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Tourism in Marine Environments, Vol. 13, No. 1, pp. 25–40
Printed in the USA.

1544-273X/18 $60.00 + .00
DOI: https://doi.org/10.3727/154427317X15018194204029
E-ISSN 2169-0197
www.cognizantcommunication.com

EMERGING OCEAN INDUSTRIES: IMPLICATIONS FOR SUSTAINABLE TOURISM DEVELOPMENT

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Pressures on the ocean's natural assets inevitably will increase in the coming years as world population growth, economic growth, and increased international trade generate increasing demands for marine sources of food, energy, minerals, and leisure pursuits. This article explores the consequences for coastal and marine tourism resulting both from its own growth and from the growth in the other established and emerging ocean industries. It estimates the present and future economic value of the world's ocean industries and the contribution of the tourism industry in particular, identifying the drivers of growth in ocean industries including tourism. Several types of challenges to the sustainable development of coastal and marine tourism, shared in common with other ocean industries, are identified. The article concludes with a discussion of strategies to minimize the adverse impacts of growth so that tourism and other ocean industries can develop in more sustainable ways.

Key words: Ocean industries; Sustainable tourism; Integrated ocean management; Governance

Introduction

The world faces substantial challenges in the coming decades. These include finding and developing new sources of economic growth, feeding and providing livelihoods for an expanding world population, combating poverty, mitigating the effects of climate change, securing adequate long-term energy supplies, managing natural resources sustainably, and developing renewable sources of energy. In meeting these types of challenges, the oceans play an indispensable role (Organisation for Economic Co-operation and Development [OECD], 2016; United Nations Environment Program [UNEP], 2012). This role is set to grow in importance in the years ahead as political, population, and commercial pressure is applied to unlock coastal and marine resources and open up new opportunities for economic growth.

Oceans are a critical part of Earth's life-support system and vital for the well-being of humanity.

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Benefits from the ocean can be defined in the following broad categories in terms of ecosystem services. *Provisioning goods and services*: renewable resources from ecosystems (e.g., pharmaceuticals, fisheries, wave energy) as well as nonrenewable resources (e.g., minerals, oil, gas). *Regulating services*: processes that maintain the climate, regulation of atmospheric and marine carbon dioxide concentrations, the provision of oxygen, the hydrothermal convection cycle, the hydrological cycle, coastal protection, and vital contributions from marine biodiversity, coastal integrity, water quality, and buffers for waste (Bijma, Pörtner, Yesson, & Rogers, 2013). *Supporting services*: crucial natural processes that maintain ecosystem functions, which support other services, such as primary production, aquaculture localities, nutrient recycling, and the provision of habitats. *Other services*: provided by the ocean include shipping and transportation for the bulk of the commodities traded globally. Oceans also deliver nonmaterial benefits that support spiritual and religious values, and recreational and community benefits such as coastal and oceanic leisure, recreation, and tourism ecosystem services (Mooney et al., 2009; Palumbi et al., 2009).

As a consequence of world population growth, economic growth, and increased international trade, pressures on the ocean's natural assets inevitably will increase in the coming years, as demands for marine sources of food, energy, minerals, leisure pursuits, and so on, continue to grow. Similarly, ocean space in many regions of the world risks becoming ever more crowded, as maritime trade, passenger transport, shipbuilding and repair, industrial capture fisheries, sea mining, marine aquaculture, ocean renewable energy, and marine and coastal tourism, etc., gather momentum, generating further demand in related, interconnected, ocean-based industries (OECD, 2016). Meeting the additional demand for ocean-related inputs, goods and services will require substantial expansion of many ocean-based economic activities. Although the potential of the ocean to help meet these challenges is huge, the oceans already suffer substantially from increased atmospheric carbon dioxide emissions, rising temperatures, rising sea levels, acidification, deoxygenation, extreme weather events, and unsustainable coastal development. Currently, users compete for a share in the benefits derived from the ocean with little or no incentive to protect or improve those goods and services for future generations (UNEP, 2011). This has resulted in the excessive use, and in some cases irreversible change, of valuable ocean resources. The additional demands placed on ocean resources will call forth additional economic activity with its potential to further degrade and destroy ocean environments.

One industry that will be particularly impacted upon by the expanding economic activity associated with the world's oceans and waterways is tourism. Tourism development affects, and is affected by, other ocean industry development. Tourism is a significant user of services provided by marine environments, with economic, social, and environmental effects on communities and other industries. Increasing numbers of persons are now able to access more and more of the marine world with its sensitive and fragile environments (Honey & Krantz, 2007). An expanding tourism industry draws resources (land, labor, capital) from other industries (Dwyer, Forsyth, & Spurr, 2003). A key challenge is how to develop ocean's tourism potential without adding significantly to already existing pressures. More than most other industries, tourism depends on valued environments for its appeal. The associated challenge is that of insulating tourism, so far as is possible, from adverse impacts on the oceans, associated with expanding commercial activity and wider industrial growth. To mention just some examples: industrial pollution degrades the suitability of coastal and marine locations for tourism purposes; land-based pollution, in particular agricultural runoff, chemicals, and macro- and microplastic pollutants feed into the ocean especially from rivers; human-induced acidification, eutrophication, and plastic wastes impact upon coastal and marine ecosystems; overfishing; activities related to aquaculture, minerals exploration and extraction, spills from oil tankers, garbage from merchant shipping, etc., adversely impact on the quality of the marine environment so important to sustainable tourism development; sea mining impacts on coral reefs. Such interactive effects between tourism and other industries are not surprising in commercial activity associated with the oceans (Toropova, Meliane, Laffoley, Mathews, & Spalding, 2010; UNEP, 2010).

Realizing the full potential of the ocean and tourism expansion that depends on it, demands responsible, sustainable approaches to its economic development (Dwyer, 2017). This article explores the consequences for coastal and marine tourism resulting both from its own growth and from the growth in the other established and emerging ocean industries. Specific aims are first, to estimate the present economic value of the world's ocean industries and the contribution of the oceans tourism industry in particular. Second, to identify the drivers of growth in ocean industries, including tourism, in order to estimate the economic value of these industries in the future. Third, to identify several types of challenges to the sustainable development of coastal and marine tourism, shared in common with other ocean industries. Fourth, to discuss strategies to minimize the adverse impacts of growth so that ocean industries can develop in more sustainable ways. It is argued that competition for maritime space between established and emerging ocean industries highlights the need for efficient governance processes to monitor the various effects associated with expansion of each of the emerging ocean industries. Because healthy oceans are inextricably linked to the long-term management, development, and well-being of life on Earth, the objective therefore must be to reconcile efforts to develop the ocean economy with the need to protect the ocean and nurture its resources.

