COASTAL AND MARINE ECOSYSTEMS and the Ecotourism Sector in LATIN AMERICA and the CARIBBEAN

DEVELOPMENT BANK OF LATIN AMERICA

UNITED NATIONS
UNCTAD

CONTENTS

¨The document is part of the UNCTAD-CAF cooperation framework on trade, environment, biodiversity and oceans economy that started in the 2002 World Summit on Sustainable Development and was reinforced with a joint Memorandum of Understanding signed in Geneva in 2015.

This cooperation has enhanced capacities in the Latin America region, allowing key stakeholders to participate in global and regional trade under economic, social and environmental sustainability criteria. It has also allowed the "valorization" of native and shared biodiversity with the ultimate purpose of conserving and sustainably use forest and marine ecosystems in line with Sustainable Development Goals 14 and 15.¨

ACKNOWLEDGEMENTS

This report was prepared by:

Tundy Agardy
Director of Forest Trends, MARES

David Vivas Eugui
Legal Officer, UNCTAD

Federico Vignati
Principal Executive, CAF

René Gómez-García
Senior Executive, CAF

Valuable contributions were provided by:

Rainforest Alliance
Ronald Sanabria
Mark Moroge
Oscar Maroto

World Wildlife Fund
Evelyn Luna
Nicolás Rovegno
Alberto Cuba
Jessica Villanueva

Instituto Baleia Jubarte
Jose Truda Palazzo, Jr

Smithsonian Conservation Biology Institute
Ximena Velez
Francisco Dallmeier

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FOREWORD

Global awareness of the critical ecological and economic importance of coasts and seas is steadily increasing among academic researchers, national policymakers, multilateral institutions, and private firms. New scientific and economic methodologies have enabled analysts to more precisely quantify the value of ecosystem services. Around the world, coastal and marine resources drive major national and international industries, provide livelihoods for millions of households, and represent a vital component of global food security. Yet the growing literature on these resources also documents the steady depletion of their value through overuse and environmental decline. Although the degradation of marine ecosystems is a worldwide phenomenon, it is especially relevant in the Latin America and the Caribbean (LAC) region, where geographic patterns of human habitation and economic development have greatly magnified the importance of islands, beaches, coastlines and marine areas.

Understanding the value of ecosystem services is vital to sustainable resource management. Governments, communities and private firms have the tools and the knowledge necessary to systematically protect the valuable natural capital that underpins their material wellbeing and, ultimately, ensures mankind's continued survival. Reversing the ecological decline of the world's coastal and marine areas will require both the responsible management of existing stocks of natural capital and

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[1]Both CAF and UNCTAD use the terms "blue economy" and "ocean economy" interchangeably. Although UNCTAD does not explicitly define these terms, it indicates that their principal conceptual components include all maritime economic activities and their effects on biodiversity, the supply of ecosystem services, stocks of renewable and nonrenewable natural resources, and pollution and other negative externalities, including greenhouse gas emissions.

efforts to catalyze natural processes of environmental restoration and renewal.

The LAC region has an abundance of environmental assets, and its coastal and marine resources generate enormous social, cultural, and economic value. However, LAC countries have not fully developed their "blue economies[1]," and many opportunities to sustainably leverage the region's natural capital remain unexplored.

The sustainable development of blue economies requires conserving and protecting biodiversity, including marine ecosystems and genetic resources, as well as adopting policies that support sustainable livelihoods and food security while reducing greenhouse-gas emissions. Recent research has identified inadequate investment in education and training as a major constraint on the growth of the blue economy, particularly in underdeveloped subsectors such as marine ecotourism.

This report was prepared under the UNCTAD-CAF cooperation framework for trade, environmental protection, biodiversity, and maritime economic policy, which was established at the 2002 World Summit on Sustainable Development and subsequently reinforced by a joint memorandum of understanding signed in Geneva in 2015.

The report consolidates the findings of two technical notes published internally by CAF. It complements a second, forthcoming report on investment trends in ecologically sustainable tourism in Latin America and the Caribbean and contributes to a growing body of joint UNCTAD-CAF analysis on the regional maritime economy and "blue biotrade" sector. Both this report and the technical notes on which it is based were prepared with support from UNCTAD, the Rainforest Alliance, the World Wildlife Fund and the Smithsonian Institution. This collaborative effort has helped build joint analytical capacity between institutions and facilitated the sharing of knowledge by diverse regional stakeholders. It reflects a pioneering effort to assign a meaningful economic value to biodiversity and ecosystem services in coastal and marine areas, which will lay the foundation for more sophisticated conservation policies in line with CAF's 8th, 14th, and 15th Sustainable Development Goals.

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ACRONYMS AND ABBREVIATIONS

CAF	-Development Bank of Latin America
CAFMS	CAF Member States
CAST	Caribbean Alliance for Sustainable Tourism
CDB	Caribbean Development Bank
CHTA	Caribbean Hotel & Tourism Association
CTO	Caribbean Tourism Organization
EEZ	Exclusive Economic Zone
GEF	Global Environment Facility
GDP	Gross Domestic Product
IBAs	Important Bird Areas
IMMAs	Important Marine Mammal Areas
IDB	Inter-American Development Bank
LAC	Latin America and the Caribbean
MMAs	Marine Managed Areas
MPAs	Marine Protected Areas
MSP	Marine Spatial Planning
PES	Payment for Ecosystem Services
OECS	Organization of Eastern Caribbean States
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNCTAD	United Nations Conference on Trade and Development
TNC	The Nature Conservancy
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
UNWTO	United Nations World Tourism Organization
WTP	Willingness to Pay
WTO	World Trade Organization

I. INTRODUCTION

Our expanding knowledge of how important coasts and seas are for humanity presents a paradox: we are ever more aware of the ocean's asset values alongside the ecosystem services that make life on earth possible, even as we document the loss of those values from resource overuse and environmental decline. This is true for the globe, but it is particularly relevant for the Latin America and Caribbean region (LAC), where islands and coasts support the large urban, rural, and visitor populations.

Understanding the value of ecosystem services is the foundation of sustainable resource management. We have the tools and the knowledge necessary to systematically protect the valuable natural capital that underpins our material wellbeing and, ultimately, our very survival on earth. We have the ability not only to conserve the world's remaining marine resources, but also to accelerate the recovery of degraded ecosystems. Truly sustainable development will require both the responsible management of existing stocks of natural capital and efforts to steadily rebuild that capital by catalyzing natural processes of environmental restoration and renewal. This is expressed in an evident manner in Sustainable Development Goal 8, target 8.9, when indicating that Member States must "by 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products"

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The LAC region has an abundance of natural assets, and its coastal and marine resources generate enormous social, cultural, and economic value. However LAC countries have not fully developed their "blue/oceans economies," and many opportunities to sustainably leverage the region's coastal and marine resources remain unexplored. Recent research has identified inadequate investment in human capital as a major constraint on the growth of the blue/oceans economy, particularly in underdeveloped subsectors such as marine ecotourism.

In this context, CAF and UNCTAD are working closely with member governments to devise cutting-edge development strategies that harness the power of market mechanisms to promote the sustainable use of the LAC region's natural resources. This study focuses on the potential of marine ecotourism to drive economic development, enhance socioeconomic equity, strengthen environmental protection, and accelerate the recovery of coastal ecosystems. The study explores these issues by identifying and valuating coastal and marine ecosystem services in terms of their capacity to generate employment, diversify economic output, add value to existing production and export structures, and promote the conservation and accumulation of natural capital for future generations.

As rising consumer demand and the effects of climate and global change continue to increase stress on the LAC region's coastal and marine resources, ecologically sustainable development will become increasingly critical both to CAF's institutional mission and to the national interests of its member governments. Recognizing the crucial importance of sustainable tourism development, the UN Sustainable Development Goal 8, Target 8.9, aims for Member States to "by 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products." The following report is designed to strengthen the analytical framework for achieving that goal.

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II. THE "ECOSYSTEM SERVICES" APPROACH TO SUSTAINABLE DEVELOPMENT

Despite its abundant natural wealth, the Latin American and the Caribbean (LAC) region has yet to fully leverage its coastal and marine resources to support sustainable development. Establishing or expanding ecotourism activities can align investment incentives to support the conservation of natural capital and catalyze the development of an ecologically sustainable coastal and marine economy and infraestructure. However, inadequate investment in the complementary physical and human capital necessary to harness the economic potential of coastal and marine areas is a major obstacle to the growth of the so-called "blue economy." [2]

The sustainable growth of ecotourism in LAC's coastal and marine areas will require an accurate understanding of which habitats have the potential to support tourism, and what ecosystem services they provide. Guidance and support from CAF can enable countries throughout the region—and CAF Member States in particular—to more effectively utilize their natural capital to support economic growth and job creation.

Analyzing the LAC region's diverse coastal and marine habitats can help policymakers identify opportunities to facilitate the rise of a robust ecotourism sector. This study provides an overview of those habitats, examines current opportunities for expanding ecotourism, and identifies areas of untapped potential. The study also offers an indicative assessment of the value of ecosystem services in terms of economic activity, livelihoods, fiscal revenues, and environmental quality. The social and economic benefits generated by the organic processes of the natural world are collectively known as "ecosystem services."[3] Understanding the different types of ecosystem services, as well as their economic value and resilience to exploitation, is vital to assess the capacity for coastal and marine areas to support different activities, as well as the potential for investments in conservation and ecological revitalization to restore and enhance the value of ecosystem services[4].

The social and economic benefits generated by the organic processes of the natural world are collectively known as "ecosystem services."

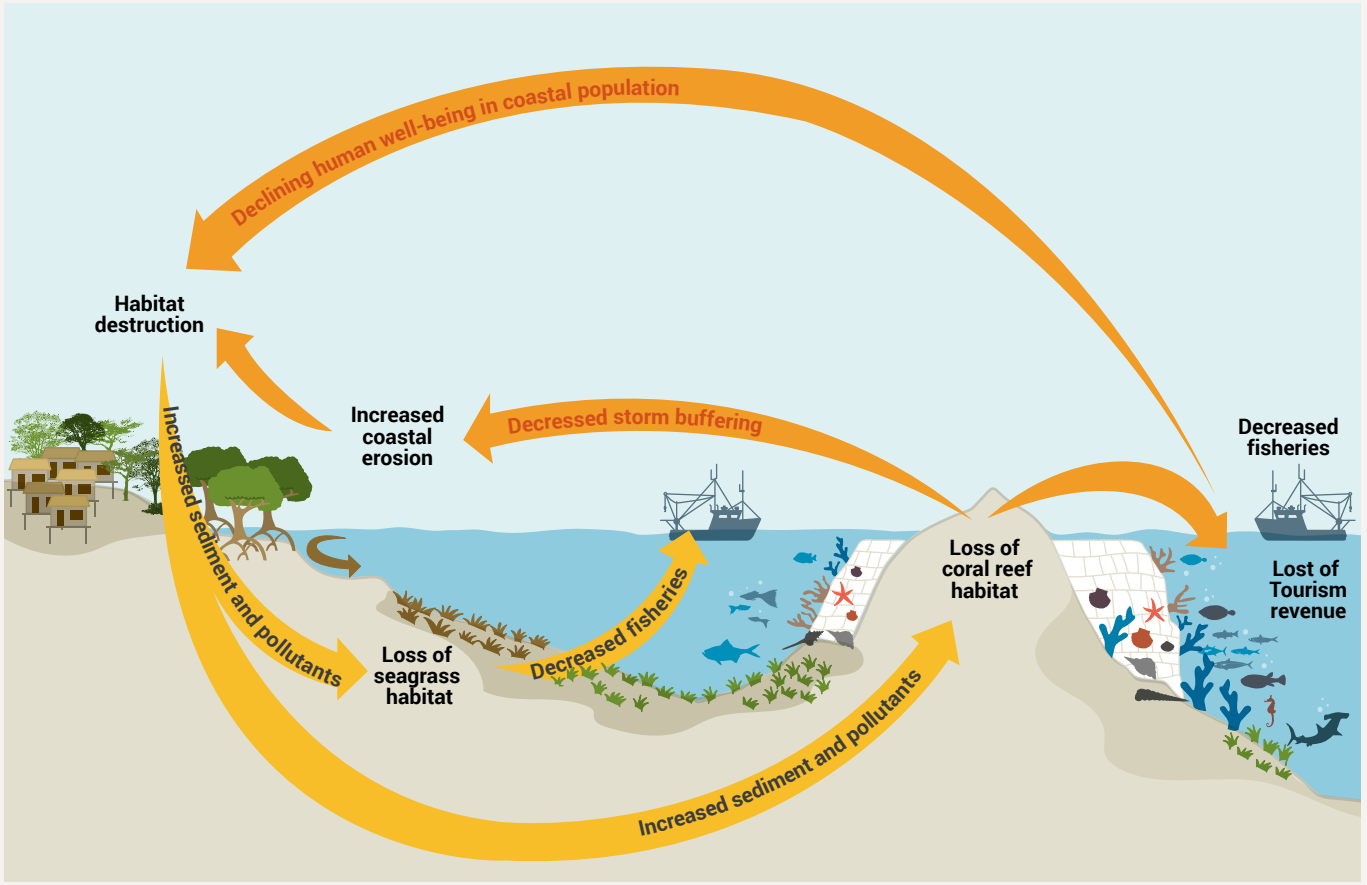
While many individual ecosystem services can be identified, mapped, and assessed in terms of their real and potential economic value, no ecosystem service exists in isolation from other ecological processes and ecosystem services. The natural world is densely connected, and human wellbeing always hinges on multiple simultaneous ecosystem services. Because of these linkages and feedback loops, political and economic decisions—or even simple carelessness—that causes the loss of one habitat or species will affect the value of other ecosystem services, with potential ramifications across a multitude of stakeholder groups (Figure 1).

