



United Nations

ECLAC

ECLAC SUBREGIONAL HEADQUARTERS FOR THE CARIBBEAN

FOCUS

Magazine of the Caribbean Development and Cooperation Committee (CDCC)

A BLUE PATH FOR THE CARIBBEAN: OCEAN SUSTAINABILITY FOR PROSPERITY AND RESILIENCE

ABOUT ECLAC/CDCC

The Economic Commission for Latin America and the Caribbean (ECLAC) is one of five regional commissions of the United Nations Economic and Social Council (ECOSOC). It was established in 1948 to support Latin American governments in the economic and social development of that region. Subsequently, in 1966, the Commission (ECLA, at that time) established the subregional headquarters for the Caribbean in Port of Spain to serve all countries of the insular Caribbean, as well as Belize, Guyana and Suriname, making it the largest United Nations body in the subregion.

At its sixteenth session in 1975, the Commission agreed to create the Caribbean Development and Cooperation Committee (CDCC) as a permanent subsidiary body, which would function within the ECLA structure to promote development cooperation among Caribbean countries. Secretariat services to the CDCC would be provided by the subregional headquarters for the Caribbean. Nine years later, the Commission's widened role was officially acknowledged when the Economic Commission for Latin America (ECLA) modified its title to the Economic Commission for Latin America and the Caribbean (ECLAC).

Key Areas of Activity

The ECLAC subregional headquarters for the Caribbean (ECLAC/CDCC secretariat) functions as a subregional think-tank and facilitates increased contact and cooperation among its membership. Complementing the ECLAC/CDCC work programme framework, are the broader directives issued by the United Nations General Assembly when in session, which constitute the Organisation's mandate. At present, the overarching articulation of this mandate is the Millennium Declaration, which outlines the Sustainable Development Goals.

Towards meeting these objectives, the Secretariat conducts research; provides technical advice to governments, upon request; organizes intergovernmental and expert group meetings; helps to formulate and articulate a regional perspective within global forums; and introduces global concerns at the regional and subregional levels.

Areas of specialization include trade, statistics, social development, science and technology, and sustainable development, while actual operational activities extend to economic and development planning, demography, economic surveys, assessment of the socio-economic impacts of natural disasters, climate change, data collection and analysis, training, and assistance with the management of national economies.

The ECLAC subregional headquarters for the Caribbean also functions as the Secretariat for coordinating the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States. The scope of ECLAC/CDCC activities is documented in the wide range of publications produced by the subregional headquarters in Port of Spain.

MEMBER COUNTRIES

Antigua and Barbuda	Haiti
The Bahamas	Jamaica
Barbados	Saint Kitts and Nevis
Belize	Saint Lucia
Cuba	Saint Vincent and the Grenadines
Dominica	Suriname
Dominican Republic	Trinidad and Tobago
Grenada	
Guyana	

ASSOCIATE MEMBERS:

Anguilla
Aruba
British Virgin Islands
Cayman Islands
Curaçao
Guadeloupe
Martinique
Montserrat
Puerto Rico
Sint Maarten
Turks and Caicos Islands
United States Virgin Islands

CONTENTS

Director's Desk: The Central Role of Oceans	3
Ocean resources management structures and institutions in the Caribbean region	4
Oceans and disasters - the case of Hurricane Dorian in The Bahamas	6
Sargassum in the Caribbean – New Challenges and Opportunities	8
Underwater Cultural Heritage	12

FOCUS: ECLAC in the Caribbean is a publication of the Economic Commission for Latin America and the Caribbean (ECLAC) subregional headquarters for the Caribbean/Caribbean Development and Cooperation Committee (CDCC).

EDITORIAL TEAM:

Director	Diane Quarless, ECLAC
Editor	Johann Brathwaite, ECLAC
Copy Editor	Denise Balgobin, ECLAC
Coordinator	Artie Dubrie, ECLAC
Design	Blaine Marcano, ECLAC

Photos: All images in this issue were provided by the winners and finalists of the 'I am a Youth of a Small Island' competition.

Cover: Denisse Aylene González Baez
Within the issue: Katelyn-Elizabeth Hutchinson; Josiah Julipsingh; Cristina Palmer; Evana Marlena Dixon Jackson

Produced by ECLAC

CONTACT INFORMATION

ECLAC Subregional Headquarters for the Caribbean
PO Box 1113, Port of Spain, Trinidad and Tobago
Tel: (868) 224-8000
E-mail: spou-pos@eclac.org Website: www.eclac.org/portofspain



DIRECTOR'S DESK: THE CENTRAL ROLE OF OCEANS

This issue of FOCUS explores the Caribbean Sea, a vital and unique asset of the wider Caribbean. It represents a significant proportion of the subregion's ecosystems, as well as its natural and economic resources. The Caribbean Sea, coastal zones and bordering oceans define the historical, cultural, geo-political, economic, social and environmental identities of the subregion. Oceans and seas define the culture and history of Caribbean people, and are also essential for the sustainable development of the subregion's economies.

This issue of the FOCUS magazine will explore the many facets of this relationship. The Caribbean Development and Cooperation Committee (CDCC) recognizes the importance of the marine environment to the countries of the subregion and emphasizes the requirements for an integrated management approach for the Caribbean Sea. This integrated approach is necessary to manage and reverse anthropogenic impacts such as overfishing, pollution, climate change, invasive species, and poorly planned land and coastal developments.

Our first article highlights the importance of the Wider Caribbean Region (WCR),¹ and its management structures in the subregion through a multiplicity of multilateral agreements, mediated by regional and global organizations often with overlapping mandates. The article provides an overview of these structures at national and regional levels and of what more can be done to sustain, support and maintain a healthy, productive and resilient WCR.

The second article analyzes the economic importance of oceans and discuss how natural disasters cause severe disruptions to sectors that are highly dependent on natural ocean resources such as tourism, fishery and maritime transportation, utilising the case study of Hurricane Dorian in the Bahamas.

The article also examines the impact of the hurricane on the Bahamas' marine ecosystems, including coastal areas, while demonstrating the importance of economic valuation of these ecosystems as tools for risk assessment.