The Ocean Economy and Ocean Industries

The ocean economy is the sum of the economic activities of ocean-based industries, and the assets, goods, and services of marine ecosystems (OECD, 2016). Broadly, the ocean economy can be defined as "the economic activities that directly or indirectly take place in the ocean, use the ocean's outputs, and put the goods and services into the ocean's activities" (Park, 2014). As depicted in Figure 1, the ocean economy is a cluster of interconnected industries that includes established industries such as shipping, shipbuilding and marine equipment, capture fisheries and fish processing, maritime and coastal tourism, and offshore oil and gas exploration, as well as the natural assets and ecosystem services that the ocean provides such as fish, shipping lanes, CO_2 absorption, and the like. In addition to the market flows and services and the physical capital stock of ocean-based industries, the ocean economy also consists of marine ecosystems. Marine ecosystems encompass oceans, salt marshes and intertidal zones, estuaries and lagoons, mangroves and coral reefs, the water column including the deep sea, and the sea floor (Palumbi et al., 2009), all of which

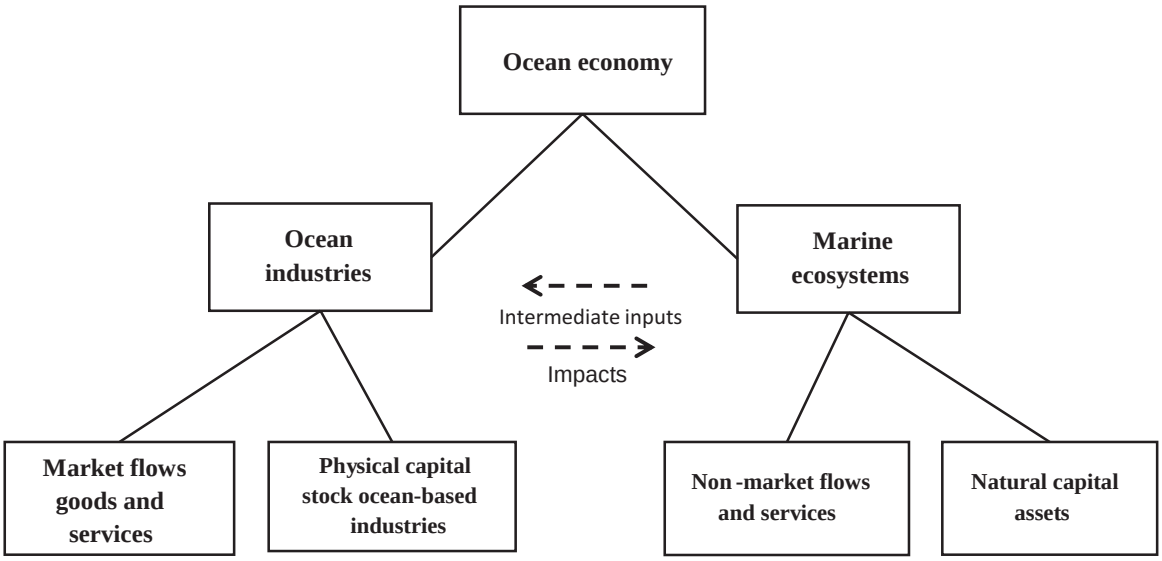

Figure 1. Scope of the ocean economy. Source: Adapted from OECD (2016).

provide intermediary services relevant for ocean-based industries. Although "industry" embodies only market-based activities in the private and public sectors, the term "economy" seems better suited to capturing the notion of both market-based and non-market goods and services (OECD, 2016).

Recognizing that the oceans hold the promise of immense resource wealth and great potential for boosting economic growth, employment, and innovation, the maritime industry landscape is poised to undergo a profound transition (European Commission, 2008; Global Ocean Commission, 2014). New activities are emerging that are reshaping and diversifying maritime industries and transforming the "ocean economy." Emerging ocean-based industries and activities are characterized by the key role played by cutting-edge science and technology in their operations. They include: offshore wind, tidal, and wave energy; offshore extraction of oil and gas in deep-sea and other extreme locations; seabed mining for metals and minerals; marine aquaculture; marine biotechnology; ocean monitoring, control, and surveillance, high tech marine products, and services. Additionally, there are embryonic industries that could evolve (e.g., carbon capture and storage). The long-term potential for innovation, employment creation, and economic growth offered by these sectors is substantial (Hoegh-Guldberg et al., 2015).

Economic Value of Ocean Industries

A recently published study on "The Future of the Ocean Economy" (OECD, 2016) indicates that the global ocean economy, measured in terms of the ocean-based industries, makes a substantial contribution to economic output and employment. Preliminary calculations from the OECD's *Ocean Economy Database* value the ocean economy's contribution in 2010, very conservatively, at US$1.5 trillion, or approximately 2.5% of world gross value added (GVA). Offshore oil and gas accounted for one third of total value added of the ocean-based industries, followed by maritime and coastal tourism, maritime equipment, and ports. In tourism research, given the importance of coastal activity in the causal chain of inputs and outputs associated with this tourism and leisure sector overall, it is standard to refer to the relevant market segment as "coastal and marine tourism," rather than "ocean" tourism. Value chain analysis upstream and downstream informs us that there are many industries potentially relevant to both concepts. Researchers acknowledge blurred lines of definition (European Commission, 2013; Hall, 2001; Orams, 1999). As defined by the OECD (2016),

> Maritime and coastal tourism including cruise industry includes all tangible and direct facilities of ocean-related tourism and leisure activities, such as marine sports, recreational fishing, aquariums, excursions to underwater cultural habitats, etc., restaurants, hotels and seaside accommodation and campgrounds located in a place near or adjoining the coast. (p. 47)

Direct full-time employment in the ocean economy amounted to around 31 million jobs in 2010. The largest employers were industrial capture fisheries with over one third of the total, and maritime and coastal tourism with almost one quarter. Based on country-specific tourism consumption for 169 countries (OECD, 2016) and a breakdown of maritime and coastal tourism compared to total tourism, global direct value added in marine and coastal tourism was estimated at US$390 billion, supporting 6.9 million jobs. In 2010, coastal and marine tourism contributed 26% to GVA of ocean industries and comprised 22.3% of ocean industry employment.

Growth in Ocean Industries

The OECD has projected the development of the global ocean economy as a whole to 2030, on the basis of an enhanced ocean-industry database and a model based on broadly consistent assumptions and parameters. Forces shaping the evolution of the ocean economy to 2030 include world population growth, the growing world economy, increased trade, changes in climate and environment, technology, and ocean regulation and management (OECD, 2016). The key projection is a "business as usual" or baseline scenario, which assumes a continuation of past trends in world population, economic growth and trade, no major policy changes, no abrupt technological or environmental developments, and no major surprises. On the "business as usual" scenario, forces driving value added and

employment growth in ocean-based industries continue along the same trajectory to 2030 as in the past reference period. The model designed for this project requires country- and industry-specific employment and physical capital stock to be extrapolated under the assumption that past growth rates continue until 2030 at least (OECD, 2016).

