory, T.G. 2016. “Fisheries Subsidies in China: Quantitative and Qualitative Assessment of Policy Coherence and Effectiveness.” *Marine Policy* 68: 74–82.

Malve, H. 2016. “Exploring the Ocean for New Drug Developments: Marine Pharmacology.” *Journal of Pharmacy & Bio-allied Sciences* 8 (2): 83–91.

Maritime Blue. 2020. “A Strategic Alliance for Maritime Innovation and Sustainability.” https://maritimeblue.org/alliance/.

Marschall, S. 2015. “‘Travelling Down Memory Lane’: Personal Memory as a Generator of Tourism.” *Tourism Geographies* 17 (1): 36–53.

Mateiviti-Tulavu, E. 2013. “Connecting Identities and Relationships through Indigenous Epistemology: The Solomoni of Fiji.” PhD diss., University of Auckland. https://pdfs.semanticscholar.org/56eb/a2ef0eef7a0626892ae66f7614658565b64e.pdf.

Maya-Jariego, I., J.F. Querevalú-Miñán, L.G. Varela and J. Ávila. 2017. “Escape the Lion Cage: Social Networks by Catch Zones of Small-Scale Fisheries in the Oil Settlement of Lobitos (Peru).” *Marine Policy* 81: 340–49.

McCauley, D., C. Teleki and G. Fluxà Thienemann. 2020. “8 Ways to Rebuild a Stronger Ocean Economy after COVID-19.” World Economic Forum blog. https://www.weforum.org/agenda/2020/05/how-to-build-a-bluer-ocean-economy-after-covid-19/.

McGoodwin, J.R. 2001. ”Understanding the Cultures of Fishing Communities: A Key to Fisheries Management and Food Security.” Fisheries Technical Paper 401. Rome: Food and Agriculture Organization of the United Nations.

McGregor, I., and H. Yerbury. 2019. “Politics of Rising Tides: Governments and Nongovernmental Organizations in Small-Island Developing States.” In *Climate Change and Ocean Governance: Politics and Policy for Threatened Seas*, edited by P.G. Harris, 118–32. Cambridge: Cambridge University Press.

McKay, S.C. 2007. “Filipino Sea Men: Constructing Masculinities in an Ethnic Labour Niche.” *Journal of Ethnic and Migration Studies* 33 (4): 617–33.

McVeigh, K. 2020. “Silence Is Golden for Whales as Lockdown Reduces Ocean Noise.” *The Guardian*, 27 April. https://www.theguardian.com/environment/2020/apr/27/silence-is-golden-for-whales-as-lockdown-reduces-ocean-noise-coronavirus.

Mentz, S. 2009. “Toward a Blue Cultural Studies: The Sea, Maritime Culture, and Early Modern English Literature.” *Literature Compass* 6 (5): 997–1013.

Merayo, E. 2019. “Steering Gender to the Centre of the Blue Economy.” Blog post, 6 June. London: International Institute for Environment and Development. https://www.iied.org/steering-gender-centre-blue-economy.

Middleton, A. 2013. “Aboriginal Rock Art May Depict First Sea Arrivals.” *Australian Geographic* https://www.australiangeographic.com.au/news/2013/08/aboriginal-rock-art-may-depict-first-sea-arrivals/.

Montgomery, C. 2006. *The Shark God: Encounters with Ghosts and Ancestors in the South Pacific*. Glasgow, UK: HarperCollins.

Mulazzani, L. and G. Malorgio. 2017. “Blue Growth and Ecosystem Services.” *Marine Policy* 85: 17–24.

Narula, K. 2019. “Oceans as a Source of Hydrocarbon Energy.” In *The Maritime Dimension of Sustainable Energy Security*, by K. Narula, 145–62. Singapore: Springer.

Nash, K.L., J.L. Blythe, C. Cvitanovic, E.A. Fulton, B.S. Halpern, E.J. Milner-Gulland, P.F. Addison et al. 2020. “To Achieve a Sustainable Blue Future, Progress Assessments Must Include Interdependencies between the Sustainable Development Goals.” *OneEarth* 2 (2): 161–73.