The relevance of marine and coastal resources is reiterated in the article "Sargassum in the Caribbean", which emphasizes the serious economic, social and environmental impacts and disturbances caused by the large-scale onslaught of Sargassum in the Caribbean since 2011. Although the extent of the economic impact of sargassum influx has not been fully assessed, different sectors have been significantly affected. Managing sargassum continues to be a major challenge for the subregion, and an effective response will require both coordination among stakeholders and dedicated financial resources.

The oceans are also inexorably linked to Caribbean identity, culture and history. The Caribbean States possess some of the world's richest submerged heritage, ranging from pre-Colombian sites, shipwrecks from colonial times to sunken cities. The final article explores the concept of Underwater Cultural Heritage (UCH) with its great economic potential, and discusses the preservation and protection of this heritage. The article includes examination of the international instruments that advocate

for the conservation and smart use of these resources.

The United Nations has proclaimed a Decade of Ocean Science for Sustainable Development (2021-2030), not only to protect the ocean and its resources, but also to "strengthen the international cooperation needed to develop the scientific research and innovative technologies that can connect ocean science with the needs of society".² ECLAC supports the Caribbean in this 10-year road map for sustainable ocean governance. Through this issue of FOCUS, it is my hope that all stake holders can be persuaded to manage our ocean spaces sustainably and collaboratively. The sustainable development of the Caribbean is anchored on having healthy and productive coastal, marine and ocean resources.

Yours in Focus

Diane Quarless

¹ The Wider Caribbean Region (WCR), comprised the insular and coastal States and Territories with coasts on the Caribbean Sea and the Gulf of Mexico as well as waters of the Atlantic Ocean adjacent to these States and Territories, The Caribbean SIDS are located in the Caribbean Sea area. Addressing the management of the Caribbean Sea in the broader context of the WCR is also in keeping with the WCR geographical area covered under both the Caribbean Sea Commission and the Convention for the Protection and Development of the Marine Environment on the Wider Caribbean Region, 1983 (Cartagena Convention) available at: <https://www.unenvironment.org>, cited May 2, 2020.

² United Nations Decade of Ocean Science for Sustainable Development: <https://www.oceandecade.org/>



INTEGRATED APPROACHES FOR SUSTAINABLE OCEAN MANAGEMENT IN THE CARIBBEAN REGION

Artie Dubrie*

“Many SIDS are custodians of some of the world’s richest biodiversity and marine resources, but they continue to face the major challenge of insufficient human and institutional capacity in ocean management, research, and data collection.”

- Peter Thomson, United Nations Special Envoy for the Ocean (2017)¹

Ocean-based renewable,² non-renewable resources³ and ecosystems services⁴ are essential pillars for the sustainable development of the economies of Caribbean countries. The sustainable management of ocean-based resources and services falls under the purview of national, international and regional instruments, and is translated through policies, legislation and regulations. The Small Island Developing States (SIDS) sustainable development agenda⁵ and the 2030 Sustainable Development Agenda (Agenda 2030) emphasise the nexus between healthy, productive and resilient marine ecosystems, economic development and essential ecosystem services. In keeping with the importance of coastal and ocean resources to Caribbean SIDS, this article addresses the impacts of major anthropogenic activities in the Wider Caribbean Region (WCR), and the need for an integrated and institutionalised approach to ocean resources management at national and regional levels. It will also offer recommendations for sustainable ocean resources management in the Caribbean region.

THE WIDER CARIBBEAN REGION (WCR)

The United Nations has recognised the importance of promoting an integrated approach to the management

of the Caribbean Sea in the context of sustainable development.⁶

The WCR covers an area of at 4.4 million km² comprising insular and coastal States and Territories with coasts on the Caribbean Sea, the Gulf of Mexico and the Atlantic Ocean. An estimated 41 million people live within 10 km of the WCR- member countries coastlines (UNEP, 2018).⁷ Twenty-eight Caribbean SIDS are located in the WCR (Debels et al., 2017).⁸ It is within this geo-politically complex space that the sovereign and shared coastal and ocean resources of the WCR are managed. The Map of the

WCR is illustrated in Figure 1.

OCEAN GOVERNANCE AGREEMENTS IN THE WCR

The economic, social and environmental requirements for the sustainable management of ocean resources are inter-dependent. The overexploitation of living resources, land and marine-based pollution, and direct physical degradation from inappropriate development activities all negatively impact the productive capacities of coastal and marine resources and ecosystem services in the WCR. (ECLAC 2017).¹⁰



* Artie Dubrie is a Sustainable Development Officer in the Sustainable Development and Disaster Unit of the Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean in Port of Spain, Trinidad and Tobago.

¹ Small Islands and Sustainable Development Goals 14, Q&A with Peter Thomson, available at <http://sidsworkshop.be/docs/SIDS-PGA.pdf>, cited February 9, 2020

² Renewable resources can be defined when their supply replenishes naturally or can be sustained, for example Fisheries

³ Non-renewable resources can be defined when the resource is finite and cannot be replenished, for example Petroleum

⁴ Ecosystem services are the direct and indirect contributions of ecosystems to human well-being, examples are carbon sequestration, recreation and culture

⁵ The SIDS Sustainable development agenda includes: the Barbados Programme of Action (BPOA, 1994) for the sustainable development of SIDS, the Mauritius Strategy of Implementation of the BPOA (MSI, 2005) and the SAMOA Pathway (2014). The mid-term review of the SIDS Accelerated Modalities of Action (SAMOA Pathway) maintained the importance of oceans, seas and marine resources as priority areas and to be addressed in the ensuing years.

⁶ A/RES/54/225: Promoting an integrated management approach to the Caribbean Sea area in the context of sustainable development: resolution / adopted by the General Assembly

⁷ United Nations Environmental Programme (UNEP), Caribbean Environment Programme (2018), available at: <https://www.unenvironment.org/explore-topics/oceans-seas/what-we-do/working-regional-seas/regional-seas-programmes/wider>

⁸ Debels P., et al. 2017. The CLME+ Strategic Action Programme: An ecosystems approach for assessing and managing the Caribbean Sea and North Brazil Shelf Large Marine Ecosystems. Environmental Development, 22: 191–205.