Table 1 reveals that, out to 2030, many ocean-based industries have the potential to outperform the growth of the global economy as a whole, both in terms of value added and employment. The value added of some ocean industries, including marine aquaculture, capture fisheries, fish processing, offshore wind, and port activities is set to grow faster than the world economy. In the "business as usual" scenario, marine and coastal tourism is estimated to contribute over US$777 billion in value added to the global economy and to employ 21.5% of ocean industry employment for 8.6 million persons in 2030. Global value added in the ocean economy "business as usual" scenario is estimated to grow to almost US$3 trillion (in constant 2010 US$) by 2030 (OECD, 2016) (Fig. 1) and maintain its 2.5% share of world total GVA (projected to reach about US$120 trillion by 2030). Ocean industries also have the potential to make an important contribution to employment growth. In 2030, they are anticipated to employ approximately 40 million full-time equivalent jobs in the "business as usual" scenario, broadly unchanged since 2010 at more than 1% of the global workforce (of around 3.8 billion). Maritime and coastal tourism, including the cruise industry, is expected to continue to contribute the largest share of ocean industry employment (21.5%), behind industrial capture fisheries with 25.3%.

Table 1 also summarizes the results of the "business as usual" projections of industry-specific growth rates of value added and employment in ocean industries between 2010 and 2030. The compound annual growth rate for value added of the ocean-based industries combined, between 2010 and 2030, is estimated at 3.45%, slightly below the anticipated compound annual growth rate of 3.64% for value added of the global economy. However, the total growth of employment (approximately 30%) in the ocean-based industries over the 20-year period is expected to outpace markedly the overall growth rate of the global workforce (approximately 20%).

Table 1
Gross Value Added (GVA) and Employment, by Ocean Industry, 2010 and Projections to 2030 (Business as Usual Scenario)

	2010			2030			2010–2030		
Industry	GVA ($US Billion)	Value Added (%)	Jobs Direct Full Time (Millions)	GVA ($US Billion)	Value Added (%)	Jobs Direct Full-Time (Millions)	GVA (AARG[a])	Total Change GVA	Total Change Jobs
Offshore oil and gas	504.04	34	1.8	636.09	21	2.0	1.17	126	126
Marine and coastal tourism	390.11	26	6.9	777.14	26	8.6	3.51	199	122
Port activities	193.00	13	1.7	472.85	16	4.3	4.58	245	245
Marine equipment	168.04	11	2.1	299.67	10	2.7	2.93	178	124
Water transport	82.59	5	1.2	118.02	4	1.5	1.80	143	130
Industrial fish processing	788.07	5	2.4	265.60	9	5.0	6.26	337	206
Shipbuilding and repair	57.69	4	1.9	102.89	3	2.3	2.93	178	124
Industrial capture fisheries	21.08	1	10.9	47.05	2	10.1	4.10	223	94
Offshore wind	2.87	0.2	0.04	230.47	8	0.5	24.52	8037	1257
Industrial marine aquaculture	0.36	0.0	2.1	10.97	0	3.0	5.69	303	152
Total	1500	100%	31.0	2961	100%	40.0	3.45	204	120

[a]Annual average rate of growth.
Source: Author construction from data in OECD (2015, Part 1).

Between 2010 and 2030, the largest increases in contribution to GVA will come from offshore wind, industrial fish processing, and industrial marine aquaculture. However, Table 1 shows that the projected annual average rate of growth in coastal and marine tourism GVA between 2010 and 2030 (3.51%) is slightly above that of the average for all ocean industries (3.45%). Given its high base, the projected growth in GVA of coastal and marine tourism is substantial in volume terms (OECD, 2016). The fastest growth in jobs is expected to occur in offshore wind energy, port activities, industrial fish processing marine aquaculture, fish processing, and port activities (all from a lower base). The rate of growth of employment in coastal and marine tourism is forecast to be very close to the ocean industry average.

Despite occasional shocks, international tourist arrivals have shown steady growth over the past six decades, from 25 million in 1950 to 1.235 billion in 2016 (United Nations World Tourism Organization [UNWTO], 2017). International tourist arrivals worldwide are projected to increase by 3.3% a year from 2010 to 2030, to reach 1.4 billion by 2020 and 1.8 billion by 2030 (UNWTO, 2011). This implies an annual average increase of around 43 million international tourists globally. Future coastal and maritime tourism is affected by the same demographic, social, political, economic, environmental, and technological factors that influence global tourism flows in general (Dwyer, 2016, 2017). However, in respect of cruise tourism this sector is expected for some time to grow at a faster rate than international tourism as a whole. For example, Ships and Maritime Equipment Association [SEA] (2015) projects that global cruise passenger numbers will almost triple between 2010 and 2035, from 19 million passengers in 2010 to over 54 million in 2035, implying an annual average growth rate above 7%. Although lack of international statistics make it difficult to estimate the share of marine tourism in the overall total of global tourism, some trends exist that appear to favor relative greater growth in this sector over time. These include: economic growth trade and rising income levels; increased longevity of humans; increasing urbanization; higher standards of health care; changing work patterns with more flexibility of travel plans; wider spread of education; stress management through holiday escapes; and changes in people's values and aspirations regarding a range of marine and coastal recreational activities (Dwyer, Edwards, Mistilis, Scott, & Roman, 2009). Therefore, it is not surprising that the 3.51% projected annual growth in coastal and marine tourism to 2030 exceeds the UNWTO projected growth rate of global tourism as a whole (3.3%) (UNWTO, 2011).

The "business as usual" estimates in Table1 can be contrasted with two alternative scenarios: sustainable growth and unsustainable growth. These scenarios shape the future ocean economy in two different directions, one accelerating and the other slowing the development of the ocean-based industries by 2030 (OECD, 2016).

Sustainable Growth. The "sustainable growth scenario" assumes high economic growth and low environmental deterioration due to the development of resource-efficient and climate-friendly technologies combined with a supportive governmental framework that provides the right incentives to allow the ocean economy to thrive economically while meeting environmental standards. On this scenario, value added by ocean industries in 2030 is more than US$3.2 trillion and contribution to employment, almost 43 million jobs. On this scenario, in 2030 coastal and marine tourism would contribute around US$832 million to world GVA, and 9.25 million jobs.

Unsustainable Growth. The "unsustainable growth scenario" assumes low economic growth and serious environmental deterioration. Coupled with faster than expected climate change and low rates of technological innovation, the ocean economy experiences a challenging outlook to and beyond 2030, with increasing strain on the ocean environment and its resources and posing significant challenges to ocean management. Value added in 2030 on the "unsustainable" scenario is around US$2.8 trillion with associated employment of about 36 million. On this scenario, coastal and marine tourism would contribute around US$728 million to world GVA and 7.74 million jobs in 2030.