Nichols, W.J. 2015. *Blue Mind.* Columbus, GA: Little, Brown.

Nofsinger, J.R. 2005. “Social Mood and Financial Economics.” *Journal of Behaviour Finance* 6 (3): 144–60.

Notteboom, T., and J.P. Rodrigue. 2008. “Containerisation, Box Logistics and Global Supply Chains: The Integration of Ports and Liner Shipping Networks.” *Maritime Economics & Logistics* 10 (1–2): 152–74.

Novaczek, I., I.H.T. Harkes, J. Sopacua and M.D.D. Tatuhey. 2001. *An Institutional Analysis of Sasi Laut in Maluku, Indonesia*. Penang, Malaysia: ICLARM Publications.

Obura, D.O. 2020. “Getting to 2030: Scaling Effort to Ambition through a Narrative Model of the SDGs.” *Marine Policy* 117: 103973.

Olubomehin, O.O. 1990. “The Fluctuating Fortunes of Ejinrin Market in the Era of Yoruba Warfare, 1860–1892.” *Oye: Ogun Journal of Arts* 3: 128–35.

Olukoju, A. 2000. “Fishing, Migrations and Inter-group Relations in the Gulf of Guinea (Atlantic Coast of West Africa) in the Nineteenth and Twentieth Centuries.” *Itinerario: European Journal of Overseas History* 24 (2): 69–85.

Olukoju, A. 2017. “Making Sense of the Yoruba Littoral.” *Yoruba Studies Review* 2 (1): 45–60.

Oluwapayimo, D.Z. 2017. “The Illicit Production and Consumption of Ogogoro in Coastal Yorubaland and the Niger Delta.” *Yoruba Studies Review* 2 (1): 195–208.

O’Neill, B. 2001. *Honor, Symbols, and War*. Ann Arbor: University of Michigan Press.

Onipede, K.J. 2017. “By Canoe and Speedboat: The Recent Expansion of the Ilaje Fishing Trade.” *Yoruba Studies Review* 2 (1): 177–94.

OnManorama. 2018. “Kerala Fishermen Rescued 65,000 People during Floods.” 27 August. https://www.onmanorama.com/news/kerala/2018/08/26/kerala-flood-fishermen-rescue.html.

Österblom, H., C.C.C. Wabnitz, D. Tladi et al. 2020. “Towards Ocean Equity.” Washington, DC: World Resources Institute. https://www.oceanpanel.org/sites/default/files/2020-04/towards-ocean-equity.pdf.

Ourbak, T., and A.K. Magnan. 2018. “The Paris Agreement and Climate Change Negotiations: Small Islands, Big Players.” *Regional Environmental Change* 18: 2201–7.

Paine, L. 2013. *The Sea and Civilisation: A Maritime History of the World*. New York: Alfred A. Knopf.

Pascual, U., P. Balvanera, S. Díaz, S., G. Pataki, E. Roth, M. Stenseke, R.T. Watson et al. 2017. “Valuing Nature’s Contributions to People: The IPBES Approach.” *Current Opinion in Environmental Sustainability* 26: 7–6.

Passmore, H.A., and A.J. Howell. 2014. “Eco-existential Positive Psychology: Experiences in Nature, Existential Anxieties, and Well-Being.” *Humanistic Psychologist* 42 (4): 370–88.

Paul, J.R. 2000. “Cultural Resistance to Global Governance.” *Michigan Journal of International Law* 22 (1): 2–84.

Pauwelussen, A.P. 2015. “The Moves of a Bajau Middlewoman: Understanding the Disparity between Trade Networks and Marine Conservation.” *Anthropological Forum* 25 (4): 329–49. doi:10.1080/00664677.2015.1054343.

Peduzzi, P. 2014. “Sand, Rarer Than One Thinks.” *Environmental Development* 11: 208–18.

Pearson, L., P. Newton and P. Roberts, eds. 2014. *Resilient Sustainable Cities: A Future*. Abingdon, UK: Routledge.

Peters, K., and J. Anderson, eds. 2016. *Water Worlds: Human Geographies of the Ocean*. Abingdon, UK: Routledge.