⁹ Association of Caribbean States, <http://www.acs-aec.org/index.php?q=csc>, cited February 10, 2020.

¹⁰ ECLAC FOCUS Issue 1Jan-Mar2019 (pp 13), repositorio.cepal.org.

In addressing the requirements for the sustainable management of coastal and ocean resources, countries have been working to better integrate coastal and marine policies and legislation, with the involvement of government institutions, the private sector and civil society.

Barbados, for example, has established its Coastal Zone Management Unit as a Government agency¹¹ under the authority of the Minister of Maritime Affairs and The Blue Economy of Barbados.¹² Trinidad and Tobago, in 2018, established an Integrated Coastal Zone Management (ICZM)-Inter-Ministerial Committee.¹³ These examples of integrated and structured national bodies for coastal and ocean resources management are necessary for multi-sectoral planning, identification of managerial gaps,¹⁴ streamlining of legislative and institutional overlays, and assessment and assignment of human, financial and budgetary resources. These structures will also facilitate wider multi-sectoral preparedness when entering into negotiations on bi-lateral, regional and international agreements for coastal and ocean resources management.

OCEAN RELATED MULTI-LATERAL AGREEMENTS

Sustainable Development Goal (SDG) 14 recognises that all life on earth depends on healthy and productive oceans. Particularly for the SIDS, the sustainable management of ocean resources is cross-cutting in most, if not all of the 17- SDGs of Agenda 2030.^{15,16}

In addition to being part of the 2030

Agenda and the SIDS-Sustainable Development Agenda, Caribbean SIDS have entered into several regional and international agreements on coastal, ocean resources and eco-systems management. Many of these agreements have transboundary implications, including those on maritime matters, migratory fishing stocks, invasive species, climate change impacts, pollution and over-fishing, among others. In this regard, the implementation modalities of these agreements will require regional and other multi-lateral arrangements. Select examples of these international and Caribbean regional agreements are provided in Table 1 (*see page 15*).

REGIONAL ORGANISATIONS IN OCEAN RESOURCES MANAGEMENT

Regional organisations have an important role to play in supporting member countries, development partners and other stakeholders in the management of the resources of the WCR.

Within the WRC, over 26 registered regional organizations have been identified as having coastal and marine related activities.¹⁷ These regional bodies have varying legal and operational portfolios; include intergovernmental bodies,¹⁸ United Nations agencies, Secretariats to multi-lateral agreements, developmental partners, private sector and civil society groups. Responsibilities and mandates of these range from supporting member countries in addressing national ocean priorities; the financing and implementing projects; to strengthening development cooperation.¹⁹

This wide array of inter-regional bodies calls for an over-arching, inter-governmental regional body tasked with harmonizing and coordinating management systems of the WRC. This approach is being negotiated under the Caribbean Large Marine Ecosystem Project- Strategic Action Programme (CLME+SAP).²⁰ It is envisaged as a long-term iterative process engaging WCR countries, regional, sub-regional and international development partners, civil societies, academia and the private sectors.

CONCLUSIONS

Negotiated arrangements are necessary for the sustainable management of sovereign, shared resources and ecosystem services.

For Caribbean SIDS and within the WCR, multi-sectoral institutionally integrated approaches at both national and regional levels are necessary for coastal and ocean resources management. The management mechanisms of such approaches will require national and regional political support, adequate and sustained financing, regulations and interdisciplinary institutions with appropriate technologies, ocean literacies²¹ and capacities.²² The designated national and regional management structures will have to be driven by long-term plans with cross-sectoral networking platforms integrating the social, environmental and economic elements of sustainable ocean resources management. ■

¹¹ Barbados Coastal Zones Management Unit is available at: <http://www.coastal.gov.bb/>

¹² Barbados Ministry of Maritime Affairs and the Blue Economy: See web site at: <https://www.gov.bb/Ministries/maritime-affairs-blue-economy>

¹³ Integrated Coastal Zone Management (ICZM) Inter-Ministerial Committee of Trinidad and Tobago was established in 2018. The ICZM Policy Framework seeks to facilitate an integrated approach to coastal zone management aimed at maintaining and where necessary, enhancing the functional integrity of the systems while enabling sustainable, economic development through rational, inclusive decision-making and planning. Further details can be found at <http://www.iczm.gov.tt/>

¹⁴ This will also include for capacity and skills requirements

¹⁵ United Nations, available at <https://unstats.un.org/sdgs/report/2019/goal-14/>, cited February 9, 2020.

¹⁶ The SAMOA Pathway (paragraph 58) provides a priority list for sustainable ocean and sea management. The SDG #14 of the 2030 Agenda, is dedicated to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”. The UN high-level meeting to review the progress made in addressing the SAMOA Pathway (UNGA 74) calls for strengthening of national and regional statistical systems and capacity to effectively monitor and evaluate the implementation of the SAMOA Pathway and the 2030 Agendas. available at: <https://sustainabledevelopment.un.org/sids2014/samoapathway>

¹⁷ Fanning, L., Mahon R., Implementing the Ocean SDG in the Wider Caribbean: state of play and possible ways forward, IASS, IDDRI, TMG, 2017 pp 24

¹⁸ For example Caribbean Community (CARICOM), Organisation of Eastern Caribbean States (OECS), Association of Caribbean States (ACS) and the Central America Integration System (SICA)

¹⁹ These can include for example SIDS-SIDS, North-south, South-south and public-private partnerships

²⁰ CLME+SAP, As of February 2019, the CLME+ SAP has been politically endorsed by: Antigua & Barbuda, Bahamas, Barbados, Belize, Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, France (with its 5 overseas territories of Guadeloupe, Martinique, Saint-Barthélemy, Saint Martin and French Guiana in the CLME+ region), Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Montserrat (UK overseas territory), Nicaragua, Panama, St. Kitts & Nevis, Saint Lucia, St. Vincent & the Grenadines, Suriname, Trinidad and Tobago, the United States of America. 8 UNDP/GEF CLME+ Project: , available at: <https://clmeplus.org/>