It should be noted that the estimates presented in Table 1, and in the different scenarios for both value added and employment in the ocean economy, are

extremely conservative. Several important activities in the ocean economy, such as marine business and finance and ocean surveillance, are not captured due to lack of data. Additionally, some activities have not yet developed to commercial scale at world level (e.g., marine biotechnology, ocean renewable energy, seabed mining). Also, the estimates do not include the indirect or flow-on effects of the direct expenditure associated with each industry. For example, in the case of tourism the indirect and induced effects of tourist spending in coastal, marine, and ocean-based activities are not included in the estimates. Moreover, Table 1 only captures industrial activity associated with *international* tourism, excluding domestic coastal and marine tourism, which comprise the bulk of tourism-related economic activity. Table 1 also excludes estimates of the value of marine ecosystems. To capture a fuller picture of the true size and nature of the ocean economy, much more needs to be done to calculate the global economic value of the ocean's natural assets and ecosystem services more systematically. Measuring the value of marine ecosystems is a difficult and complex exercise, but research efforts in the area have gathered considerable momentum in recent years (Costanza et al., 2014). Estimates of the size of the benefits of marine ecosystem services suggest that these are substantial (OECD, 2016, Annex 1.A2), but much work remains to be done.

Each of these issues point to the need for greater effort to improve data quality, data coverage, and measurement techniques to deliver a more accurate assessment of ocean-based industries and their potential for the future. The provision of credible statistics can also help to raise awareness of the economic importance of coastal and marine tourism and its importance in the ocean economy. Despite the challenges of estimating the economic value of coastal and marine tourism at present and into the future, it is to be hoped that more credible statistics can be developed over time, globally, regionally, and nationally.

Challenges to Sustainable Development of Coastal and Marine Tourism

Historically, coastal and marine tourism faces a variety of barriers to sustainable operations. To develop a genuinely real sustainability approach to its development, several major challenges must be met.

Rapid and Uncontrolled Urbanization

Coastal tourism development patterns are often driven by broad market dynamics in a relatively unplanned and undirected manner (Nelson, 2004). The ability of governments to independently make and enforce tourism land use and development policies is often undermined by weak municipal or national governments, by the multitude of agencies involved in multiuse residential tourism projects, and by illegal business deals and practices (Honey & Krantz, 2007). The speculative nature of much coastal development with little commitment to the long-term well-being of regions, results in adverse social and environmental effects. Overall, the ecological footprint of urbanization on marine and coastal resources is severe and growing in size.

Regional Cooperation

Marine tourism is characterized by a lack of regional cooperation in such matters as product development, multicountry packaging, intraregional travel, promotion, data collection, and cross-cutting issues, including training, quality assurance, and environmental standards (UNWTO, 2013).

Dependence on Tourism

Coastal and marine tourism destinations, particularly in small island states are typically susceptible to two types of dependence. One type relates to a dependency on tourism in general as an export market. Another type of dependence occurs within the tourism market, with overreliance on tourism from particular origin market or overreliance on a particular tourism product (e.g., beach recreation, yachting, whale watching, diving). Destinations that overspecialize in tourism are particularly vulnerable to crises and can incur substantial costs when conditions change.

Transport

Many destinations are associated with poorly conceived transport networks with severe road

congestion, energy consumption, parking problems, and variable alternative public sector transport links. Small island tourism is particularly affected by poor air transport links (UNEP, 2014; United Nations Conference on Trade and Development [UNCTAD], 2014). Without adequate connections, operators and host communities cannot reap the economic benefits of a thriving tourism industry or develop their local economies.

Impacts of Other Industries on Tourism

Tourism operators and destination managers need to monitor the effects of commercial activity relating to other ocean industries. On a positive note, tourism development can learn mitigation and adaptation strategies and construction techniques as well as techniques of hazard identification and risk assessment from other emerging ocean industries.

Impacts of Tourism on Other Industries

All forms of tourism development leave a carbon footprint (Scott, 2011). Poorly planned seaside tourist developments can have a detrimental effect on existing local industries and on the social fabric of local communities (Dwyer et al., 2003). Greater understanding is required as to how the projected expansion of coastal and maritime tourism and new forms of ocean recreation is likely to impact on other coastal and marine users as well as the potential synergies/conflicts between growth of tourism and other coastal and marine industries.

Education, Training, and Skills

Due to seasonality and lack of career opportunities the coastal and maritime tourism sector often has difficulty in attracting or maintaining enough skilled personnel to work in its various sectors (European Commission, 2013). This can lead to problems in service quality and erode destination competitiveness.

Climate Change

Climate has a major influence on destination choice. Rising sea levels will cause coastal erosion, loss of beach area, higher costs to protect and maintain waterfront tourism precincts (Bijma et al., 2013). Small island tourism destinations (SIDS) are particularly vulnerable to sea level rise and erosion of beaches and shorelines are susceptible to intense climatic events such as hurricanes. Rises in sea surface temperature cause coral bleaching and marine resource degradation and species extinction and reducing destination attractiveness (UNCTAD, 2014). Changes in weather patterns severely damage or destroy tourism attractions. The decline in quality of the visitor experience results in reduced visitation and reduced economic impacts. Adaptation actions should be integrated into development policy and planning at every level, with climate change responses integrated into a broader risk management policy for the tourism sector.

Innovation and Product Development

Coastal and maritime tourism worldwide is characterized by small and medium enterprises. These tend to have limited capacities to effectively address common challenges such as transport and infrastructure constraints and restricted/limited market access, among others. Lack of an innovative culture constrains entrepreneurship and creative new product development, solutions for achieving cost reduction and higher quality service, and the fostering of product, service, and marketing innovation as the source of competitive advantage to secure greater market share (Dwyer et al., 2009).

Finance for Development

Access to finance and support for research, development, and innovation are major requirements for the development of coastal and maritime tourism. Investments in revitalization of water fronts, seasonal festivals, and the concentration of water-based activities can enhance the quality of life of locals and increased visitor numbers (UNCTAD, 2014). A greater understanding is needed concerning types of investment required, which sectors within coastal and marine tourism face greater financial constraints, what types of policies can best lead to risk reduction for coastal and maritime tourism investment, and in which emerging coastal and maritime tourism industries are infrastructure needs most pressing.

Information/Data

Information about coastal and maritime tourism is dispersed and fragmented. There is substantial uncertainty regarding the organization of scientific and technical inputs as well as social data (Hoegh-Guldberg, 2014). Concerns include inconsistency in reported value measures, as well as irregularities in data coverage. National statistics are often incomplete, outdated, or inconsistent, which makes country comparisons challenging. Lack of physical and social scientific data required for informed decision making by developers and investors in ocean industries often reflects poor governance processes.