Pollnac, R.B., and M. Bavinck. 2008. “Alternative Livelihoods and Job Satisfaction among Fishermen: A Cross-national Study.” In *EOCST: Ecosystems, Societies, Consilience, Precautionary Principle: Development of an Assessment Method of the Societal Cost for Best Fishing Practices and Efficient Public Policies*. 3–13. D4SA Ecoregion Report on Sociological Aspects: Results of the Job Satisfaction Surveys of All Case-Studies. Brussels: CORDIS, European Commission Report.

Pollnac, R.B., and J.J. Poggie. 2008. “Happiness, Well-Being and Psychocultural Adaptation to the Stresses Associated with Marine Fishing.” *Human Ecology Review* 15 (2): 194–200.

Posner, E.A. 1998. “Symbols, Signals, and Social Norms in Politics and the Law.” *Journal of Legal Studies* 27 (S2): 765–97.

Productivity Commission. 2016. “Marine Fisheries and Aquaculture.” Draft report. Canberra, Australia.

Quinn, J. 2014. “Mythologizing the Sea: The Nordic Sea-Deity Rán.” In *Nordic Mythologies: Interpretations, Intersections, and Institutions*, edited by T.R. Tangherlini, 71–99. Berkeley, CA: North Pinehurst.

Raheem, O., and M. Famiyesin. 2017. “Controlling the Boundaries of Morality: The History and Powers of Ayelala Deity.” *Yoruba Studies Review* 2 (1): 231–47.

Rao, A. 2020. “Race, Wealth and Public Spaces: US Beaches Are a New Flashpoint of the Lockdown.” *The Guardian* (U.S. edition), 24 May. https://www.theguardian.com/us-news/2020/may/24/us-beaches-covid-19-florida-access-parks.

Ratner, B.D. 2004. “Sustainability” as a Dialogue of Values: Challenges to the Sociology of Development.” *Sociological Inquiry* 74: 50–69.

Reid, J.L. 2015. *The Sea Is My Country: The Maritime World of the Makahs, an Indigenous Borderlands People*. New Haven, CT: Yale University Press.

Renaud, L. 2020. “Reconsidering Global Mobility: Distancing from Mass Cruise Tourism in the Aftermath of COVID-19.” *Tourism Geographies* 22 (3): 679–89. doi:10.1080/14616688.2020.1762116.

Riffat, S., R. Powell and D. Aydin. 2016. “Future Cities and Environmental Sustainability.” *Future Cities and Environment* 2 (1). doi:0.1186/s40984-016-0014-2.

Rilke, Rainer Maria. 1969 [1903]. Letter to Clara Rilke, 27 March 1903. In *Letters of Rainer Maria Rilke, 1892–1910*, translated by J.B. Greene and M.D. Herter-Norton, 42. New York: Norton Library.

Rosenthal, J., K. Bannister, B. Berlin, E. Berlin, S. Brush, L. Field, S. Greene et al. 2006. “Politics, Culture, and Governance in the Development of Prior Informed Consent in Indigenous Communities.” *Current Anthropology* 47 (1): 119–42.

Ruddle, K. 1988. “Social Principles Underlying Traditional Inshore Fishery Management Systems in the Pacific Basin.” *Marine Resource Economics* 5 (4): 351–63.

Russell, B.W., and B.H. Dahlin. 2007. “Traditional Burnt-Lime Production at Mayapán, Mexico.” *Journal of Field Archaeology* 32 (4): 407–23.

Rynd, C. 2020. “Seafarers: Governments Need to Step Up on Repatriations.” *Maritime Executive*, 4 May. https://www.maritime-executive.com/editorials/seafarers-governments-need-to-step-up-on-repatriation.

Sachs, J.D., G. Schmidt-Traub, M. Mazzucato, D. Messner, N. Nakicenovic and J. Rockström. 2019. “Six Transformations to Achieve the Sustainable Development Goals.” *Nature Sustainability* 2 (9): 805–14.