[2] World Bank, 2017.
[3] Agardy and Alder,
[4] Agardy et al., 2017.

Ecosystem services can be divided into four broad categories. ***Provisioning services*** directly provide valuable commodities, such as fish stocks, agriculture and aquaculture inputs, industrial raw materials, and tourism attractions. ***Regulating services*** help mitigate natural shocks and maintain geological and ecological equilibrium by, for example, shielding coastal areas from natural disasters, slowing beach erosion, maintaining water quality, and sequestering carbon. ***Supporting services*** include processes that are critical to sustain life, such as nutrient cycling and oxygen production. Finally, ***cultural services*** support human well-being through education, ecotourism, recreation, scientific research, and ambient environmental quality[5].

The LAC region's extensive coastal areas include a wide range of sites for tourism development, agriculture and aquaculture, human habitation and recreation, scientific research, and education. Marine areas in the region support vibrant pelagic and coral reef fisheries, oceanic tourism, transportation, energy generation, resource extraction, and many other economic activities.[6] Coral reefs, seagrass beds, and mangroves provide an inordinate share of both coastal and marine ecosystem services (Figure 2). Other key habitats include beaches, saltmarshes and wetlands, estuaries, rocky shorelines, shallow banks, rock and shellfish reefs, kelp forest, and critical pelagic zones such as upwelling sites.[7] Abundant ecosystem services are often concentrated in surprisingly small geographic areas (Figure 3), and carefully conserving these habitats can greatly enhance the social and economic value of much larger coastal and marine areas (Figure 4).

Figure 1: Connections between Ecosystems and Human Wellbeing



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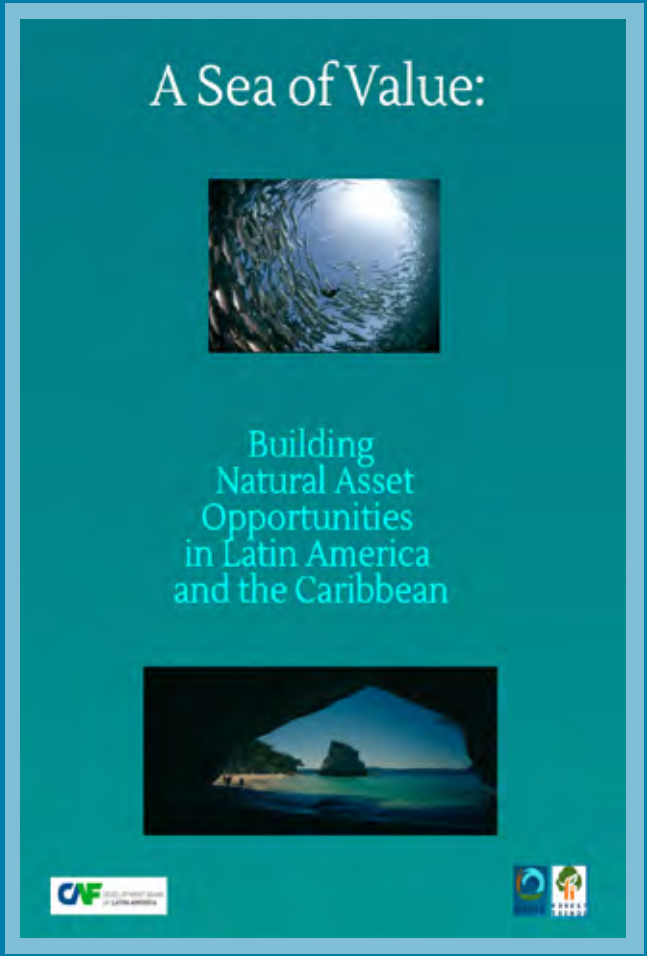
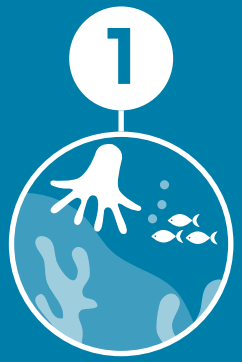
[5] Agardy and Alder, 2005; Agardy et al., 2011.
[6] Agardy et al., 2016a.
[7] Agardy et al., 2016b.

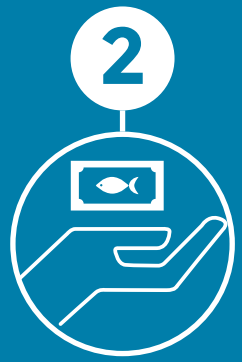


OUR GOAL

TO DEMOSTRATE THE VALUE
OF MARINE AND COASTAL
NATURAL CAPITAL AND TO SPUR
INVESTMENT IN ITS PROTECTION



Marine and coastal areas provide a wide variety of benefits to humans, many of wich have economic value and are essential for sustainable development



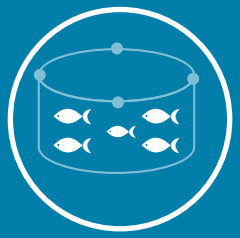
Recognizing these values allows targeted investment in managing marine and coastal systmems so these services can be enhanced

The paybacks to society include economic growth, enhanced livelihood oppotunities, diversified employment, reduced risk, and maintenance cultural values

VALUES

LATIN AMERICA AND THE CARIBEAN IS A REGION RICH MARINE ECOSYSTEM SERVICES THAT SUSTAIN HUMAN WELL-BEIN

Coral reefs in the Caribbean support the nearly $50 billion tourism industry an the 25 million visitors that visit the Caribbean region each year.



Marine fisheries and aquaculture export contributed nearly $15 billion to GDP in 2011

The market for certified seafood is growing rapidly in LAC, now nearly 10% of fisheries trade

Marine habitats like seagrass beds, salt marshes and mangrove protect property and infraestructure from flooding, erosion, and natural hazards like hurricanes. The LAC region host 1/3 of the worlds mangrove - a significant source of climate change mitigation thanks to mangrove´s high carbon fixing rates.

Figure 3: Understanding the Value of Coastal and Marine Ecosystem Services

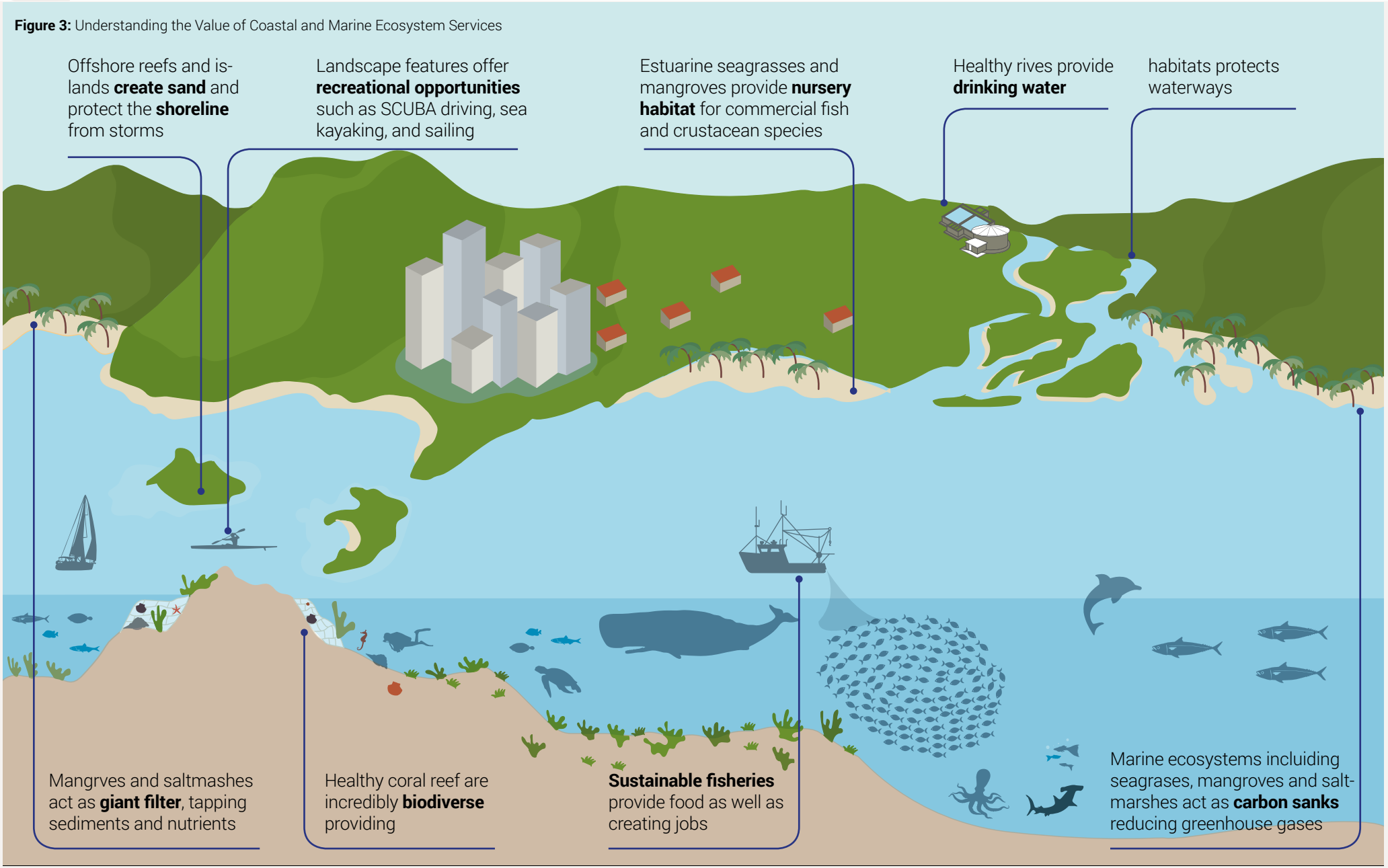
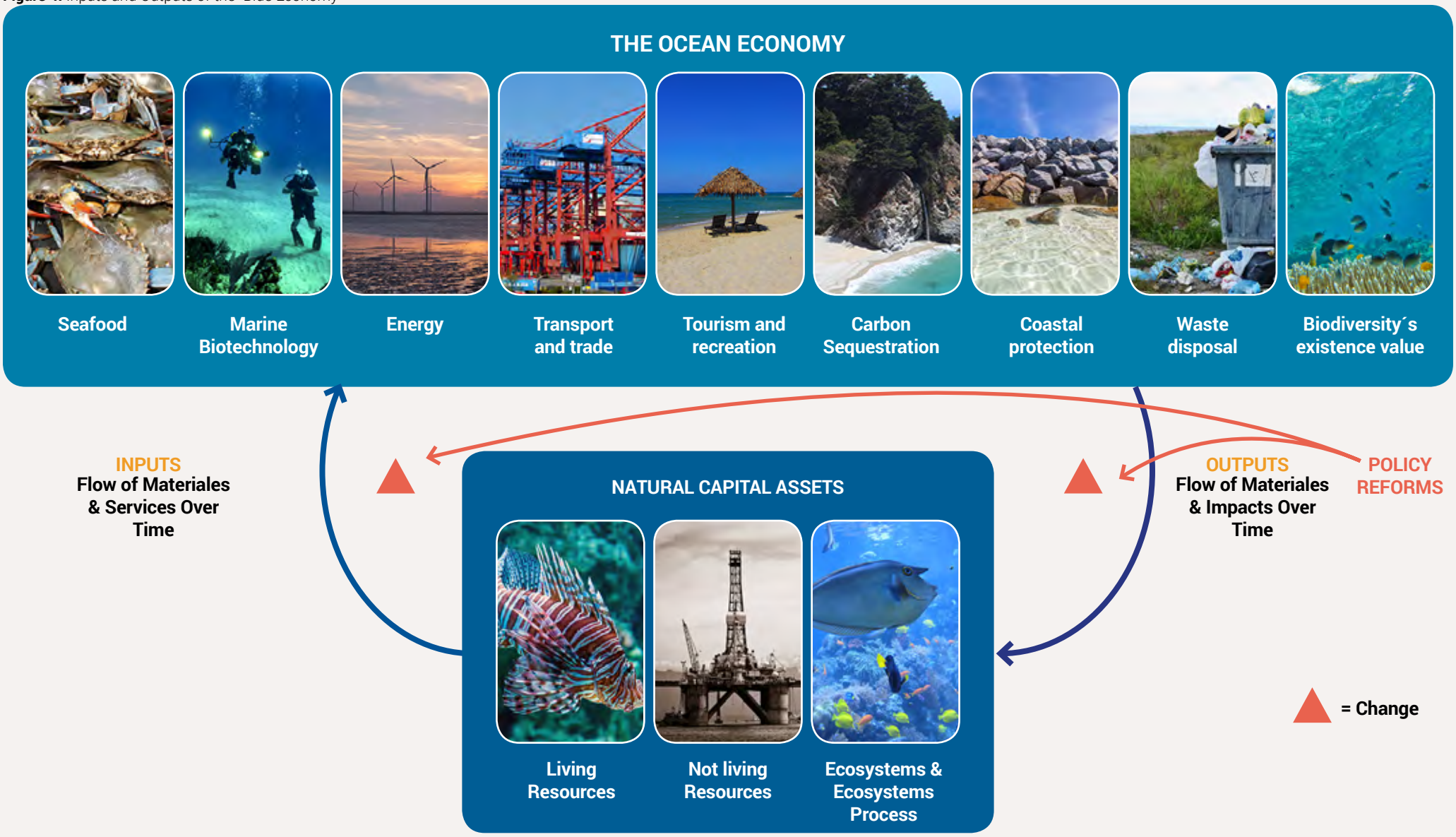