Community Livelihoods

A key goal for sustainable coastal and marine tourism development is for local communities to gain benefit from the industry, thereby helping to alleviate poverty, improving livelihoods, and encouraging better management and conservation practices in communities (UNEP, 2012). However, progressive tourism business models that create local economic benefits and conservation incentives are much less developed in coastal areas. High leakage of tourist revenue occurs through the high import content of tourists' consumption bundle as a result of a narrow production base in many coastal and marine destinations (Honey & Krantz, 2007). Coastal regions often struggle to create and fully capture economic benefits generated by cruise tourism in particular.

SIDS and Archipelagos

SIDS and archipelagos face common social, economic, and environmental challenges. These result from characteristics such as small populations, narrow resource base, small domestic markets, low income levels and savings rates, remoteness, high dependency on development assistance and international trade (especially commodities), poor infrastructure, lack of skilled/managerial/technical personnel in tourism and hospitality, and vulnerability to natural disasters and exposure to global environmental changes (Douglas, 2006; UNCTAD, 2014; UNEP, 2014). SIDS governments in particular need extensive international financing for climate adaptation and mitigation efforts, and increased knowledge and capacity to address climate change effects.

Governance

There is failure of good governance of coastal and maritime tourism regionally, nationally, and internationally. Marine/ocean resources are frequently "common property resources" with open or free access to users. Free access results in excessive use of marine resources (e.g., over fishing), and eventual exhaustion of the resources. History demonstrates that self-regulation voluntary codes of conduct whether by established or emerging industries typically does not work, particularly in contexts of market failure. This is particularly relevant to tourism, which depends for its appeal on survival of many types of marine resources. What is called "the tourism industry" is really a collection of different industries (Dwyer et al., 2003). Coastal and marine economies worldwide remain fragmented and cooperation is often confined to stakeholders along the lines of traditional activities according to statistical agency industry classifications. This limits holistic decision making.

Meeting the Challenges Through Good Governance

Tourism does not face these types of challenges alone. Many are symptomatic of wider problems concerning governance. Addressing the direct and indirect human impacts on the ocean requires a holistic approach to develop viable and practical approaches to reduce or eliminate current degradation of marine ecosystems.

As emerging ocean industries have grown in importance and have spread globally, the challenge now is how to integrate them into existing regulatory structures. The inability so far to deal with these pressures in an effective, timely way is due in large measure to what is historically a sector-by-sector management of marine activities. The world is increasingly multipolar and has been experiencing increased difficulty in forging international consensus on global and regional issues key to the ocean environment and ocean industries including

the governance of the high seas and areas beyond national jurisdiction, the protection of marine biodiversity, or international conventions on climate change mitigation and maritime safety. Hegemony is being eroded as new national and regional players emerge on the geopolitical stage. The Global Ocean Commission (GOC, 2014) recently concluded that, "ocean governance is plagued by a patchwork of sectorally focused agencies and institutions" hampered by weak compliance and lack of enforcement, a lack of legal clarity about economic activities in the oceans beyond national jurisdiction, and increased competition between states for access to resources in the seas (OECD, 2016).

Issues of governance are complex, and space limitations preclude comprehensive discussion of the approaches that could be adopted in the context of development of coastal and marine tourism. This section focuses on six governance processes that can help to meet the challenges identified.

Strengthening Integrated Ocean Management

It is essential that countries recognize the true potential of their marine resources and develop integrated policies that acknowledge the interlinkages that exist between the different domains and functions of seas, oceans, and coastal areas. An integrated management approach, with policy coordination required on several levels, would allow for an effective and efficient coordination of the various authorities and agencies involved in ocean-related decision making. Overall responsibility for the conservation of coastal environments and the well-being of coastal communities should rest with government, to provide the legislative framework for protection and sustainable development and ensure that effective management processes are in place (UNWTO, 2013).

International best practice dictates that a highly integrated approach to governance of coastal and marine tourism is required for effective sector stewardship and economic impact (Global Ocean Commission, 2014; UNEP, 2010, 2011). Coastal and maritime tourism is unlikely to reach its full potential if not accompanied by a coherent, integrated, and effective public support policy at local, regional, national, sea-basin, and international level. Political short termism should be avoided, and in its place governance should incorporate the actions to pursue long-term benefits. Many opportunities in coastal and maritime tourism are transnational or transregional by nature. Effective governance of sustainable coastal tourism requires a coherent policy framework to guide and drive action, and appropriate bodies to ensure that the policies are implemented. Opportunities associated with future development of coastal and marine tourism reside within the broad context of ecosystem-based management (EBM). In essence, EBM is an integrated, science-based approach to the management of natural resources that aims to sustain the health, resilience, and diversity of ecosystems while allowing for sustainable use by humans of the goods and services they provide (Curtin & Prellezo, 2010; Long, Charles, & Stephenson, 2015). Governance approaches that are sectoral in focus cannot account for social, political, and ecological interrelationships and can only deliver incremental and fragmented solutions insufficient to meet the web of challenges confronting ocean health.

Consistent with community needs, high-level government leadership with clear accountability is essential to achieving and maintaining sustainable development in coastal and maritime tourism. The Integrated Maritime Policy (IMP) that has been pursued by the European Commission since 2007 is an important step in realizing Europe's future strategies and policies and can serve to highlight opportunity areas for other coastal and marine destinations in respect of governance issues (European Commission, 2013). Properly designed, integrated efforts can result in sustainable and shared economic development, and healthy marine ecosystems. By facilitating local, provincial, national, and international governance reform for sustainable ocean management, integrated management can help to remove barriers and create the necessary enabling environment for catalyzing public and private sector investment to support new forms of maritime tourism and in the opening of new destinations.

Traditional top-down models for forward policy planning are no longer appropriate and need to be replaced by strategic cross-sectoral approaches (UNWTO, 2013). Increasingly, it is recognized that sustainable tourism governance requires engagement and coordination of tourism, environment,

community, and wider development interests at a local level. It is at this level that much of the necessary planning, networking, capacity building, and information delivery occurs and where tourism needs to be effectively integrated into local sustainable development. So far as is possible, strategies at the local level should be consistent with existing regional, national, and transnational tourism strategic plans for coastal and maritime tourism. Any prominence afforded to tourism in overall development policies can help to influence all governments to take the sector more seriously. These plans should be informed by, and inform, wider ICZM Plans and land-use plans, ensuring that both reflect tourism needs and realities (UNEP, 2009; UNWTO, 2013). There needs to be greater awareness of tourism's potential contribution to coastal and marine destinations to promote greater engagement at government level (Cicin-Sain, VanderZwaag, & Balgos, 2015).