Sahu, A., N. Yadav and K. Sudhakar. 2016. “Floating Photovoltaic Power Plant: A Review.” *Renewable and Sustainable Energy Reviews* 66: 815–24.

Satz, D. 2004. “Noxious Markets: Why Some Things Should Not Be for Sale.” In *Globalization, Culture and the Limits of the Market: Essays in Economics and Philosophy*, edited by S. Cullenberg and P.K. Pattanaik, 11–38. New Delhi: Oxford University Press.

Schnierer, S. and H. Egan. 2016. “Composition of the Aboriginal Harvest of Fisheries Resources in Coastal New South Wales, Australia.” *Reviews in Fish Biology and Fisheries* 26 (4): 693–709.

Schoedinger, S., L.U. Tran and L. Whitley. 2010. “From the Principles to the Scope and Sequence: A Brief History of the Ocean Literacy Campaign.” *NMEA Special Report* 3: 3–7.

Schutter, M.S., and C.C. Hicks. 2019. “Networking the Blue Economy in Seychelles: Pioneers, Resistance, and the Power of Influence.” *Journal of Political Ecology* 26 (1): 425–47.

Schwartz, S.H. 2012. “An Overview of the Schwartz Theory of Basic Values.” *Online Readings in Psychology and Culture* 2 (1). doi:10.9707/2307-0919.1116.

Schwarz, A.M., J. Gordon and C. Ramofafia. 2020. “Nudging Statutory Law to Make Space for Customary Processes and Community-Based Fisheries Management in Solomon Islands.” *Maritime Studies*. https://doi.org/10.1007/s40152-020-00176-0.

Sen, A. 1999. *Commodities and Capabilities.* Oxford: Oxford University Press.

Sen, A. 2001. *Development as Freedom*. Oxford: Oxford University Press.

Sen, A., and M. Nussbaum, eds. 1993. *Capability and Well-Being: The Quality of Life*. Oxford, UK: Clarendon.

Silver, J.J., N.J. Gray, L.M. Campbell, L.W. Fairbanks and R.L. Gruby. 2015. “Blue Economy and Competing Discourses in International Oceans Governance.” *Journal of Environment and Development* 24: 135–60.

Singh, G.G., A.M. Cisneros-Montemayor, W. Swartz, W. Cheung, J.A. Guy, T.A. Kenny, C.J. McOwen et al. 2018. “A Rapid Assessment of Co-benefits and Trade-Offs among Sustainable Development Goals.” *Marine Policy* 93: 223–31.

Slimak, M.W., and T. Dietz. 2006. “Personal Values, Beliefs, and Ecological Risk Perception.” *Risk Analysis* 26 (6): 1689–705.

Smyth, D. and M. Isherwood. 2016. “Protecting Sea Country: Indigenous People and Marine Protected Areas in Australia.” In *Big, Bold and Blue: Lessons from Australia’s Marine Protected Areas*, edited by G. Wescott and J. Fitzsimons, 307–25. Canberra: CSIRO Publishing.

Song, A.M., P.J. Cohen, Q. Hanich, T.H. Morrison and N. Andrew. 2019. “Multi-scale Policy Diffusion and Translation in Pacific Island Coastal Fisheries.” *Ocean and Coastal Management* 168: 139–49.

SPC (Secretariat of the Pacific Community). 2015. “A New Song for Coastal Fisheries—Pathways to Change: The Noumea Strategy.” Nouméa: New Caledonia: SPC. https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/fe/fedc2bcffdee2b46bbb2ef08caad7e54.pdf?sv=2015-12-11&sr=b&sig=nfxrlmoDCJmdhtsKY1gbw%2B%2BnKgeHXZd0utZXcclz9t0%3D&se=2021-02-17T20%3A12%3A26Z&sp=r&rscc=public%2C%20max-age%3D864000%2C%20max-stale%3D86400&rsct=application%2Fpdf&rscd=inline%3B%20filename%3D%22Anon_2015_New_song_for_coastal_fisheries.pdf%22.

Stacey, N. 2007. *Boats to Burn: Bajo Fishing Activity in the Australian Fishing Zone*. Canberra: Australian National University Press.