Figure 4: Inputs and Outputs of the "Blue Economy"



Source: Agardy et al., 2011

III. THE ROLE OF COASTAL AND MARINE ECOSYSTEMS IN THE LAC REGION

The LAC region is home to an abundant diversity of coastal and marine habitats, each of which provides vital benefits to local communities, national economies, and global value chains. Inshore habitats include coastal wetlands, often contiguous with riparian wetlands, which range from mangrove forests in the tropics to saltmarshes in the temperate regions. Interior salt pans (salinas) and lagoons also form part of the coastal wetlands mosaic. Wetlands purify water, maintain hydrological balances to prevent flooding, support a wide array of birds, fish, and invertebrate species, shield inland areas from storms and high-energy waves, and contribute to the output of marine fisheries. Along the coast, rocky shorelines, beaches, dunes, and cyanobacterial algal mats maintain landforms, protecting property and infrastructure from coastal erosion, and they host their own suite of biodiversity. Dunes and beaches contribute to water-quality maintenance and help buffer inland areas from storms. In addition to their ecological role, beaches are a huge draw for domestic, regional, and international tourists, and the beaches of LAC are among the world's most renowned.

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Wetlands purify water, maintain hydrological balances to prevent flooding, support a wide array of birds, fish, and invertebrate species, shield inland areas from storms and high-energy waves, and contribute to the output of marine fisheries. Along the coast, rocky shorelines, beaches, dunes, and cyanobacterial algal mats maintain landforms, protecting property and infrastructure from coastal erosion, and they host their own suite of biodiversity. Dunes and beaches contribute to water-quality maintenance and help buffer inland areas from storms. In addition to their ecological role, beaches are a huge draw for domestic, regional, and international tourists, and the beaches of LAC are among the world's most renowned.

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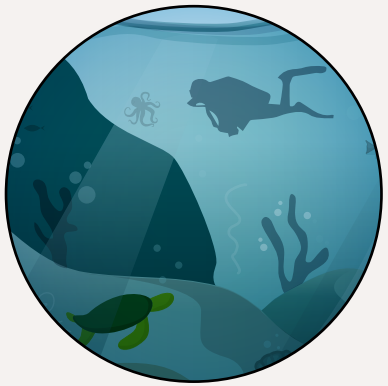
Each type of coastal and marine ecosystem generates important social, cultural and economic benefits, and all types are vulnerable to degradation. Uncontrolled and unplanned coastal development can lead to soil erosion, coastal habittat destruction excessive pollution, the over-exploitation of fisheries, sometio and the growth of local tourism industries that exceed the carrying capacity of sensitive habitats. Improperly managed commercial fishing can deplete pelagic fisheries, and inadequate safeguards on offshore oil drilling, waste disposal, shipbreaking, and the transportation of hazardous material by sea can pose transversal threats to coastal and marine ecosystems.

Environmental degradation in coastal and marine areas often reflects weaknesses in the policy and institutional framework for managing natural resources. These may include a focus on short-term economic gain over long-term sustainability, inadequate administrative capacity to manage coastal population growth and economic development, corruption and rent-seeking, and inadequate collaboration with local communities and other stakeholders. However, the most critical driver of environmental degradation is simply a lack of awareness of the benefits that healthy coastal and marine ecosystems provide, whereas the protection of coastal and marine ecosystems is sometimes also affected by the limited capacity for the control and enforcement of environmental legislation. The following report is designed to underscore these benefits—collectively known as ecosystem services—by demonstrating how marine ecotourism can incentivize sustainable natural-resource management while promoting economic growth and diversification in LAC.



IV. MARINE ECOTOURISM IN THE LAC REGION

Marine ecotourism has the potential to diversify economic output, increase the productivity of the tourism industry, and create high-quality jobs, while also protecting the ecosystem services upon which it is based. However, LAC countries have not yet fully developed their marine ecotourism sectors, and a large share of existing and planned tourism development is both ecologically and socially unsustainable. This chapter assesses the state of marine ecotourism in CAF Member States of Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Peru, Trinidad & Tobago, Uruguay, and Venezuela. Cuba, though not yet a CAF Member State, is also included in the analysis.

Worldwide, travel and tourism generated US$7.2 trillion in 2015, or 9.8% of global GDP. Travel and tourism employed 284 million people, accounting for 1 in 11 of the world's jobs.[8] The sector grew at a rate of 3.1%, above the average for the global economy, and despite significant headwinds, the sector is expected to again outperform global GDP growth in 2016.[9] While much of the global tourism industry caters to domestic tourists, tourism services are also a major component of international trade. In 2016, the total value of tourism exports reached US$1.4 trillion, or an average of US$4 billion per day[10].

LAC countries have not yet fully developed their marine ecotourism sectors,

Improvements in air and sea connectivity and the rise of middle classes in emerging and developing economies are driving the robust growth of tourism exports. Emerging economies are both an expanding tourism source market and an increasingly popular destination. From 2010 to 2030, international tourist arrivals in emerging economies are

[8] WTTC, 2016.
[9] Ibid.
[10] UNWTO, 2017.

projected to grow at a rate of 4.4% per year, twice the rate of advanced economies.[11]

Between 1995 and 2010, the tourism sectors in the Caribbean, Central, and South America grew at annual rates of 2.4%, 7.7%, and 4.8%, respectively. South America alone accounted for one-third of all tourism revenue in the America, and its tourism industry generated more than US$313 billion in 2016.[12] Moreover, the tourism sector's contribution to regional GDP has risen steadily since the 2008 global financial crisis. In 2011, tourism directly contributed US$134 billion to regional GDP, and current projections estimate that its contribution will rise to US$224 billion by 2022. Including travel and other ancillary activities, tourism added an estimated US$364 billion to the LAC region's aggregate GDP in 2012, and its contribution to regional economic output has risen steadily since then[13].

Tourism is important source of employment, both globally and in LAC. In 2011, tourism provided livelihoods for over 20 million people in the LAC region, representing roughly 8% of regional employment. The LAC tourism sector is projected to create another 4 million new jobs by 2022[14].

LAC countries have considerable scope to expand tourism while ensuring that the development of the sector is not only sustainable, but that also contributes to urgent conservation priorities. Coastal and marine tourism is one of its fastest growing subsectors of the global tourism industry, and while tourism is already a key component of the economies of many CAF Member States (Table 1), opportunities for expanding the LAC region's marine ecotourism subsector remain unexploited.

TABLE 1. TOURISM AS A SHARE OF GDP AMONG CAF MEMBER STATES AND CUBA, 2014-2016 (%)

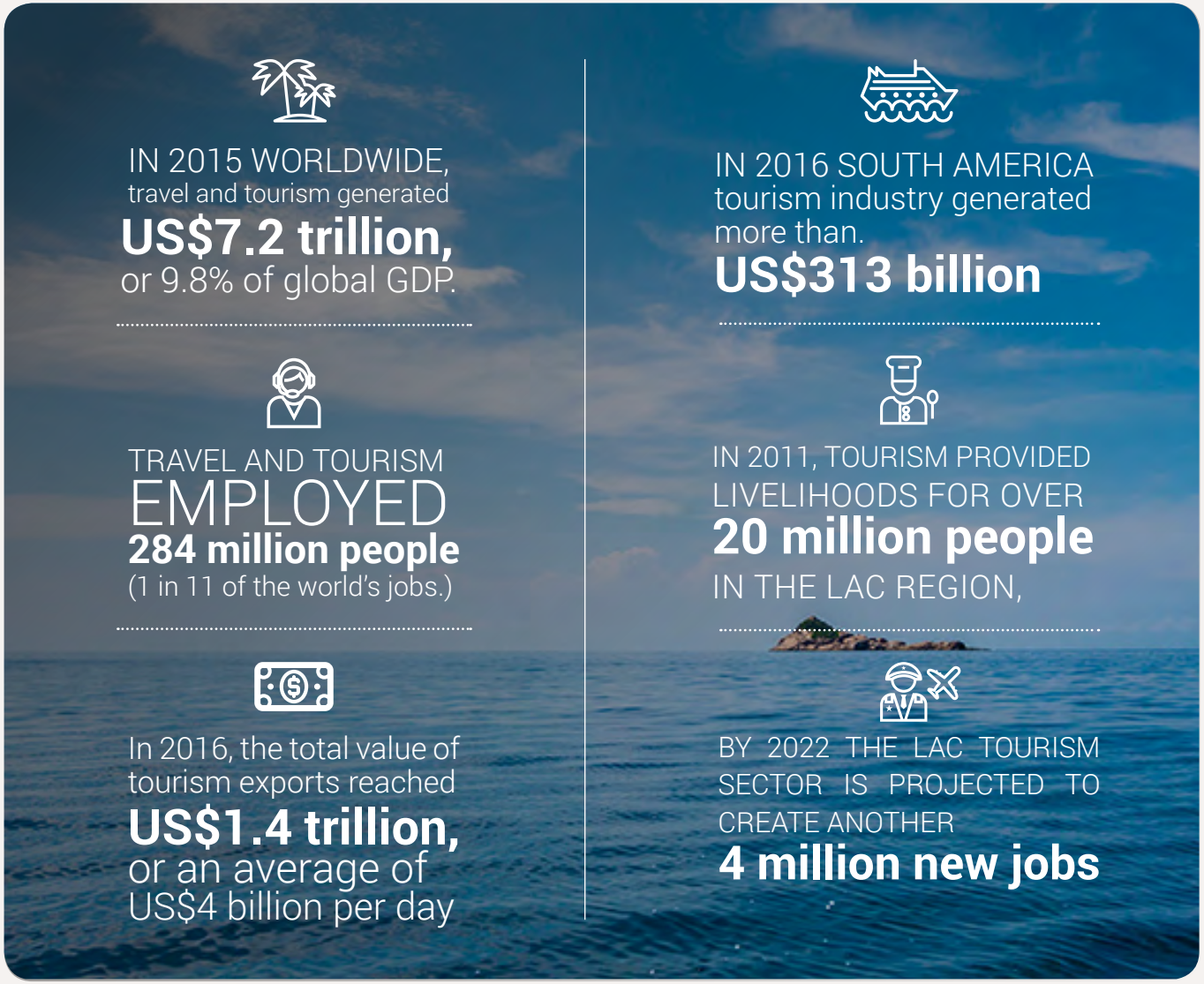
Country	2014	2015	2016
Argentina	10.4%		
Barbados			12%
Brazil	9.6%		
Chile	9.6%		
Colombia			
Costa Rica	12.5%		
Cuba	10.4%		
Dominican Republic	10.1%		
Ecuador	5.5%		
Jamaica	3.9%		
Mexico	14.8%		
Panama			
Peru	9.7%		
Trinidad	2.0%		
Uruguay		4.7%	
Venezuela	8.6%		