²¹ Ocean literacy is about increasing the awareness of all stakeholders, users, citizens to be responsible and have informed behaviour towards the ocean and its resources see site at: <https://oceanliteracy.unesco.org/>

²² This will also facilitate participatory involvement of indigenous, vulnerable and marginalized communities. and gainful employment across wider career fields



OCEANS AND DISASTERS - THE CASE OF HURRICANE DORIAN IN THE BAHAMAS

Luciana Fontes de Meira *

The Caribbean Sea's ecosystems and natural resources are essential assets for the subregion's countries and territories. Although the area represents just 1 per cent of the global ocean, it is estimated to have generated revenues of US \$407 billion in the last official measurement in 2012.¹

In this article we will use the example of the Commonwealth of The Bahamas to demonstrate how the impacts of hurricanes may put this valuable resource at risk. For this, we will analyze the impacts and effects of Hurricane Dorian on sectors highly dependent on natural ocean resources: tourism, fisheries and maritime transportation. Finally, we will analyze the effects of this hurricane on marine ecosystems and present selected recommendations on how The Bahamas can build more resilient coastlines.

The economic, social and cultural identities of The Bahamas are closely related to ocean resources. With its more than 762 islands and cays and a territory of 13,943 km², roughly 80 per cent of the country's landmass is within 5 ft (1.5 m) of mean sea level and its coastal areas hold the majority of the population and economic activity.² The archipelago is also particularly vulnerable to climate change³ and the yearly wrath of Atlantic hurricanes and tropical storms. In the last decades, since 1990, the Bahamas has suffered the impact of 34 hurricanes and tropical storms,⁴ which represents more than one annual occurrence on average. Over the past 5 years, ECLAC completed

damage and losses assessments in The Bahamas following Hurricanes Joaquin, Matthew, Irma and Maria. The results presented in this article are based on the findings from its latest assessment of Hurricane Dorian.

HURRICANE DORIAN AND ITS IMPACTS ON NATURAL OCEAN RESOURCES

Hurricane Dorian made landfall on the Abaco islands in the Bahamas on 1 September 2019, with winds of 185 mph (280 km/h) and a storm surge of 20 to 25 ft (6.1 to 7.6 meters). On 2 September, the eye of Dorian moved across the eastern side of Grand Bahama and stalled over the island causing extensive damage due to high winds and storm surges.

The assessed total costs of the event was US \$3.4 billion, or the equivalent of the US losing the combined economic outputs of California, Texas and Florida.⁵ The human losses were also significant with 67 confirmed deaths and 282 persons reported missing as of 18 October 2019. In total, an estimate of 29,472 persons were affected by the hurricane through damages to their homes and assets.

Analyzing the selected economic effects of hurricanes on ocean resources in Small Island Developing states (SIDS), such as The Bahamas, offers a unique perspective of the severe long-term impacts that the destruction of those resources might have. Regarding tourism, for example, the proximity to the sea is the key attraction for hotels, resorts and other providers of tourist services. However, it also makes their equipment and infrastructure particularly vulnerable to the impacts of waves, storm surges and saltwater corrosion. In the case of Hurricane Dorian, the hotel establishments located on the coastline suffered the greatest structural damages. For them, the greatest impacts occurred during the high season, as the reduction of room capacity and damage to recreational infrastructure caused a decline in the tourist flows and severe losses to employment and the local economy. The resulting losses were aggravated by the fact that many businessmen in the sector, especially small entrepreneurs, were not insured or were underinsured, which led to further obstacles to recovery and longer reconstruction periods. The total damage in the tourist sector was estimated at US \$530 million, while losses due to

* Luciana Fontes de Meira is an Environmental Affairs Officer in the Sustainable Development and Disaster Unit of the Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean in Port of Spain, Trinidad and Tobago.

¹ Patil, P.G., Virdin, J., Diez, S.M., Roberts, J., Singh, A. (2016). *Toward A Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview*. The World Bank, Washington D.C.

² Bello, O. Camarinhas, C. Fontes de Meira, L (2019). In (ECLAC), *Planning for sustainable territorial development in Latin America and the Caribbean (LC/CRP.17/3)*, Santiago, 2019.

³ See IPCC Special Report on the Ocean and Cryosphere in a Changing Climate, available at: <https://www.ipcc.ch/srocc/>

⁴ The following list contains the years and names of hurricanes that have affected the Bahamas: 1990 (Hurricane Klaus), 1991 (Tropical Storm Fabian), 1992 (Hurricane Andrew), 1995 (Hurricane Erin), 1996 (Hurricane Bertha and Lili), 1998 (Hurricanes Georges and Inez), 1999 (Hurricanes Dennis and Floyd, and tropical storms Harvey and Irene), 2001 (Hurricane Michelle), 2004 (Hurricanes Frances and Jeanne), 2005 (Hurricanes Katrina, Rita and Wilma), 2007 (Hurricane Noel), 2008 (Hurricane Hanna and Ike, and Tropical Storm Fay), 2011 (Hurricane Irene), 2012 (Hurricane Sandy), 2014 (Hurricane Arthur), 2015 (Hurricanes Joaquin and Kate), 2016 (Tropical Storm Bonnie, Hurricanes Hermine and Matthew), 2017 (Hurricanes Irma, Maria and Jose), 2019 (Dorian).

⁵ IDB (2019). *Damages and other impacts on Bahamas by Hurricane Dorian estimated at \$3.4 billion*: report. IDB News. Available at: <https://www.iadb.org/en/damages-and-other-impacts-bahamas-hurricane-dorian-estimated-34-billion-report>

disruption of tourist flows in two major Bahamian destinations, amounted to US \$325 million. The additional costs were estimated to surpass US \$15 million considering demolition costs, debris removal and salvaging sunken boats.⁶

In island economies the fisheries sector represents a significant portion of food production. Small-scale fisheries account for more than 95 per cent of fisheries in CARICOM,⁷ and are vital for food security and employment globally, particularly in rural and remote areas where alternative employment is lacking.⁸ Dorian, like other hurricanes, caused widespread damage that directly and indirectly affected this activity. Furthermore, fishing is an important source of employment, and one of the major resources for exports, as well as a fundamental source of food for both the local population and the tourists. The impact of Hurricane Dorian on the fisheries sector of Abaco and Grand Bahama was significant and generalized. Every fishing processing facility was affected, either by wind damage or storm surge. The total damage to fisheries was US \$11 million, while the estimated losses amounted to US \$7 million.