Stacey, N., and E.H. Allison. 2019. “Sea Nomads: Sama-Bajau Mobility, Livelihoods and Marine Conservation in Southeast Asia.” In *At Home on the Waves: Human Habitation of the Sea from the Mesolithic to Today*, edited by T.J. King and G. Robinson, 309–31. New York: Berghahn.

Stacey, N., D.J. Steenbergen, J. Clifton, and G. Acciaioli. 2018. “Understanding Social Wellbeing and Values of Small Scale Fisheries amongst the Sama-Bajau of Insular Southeast Asia.” In *Social Wellbeing and the Values of Small Scale Fisheries*, edited by D. Johnson, T. Acott, J. Urquart and N. Stacey, 97–123. MARE Publication Series 17. Cham, Switzerland: Springer.

Stahel, W.R. 2016. “The Circular Economy.” *Nature* 531 (7595): 435–38.

Stanley, J. 2002. “And after the Cross-Dressed Cabin Boys and Whaling Wives? Possible Futures for Women’s Maritime Historiography.” *Journal of Transport History* 23 (1): 9–22.

Steinberg, P.E. 2001. *The Social Construction of the Ocean*. Cambridge: Cambridge University Press.

Steinberg, P., and K. Peters. 2015. “Wet Ontologies, Fluid Spaces: Giving Depth to Volume through Oceanic Thinking.” *Environment and Planning D: Society and Space* 33 (2): 247–64.

Steven, A.D.L., et al. 2020. “Coastal Development: Resilience, Restoration and Infrastructure Requirements.” Washington, DC: World Resources Institute. https://oceanpanel.org/blue-papers/coastal-development-managing-resilience-restoration-and-infrastructure-coastlines.

Stiglitz, J., J.P. Fitoussi and M. Durand. 2018. *Beyond GDP: Measuring What Counts for Economic and Social Performance*. Paris: OECD Publishing. https://doi.org/10.1787/9789264307292-en.

Stikvoort, B., T. Lindahl and T.M. Daw. 2016. “Thou Shalt Not Sell Nature: How Taboo Trade-Offs Can Make Us Act Pro-environmentally, to Clear Our Conscience.” *Ecological Economics* 129: 252–59.

Swilling, M, M. Ruckelshaus, T. Brodie Rudolph, E.H. Allison, S. Gelcich, P. Mbatha and H. Österblom. 2020. “The Ocean Transition: What to Learn from System Transitions.” Washington, DC: World Resources Institute. www.oceanpanel.org/blue-papers/ocean-transition-what-learn-system-transitions.

Takehiro, T. 2018. “Satoumi and Fisheries Rights System, Special Feature: Opinions and Concerns about Fishery Policy Reform Plan.” *Aquanet* 8: 21–51. [In Japanese.]

Takaya, Y., K. Yasukawa, T. Kawasaki, K. Fujinaga, J. Ohta, Y. Usui, K. Nakamura et al. 2018. “The Tremendous Potential of Deep-Sea Mud as a Source of Rare-Earth Elements.” *Scientific Reports* 8 (5763): 1–8.

Techera, E., H. Govan, A. Tawake, K. Tabunakawai, A. Jenkins, A. Lasgorceix, A. Schwarz et al. 2009. *Status and Potential of Locally-Managed Marine Areas in the South Pacific: Meeting Nature Conservation and Sustainable Livelihood Targets through Wide-Spread Implementation of LMMAs.* Suva, Fiji: SPREP/WWF/WorldFish-Reefbase/CRISP.

Tetlock, P.E., O. Kristel, B. Elson, M. Green and J. Lerner. 2000. “The Psychology of the Unthinkable: Taboo Trade-Offs, Forbidden Base Rates, and Heretical Counterfactuals.” *Journal of Personality and Social Psychology* 78 (5): 853–70.

TNC (The Nature Conservancy). 2019. “Mapping Ocean Wealth: Recreation and Tourism.” https://oceanwealth.org/ecosystem-services/recreation-tourism/.

Tsing, A.L., N. Bubandt, E. Gan and H.A. Swanson, eds. 2017. *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene*. Minneapolis: University of Minnesota Press.