Source: WTTC 2016.

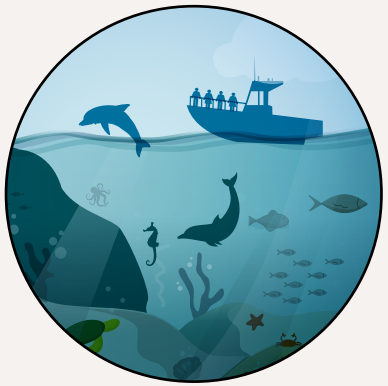
[11] Ibid.
[12] Ibid.
[13] Ruggles-Brise, 2012.
[14] Ibid.

Tourism represents an average of approximately 8% of GDP among CAF Member States plus Cuba, and tourism output is growing rapidly across the region. For island states like Barbados, Cuba, the Dominican Republic, Jamaica, and Trinidad & Tobago, the majority of tourism revenues are derived from coastal resources, including sun-and-sand tourism and tourism on and around coral reefs.

A well-managed tourism sector can contribute to economic development, employment, foreign-exchange earnings, tax revenue, and environmental resilience. Ecotourism can catalyze the implementation of sustainable development policies, and more traditional forms of tourism can spur investment in environmental protection—for example, the adoption of sustainable fishing practices to support tourism-related seafood production—if an appropriate policy and institutional framework is in place. A thriving tourism sector can also support the growth of small and medium enterprises, reinforcing economic and social resilience in coastal communities[15]. While unplanned or unregulated tourism development can drive environmental degradation and increase socioeconomic inequality, well-designed tourism policies, strong public institutions, and forums for multi-stakeholder collaboration can help maintain ecological integrity and even rehabilitate damaged ecosystems. A UNWTO study on coastal tourism in Africa identified the following five mechanisms for sustainable tourism governance and management in coastal areas in Africa, which also have a high relevance for the Latin American and Caribbean context: 1) Planning the coastal zone for sustainable tourism; 2) Influencing coastal tourism development; 3) Influencing the operation of coastal tourism enterprises; 4) Managing coastal environments linked to tourism; and 5) Supporting community livelihoods in coastal destinations [16].



[15] Agardy 1993; 1995.
[16] UNWTO, 2013



V. COASTAL AND MARINE ECOTOURISM IN LATIN AMERICA AND THE CARIBBEAN

The LAC region is home to a diverse array of marine and coastal areas that provide a wealth of opportunities for recreation, exploration, and wildlife observation. Beyond its existing marine ecotourism offerings, the LAC region has enormous potential to sustainably expand and diversify tourism activities in marine and coastal areas. Emphasis should be placed on tourism models that protect habitats and species and enhance the value of ecosystem services. Several countries in the region have successfully experimented with innovative management arrangements, investment in the restoration of "green infrastructure," and the development of manmade infrastructure designed to complement natural capital, including artificial reefs to boost fish populations and submerged barriers to stabilize shorelines, maintain beaches, and allow for mangrove expansion.

Currently, almost half the global population lives in coastal areas, even though coastlines comprise just 5% of the earth's inhabitable land. However, coastal and marine ecosystems are vital to all human wellbeing—not just in coastal countries and communities, but worldwide. As the global and coastal populations continue to grow, vital ecosystem services are becoming increasingly compromised. Even in this challenging context, the scarce and vital natural capital that supports fisheries, tourism, transportation, coastal property and infrastructure, and scientific research can be protected and even enhanced by targeted investments in sustainable development.

The LAC region encompasses a wide variety of coastal and marine environments. The economic value of the ecosystem services produced by coastal and marine areas in LAC has not been comprehensively quantified, but fisheries and aquaculture alone generate an estimated US$15 billion per year[17]. Moreover, many of these ecosystem services directly or indirectly support the region's diverse and rapidly growing tourism sector. The following section describes the relationship between coastal and marine ecosystems and tourism in LAC and identifies the specific ecosystem services most critical to tourism development.

[17] UNCTAD, 2017.

A. COASTLINES AND BEACHES

The LAC region's coastline extends an estimated 240,000 kilometers, of which CAF Member States represent 192,000 km. The region's beach areas are remarkably valuable, and their tourism value per hectare may be greater than any other type of habitat[18]. Beaches not only provide space for recreation, they also support a diverse array of flora and fauna.

Rocky shorelines, hard bottom, and offshore rock reefs are particularly important for sessile invertebrates, including many edible mollusks and crustaceans, such as mussels, oysters, crabs, and lobsters. While beaches tend to generate more overall tourism value, many rocky shorelines produce strong waves that support a robust surfing industry.

Mudflats are a major feeding ground for a variety of resident and migratory seabirds and fish species. Most mudflats are low-energy sheltered areas, such as the interior of bays and the leeward side of islands. While few mudflats have high tourism value themselves, they support other more obviously valuable ecosystems, such as coral reefs. Mudflats are also critical to the lifecycle of many species that attract tourists, including rare birds, reptiles, and primates.

Beach Tourism

Beaches and other coastal destinations attract an estimated 50% of all tourist worldwide[19]. While beach tourism, or "sun-and-sand" tourism, relies on the natural capital of beaches and coastal areas, it is not typically defined as ecotourism. However, a successful beach tourism industry

requires clean water, the absence of garbage or pollution, ambient environmental quality, and the maintenance of biodiversity. Beach tourism is closely linked to coastal habitat protection, and a better understanding of this relationship could enable LAC countries to adopt more effective coastal conservation strategies[20].

Surfing, windsurfing, kitesurfing, and similar activities constitute a special class of beach tourism that relies primarily on oceanic forces (waves and wind) rather than natural beauty. Nevertheless, stable beaches and high-quality coastal waters are conducive to the development of a robust surfing and windsurfing industry. Surveys suggest that surfers, windsurfers, and similar coastal tourists are willing to pay for good environmental quality at wide, stable beaches[21].

According to a recent IMF report, "Growth prospects continue to be favorable for the tourism-based economies.

[18] Castaño-Isaza et al., 2014.
[19] UNWT0, 2017.
[20] See, e.g.: Anning et al. 2013; Castano-Isaza et al., 2014.
[21] Castaño-Isaza et al., 2014.

Tourist arrivals have been on the rise since early 2015 in most countries, led by Barbados, Grenada, St Kitts and Nevis, and St Lucia. These inflows are expected to continue and possibly expand as economic activity in the origin countries gradually gains strength[22]." These trends have presented LAC countries with a valuable opportunity to further leverage rising global demand for beach tourism to safeguard coastal habitats.

Sea Turtle Nesting Sites

Sea turtles are generally elusive in the water, but female turtles nest and lay eggs on tropical beaches. The highly predictable sea turtle nesting schedule has facilitated the growth of a thriving turtle-related tourism industry in many parts of LAC, especially in Mexico, Costa Rica, Barbados, Trinidad & Tobago, and Brazil (see Annex I). The nesting beaches of Ostional in Costa Rica and Escobilla in Mexico are famous for the spectacle of the "arrival" (arribada), when thousands of olive ridley turtles come ashore in masse. Many tourists who visit nesting beaches engage in volunteer work, such as data collection, tagging, assisting hatchlings as they emerge from their nests, and sometimes even relocating nests that are in danger of inundation or poaching. In northern Peru, where a nesting expansion has been reported[23], hotels and residents participate of identification and protection of nests and guests can participate of conservation activities like attending hatchlings release. This type of volunteer engagement enables the tourism industry to directly support conservation beyond simply generating revenue from park entrance or user fees. In some destinations, turtle conservation projects exist that offer tourists the opportunity to adopt a turtle or a whole nest, using the adoption fees to support conservation activities.

In addition to observing nesting female turtles during their nocturnal forays ashore, tourists can also swim with turtles in some locations in the region. In Mexico's Akumal beach, south of Cancun, green turtles and occasionally hawksbills interact with humans in the shallow waters of the bay. In Brazil, the TAMAR project[24] is a highly successful marine ecotourism initiative focused on sea turtle conservation. Revenue generated by the thousands of ecotourists who visit Praia do Forte and several other Project stations along the Brazilian Coast finances scientific activities and community work. El Ñuro in Piura, Peru, is a similar project, but it focuses on in-water observation rather than on nesting beaches. Here, an operating fishing pier has implemented a visitor center and observation deck area for a sea turtle aggregation[25], providing a useful example of how ecotourism can enhance the economic value of both natural capital and manmade infrastructure.

In certain coastal destination, turtle breeding can be affected by "light pollution/artificial lighting" sometimes also caused by coastal tourism enterprises or increasing development of beachfront houses, which makes it difficult for turtles to find a quiet and dark beach to nest, and which disorients newborn hatchlings trying to find their way to the sea. Measures might be necessary to forbid or limit artificial lighting at or near turtle nesting sites, or come up with sea turtle friendly lighting provisions, such as those already implemented at Praia do Forte and other key nesting beaches in Brazil under TAMAR guidance

In addition to observing nesting female turtles during their nocturnal forays ashore, tourists can also swim with turtles in some locations in the region.

[22] IMF, 2016.
[23] Kelez and Velez-Zuazo, 2014.
[24] The project's name is an abbreviation of *"tartarugas marinhas"*, the Portuguese term for sea turtles.
[25] Velez-Zuazo et al. 2014.

B. MANGROVES

Mangroves are a group of salt-adapted trees that form coastal fringes and forests in tropical regions across the world. Although mangroves represent just 0.4% of the world's forests, they provide a vast array of ecosystem services that are critical to human wellbeing[26]. Together with mud flats and coastal wetlands, mangrove forests and fringes can stabilize navigation channels and shorelines, buffer inland areas against hurricanes, and prevent flooding from sea-level rise, storm surges, or tidal waves[27]. An estimated one-third of the world's mangroves are located in the LAC region[28].

Mangrove trees and other coastal vegetation trap sediment that would otherwise clog estuaries, and they often transfer nutrients to the nearshore environment. They also act to trap heavy metals and other toxins, and they help maintain salt balances. Mangroves play a critical role in maintaining water quality, especially in areas where groundwater, freshwater, and seawater are becoming increasingly degraded[29].