Another aspect worth mentioning is the effect that hurricanes have on maritime transport infrastructure and port facilities, which are central to supply and transport chains in the Caribbean. These structures tend to be particularly vulnerable to tidal waves due to their coastal location. Unsuitable construction design, poor maintenance and use of inadequate building materials across the subregion exacerbate their weaknesses. Private marinas, important for tourism and recreational activities, also face similar problems as they are often designed with fragile and inadequate building materials. In The Bahamas, ports are essential for tourism, and the supply of

food, beverages, construction materials and merchandise, to the islands of the archipelago and to many other countries. They are also important for post-disaster emergency operations when flying conditions are not ideal. Hurricane Dorian severely damaged Marsh Harbour Government Port and caused minor complications to Freetown Port. Marsh Harbour port remained inoperative for nearly two months after the hurricane and will require major investment to be rebuilt. The estimated damage to ports was US \$2.2 million. Securing fast operability of these structures, considering resilience measures, will be essential to guarantee the normalization of tourist and commercial activities in The Bahamas.

Hurricane impacts to coastal and marine ecosystems are expected not only to cause changes in biodiversity, disappearance of habitats, and displacement of species, but also to affect Bahamians who depend on healthy ecosystems to maintain their livelihoods. Environmental effects are hard to measure economically, but baseline studies offer an indication of the enormous value of potentially impacted natural resources. Ecosystems within the existing marine protected areas (MPA) network in The Bahamas are valued at more than US \$23.5 million annually as nursery habitats for spiny lobster. Mangroves and seagrass within the MPA network also store 400 million tons of carbon, worth US \$5 billion in avoided emissions globally. Coral reefs dissipate wave and storm surge, help to filter water and assimilate CO₂, and are also one of the main local attractions. In addition, ecosystems in the network reduce the risk of coastal hazards to nearly 40,000 people living along the coastline throughout the country, saving US \$806 million in annual income by reducing damage from storm events.⁹

Moreover, Hurricane Dorian caused serious mangrove and seagrass damage on both Abaco and Grand Bahama. Over 28,000 hectares covered by dense and sparse mangroves experienced hurricane force winds. Submerged aquatic vegetation (SAV) can also be damaged by intense wave energy, and by significant sediment deposits after hurricanes. Based on satellite imagery and the hurricane path, the area of seagrass impacted by hurricane force wind was estimated to be over 452,000 hectares. Typically, damage to SAV will result in reduced catch of lobster and conch in the upcoming years, since larvae of these species depend on SAV for a nursery habitat. Preliminary reports also suggested moderate to extensive damage to coral reef and coral nurseries.

The full effects of Hurricane Dorian on these ecosystems will require further and more detailed analysis over time, but it is important to attempt to estimate costs due to the significant contribution of ecosystem services to the Bahamian economy and to further pursue the development of a baseline that quantifies the economic importance of such resources. Moreover, the recovery of ecosystems is a fundamental component of protection against future hazards and dissipation of disaster effects.

► (continued on page 11)

⁶ ECLAC & IDB (2019). Assessment of the Effects and Impacts of Hurricane Dorian in the Bahamas.

⁷ CRFM (Caribbean Regional Fisheries Mechanism) (2016). CRFM Statistics and Information Report – 2016: http://www.crfm.int/images/CRFM_Statistics_Information_Report_2016_Final.pdf

⁸ FAO. 2018. The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Rome.

⁹ Arkema, K., D. Fisher, K. Wyatt. 2017. Economic valuation of ecosystem services in Bahamian marine protected areas. Prepared for BREEF by The Natural Capital Project, Stanford University.



SARGASSUM IN THE CARIBBEAN – NEW CHALLENGES AND OPPORTUNITIES

Willard Phillips*

Although sargassum seaweed (*Sargassum* species) is not new to the Caribbean, since 2011, there has been a significant and dramatic increase of this algae in the Caribbean Sea and Gulf of Mexico. This alga manifests itself as large blooms which have been washing up on coastal areas of the region in increasing quantities. It has been seen in coastal areas from as far as Texas in the western Gulf Coast of the United States, through the Caribbean coastal regions of Central and South America and throughout the chain of Caribbean islands, as far south as Trinidad and Tobago.

The problem assumed overwhelming proportions in 2018, when according to Wang et al. (2018),¹ more than 20 million tonnes of wet biomass of sargassum was estimated to have been formed in the greater Atlantic by June of that year. But unusually large algal blooms were also recorded for 2014 and 2016. This article discusses some of the potential challenges and opportunities which have become apparent with the recent emergence of this phenomenon in the Caribbean.

Among the main causes suggested for this sudden change in sargassum are the increased concentration of municipal and toxic wastes in the greater Atlantic Ocean, increased sea water surface temperatures, and related intensification of the Atlantic basin ocean current circulation due to climate change. These factors are believed to be the main drivers of both the intensity and distribution of sargassum in the Caribbean region in recent years. Indeed, Wang et al. attribute them to the formation of the Great Atlantic Sargassum Belt as shown in Figure 1. Given the ecological and ocean dynamics which have so far driven the movement of sargassum in the Caribbean, beaching of the alga has occurred mainly on the eastern and southern coasts of the countries.