Udombana, N.J. 2000. “The Third World and the Right to Development: Agenda for the Next Millennium.” *Human Rights Quarterly* 22: 753–87.

UNCSD (United Nations Conference on Sustainable Development). 2012. *The Future We Want: Outcome Document of the United Nations Conference on Sustainable Development*. Rio de Janeiro, 20–22 June. https://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf.

UNCTAD (United Nations Conference on Trade and Development). 2020. *The Covid-19 Pandemic and the Blue Economy: New Challenges and Prospects for Recovery and Resilience*. UNCTAD/DITC/TED/INF/2020/2 https://unctad.org/en/PublicationsLibrary/ditctedinf2020d2_en.pdf.

UNESCO (UN Educational, Scientific and Cultural Organization). 2020a. “UNESCO World Heritage Centre.” Paris: UNESCO. https://whc.unesco.org/en/about.

UNESCO (UN Educational, Scientific and Cultural Organization). 2020b. “Intangible Cultural Heritage Lists.” Paris: UNESCO. https://ich.unesco.org/en/lists.

Vadrot, A.B.M. 2020. ”Multilateralism as a ‘Site’ of Struggle over Environmental Knowledge: The North-South Divide.” *Critical Policy Studies* 14 (2): 233–45.

van Barneveld, K., M. Quinlan, P. Kriesler, A. Junor, F. Baum, A. Chowdhury, P.N. Junankar et al. 2020. "The COVID-19 Pandemic: Lessons on Building More Equal and Sustainable Societies." *Economic and Labour Relations Review* 31 (2): 133–57.

van Riet Lowe, C. 1947. "Rock Paintings of Marine Animals in the Interior of South Africa." *South African Archaeological Bulletin* 2 (6): 41–45.

Vásquez-Fernández, A.M. 2020. "Resurgence of Relationality: Reflections on Decolonizing and Indigenizing 'Sustainable Development.'" *Current Opinion in Environmental Sustainability* 43: 65–70.

Verrips, J., 2002. "Ghanaian Canoe Decorations." *MAST (Maritime Anthropological Studies)* 1 (1): 43–66.

Vierros, M.K., A.-L. Harrison, M.R. Sloat, G. Ortuño Crespo, J.W. Moore, D.C. Dunn, Y. Ota et al. 2020. "Considering Indigenous Peoples and Local Communities in Governance of the Global Ocean Commons." *Marine Policy* 119: 104039.

Villani, D., A. Sorgente, P. Iannello and A. Antonietti. 2019. "The Role of Spirituality and Religiosity in Subjective Well-Being of Individuals with Different Religious Status." *Frontiers in Psychology* 10: 1525.

Vink, M.P. 2007. "Indian Ocean Studies and the 'New Thalassology.'" *Journal of Global History* 2 (1): 41–62.

von der Porten, S., Y. Ota, A. Cisneros-Montemayor and S. Pictou. 2019. "The Role of Indigenous Resurgence in Marine Conservation." *Coastal Management* 47 (6): 527–47.

Voyer, M., and J. van Leeuwen. 2019. "Social License to Operate in the Blue Economy." *Resources Policy* 62: 102–13.

Voyer, M., G. Quirk, A. McIlgorm and K. Azmi. 2018. "Shades of Blue: What Do Competing Interpretations of the Blue Economy Mean for Oceans Governance?" *Journal of Environmental Policy and Planning* 20 (5): 595–616.

Wade, G. 2005. "The Zheng He Voyages: A Reassessment." *Journal of the Malaysian Branch of the Royal Asiatic Society* 78 (1): 37–58.

Wallerstein, I. 2011. *The Modern World-System II: Mercantilism and the Consolidation of the European World-Economy, 1600–1750*. 2nd ed. Berkeley: University of California Press.

Weeratunge, N., C. Béné, R. Siriwardane, A. Charles, D. Johnson, E.H. Allison, P.K. Nayak and M.C. Badjeck. 2014. "Small-Scale Fisheries through the Wellbeing Lens." *Fish and Fisheries* 15 (2): 255–79.