At a broader level, governments must demonstrate leadership in embracing the recently formulated sustainable development goals, with their strong targets and indicators for the ocean, and commit to coherent policy, financing, trade, and technology frameworks to restore and protect ocean ecosystems as part of the UN Post-2015 Agenda process (Hoegh-Guldberg et al., 2015). Recent calls to establish an effective, transparent, and regular interagency coordination mechanism on ocean and coastal issues within the United Nations system (Cicin-Sain, Balgos, Appiott, Wowk, & Hamon, 2011) will also require government leadership. This initiative can provide important opportunities for the tourism industry to assert its relevance as a key industry stakeholder concerning the health of ocean ecosystems.

Multistakeholder Engagement

Integrated ocean management is essentially a political process. It requires coordination across government as well as the engagement of all relevant stakeholders including scientists, business, user industries, and associations at all levels from national to local (UNWTO, 2013).

In the development of ocean industries, engagement, coordination, and liaison between these interests may be assisted by one or more dedicated multistakeholder structures, such as forums, partnerships, and working groups. Tourism stakeholders in both established and emerging marine markets have much to gain by associating with different maritime industry clusters (European Commission, 2008). Clusters can provide important platforms for operators to exchange best practices. They also can create opportunities for better dialogue between public and private sectors and universities, particularly as in many destinations there is a lack of awareness in the research community about the knowledge gap the industry has to face. The opportunity provided by industry clusters to benefit from technology transfer is of great potential value to the developing coastal and maritime tourism industry.

There is a particular need for coordinated engagement of both the public and private sectors (private–public partnerships). To date, P3 have not played much of a role in ocean industry development but may be beneficial in fostering stakeholder collaboration in technology development as well as bringing additional finance to support particular activities. In addition, NGOs and civil society bodies, representing environmental and social interests and initiatives, have potentially a very important role to play in the area of facilitation and capacity building, bringing different interests together and providing assistance and expertise (Honey & Krantz, 2007). Academic and research bodies, training institutions, and local consultants can also provide highly valuable knowledge and services to all ocean industries including tourism (UNWTO, 2013). Additionally, international agencies should continue to help developing nations in the planning and management of industries on their coasts, providing financial and technical support, and through enabling the sharing of experience and knowledge.

Specific initiatives to mobilize the private sector, such as P3, can be effective in fostering sustainable tourism development. Priority must be given to investing in energy efficient transport and tourism infrastructures, reducing waste and pollution, encouraging biodiversity, and using technological progress to reduce greenhouse gas emissions. Government investments and policies can leverage private sector actions on sustainable coastal and marine tourism. Government spending on public

goods such as protected areas, cultural assets, transport, and renewable energies can reduce the cost of green investments by private sector (UNEP, 2012).

Opportunities exist for setting up social dialogue committees for different coastal and marine tourism subsectors. Destinations could create a permanent structured forum/platform of discussion bringing together regional/local actors (e.g., dialogue between cruise operators, ports, and coastal tourism stakeholders). The creation of such structured communication platforms would allow the tourist industry to liaise closely with all relevant stakeholders to develop a shared vision to address current challenges, develop themes, and to encourage best practice sharing, ensuring tourism is better mainstreamed in all governmental policy making and considered in the decision-making process (Hoegh-Guldberg, 2014, Hoegh-Guldberg et al., 2015).

Bringing stakeholders together in tourism development contexts has often proved to be quite feasible, but maintaining commitment over time has been more of a challenge. Creating locally driven processes for continuous stakeholder consultation, involvement, and benefit is essential.

Enhanced Knowledge of the Oceans

Data on the oceans are fragmented, difficult to locate, and biased towards the physical and ecological characteristics of the resource. An essential component of good marine spatial management is a sound information base, comprising both natural and social science information (Global Ocean Commission, 2014). At the institutional level, there is a need to ensure that information services are streamlined and interconnected between local, national, regional, and global levels. Therefore, cross-border cooperation on data collection, management, and accessibility is essential for the successful implementation of ocean planning and management. Knowledge markets and networks, including the abovementioned social dialogue committees, can play an important role in the transfer of knowledge and would help to disseminate and transfer skill and capacity across all marine environments.

The limited availability of specific and sectorial information restricts networking opportunities for SMEs in coastal and maritime tourism. Data sharing through a collaborative approach with other ocean industries is essential. In particular, access to knowledge platforms (Hoegh-Guldberg et al., 2015) would be a substantial step towards more sustainable operations by firms in coastal and maritime tourism worldwide, the great percentage of which are SME and notoriously unaware of latest trends and circumstances affecting their operations. It is precisely a lack of available data that precludes strategic decision making across the various tourism-related sectors and which is responsible for many of the adverse social and environmental impacts generated from their operations. To complement the additional data, specific indicators are needed to improve coherence and comparability of coastal and maritime tourism statistics worldwide (Cicin-Sain et al., 2011; UNEP, 2009, 2011) and policies and actions should be informed by the latest and best knowledge available.

Data specific to tourism decision making would include visitor statistics on patterns of tourist behavior, regional and national performance measures, tourist satisfaction studies that identify problems and opportunities, studies on the economic, social, and environmental impacts of tourism development, studies on tourist values and needs and information that monitors and tracks the attitude of the local population towards tourism development. Such information can enhance the ability of tourism stakeholders to forecast demand to aid long-term planning. SIDS governments in particular will need extensive international financing for climate adaptation and mitigation efforts, and increased knowledge and capacity to address climate change effects (Douglas, 2006).

Deployment of Management and Evaluation Tools

Economic analysis and instruments improve the measurement and valuation of ecosystem services. They are useful, especially in cases of competing claims for ocean space, and the search for an appropriate balance between use of maritime space and protection of the ocean and coastal environment. Valuation can make for more efficient use of limited funds, and can offer guidance on user preferences and the relative value that current generations attach to ecosystem services. It can also help underpin decisions on the allocation of resources

between competing uses. However, lack of data on economic parameters has meant that economic instruments have so far been underutilized in the ocean environment context. Public and private sector organizations should involve making greater use of economic analysis and economic tools in integrated ocean management, for example by establishing international platforms for the exchange of knowledge, experience, and best practice, that can aid economic evaluation of both ocean use and nonuse values, and by stepping up efforts to evaluate the economic effectiveness of public investment in marine research and observation (OECD, 2016).

Marine tourism developments that are likely to have a significant environmental impact should be required to be subject to an environmental impact assessment (EIA). EIA can ensure that all coastal and maritime tourism development proposals are subject to an appropriate degree of environmental scrutiny. Therefore, it is a potentially powerful instrument in ensuring tourism development that is sustainable (UNWTO, 2013). Unfortunately, there is a considerable variation between countries in the likelihood that an EIA will be required for tourism investments. Effective application of EIAs for coastal and maritime tourism developments can be strengthened by clarifying and being consistent about EIA requirements and procedures for tourism projects while also strengthening community consultation and engagement in EIAs (UNWTO, 2013).