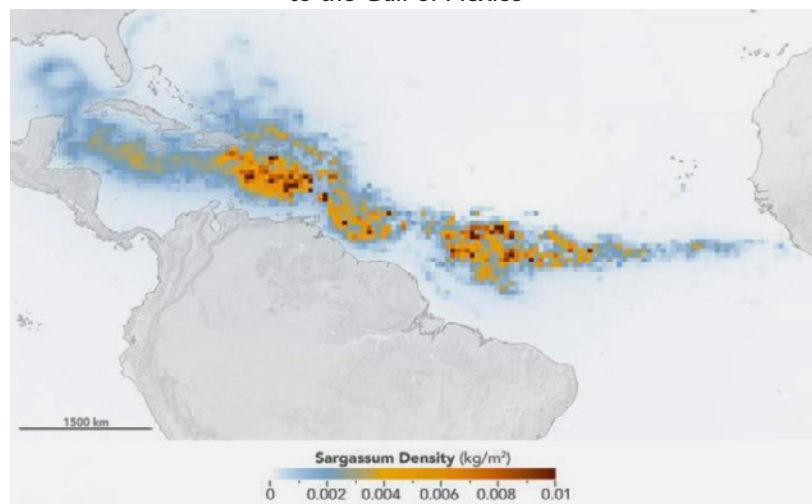
The arrival of sargassum to Caribbean

coasts has resulted in significant disruptions of economic and social life in the affected areas, and has had serious impacts on the ecological equilibrium of coastal regions. These include the despoiling of beaches due to large volumes of unsightly and foul-smelling decaying algae, with related effects on tourists and locals; public health impacts on coastal communities due to the production of noxious gases from decaying seaweed which in turn affects ambient air quality; physical damage to housing and household appliances from corrosive gasses; increased operational inconveniences for fishers and divers; and, in some cases, the overwhelming of sea-turtle nesting sites, whose reproduction is thus considerably affected.

Further possible effects such as the bioaccumulation by sargassum of heavy metals and other organic and inorganic substances have also been noted. These make the alga a potentially significant source of toxic materials which can enter into the food chain and may be deposited into terrestrial eco-systems. Given the ecological and ocean dynamics which have so far driven the movement of sargassum in the Caribbean, beaching of the alga has occurred mainly on the eastern and southern coasts of the countries (Figure 2).

In order to obtain a better understanding of the nature of the sargassum phenomenon in the Caribbean, ECLAC recently completed a scoping

Figure 1: Great Atlantic Sargassum Belt stretching from West Africa to the Gulf of Mexico



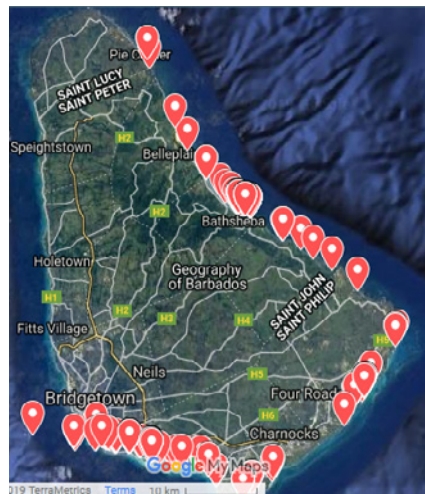
Source: NASA; Data provided by Wang et al, 2018.

* Willard Phillips is an Economic Affairs Officer in the Sustainable Development and Disaster Unit of the Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean in Port of Spain, Trinidad and Tobago.

¹ Mengqiu Wang, Chuanmin Hu, Brian B. Barnes, Gary Mitchum, Brian Lapointe, Joseph P. Montoya (2019) "The Great Atlantic Sargassum Belt", *Journal of Marine Ecology*, Vol. 365, Issue 6448.

assessment in four Caribbean countries, these being Barbados, Guadeloupe,² Saint Lucia, and Trinidad and Tobago. While this assessment revealed a number of common impacts and responses to the sargassum ingress, it also pointed to specific efforts to convert this challenge into a viable development opportunity.

Figure 2: Main Locations of Sargassum Ingress in Barbados Since 2011



Source: Sargassum Monitoring, 2019

POTENTIAL EFFECTS OF SARGASSUM

A peculiar characteristic of sargassum is its apparently benign nature, due to the slow onset of its effects. It nevertheless significantly impacts several economic and social sectors which to date appear to be:³ 1) Tourism; 2) Fisheries; 3) Health; 4) Housing; and 5) Transportation. It also impacts coastal ecosystems such as coral reefs, sea-grass beds and mangroves.

In the Caribbean, given that most tourism facilities are on the coast, this sector is considered to be possibly the highest potential loser from the ingress of the seaweed. Where it comes ashore, the alga despoils beaches, which are main attractions for Caribbean visitors and could therefore negatively affect the subregion's tourism brand (Figure 3). Further, coastal recreational services such as snorkeling, diving, and sailing may be impaired by sargassum when it is off the

coast. Tourism businesses such as hotels and restaurants may also incur losses due to cancellations or price reductions, and additional expenses for cleanup and removal of sargassum from beaches, as well as the mitigation of toxic fumes which arise from the decay of algae on the beach. Another source of additional costs is the provision of 'compensation services' to guests either in the form of shuttles to other beaches, or other incentives to assuage the disappointment of arriving clients. Ultimately, the effect of sargassum is reflected in either cancellation or curtailment of planned visits, or deferment of future visits.

With respect to the fishing sector, impacts include impeding the movement of fishing and other vessels (Figure 4), damage to boats and fishing gear entanglements, lost fishing days, increased cost of fishing including fuel and time, and the possible need for relocation of landing sites when sargassum is encountered offshore.

It also reduces the catch of key fisheries species such as flying fish and adult dolphinfish, thereby changing the availability and distribution of coastal and pelagic fisheries resources.⁴ The level of fishing effort may also be reduced when beached seaweed prevents the launching

of boats on fishing expeditions. Another indirect impact of sargassum is the sinking of fishing gears at sea and the resulting long-term ecological damage for example with ghost nets. In the Caribbean region, these effects on the fishing sector will also affect the socio-economic status of coastal communities.⁵

Figure 4: Sargassum at Praslin Bay - East Coast Saint Lucia, 2018



Source: Sargassum Monitoring, 2019

Figure 3: Sargassum at Bottom Bay on Barbados' Windward Coast, 2018



Source: Sargassum Monitoring, 2019

Health effects of sargassum relate to impacts from human contact with the seaweed when it comes ashore, as well as other impacts over time. For example, beached sargassum generates significant quantities of noxious and toxic gasses upon decay. This in turn affects the ambient air quality of coastal areas thus triggering major ecological and human health concerns such as respiratory problems, eye irritations, and skin rashes among others. The foul smell of rotting sargassum is also a real occupational discomfort for workers in hotels and related businesses on the coast, and is considered to be a factor in reducing labor productivity in these establishments.