Weiss, C.V., R. Guanche, B. Ondiviela, O.F. Castellanos and J. Juanes. 2018. "Marine Renewable Energy Potential: A Global Perspective for Offshore Wind and Wave Exploitation." *Energy Conversion and Management* 177: 43–54.

Widjaja, S., T. Long, H. Wirajuda**,** H. Van As, P.E. Bergh, A. Brett, D. Copeland et al. 2020. "Illegal, Unreported and Unregulated Fishing and Associated Drivers." Washington, DC: World Resources Institute. https://www.oceanpanel.org/blue-papers/illegal-unreported-and-unregulated-fishing-and-associated-drivers.

Willis Towers Watson. 2020. "COVID-19: Impact on the Marine and Energy Industry." https://www.willistowerswatson.com/en-GB/Insights/2020/04/covid-19-willis-re-impact-report.

Winther, J.-G., M. Dai, F. Douvere, L. Fernandes, P. Halpin, A.H. Hoel, M.A. Juinio-Meñez et al. 2020. "Integrated Ocean Management." Washington, DC: World Resources Institute. www.oceanpanel.org/blue-papers/integrated-ocean-management.

White, S.C. 2010. "Analysing Wellbeing: A Framework for Development Practice." *Development in Practice* 20 (2): 158–72.

White, S.C. 2017. "Relational Wellbeing: Re-centering the Politics of Happiness, Policy and the Self." *Policy and Politics* 45 (2): 121–36.

WHO (World Health Organization). 2020a. *Coronavirus (Covid-19 Disease) Situation Report 209, 16 August 2020*. Geneva: WHO. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200816-covid-19-sitrep-209.pdf.

WHO. 2020b. *1st WHO International Infodemiology Conference*. Geneva: WHO. https://www.who.int/teams/risk-communication/infodemic-management/1st-who-infodemiology-conference.

Wood, J. 2020. "Drones, Disinfectant, Distancing: Europe's Beaches Open Up." *World Economic Forum Coronavirus Briefing*, 20 May. https://www.weforum.org/agenda/2020/05/coronavirus-europe-beach-reopen-restrictions-sun-pandemic-tourism/.

Woody, T. 2020. "Covid-19 Throws Seabed Mining Negotiations Off Track." *China Dialogue*, 7 May. https://chinadialogueocean.net/13685-covid-19-could-throw-seabed-mining-negotiations-off-track/.

Young, O.R., and L. Gasser. 2002. *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press.

Young, O.R., D.G. Webster, M.E. Cox, J. Raakjær, L.Ø. Blaxekjær, N. Einarsson, R.A. Virginia et al. 2018. "Moving Beyond Panaceas in Fisheries Governance." *Proceedings of the National Academy of Sciences* 115 (37): 9065–73.

Zeldin, T. 2012. *An Intimate History of Humanity*. London: Random House.

Zhang, K., J.A. Dearing, S.L. Tong and T.P. Hughes. 2016. "China's Degraded Environment Enters a New Normal." *Trends in Ecology and Evolution* 31 (3): 175–77.

Acknowledgements

We thank the participants in a discussion seminar on 'The Blue Economy and the Future Human Relationship with the Sea', MARE conference, July 2019.

Name	Affiliation
Edward H. Allison* (seminar organiser)	Nippon Foundation Ocean Nexus and WorldFish, Penang, Malaysia
Fabio Boschetti	CSIRO, Australia
Ruth Brennan	Trinity College, Dublin, Ireland
Jens Christiansen	University of Lancaster, UK
Philippa Cohen	WorldFish, Penang, Malaysia
Anna Farmery	ANCORS, University of Wollongong, Australia
Madeleine Gustavsson	University of Exeter, UK
Mariam de Haan	
Derek Johnson	University of Manitoba, Canada
John Kurien*	ICSF and WorldFish, Penang, Malaysia
Cynthia McDougall	WorldFish, Penang, Malaysia
Borya Nogue Alguero	
Camilla Novaglio	CSIRO, Australia
Qurban Rochani	Rhodes University, Grahamstown, South Africa
Irna Sari	SARI, Indonesia
Marleen Schutter	Lancaster Environment Centre, University of Lancaster, UK
Michelle Scobie	University of the West Indies, Trinidad and Tobago
Sarah Taylor	
Michelle Voyer*	ANCORS, University of Wollongong, Australia
Stella Williams	Mundus Maris, Port Harcourt, Nigeria