Mangrove channels and tide-inundated mangroves provide the nursery habitat for a variety of fish species, which magnifies their economic and cultural value to coastal communities in LAC[30]. Recent studies have quantified the contribution of mangrove nursery habitats to fishery productivity by gauging the estimated losses of mangrove deforestation in terms of fishery yields and profitability[31]. Mangroves also support a broad array of avian, fish, crustacean, mollusk, and sponge species, and they are among the most important providers of supporting services, both across the globe and in LAC.

Mangroves also play a crucial role in climate-change mitigation by absorbing carbon and sequestering it in soils[32]. Carbon emissions caused by mangrove destruction make up nearly one-fifth of global emissions from deforestation, resulting in between US$6 and US$42 billion in economic damage each year. Mangroves are also threatened by climate change, which could destroy a further 10-15% of the world's mangroves by 2100[33].

Mangrove Exploration and Kayaking

Mangroves are aquatic forests that thrive in seawater or brackish water. Mangroves are abundant in the LAC region, ranging from fringe forests in Caribbean islands to extensive forest and lagoon systems in Pacific Mexico, Central America, and northern South America. Even small mangrove stands have tourism value. Small boat, kayak, and paddleboard tours of mangrove forests are becoming popular in many LAC countries, and revenues generated by these activities often directly benefit local communities.

Mangrove-based ecotourism activities include bird watching and recreational fishing, both in the mangroves themselves and in surrounding areas. These activities help finance the protection of mangrove forests, including the enforcement of laws that restrict the destruction of mangroves for land clearance or firewood[34]. Income generated from ecotourism initiatives, including voluntary donations made by tourists, is sometimes used to support mangrove re-planting. Tourism also provides alternative livelihoods for farming and fishing households that would otherwise put pressure on mangrove ecosystems[35].In addition to tourism, the growing market for sustainably sourced forestry products and the resources provided by global forest-conservation initiatives[36] could help catalyze the protection of mangroves.

[26] UNEP, 2014
[27] Ellison, 2010; Arkema et al., 2013.
[28] UNCTAD, 2017.
[29] UNEP, 2014.
[30] Rubio-Cisernos et al., 2017.
[31] Aburto-Oropeza et al., 2008.
[32] UNEP, 2014.
[33] UNEP, 2014.
[34] Ellison, 2012; UNEP, 2014.
[35] Oburto-Oropeza et al., 2008; Rubia-Cisernos et al., 2017.
[36] E.g., the REDD+ initiative.

C. SALTMARSHES AND ESTUARIES

Estuaries are transition areas, where freshwater rivers meet the sea. In temperate regions, these estuaries are often fringed with saltmarsh. Estuaries are highly productive, dynamic, critical to other marine ecosystems, and valuable to humankind.

Worldwide, some 1,200 major estuaries have been catalogued, comprising a total area of approximately 500,000 square kilometers[37]. Estuaries are found in all climates throughout the LAC region. They provide nutrient cycling, contribute to pollution control, help maintain hydrological balance, and are vital habitats for numerous bird, fish, mollusk, amphibian, reptile, and mammal species. The biodiversity of estuaries, and their bird populations in particular, are a major asset to coastal ecotourism.

Birdwatching

Birdwatching is a major driver of ecotourism around the world, accounting for an estimated 3 million tourist trips per year[38]. In the LAC region, the areas with the most sophisticated birdwatching infrastructure are located inland and include Canopy Tower in Panama, the Pantanal in Brazil, Chan Chich Tower in Belize, Hato Pinero and Hato Cedral in Venezuela, Manu Wildlife Center, Inkaterra Reserva Amazonica in Peru, and Napo Wildlife Center in Ecuador, some of which are situated near lakes and freshwater rivers as well as coastal areas and saltwater wetlands[39]. In the region's southernmost areas, tourists are able to observe large colonies of seabirds and penguins, and countless locations on coasts and islands offer birdwatching tours, ranging from Marismas Nacionales in Mexico's Pacific Coast and the midriff islands of the Gulf of California to the Patagonian coast and the Magellan Straits on the southern tip of South America. Birdlife International has identified specific land and sea areas that are critical to the survival of bird species. These priority sites are being incorporated into conservation strategies. Further developing the birdwatching tourism subsector could stimulate further investment in the conservation of vital habitats.

Birdwatching is a major driver of ecotourism around the world, accounting for an estimated 3 million tourist trips per year.

[37] Agardy and Alder, 2005.
[38] Caribbean Tourism Organization, 2008.
[39] Puhakka et al., 2011.

D. CORAL REEFS

Among all marine ecosystems, the extensive coral reefs found throughout the Caribbean and in certain parts of the Atlantic and Pacific of the LAC region provide the most tangible value to humans. They support an immense diversity of species and underpin countless ecological relationships. They stabilize shorelines against coastal erosion and buffer inland areas from hurricanes and tropical storms. Coral reefs are crucial to the LAC region's fishing industry, and they provide a key food source for many local communities[40]. Coral reefs also support a highly lucrative tourism subsector focused on scuba diving, snorkeling, and similar activities. Indeed, in many parts of the LAC region, reef-related tourism generates more revenue than commercial fishing.

The value of the ecosystem services that coral reefs provide is relatively well understood[41]. Contingent valuation based on the travel-cost method and willingness-to-pay surveys suggest that both local communities and tourists appreciate the value of reefs and their associated biodiversity, and that these values can far exceed those generated by unsustainable reef fishing or coral mining. However, not all sources of reef value can be estimated. For example, the value of reef-derived pharmaceutical compounds is unknown, but potentially substantial.

Scuba Diving and Snorkeling on Coral Reefs

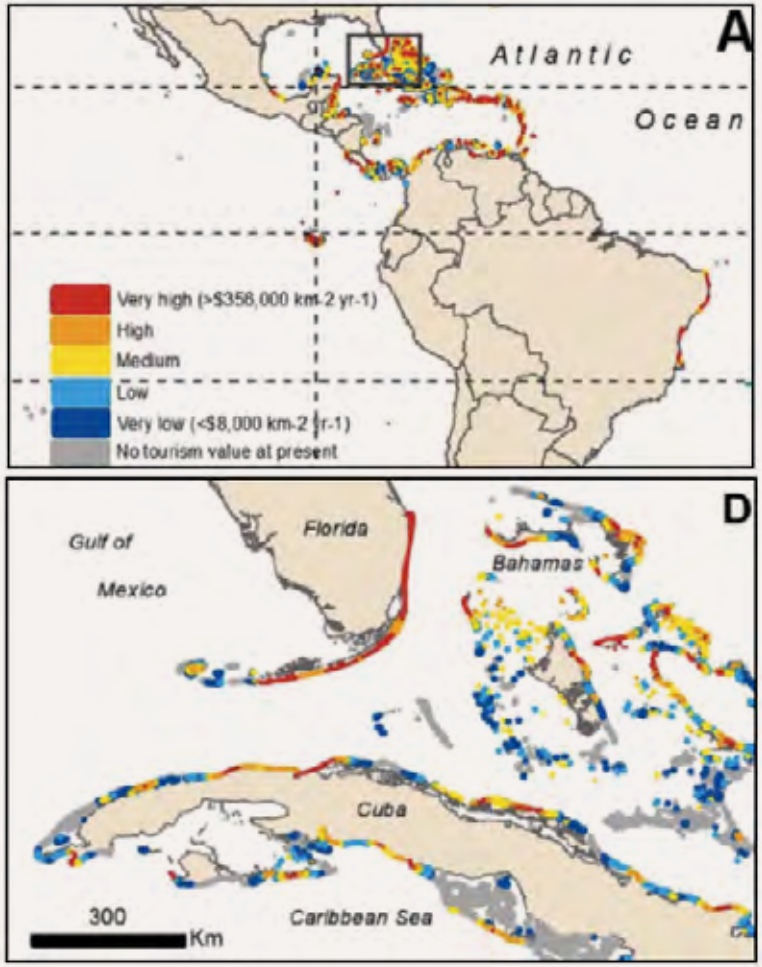
The CAF Member States of Barbados, Brazil, Colombia, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Trinidad & Tobago, and Venezuela have well-developed reef-tourism sectors. Reefs located in the territorial waters of these countries, particularly in the San Andreas Archipelago, the Mesoamerican Reef, and the Isla de Magdalena area support tourism both directly and indirectly. The approximately US$5 billion Caribbean dive-tourism industry is wholly dependent on coral reefs.

Coral reefs are among the most important attractions for underwater observation activities such as scuba diving and snorkeling. In the LAC region, the main diving spots are along the MesoAmerican Reef, which extends from Quintana Roo, Mexico to Honduras and includes the Belize Barrier Reef, the Cayman Islands, Jamaica, the Dominican Republic, Turks and Caicos, The Bahamas, the British Virgin Islands, the US Virgin Islands, Puerto Rico, Saba (Netherlands Antilles), St. Lucia, Barbados, Antigua, Grenada, Tobago, Isla Margarita (Venezuela), Bonaire, and Abrolhos (Brazil). Diving is also popular on the oceanic islands of the Pacific and in the Gulf of California. For the further development of scuba diving, in several destinations there is a need for capacity building, especially for diving guides and trainers, and investments in diving facilities, such as diving centers with diving equipment for rental and sale and the availability of a decompression chamber at diving sites.

A 2012 study estimated the economic value of coral reefs, including both the commercial and ecosystem services they provide, at nearly US$1 million per hectare per year. Each year, the regional coral-reef-based tourism industry attracts approximately 25 million visitors and generates an estimated US$50 billion in revenue[43]. In Turks and Caicos, Bonaire, and the British Virgin Islands, reefs are responsible for about one-third of all tourism revenue and contribute approximately 10% to GDP[44].

[40]Barbier et al., 2011; TEEB, 2009; Spalding et al., 2017.
[41]Reefs themselves, however, are a consistent source of new discoveries. For example, coral reefs were recently found under the turbid waters of the Amazon delta in Brazil. While these reefs are not yet well-studied, and are unlikely to become a site for tourism, their discovery underscores the uniqueness and variety of coral reefs.
[42]de Groot et al., 2012. The study extrapolated from local assessments to estimate the value of all reefs worldwide.
[43]UNCTAD, 2017.
[44]Ibid.

Figure 4: Tourism Revenue Generated by Reef Areas in LAC



Source: Spalding et al. 2017

A combination of factors has driven many of the world's coral reefs to brink of destruction, including pollution, unsustainable coastal development and land reclamation, overfishing, and climate change[45]. Understanding the direct and indirect value that reefs generate will be vital to reform reef management, both in LAC and worldwide[46]. In addition to onsite tourism revenue, reefs also provide habitats and food sources for coastal and pelagic species observed by tourists offsite, adding to the value of beaches and other coastal areas and non-reef dive tours. Of all the coastal habitats in LAC, reefs have the greatest potential to accommodate expanded ecotourism, but they are also the most in need of conservation and management. Policymakers are experimenting with innovative approaches to internalize the economic value of ecosystem services, and an increase in ecotourism user fees could support reef conservation across LAC[47]. The designation of national marine reserves, protected areas, and "no-take zones" (where fishing is prohibited) can help protect coral reefs and sustain the ecological integrity and biodiversity upon which ecotourism depends.

A 2012 study estimated the economic value of coral reefs, including both the commercial and ecosystem services they provide, at nearly US$1 million per hectare per year.