▶ (continued on page 10)

² Region Guadeloupe is a Department of France, and not an independent sovereign state.

³ Note that given the slow on-set nature of impacts, researchers continue to identify unanticipated impacts of Sargassum over time. The above listing is therefore not likely to be exhaustive.

⁴ Caribbean Regional Fisheries Forum, available at http://www.crfm.int/index.php?option=com_k2&view=item&id=624:after-record-Sargassum-influx-crfm-initiates-fact-finding-study-in-caricom-states-with-support-from-japan&Itemid=179 (cited Dec 4, 2019)

⁵ Report on the Relationships between Sargassum Events, Oceanic Variables, and Dolphinfish and Flyingfish Fisheries, H. A. Oxenford et. al (2019), Available at: https://www.cavehill.uwi.edu/cermes/projects/sargassum/docs/cc4fish/d30_cc4fish_report_on_the_relationships_between_sa.aspx

SARGASSUM IN THE CARIBBEAN – NEW CHALLENGES AND OPPORTUNITIES (CONTINUED)

The corrosive gasses also affect building structures as evidenced by effects on housing and other buildings in coastal areas. Moreover, these gases have been reported to corrode roofing and ceiling structures, doors and window frames, as well as the mechanical and electrical components of home appliances such as refrigerators, air-conditioners, stoves, televisions and computers. Tarnishing of lighting and plumbing fixtures, jewelry and other ornaments has also been reported. Accounts by affected residents suggest that this damage is widespread, significant and recurrent during the ‘sargassum seasons’ in the Caribbean.

Finally, although general transportation has not been widely affected, the presence of large sargassum rafts off the coasts of Caribbean islands has also affected maritime transportation, all be it to a limited degree. This has been the case especially for multi-island states, or states which operate regular passenger ferry services. Impacts have so far been mainly the delay of departures from passenger ports where sailing channels may be temporarily blocked by seaweed masses driven by ocean currents. More spectacular impacts have also been observed in cases where a deluge of sargassum into port areas has completely obstructed the movement of vessels for several days (Figure 5). All of these occurrences result in inconveniences, delays, lost productivity and ultimately economic costs.

RESPONSE AND MITIGATION STRATEGIES

Since the arrival of sargassum to the Caribbean, several mitigation strategies have been employed in order to manage and diminish its impacts on the economy and society.

These mitigation strategies represent,

Figure 5: Sargassum Ingres at Embarcadère de La Désirade, Region Guadeloupe, 2018



Source: Sargassum Monitoring, 2019

however, additional costs. For many countries, much effort has been applied either in the physical removal of the algae from beaches, or in burial in situ. Given that most sargassum strandings have occurred in the eastern and southern coasts of islands, this approach has resulted in increased management expenses at either state or municipal levels for the clean-up of the algae. State level initiatives such as public education, and the development of national sargassum management plans and protocols have also been undertaken.

Efforts at the level of the private sector have also been made, with local hotel and restaurant sectors incurring the costs of shuttling guests to other unaffected beaches or providing special incentives to mitigate their discomfort or disappointment. Some hotels have also undertaken the installation of physical barriers at significant costs, in order to prevent the accumulation of the seaweed on beaches adjoining their properties (Figure 6).

OPPORTUNITIES

Notwithstanding the obvious challenges which are apparent from sargassum in the Caribbean, several research initiatives have been undertaken to assess the potential use of sargassum in commercial operations. Moreover,

a number of new service offerings have sprung up to support both management and research towards the commercialization of this algae. Some of these efforts were on display at the SargExpo, which was convened as part of the International Conference on Sargassum held in Guadeloupe in 2019.

Among the projects on display were applications of sargassum in the production of fertilizers and other soil ameliorants, production of packaging materials, and applications in pharmaceuticals and food processing. Adaptations of marine technology for use in the physical harvesting of the seaweed as well as services in coastal surveillance for forecasting potential landings of the algae were also demonstrated. Finally, air-quality monitoring services for protecting health of coastal communities were also on offer.

Commercialization efforts have already begun to bear fruit, as evidenced by the achievements of Algas Organics – a

Figure 6: Retention Boom for Controlling Beaching of Sargassum, Saint Lucia, 2018



Source: Willard Phillips, 2019

Saint Lucian indigenous agriculture biotechnology company which has successfully utilized sargassum seaweed in the production of crop fertilizers and natural pesticides. Since 2015, the company is reported to have processed to date more than 2 million pounds of seaweed, with projected revenues of US \$750,000 by 2020.⁶ Similar efforts are also underway in other Caribbean countries.

CONCLUSIONS

It is clear that Sargassum presents an important challenge to the economies of the Caribbean, given that it has the potential to disrupt ecosystems, tourism, fishing and other recreational activities of the subregion.

Moreover, its treatment, handling and disposal, can increase the operational costs of providing tourism services in the Caribbean, and affect the health of coastal

communities. On the assumption that this relatively new phenomenon will continue to affect the subregion over the medium to long term, Caribbean countries should continue to be proactive in determining optimum strategies for dealing with this challenge. ■

► (continued from page 7)

OCEANS AND DISASTERS - THE CASE OF HURRICANE DORIAN IN THE BAHAMAS (CONTINUED)

CONCLUSION

The economic, social and environmental dependence of SIDS on their marine resources and ocean spaces is more complex when compared to continental countries. With the frequent and more intense hydroclimatic events, many SIDS are already facing the challenges of relocation of coastal populations, how to make better use of their often-limited space and how to build resilient infrastructures capable of surviving wind, storm surges, and wave action.

In multi-island states, such as The Bahamas, the characteristics of the territory and the dispersed nature of the population poses further challenges for planning and recovery.