** Lead author or contributing author of Blue Paper 11.*

Jonathan Barton, Janice Cumberbatch, Christina Hicks, Moeniba Isaacs and Kimberley Peters contributed ideas and support to early drafts of this paper. The work also benefited from having co-authors in common with other Blue Papers related to human relationships with the ocean. Allison and Fabinyi were also involved in BP13, on equity, and Allison was involved in BP12, on governance transformations. We thank the author teams on those papers for support and cross-fertilisation of ideas. The work was completed while Allison was a visiting fellow at the Australian National Centre for Ocean Resources and Security, University of Wollongong.

The authors thank the paper's technical reviewers, Olanike Adeyemo, Tekau Frere, Hugh Govan, Danika Kleiber, Ghislaine Llewelyn, Jorge Torre and Joeli Veitayaki, as well its arbiter, Jane Lubchenco, who all provided helpful technical comments. The authors also thank World Resources Institute for providing support as the Ocean Panel Secretariat, its insights, support and patience during the preparation of this paper.

While our colleagues were very generous with their time and input, this report reflects the views of the authors alone. The authors thank Alex Martin for copyediting and Carni Klirs for design.

About the Authors

LEAD AUTHORS

Edward H. Allison is Research Director of the Nippon Foundation Ocean Nexus Center, and Research Chair for Equity and Justice in the Blue Economy at WorldFish, Penang, Malaysia.

John Kurien is a founding member of the International Collective in Support of Fishworkers, a Visiting Professor at the Azim Premji University in Bengaluru, India and Honorary Fellow at WorldFish, Penang, Malaysia.

Yoshitaka Ota is Director of the Nippon Foundation Ocean Nexus Center and Research Assistant Professor at the School of Marine and Environmental Affairs, University of Washington, Seattle, USA.

CONTRIBUTING AUTHORS

Dedi S. Adhuri is coordinator of the Maritime Study Group at the Indonesian Institute of Sciences, Jakarta, Indonesia.

J. Maarten Bavinck is Professor of Maritime Studies at the University of Amsterdam, the Netherlands.

Andrés Cisneros-Montemayor is Deputy Director of the Nippon Foundation Ocean Nexus Program at the University of British Columbia, Vancouver, British Columbia, Canada.

Michael Fabinyi is Associate Professor of Anthropology in the School of Communications, University of Technology, Sydney, Australia.

Svein Jentoft is Professor of Sociology at the University of Tromsø, Norwegian College of Fisheries Science, Tromsø, Norway.

Sallie Lau is a recent graduate of the Masters in Marine Affairs program at the School of Marine and Environmental Affairs, University of Washington, Seattle, USA.

Tabatha Grace Mallory is founder and Chief Executive Officer of China Ocean Institute, Seattle, Washington, USA.

Ayodeji Olukoju, is Professor of History at the University of Lagos, Nigeria.

Natasha Stacey is Associate Professor at the Research Institute for the Environment and Livelihoods, College of Engineering, IT and Environment, Charles Darwin University, Darwin, Northern Territories, Australia.

Ingrid van Putten is an Environmental Economist with the Commonwealth Scientific and Industrial Research Organisation in Hobart, Tasmania, Australia.

Michelle Voyer is a Research Fellow at the Australian National Centre for Ocean Resources and Security, University of Wollongong, Australia.

Nireka Weeratunge is an anthropologist and independent scholar, affiliated as Research Fellow to the International Centre for Ethnic Studies in Colombo, Sri Lanka.

HIGH LEVEL PANEL *for*
A SUSTAINABLE OCEAN ECONOMY

10 G Street NE
Suite 800
Washington, DC 20002, USA
+1 (202) 729-7600

oceanpanel.org

Support for this Blue Paper provided by:

UN environment programme

gef