Community Engagement and Benefits

The development of ocean industries should explicitly espouse the objective of creating and maintaining sustainable livelihoods—involving a concern for local prosperity, social equity, and community well-being (UNEP, 2011). It is important to clarify at the outset how ocean industries currently benefit livelihoods in coastal and marine communities, through a simple value chain analysis. Supporting alternative livelihoods is regarded as a strategic approach within the broad application of economic instruments to promote sustainable development and resource use.

The level, pace, and shape of development should reflect and respect the character, resources, needs, and identity of host communities and destinations. Communities offering tourism will need assistance to improve their standards, perhaps through the creation of strong umbrella associations. Community members must look into the future and imagine what they would like their community to be (what type of tourism do we want, if any?). This involves identifying what is really valued or desired and including those elements in the shared image of their community (Dwyer, 2016, 2017). A key requirement for sustainable coastal and marine tourism development is for the local communities along coastlines to benefit from the industry (UNEP, 2010). It is important to understand the political economy in which commercial tourism interests operate as this can impact substantially on net benefits to destinations. Effective governance arrangements should protect coastal communities from political short termism, and be able to harness good reliable information on which to base decisions.

The establishment of effective structures for delivering and managing sustainable tourism at a local level, ideally with multilevel stakeholder coalitions, is very important for the sustainability of the sector and for tackling issues of planning, marketing, development, control, networking, building and maintaining local supply chains, capacity building, information delivery, environmental management, and community engagement (Honey & Krantz, 2007; UNEP, 2009, 2010, 2011). Emphasis should be placed on channeling more economic benefit to local communities and reduce leakages by strengthening the local supply chains to local operators. Various mechanisms for improving community livelihoods through tourism have been identified (Goodwin, 2011; UNWTO, 2015), and each is relevant to coastal and marine destination policy, particularly in developing countries.

Build More Capacity for Ocean Industry Foresight

Countries need to build more national and international capacity for ocean industry foresight, including the assessment of future changes in ocean-based industries. Capacity development for ecosystem-based integrated coastal and ocean management is essential to achieve sustainable development of oceans and coasts and the development of suitable responses to address climate change, preserve biodiversity and resources, provide for

sustainable ocean and coastal livelihoods, as well as respond to new and emerging challenges of ocean industry development.

Various initiatives have been proposed to improve capacity for integrated ocean and coastal management, as well as for specific sectors including tourism (Global Ocean Commission, 2014). Suggested strategies cover such areas as the development of education infrastructure (such as regional centers of excellence); research facilities for systematic observation of the marine environment and disaster response; strengthening of institutions for integrated management, marine science monitoring, and assessment; public participation; and education. Capacity development is done by a wide array of actors—educational institutions, UN agencies, multilateral and bilateral donors, and NGOs, but there appears to be little communication/coordination among these efforts. If the ocean economy of the future is to be skills and knowledge based, then more of an effort must be made to link educational institutions with industry. More understanding is required as to the skills needed for future development of coastal and maritime tourism, including what different skills are needed, in particular emerging subsectors of coastal and maritime tourism and what jobs will grow/decline. To date also, education of the general public in ocean stewardship is given inadequate attention (Cicin-Sain et al., 2011). Advanced countries have an important responsibility to support developing countries, and in some cases also emerging economies, in the development of their scientific infrastructure and their policy capabilities in ocean-related activities.

Institutions can play an important role in facilitation and capacity building. The Global Partnership for Oceans is an alliance of governments, private firms, international organizations, and civil society groups that aims to promote ocean health while contributing to human well-being (Hoegh-Guldberg, 2014). Stakeholders in coastal and maritime tourism, the same as for other industry stakeholders, may be expected to gain substantially from these types of capacity building strategies. This will enable tourism to play a stronger role in helping to achieve the identified SDG's. In light of the expanding economic use of the oceans, it is important to make greater and more regular use of foresight and other forward-looking techniques to help anticipate the likely future development of ocean-based industries, assessing the likely impacts of their development on the ocean environment and paying attention not just to existing industries, but also to the emergence of new ocean-related activities.

Conclusion

The expansion of many ocean-related industries is set to take place at a time when the ocean's resources show serious signs of deterioration and depletion globally. Failure to deal effectively with the consequences of ocean industry development and tourism's role in this development is attributable in large part to what is historically a sector-by-sector management of marine activities.

This article explored the consequences for the coastal and marine tourism resulting both from its own growth and from the growth in the other established and emerging ocean industries. After highlighting estimates of the present economic value of the world's ocean industries and the contribution of coastal and marine tourism in particular, the drivers of growth in ocean industries, including tourism, were identified to estimate the economic value of these industries in the future. Several types of challenges to the sustainable development of coastal and marine tourism, shared in common with other ocean industries, were identified. Strategies to minimize the adverse impacts of growth so that ocean industries can develop in more sustainable ways were discussed. The importance of taking a holistic view of the ocean economy was emphasized to better understand the governance challenges facing the sustainable development of coastal and marine tourism. The recommended strategies cut across disciplines and sectors to try to provide a more integrated perspective on what might be done to achieve a desirable balance between economic development and environmental sustainability in the ocean context in the future. "Business as usual" will not solve the problems facing the oceans or its various industries. Replacing fragmented approaches to policy making with integrated modes of ocean management presents major institutional challenges.

Coastal and marine tourism is one of several ocean industries expected to expand substantially over the coming years, on each of the growth scenarios presented. Tourism already faces a host of

challenges to its sustainable operations. To meet these challenges, a better understanding is needed of the complexities of ocean governance issues and formulation and implementation of clear context-dependent priorities for the integrated governance of coastal and marine tourism. The discussion focused on six governance processes that can help to meet the challenges identified. These represent only some of the strategies that need to be enacted as alternatives to the business as usual approach but space limitations precluded more detailed analysis herein. The precise nature and underlying causes of governance failure need to be studied further to address the weaknesses in existing processes and to provide frameworks more suitable to future directions of coastal and maritime tourism development alongside the development of other ocean industries.

Acknowledgments

The author was moderator of a workshop convened by the OECD in Gothenburg, Sweden, June 2015, on the role of coastal and marine tourism as an emerging ocean industry. Workshop participants included a mix of international industry experts, specialists from OECD, and university researchers including keynote speakers Professors Dianne Dredge and Michael Hall. A report was prepared providing input into the wider OECD project *The Future of the Ocean Economy*, with particular emphasis on the development potential of emerging ocean-based industries to 2030 and beyond. The current article draws upon material discussed at the tourism workshop, an interim report prepared by the author, and the final report (OECD, 2016). The author wishes to explicitly acknowledge the important role played by all workshop participants, keynote speakers in particular, for their valuable contributions to the project.

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References

Bijma, J., Pörtner, H. O., Yesson, C., & Rogers, A. D. (2013). Climate change and the oceans: What does the future hold? *Marine Pollution Bulletin, 74*(2), 495–505.