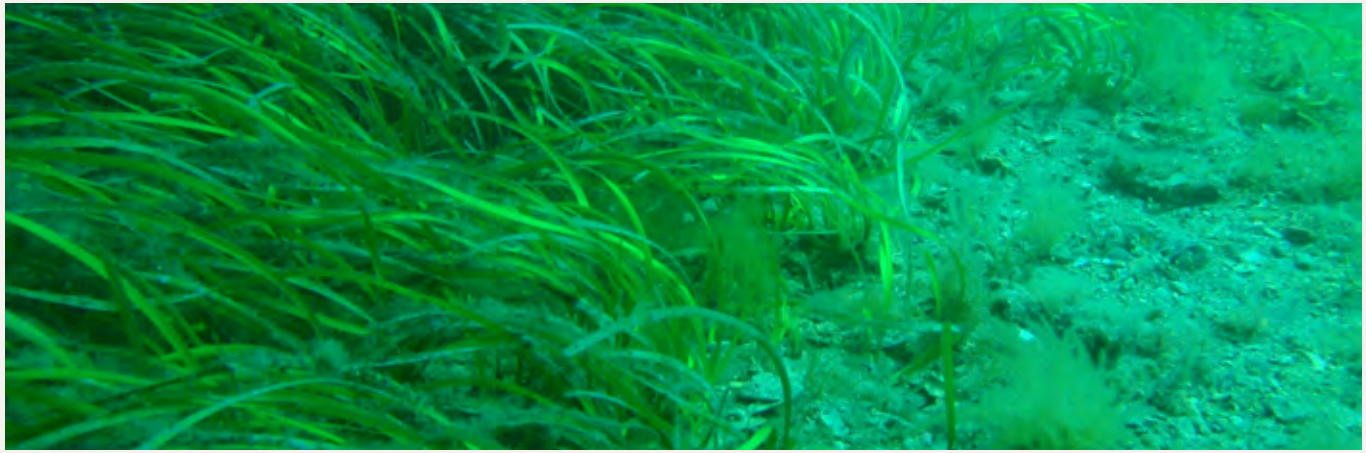
[45]Sale et al., 2014.
[46]Burke et al., 2015; Naeem et al., 2015.
[47]Agardy et al., 2016; Spergel and Moye, 2004.

E. SEAGRASS MEADOWS

Seagrass provides feeding and breeding grounds for most neritic species living in tropical and subtropical environments. An estimated 80% of coastal fishery species rely on seagrass during some part of their lifecycle. The nitrogen-fixing ability of seagrass rhizomes allows these aquatic flowering plants to thrive even in the low-nutrient conditions typical of tropical seas. Consequently, while the biodiversity of a seagrass meadow at any given point in time may be relatively low—especially when compared with coral reefs, or with transitional ecosystems like estuaries and mangroves—their cumulative biodiversity impact is often very high, as they represent a key link in extensive food chains. Component species of seagrass meadows, such as tunicates, influence phytoplankton production and thereby support a far wider food web[48].

Seagrass meadows provide habitats for finfish, mollusks, crustaceans, sea turtles, and marine mammals. Sea turtles are an "umbrella" species, as their presence or absence is a major signal of ecosystem condition, and they are also a "flagship" species, acting as ambassadors for nature conservation. Sea turtles rely on intact and productive seagrass as a food source, and seagrass is especially important to the herbivorous green sea turtle. In both tropical and temperate areas, seagrass is an important fish-nursery habitat, and seagrass meadows sustain the productivity of many valuable fish species.

Like mangrove forests, seagrass meadows act as a buffer against storm surge, tsunamis, and other catastrophic events. Seagrass roots retain sediment in the soil, preventing it from being washed up onto the shoreline during severe weather. Similarly, seagrass stabilizes the sea floor, providing a hospitable environment for infauna (meiofauna, burrowing clams, worms, etc.) as well as demersal marine species. These functions are often lost when seagrass is physically damaged. Seagrass meadows can be directly damaged during dredging or infilling, and may be indirectly affected by pollution (particularly sediments and excessive nutrients), overfishing, invasive species, and the loss of key component species due to unsustainable harvesting or displacement by invasive species. When these negative factors act in concert, as they do in most stressed coastal and marine ecosystems worldwide, the results can be catastrophic for seagrass. While damaged or degraded seagrass can be restored, this process is expensive, time-consuming, and is most successful under optimal conditions[49].



Because seagrass meadows also play an important role in fixing carbon and sequestering it in soils, seagrasses belong to a group of marine habitats known as "blue carbon ecosystems." Recent research indicates that protecting seagrasses should be regarded as a priority measure to address climate change.

Seagrass meadows rarely support tourism directly, but like mudflats and mangroves, they provide supportive and regulatory services that keep coastal and marine environments intact, productive, and healthy. In some parts of the LAC region, seagrass meadows provide a significant stream of fishery products directly to the tourism industry, including queen conch and other shellfish[50].

[48] Agardy and Alder, 2005.
[49] Ganassin and Gibbs, 2008.
[50] Sale et al., 2014.

F. ALGAL COMMUNITIES

Macroalgae also provide habitats for a wide range of species—including commercially valuable fish—while improving water quality and sequestering carbon. Red, green, and small species of brown algae often intermingle in deeper waters, while the larger species of brown algae (especially *Sargassum*) are generally found in shallower waters. Parts of the temperate LAC region have extensive kelp forests, and the cultivation of macroalgae is a growing aquaculture subsector.

Calcareous algae, which are found in shallow waters and on tropical reef flats, provide a very specific ecosystem service of particular relevance to the LAC region. The erosion of calcium carbonate contained in calcareous algae contributes to the formation of spectacular white sand beaches across the Caribbean. Temperate kelp forests are an important source of seafood and support oceanic biodiversity. Finally, blue-green algal mats provide many valuable ecosystem services, including disease control and carbon sequestration[51].

G. PELAGIC HABITATS

Pelagic habitats are offshore marine areas that support a wide range of maritime industries, including commercial and artisanal fishing, energy generation, offshore drilling, and shipping. Many of these industries rely on a healthy marine ecosystem in which different activities are carefully balanced and regulated to prevent ecosystem degradation or resource conflicts. In the LAC region, particularly valuable pelagic areas include the upwelling areas of the Humboldt Current (primarily around Peru), the deepwater areas surrounding the Galapagos Islands (Ecuador) and Cocos Island (Costa Rica), and the extensive banks between Jamaica and San Andreas, Colombia. Of course, highly productive and valuable pelagic habitats are also found elsewhere in the region, some of which have been developed for marine tourism activities like whale watching, sport fishing, and cruise tourism.

Whale Watching

The oceans surrounding the LAC region encompass many of the world's best whale-watching sites. Migratory whales congregate in specific areas to feed or breed and can be observed along their migration corridors. The whale-watching industry is already well developed in many parts of LAC (see Annex II). Globally, whale watching has experienced a boom in recent years, and in 2008 the industry generated an estimated US$2 billion in revenues and employed 13 million people in 119 countries[52]. Whale watching generated an estimated US$278 million in LAC in the early 2000s, and the industry has grown substantially since then, especially in Brazil, Costa Rica, Chile, Colombia, Ecuador, Peru, and Argentina. Whale watching has untapped potential in the LAC region, and as climate change and other factors shift migratory patterns, new whale watching opportunities may emerge.

[51] Agardy et al., 2017.
[52] Hoyt and Iniguez, 2008.

Dolphins, Seals and Sea Lions

Like whales, dolphins, seals and sea lions draw tourists interested in seeing and interacting with marine wildlife. Dolphin and pinniped observation areas are scattered across LAC, from Mexico's Los Islotes sea lion colony in the Gulf of California to Punta San Juan in Peru and the Silver Bank Sanctuary with large dolphin populations in the Dominican Republic to elephant seal colonies in the Patagonia region of Argentina. While LAC's major centers for marine mammal observation are well established, there are many more locations where marine mammals congregate to feed, breed, or nurture their young where ecotourism operations are in the early stages of development. Researchers have identified a number of important marine-mammal areas, which policymakers can prioritize for both conservation efforts and sustainable ecotourism development.

Shark Diving

SCUBA diving with sharks and rays has become a multimillion-dollar industry, generating in excess of US$ 780 million per year worldwide[53], and has both well-established destinations in LAC such as the Bahamas, undisputed regional leader in the segment with approximately US$ 114 million per year in revenues[54]; Playa del Carmen in Mexico where Diving has been instrumental to protect breeding bull sharks and provide alternative, sustainable income for fishermen; and Machalilla National Park in Ecuador where oceanic manta rays congregate. Also, oceanic islands with Protected Area status such as Revillagigedo in Mexico, Cocos in Costa Rica, Malpelo in Colombia and the Darwin & Wolf islands in the Galapagos owe their international diving market to the abundance of sharks. Many other potential sites could be developing this segment of recreational diving, but the continued decimation of shark populations in many LAC countries to supply domestic meat and international dried fin markets have restricted the attractiveness of many sites, such as the Abrolhos National Marine Park in Brazil. Nevertheless, recent decreases in shark fin demand and the adoption of better, more sustainable fishing practices, could help foster the potential for the opening of new shark & ray diving locations.

Sport Fishing

Sport fishing generates a significant amount of revenue in coastal areas across the LAC region. The waters of Venezuela, Mexico, Pacific Costa Rica, and Peru, among others, include some of the world's best billfishing areas. Blue marlin tournaments generate revenue for host towns in the Caribbean, while sailfish and other billfish support a lucrative sport-fishing industry in the Pacific coasts of Central and South America. The world record black marlin was caught in Cabo Blanco Peru in the 1950's, a historic major sport-fishing center that is currently experiencing a resurgence. Other game fish include wahoo, large barracuda, and various tuna species. Reef and pelagic fish also attract sport fishers: yellowtail snapper, corvine, grouper, hind, and other species thrive in tropical reef waters, while sea bream, seabass, mackerel or small tuna are more prevalent in more temperate locations.

Smaller fish species and even invertebrates also support sport and recreational fishing. In Central America, snook (robalo) and tarpon attract fly fishers and light spinning tackle fishers. Entire towns are built around this industry; for example, the town of Parismina, Costa Rica, has several tarpon and snook lodges that cater to wealthy international tourists, and virtually all employment in the village is related to sport fishing. From Mexico and The Bahamas in the north to Venezuela and Brazil in the south, the bonefish, an elusive shallow-water species, draw fly fishers from all over the world. Finally, spear fishers and free divers who collect queen conch, spiny lobster, abalone, and other mollusks and crustaceans round out the sport-fishing sector in the LAC region.

There are currently no data on the collective economic value of sport fishing in LAC. However, there are numerous sport-fishing centers throughout the region, and their value is sometimes captured in country-level statistics. For example, Costa Rica's sport-fishing sector generates an estimated US$599 million each year, even more than the country's commercial fishing industry[55]. Across the LAC region, sport fishing appears to be both robust and growing.

[53] Cisneros-Montemayor et al., 2013.
[54] Haas et al., 2017.
[55] University of Costa Rica and the Billfish Foundation, 2010.

Cruise Tourism

As with beach tourism, the link between cruise tourism and environmental quality is less immediately apparent than it is with traditional forms of ecotourism. Yet natural beauty, biodiversity, and robust ecosystem services can greatly enhance the value of cruise tourism. In 2014-15, cruise tourism in 34 LAC countries generated US$3.16 billion in revenue and created 75,000 jobs paying a total of almost US$1 billion in wages[56]. Providing goods and services to cruise ships and their passengers is a major economic activity in ports across the region. To enhance the local economic impact from cruise tourism, efforts need to be made to promote the supply of local goods and services to cruise ships. The Caribbean holds roughly 34% of the global market share for cruise tourism, and this figure is expected to rise in the coming years. Cruise tourism drives growth in many regional economies, and it provides valuable opportunities to bolster investment in sustainable marine management, biodiversity conservation, and ecological restoration.

Cruise tourism and ecosystem health are tightly linked, particularly in the Caribbean and in nature-centric destinations such as the Galapagos. Healthy, vibrant seas provide beautiful vistas for cruise passengers, and the aesthetic quality of shorelines and port facilities add value to the cruise experience, whether or not passengers have a strong interest in nature. In the Caribbean, both large and small cruise ships travel to pristine beaches, which rely on ecosystem services provided by seagrass beds, mangroves, or other forms of natural capital. Even the fine, white-grained sands for which Caribbean beaches are famous are formed by biological processes, as various plants and animals produce calcium carbonate, catalyze bioerosion, and transport sand the beach site.