Cicin-Sain, B., Balgos, M., Appiott, J., Wowk, K., & Hamon, G. (2011). *Oceans at Rio+20: How well are we doing in meeting the commitments from the 1992 Earth Summit and the 2002 World Summit on sustainable development? Summary for decision makers.* Retrieved from http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Water%20and%20Ocean%20Governance/OceansatRio+20ReportSummaryforDecisionMakersOct102011.pdf

Cicin-Sain, B., VanderZwaag, D. L., & Balgos, M. (2015). A comparative analysis of ocean policies in fifteen nations and four regions. In B. Cicin-Sain, D. L. VanderZwaag, & M. Balgos (Eds.), *Routledge handbook of national and regional ocean policies* (Part 1). New York, NY: Routledge.

Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Farber, S., & Turner, R. K. (2014). Changes in the global value of ecosystem services. *Global Environmental Change, 26*, 152–158.

Curtin, R., & Prellezo, R. (2010). Understanding marine ecosystem based management: A literature review. *Marine Policy, 34*(5), 821–830.

Douglas, C. H. (2006). Small island states and territories: Sustainable development issues and strategies–challenges for changing islands in a changing world. *Sustainable Development, 14*(2), 75–80.

Dwyer, L. (2016). Who is the ideal tourist? *Acta Turistica*, 28(2), 151–183.

Dwyer, L. (2017). Saluting while the ship sinks: The necessity for tourism paradigm change. *Journal of Sustainable Tourism.* doi: http://dx.doi.org/10.1080/09669582.2017.1308372

Dwyer, L., Edwards, D., Mistilis, N., Scott, N., & Roman, C. (2009). Destination and enterprise management for a tourism future. *Tourism Management, 30*, 63–74.

Dwyer, L., Forsyth, P., & Spurr, R. (2003). Inter-industry effects of tourism growth: Some implications for destination managers. *Tourism Economic, 9*(2), 117–132.

European Commission. (2008*). Seas for life: Protected-sustainable-shared European seas by 2020.* Retrieved from https://publications.europa.eu/en/publication-detail/-/publication/ff3c7a4d-7ce5-4427-b9c3-8ed90d58a4a0/language-en

European Commission. (2013). *Blue growth scenarios and drivers for sustainable growth from the oceans, seas and coasts*. Third interim report, EcorysFinal, Client: European Commission, DG MARE.

Global Ocean Commission. (2014). *From decline to recovery: A rescue package for the global ocean*. Oxford, UK: Author.

Goodwin, H. (2011). *Taking responsibility for tourism*. Oxfordshire, UK: Goodfellow Publishers.

Hall, C. M. (2001). Trends in ocean and coastal tourism: The end of the last frontier? *Ocean & Coastal Management, 44*(9), 601–618.

Honey, M., & Krantz, D. (2007). *Global trends in coastal tourism center on ecotourism and sustainable development*. Washington, DC: Marine Program World Wildlife Fund.

Hoegh-Guldberg, O. (2014). *Indispensable oceans aligning ocean health and human wellbeing, guidance from the Blue Ribbon Panel to the Global Partnership for Oceans.* Retrieved from www.globalpartnershipforoceans.org/indispensable-ocean

Hoegh-Guldberg, O., Beal, D., Chaudhry, T., Elhaj, H., Abdullat, A., Etessy, P., & Smits, M. (2015). *Reviving the ocean economy: The case for action—2015*. Switzerland: WWF International.

Long, R. D., Charles, A., & Stephenson, R. L. (2015). Key principles of marine ecosystem-based management. *Marine Policy, 57*, 53–60.

Mooney, H., Larigauderie, A., Cesario, M., Elmquist, T., Hoegh-Guldberg, O., Lavorel, S., Mace, G. M., Palmer, M., Scholes, R., & Yahara, T. (2009). Biodiversity, climate change, and ecosystem services. *Current Opinion in Environmental Sustainability, 1*(1), 46–54.

Nelson, F. (2004). *The evolution and impacts of community-based ecotourism in northern Tanzania* (Drylands Issue Paper No. 131). London, UK: IIED.

Organisation for Economic Co-operation and Development. (2016). *The ocean economy in 2030*. Paris, France: Author.

Orams, M. (1999). *Marine tourism: Development, impacts and management*. London, UK: Routledge.

Palumbi, S. R., Sandifer, P. A., Allan, J. D., Beck, M. W., Fautin, D. G., Fogarty, M. J., Halpern, B. S., Incze, L. S., Leong, J. A., Norse, E., & Stachowicz, J. J. (2009). Managing for ocean biodiversity to sustain marine ecosystem services. *Frontiers in Ecology and the Environment, 7*(4), 204–211.

Park, K. S. (2014). *A study on rebuilding the classification system of the ocean economy.* Monterey, CA: Center for the Blue Economy in Monterey Institute of International Studies.

Scott, D. (2011). Why sustainable tourism must address climate change. *Journal of Sustainable Tourism, 19*(1), 17–34.

Ships and Maritime Equipment Association. (2015). *2014 market forecast report*. Retrieved from www.seaeurope.eu/template.asp?f=publications.asp&jaar=2015

Toropova, C., Meliane, I., Laffoley, D., Matthews, E., & Spalding, M. (2010). *Global ocean protection: Present status and future possibilities*. Gland, Switzerland: IUCN.

United Nations Conference on Trade and Development. (2014). *The oceans economy: Opportunities and challenges for small island developing states*. Retrieved from http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=970

United Nations Environment Program. (2009). *Sustainable coastal tourism: An integrated planning and management approach*. Paris, France: United Nations Environment Program/PAP-RAC.

United Nations Environment Program. (2010). *Guide to good practices for sustainable tourism in marine-coastal ecosystems.* Developed as part of the project "Mainstreaming Biodiversity Conservation into Tourism through the Development and Dissemination of Best Practices." Retrieved from https://ra-training-library.s3.amazonaws.com/marine_coasta_eng_0.pdf

United Nations Environment Program. (2011). *Taking steps toward marine and coastal ecosystem-based management—an introductory guide.* Retrieved from https://www.openchannels.org/literature/19306

United Nations Environment Program. (2012). *Green economy in a blue world*. Retrieved from http://www.undp.org/content/undp/en/home/librarypage/environment-energy/water_governance/ocean_and_coastalareagovernance/a-green-economy-in-a-blue-world.html

United Nations Environment Program. (2014). *Emerging issues for small island developing states. Results of the UNEP Foresight Process.* Nairobi, Kenya: Author.

United Nations World Tourism Organization. (2011). *Tourism towards 2030*: *Global overview*. Madrid, Spain: Author.

United Nations World Tourism Organization. (2013). *Sustainable tourism governance and management in coastal areas of Africa*. Madrid, Spain: Author.

United Nations World Tourism Organization. (2017). *Tourism highlights 2016 edition*. Retrieved from http://www.e-unwto.org/doi/pdf/10.18111/9789284416899