Cruise tourism often directly benefits from specific forms of biodiversity. Bird, pinniped, and whale watching are common cruise activities, and organized side trips take passengers to sites of notable biodiversity. Many smaller cruises focus heavily on marine wildlife, particularly in the Galapagos and in the guano islands of Paracas, Peru. Cruises that offer scuba diving similarly target areas of dense biodiversity and high environmental quality.

In 2014-15, cruise tourism in 34 LAC countries generated US$3.16 billion in revenue and created 75,000 jobs paying a total of almost US$1 billion in wages.

[56] BREA, 2015.

H. OCEANIC ISLANDS

The oceanic islands of the Pacific coast of Central and South America provide a unique combination of opportunities for scenic exploration, wildlife viewing, and scuba diving. The LAC region's remote oceanic islands range from Clipperton Island to the north to Easter Island in the south and include the islands of the Eastern Tropical Pacific—Cocos Island (Costa Rica), Coiba (Panama), Malpela and Gorgona (Colombia), and Machailla (Ecuador)—as well as Ecuador's famous Galapagos archipelago (see Annex III). Although Galapagos is accessible by air, expeditions to these other oceanic islands are both expensive and physically challenging.

Remote oceanic islands attract adventure tourists and especially avid ecotourists, and they generate more revenue per tourist than any other form of marine tourism. Galapagos generates millions of dollars in revenue for tour operators, and an entrance fee of over US$100 per person subsidizes the significant marine management required by the Galapagos Marine Park, as well as terrestrial conservation activities. The LAC region's smaller, less well known islands also generate considerable returns for private investors as well as fiscal revenue to support government-led conservation and management. Even the relatively few tourists who visit places like Cocos Island in Costa Rica generate millions of dollars of revenue, as expeditions to Cocos average US$4,000 per trip and approximately 3,000 people visit via the three tour boats each year. Visits to Cocos often involve hiking, diving or a combination of the two. The recently designated Trindade & Martim Vaz Islands Natural Monument, some 1,000 Km east of the Brazilian mainland, offers potential for the development of a new liveaboard diving and marine wildlife watching industry which could cater for a ssegment aas yet untapped in Brazil[57].

[57] http://www.icmbio.gov.br/portal/unidadesdeconservacao/biomas-brasileiros/marinho/unidades-de-conservacao-marinho/9572-mona-das-ilhas-de-trindade-e-martim-vaz-e-do-monte-columbia

VI. CONCLUSION

Coastal and marine ecotourism is underdeveloped in the LAC region, and there is significant potential to both expand existing markets and create new ones. Tourism is already a mainstay of many Caribbean island economies, and tourism arrivals in Central and South America are projected to grow at an average rate of 5.2% and 4.6%, respectively, over the 2010-2030 period[58]. In this context, the development of ecotourism offers a critical opportunity to revitalize the regional tourism sector. Leveraging tourism to promote ecological restoration can help rebuild natural capital, increase the profitability of tourism value chains, and expand the social and economic benefits of ecosystem services. A carefully planned ecotourism sector can generate healthy returns to both public and private investment, while expanding employment opportunities, promoting socioeconomic and intergenerational equity, and accelerating economic diversification.

Opportunities to expand coastal and marine tourism in the LAC region range from true ecotourism, including whale watching, sea turtle observation, birdwatching, and scuba diving on coral reefs, to nature-based activities like sport fishing, oceanic island exploration, and even beach and cruise tourism. Importantly, activities in the latter category depend on intact marine and coastal habitats as much as true ecotourism, as ecosystems provide scenic and aesthetic values, maintain water quality, suppress waterborne pathogens, stabilize shorelines and beaches, provide safe ports and harbors, and underpin the marine productivity that supports local seafood markets.

The most critical coastal and marine habitats include mangroves, coral reefs, seagrass meadows, coastal wetlands, islands and seamounts, and pelagic ecosystems. Well-managed tourism development can generate revenue streams, through user fees, voluntary donations, and public-private partnerships, that support the protection of these habitats. Tourist demand can catalyze the adoption of new policies to reduce overfishing, pollution, coastal habitat destruction, and other pressures that degrade the marine environment.

[58] UNWTO, 2017.

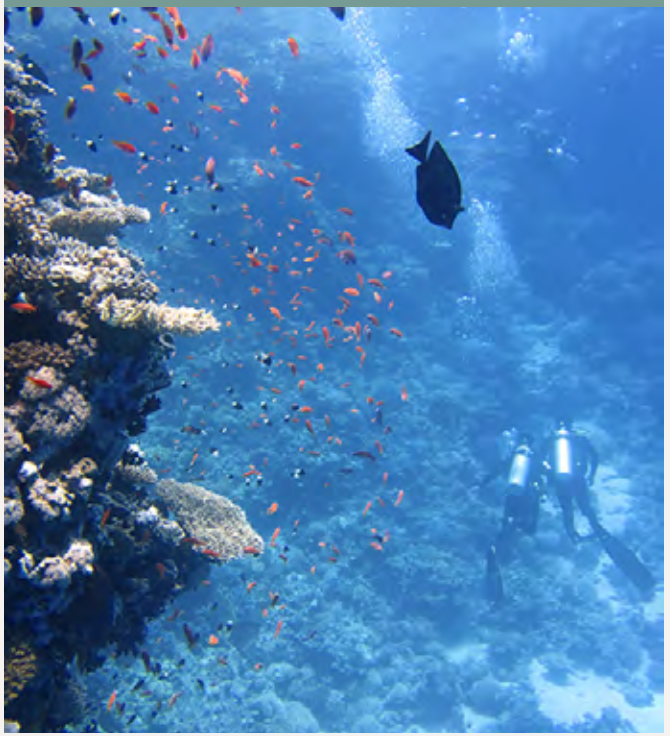
And tourists can become personally involved in conservation activities through organized eco-tours and volunteer programs. Coastal and marine ecotourism must be developed carefully to avoid various pitfalls, such as the underregulated growth of unsustainable mass tourism, which can threaten biodiversity and reduce the value of ecosystem services. Whenever possible and necessary, governance and management mechanisms should be applied to facilitate a sustainable development of tourism in marine and coastal areas, streamlining sustainability principles in the planning, development and implementation phase, and making arrangements to manage coastal and marine environments linked to tourism and to support community livelihoods through tourism development.

A growing body of research and analysis can inform the sustainable development of coastal and marine ecotourism. For instance, the Center for Ecotourism and Sustainable Development has published multiple volumes on sustainable tourism and ecotourism, including a user's guide for sustainability certification[59]. Coupled with guidelines for ecosystem management and the emerging literature on best practices for "blue biotrade[61]," sustainable tourism development could drive coastal planning, ecosystem management, and environmental restoration policies and projects across the LAC region. Among the most important assets of sustainable tourism, from a public policy perspective, is its ability to accelerate GDP growth while also promoting socioeconomic equity and allowing coastal communities greater autonomy to manage their local environments.

Investment in sustainable tourism will harness the power of coastal and marine economies to support ecological rehabilitation and boost the supply of valuable ecosystem services[62]. CAF has the opportunity to take a lead role in promoting the growth of sustainable tourism cross the LAC region by: (i) identifying pilot projects that demonstrate how ecotourism can enhance ecosystem services and promote socioeconomic equity, (ii) encouraging CAF Member States to invest in green infrastructure and mainstream ecological rehabilitation into both their economic development and disaster risk and recovery policies, and (iii) building the capacity of CAF Member States to establish public-private partnerships, undertake ecosystem-services assessments, and utilize marine spatial planning to create truly sustainable blue economies.

Coastal and marine tourism development must be planned and executed carefully. The construction of resorts, hotels, port facilities and other forms of tourism infrastructure can quickly deteriorate from sustainable forms of ecotourism to unsustainable forms of mass tourism. Capacity must be built to accommodate tourists and provide adequate water, food, electricity, waste treatment, and other services in a way that minimizes their ecological footprint. Large numbers of visitors have the potential to degrade the very environment that draws them in, and a rapid influx of visitors can strain the social fabric of coastal communities. A share of the revenue generated by tourism must be reinvested in the local community and in the natural environment. The following table presents a strengths, weaknesses, opportunities, and threats (SWOT) analysis of sustainable coastal and marine tourism in the LAC region.

The construction of resorts, hotels, port facilities and other forms of tourism infrastructure can quickly deteriorate from sustainable ecotourism to unsustainable mass tourism.



[59] Black and Crabtree, 2007; Center for Ecotourism and Sustainable Development, 2007; Honey and Krantz, 2002; Toth, 2000.
[60] See, e.g.: Agardy et al. 2011.
[61] UNCTAD/CAF, forthcoming.
[62] Agardy and Alder, 2005; Arkema et al. 2013; Barbier et al., 2011.

TABLE 2. SWOT ANALYSIS OF COASTAL AND MARINE TOURISM DEVELOPMENT IN LAC

STRENGTHS

LAC has a wide range of attractive tourism destinations, including beautiful coastal landscapes and seascapes, areas rich in biodiversity, and places that can support both cultural and nature-based tourism.

Coastal tourism has especially strong growth potential, and many prime areas remain undeveloped or underdeveloped.

The region is generally stable, and conflict is rare. Many countries maintain high credit ratings, possess substantial institutional capital, and have an adequate policy framework to support sustainable tourism development.

Marine areas offer a variety of tourism development opportunities across the region, and proper planning can prevent overcrowding.

Coastal communities can play an important role in planning, organizing, and implementing ecotourism development, which in turn can expand employment opportunities, improve living standards, reduce social conflict, and create incentives for environmental protection.

Opportunities to develop biodiversity-friendly infrastructures that support ecotourism ane econmomic development needs

OPPORTUNITIES

Markets for coastal and marine ecotourism can be created or expanded throughout the LAC region

Adventure tourists and ecotourists are constantly seeking new destinations and experiences, which facilitates the emergence of new tourism sites and markets

Successful models of low-impact, socially and economically profitable marine ecotourism exist in the region and can be replicated at new destinations, tapping new markets and focusing on new activities and experiences

Many LAC countries can expand their capacity to make their existing coastal and marine tourism sectors more sustainable and more profitable

Cutting-edge coastal engineering technology, combined with green infrastructure investment, can enhance ecosystem services and add value to tourism activities

Carefully managed marine and coastal ecosystems, in which green infrastructure and biodiversity are protected, can increase their production of ecosystem services over time

WEAKNESSES

The negative impacts of coastal development, including habitat encroachment, pollution, and increased pressure on fish stocks, are driving the deterioration of marine ecosystem services in LAC; environmental policies and enforcement must be sufficient to prevent environmental degradation.

Poorly managed tourism development can quickly lead the depletion of the natural capital that draws tourists to a destination.

Lack of a legal framework to regulate tourism activities in countries with emerging coastal tourism destination can lead to conflicts between local communities and tourism operators.

If tourism revenues do not adequately benefit local communities, tourism development may generate conflict between community members, tourists, and tourism operators.

Many coastal and marine habitats are highly sensitive, and carrying capacities for visitation may be very low; to avoid environmental damage, carrying capacities must be accurately assessed, and visitor limits must be established and enforced.

Areas with especially dense biodiversity or which are highly vulnerable to degradation may need to be maintained as wilderness, with little or no tourism access.

Poorly regulated, managed and enforced ocean pollution is making many biodiversity rich areas unattractive to tourism development.

THREATS

LAC countries have uneven coastal management and marine spatial planning policies, and many lack the capacity to inconsistently enforce regulations at sea.

Some LAC countries may be unwilling to decentralize environmental management to local communities.

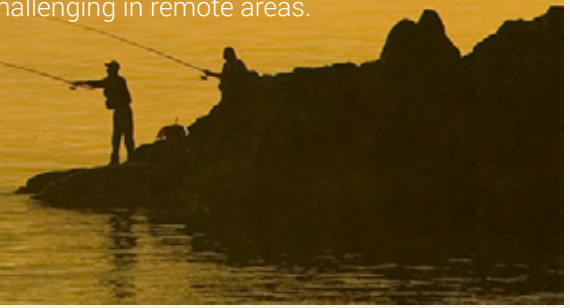
Monitoring tourism volume, impact, and regulatory compliance is expensive and administratively challenging, and many LAC countries require private sector investment in marine management.

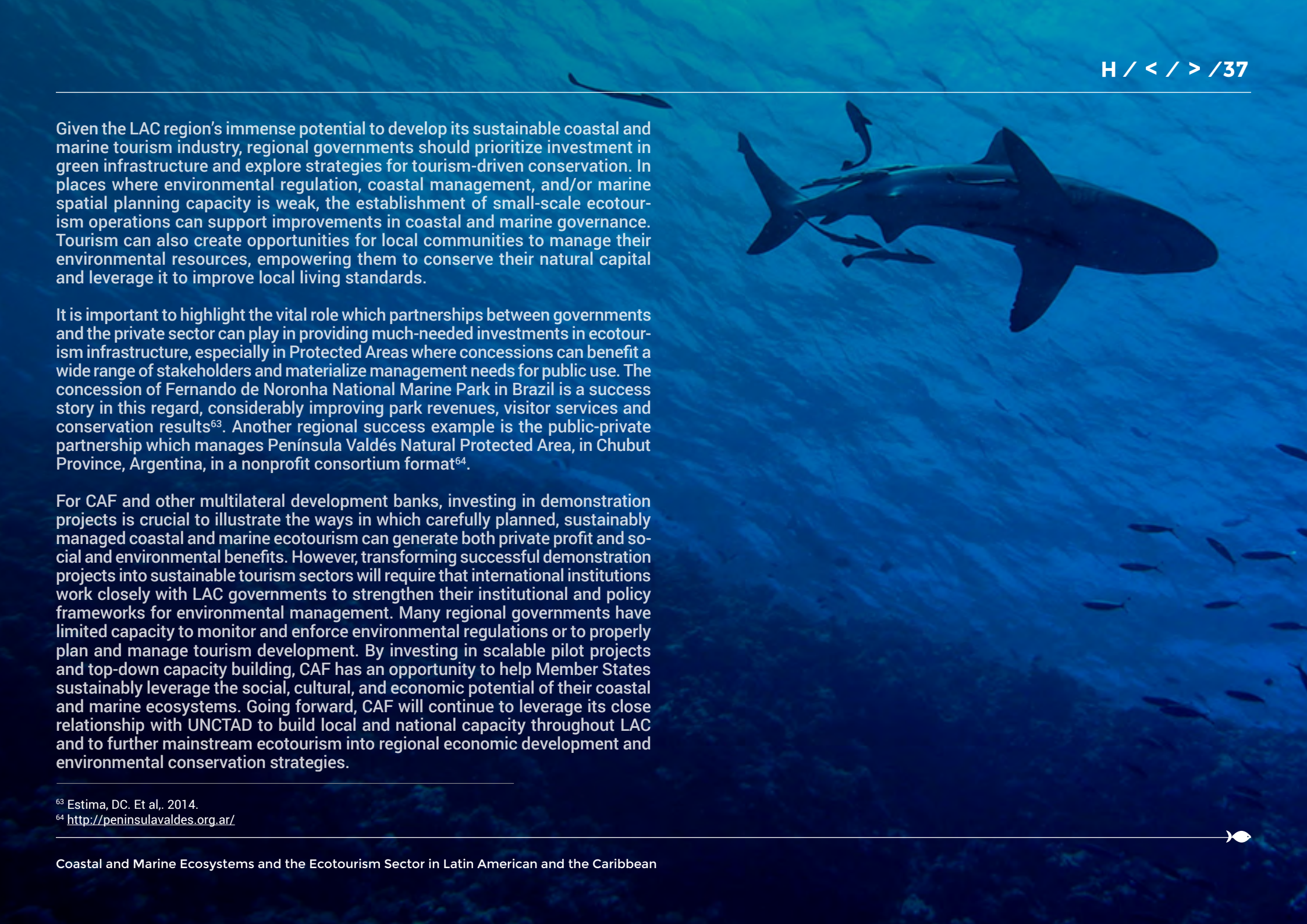
Tourism development driven by foreign investment may entail the repatriation of profits, contributing to inadequate reinvestment in environmental protection.

Corruption can prevent the uniform enforcement of environmental regulations.

Transitioning from small-scale ecotourism to sustainable mass tourism can threaten environmental resources and strain sectoral administrative capacity.

Regulatory oversight and enforcement are especially challenging in remote areas.



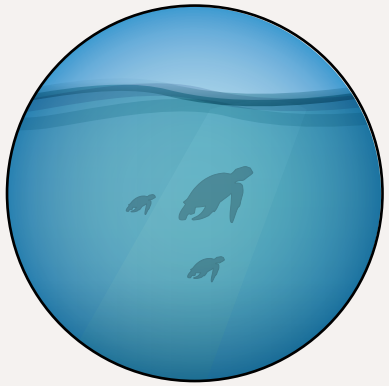


Given the LAC region's immense potential to develop its sustainable coastal and marine tourism industry, regional governments should prioritize investment in green infrastructure and explore strategies for tourism-driven conservation. In places where environmental regulation, coastal management, and/or marine spatial planning capacity is weak, the establishment of small-scale ecotourism operations can support improvements in coastal and marine governance. Tourism can also create opportunities for local communities to manage their environmental resources, empowering them to conserve their natural capital and leverage it to improve local living standards.

It is important to highlight the vital role which partnerships between governments and the private sector can play in providing much-needed investments in ecotourism infrastructure, especially in Protected Areas where concessions can benefit a wide range of stakeholders and materialize management needs for public use. The concession of Fernando de Noronha National Marine Park in Brazil is a success story in this regard, considerably improving park revenues, visitor services and conservation results[63]. Another regional success example is the public-private partnership which manages Península Valdés Natural Protected Area, in Chubut Province, Argentina, in a nonprofit consortium format[64].

For CAF and other multilateral development banks, investing in demonstration projects is crucial to illustrate the ways in which carefully planned, sustainably managed coastal and marine ecotourism can generate both private profit and social and environmental benefits. However, transforming successful demonstration projects into sustainable tourism sectors will require that international institutions work closely with LAC governments to strengthen their institutional and policy frameworks for environmental management. Many regional governments have limited capacity to monitor and enforce environmental regulations or to properly plan and manage tourism development. By investing in scalable pilot projects and top-down capacity building, CAF has an opportunity to help Member States sustainably leverage the social, cultural, and economic potential of their coastal and marine ecosystems. Going forward, CAF will continue to leverage its close relationship with UNCTAD to build local and national capacity throughout LAC and to further mainstream ecotourism into regional economic development and environmental conservation strategies.

[63] Estima, DC. Et al,. 2014.
[64] http://peninsulavaldes.org.ar/



ANNEX I.
MAP OF SEA TURTLE NESTING AND OBSERVATION SITES WITH SUBSTANTIAL ECOTOURISM INFRASTRUCTURE

ANNEX II. MAJOR WHALE-WATCHING AREAS IN LAC

CHILE: Humpback whales may be observed in the Straits of Magellan, accessed from the port town of Punta Arenas, and blue whales congregate seasonally around the small coastal island of Chiloe. Whale species are also present in the waters surrounding Easter Island, some 3500 kilometers off the Chilean coast, which supports a smaller range of whale-watching options than the mainland.

PERU: Humpback whales can be observed on tours from Los Organos on the north coast, where dolphin pods are also commonly sighted. Marine mammals also appear seasonally in the rich waters off Paracas, south of Lima.

ECUADOR: Humpback whales traveling north from Antarctica can be seen near Chile, Peru and Ecuador, especially around Salinas and Puerto Lopez. In addition to humpbacks, Manchalilla National Park hosts 27 other species of marine mammal. Some 1000 kilometers off the mainland coast, the Galapagos Islands are home to many marine mammal species, and whale-watching opportunities are concentrated around the islands of Bartolome and Espanola.

COLOMBIA: Whale-watching is a popular activity in Pacific Colombia, especially around the towns of Nuqui and Bahia Solana, from which excursions depart to Bahia Malaga in Uramba National Park.

PANAMA: Panama's "long coast" on the Gulf of Chiriqui, with its 25-island archipelago, offers some of the best whale watching in the world. An annual whale festival in August draws large numbers of tourists.

COSTA RICA: Whale watching is just one of many ecotourism activities in Costa Rica. Marine mammals are common off the Osa Peninsula, and humpback whales congregate in Marina Ballena National Park, which has the world's longest whale-watching season.

MEXICO : The San Vizcaino Biosphere Reserve on Mexico's Baja Peninsula includes the world-famous lagoons of San Ignacio, Laguna Ojo de Liebra, and Bahia Magdalena. Each year, thousands of visitors come to observe gray whales and their young. On the peninsula's other shore, whale watching from La Paz and Loreto offers opportunities for tourists to see blue whales, fin whales, sperm whales, long-finned pilot whales, minke whales, and northern Pacific right whales, along with several dolphin species. The Gulf of California is also home to the extremely rare and endangered vaquita porpoise. The waters off remote and uninhabited Clipperton Island, a French territory located 2000 miles south-by-southwest from Baja, also host numerous marine mammal species, but the island's remoteness makes it inaccessible for most tourists.

DOMINICAN REPUBLIC: Samana Bay, on the eastern end of the island of Hispaniola, is a well-developed whale-watching site. Humpback whales converge on the nearby Silver and Navidad Banks, where they calve in the bay or bring their young in to its sheltered waters. Whale watching has also spurred tourism activity in nearby Punta Cana.

BRAZIL: The long Brazilian coastline offers a range of opportunities for whale watching. In Santa Catarina State, breeding Southern right whales can be watched from shore along the 130-Km-long Right Whale Environmental Protection Area, especially at Imbituba and Garopaba townships. In the State of Bahia, humpback whales sustain a thriving boat-based whale watching industry now encompassing several localities, from Abrolhos National Marine Park to Praia do Forte, near Salvador.

ARGENTINA: Patagonia's scenic Peninsula Valdes is renowned for whale watching, especially coastal areas near the town of Puerto Madryn, where southern right whales congregate. Patagonia's waters are so rich in marine life that Argentina can claim to host the greatest number of whale-watching tourists in Latin America at about 250,000 per year.

Figure 1: Major Whale-Watching Centers in the LAC Region

ANNEX III. MAP OF THE GALAPAGOS, COCOS, COIBA, MALPELO, GORGONA, AND MACHAILLA ISLANDS

Source: http://migramar.org/hi/wp-content/uploads/2017/01/eastern-tropical-pacific-seascape.jpg

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Those who benefit from coastal and marine ecosystems and the services that they provide can profit even more from investing in their protection. This assures benefits will continue to flow, and can even lead to enhanced benefits and increased profitability from sustainable fisheries, blue tourism, and other forms of marine biotrade. Through innovative financing schemes like marine payments for ecosystem services (MPES), biodiversity offsets, public / private partnerships, Marine Conservation Agreements, Trust Funds and other endowments, and impact investing, the costs of effective marine management can be shared by the public sector and the private sector (both businesses and communities).

Innovative financing and private sector investment in coastal ecosystems that provide goods and services is springing up around the world, especially where the capacity exists to assess marine ecosystem services, determine their value, and ascertain what factors affect ecosystem services delivery. New rapid assessment techniques for quantifying and valuing marine ecosystem services, from blue carbon to shoreline stabilization, have now come on line. The location of concentrations of ecosystem service-delivering habitats can be mapped, as can benefits flows across broader landscapes. This can set the stage for innovative financing mechanisms like PES, and get the not only investments, but returns on those investments, rolling.

PREPARED BY

Tundy Agardy, Ph.D.
MARES Director, Forest Trends.
tundiagardy@earthlink.net

Federico Vignati, DR.
Principal Executive, Green Business Unit.
Department of Environment and Climate Change, DACC / CAF
fvignati@caf.com

René Gómez-García, Ph.D.,
Head, Green Business Unit.
Department of Environment and Climate Change, DACC / CAF
rgomez@caf.com

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