Planning and budgeting that considers exposure and threats of natural and anthropogenic hazards and potential

impacts of climate change needs to be accompanied by legislation, better structural design of buildings and maintenance practices, and should encourage the regular inspection and control of construction processes. Although comprehensive coverage for disaster risk remains a challenge in many countries, it is also fundamental to secure funds to invest in resilient infrastructure projects and guarantee reconstruction does not repeat the same pre-existing weaknesses. Promoting awareness of the need for financial preparedness to manage disaster risk and clear allocation of responsibilities can be an initial step. It is important, for example, to promote insurance for households and small business to guarantee a faster recovery and foster public-private partnerships for resilience projects.¹⁰ For restoration of coastal and marine ecosystems, assessment

of existing resources and cost-benefit analysis of investing in full restoration of the affected areas, should be included in budgetary planning and allocations. Further, legislation, enforcement, research, analysis, monitoring and reporting activities are recommended to track the progress of ecosystem recovery in the short, medium and long-term. A nature-based adaptation management approach is necessary to maintain the integrity of the Caribbean coastal and marine ecosystems, contribute to Climate Change mitigation and reduce the risks and impacts of extreme hydroclimatic events. This multi-layered institutionalized approach combining different ministries such as Tourism, Environment, Planning and Finance will then better guide decision makers in land use planning and post-disaster reconstructions. ■

⁶ See: <https://www.stlucianewsonline.com/forbes-features-st-lucian-ceo-of-biotech-company-on-its-30-under-30-2020-list/>

¹⁰ National DRM funds, parametric insurance and contingent lines of credit offered by traditional bilateral and multilateral agencies are among the mechanisms available to increase ex and postante financial protection.



UNDERWATER CULTURAL HERITAGE IN CARIBBEAN SIDS

Elizabeth Thorne *

This article will highlight and bring to the fore Underwater Cultural Heritage (UCH) and its potential to contribute to the sustainable development of Small Islands Developing States. Small island developing Caribbean states (SIDS) are intrinsically linked to cultural practices and traditions which make the region unique, and which lure tourists in great number to Caribbean shores for the diverse, rich cultural experience. As island states, the relationship of the citizens with the ocean is distinct. Indeed, the nexus of culture, knowledge creation and the natural environment is crucial to advancing sustainable development and encouraging social cohesiveness.¹

Culture is a common thread negotiated across all of the SIDS conventions, thereby demonstrating its importance to these countries. Although the Sustainable Development Goals (SDGs) have recognised the importance of cultural and natural heritage under Goal 11 (target 11.4), and the conservation and sustainable use of the ocean and its resources is emphasised in Goal 14 (target 14.c), the SIDS-specific conventions address Culture and UCH more specifically.

Embedded in the very first SIDS convention, the Global Convention on the sustainable development of SIDS, was a call for “the adoption of measures to protect the cultural integrity of SIDS”.² This was further endorsed in the Mauritius Strategy for the Further Implementation (MSI) of the Programme of Action for the sustainable development of SIDS, which recognized the importance of cultural identity of people to the advancement of sustainable development. The MSI also acknowledged the need to develop cultural industries and initiatives in order to realize economic benefits at both the national and regional levels.³ This instrument impressed upon States the importance of developing and implementing national cultural policies and legislative frameworks to support this industry. Although no direct reference

made to UCH is made in the Mauritius Strategy, the MSI does emphasize necessary measures to protect the natural, tangible and intangible cultural heritage in SIDS. Conversely, the SIDS Accelerated Modalities of Action (SAMOA) Pathway acknowledged that SIDS have large maritime areas and have shown notable leadership in efforts to develop and implement strategies for the conservation and sustainable use of these areas and resources.

The efficiency with which some Caribbean States have advanced the process of establishing legislative foundations to sort through UCH is an example of this leadership. These countries include the Bahamas, Turks and Caicos Islands, Cuba, Cayman Islands, Jamaica, The Dominican Republic, Saint Kitts and Nevis and Barbados . The SAMOA Pathway also recommends support for SIDS to conserve their valuable underwater cultural heritage.⁴ Furthermore, it encourages States to become party to the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage.

UNDERWATER CULTURAL HERITAGE – THE SIDS CONTEXT

Within recent years the interest in UCH has been increasing. The untold and

unfinished historical stories evidenced by physical forms that lie submerged in the watery environment are snapshots to be pieced together and can provide valuable information of humanity’s existence and even guide its future.

But what constitutes underwater cultural heritage? According to the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage⁵ it is: all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously for at least 100 years such as:

- i. Sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context
- ii. Vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural context
- iii. Objects of prehistoric character

The Convention provides a roadmap for States to address UCH as part of the sustainable development narrative, in order to ensure that present and future generations are able to benefit from the knowledge and experience gained through their interaction with the past.

* Elizabeth Thorne is an Economic Affairs Assistant in the Sustainable Development and Disaster Unit of the Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean in Port of Spain, Trinidad and Tobago.

¹ United Nations (2014) The SIDS Accelerated Modalities Of Action (S.A.M.O.A)

² United Nations General Assembly (1994). Global Conference on the Sustainable Development of Small Island Developing States

³ United Nations (2005): Mauritius Strategy of Implementation

⁴ United Nations (2014) The SIDS Accelerated Modalities Of Action (S.A.M.O.A)

⁵ United Nations Educational, Scientific and Cultural Organization (2001). The UNESCO Convention on the Protection of the Underwater Cultural Heritage

It will afford to the peoples of the Caribbean the knowledge, pride and ownership of its history.

The Caribbean has a rich UCH,⁶ with underestimated and possibly untapped economic opportunities, varying from abandoned shipwrecks,⁷ slave ships,⁸ historical anchorages,⁹ archaeological sites,¹⁰ Taino artefacts,¹¹ and other artefacts.¹² Consequently, many Caribbean countries have been proactive in creating an enabling environment that can lead to the preservation, conservation and responsible use of such sites for cultural awareness and education in order to guide the governance of the ocean space. For instance, the Convention's primary recommendation for UCH is in situ preservation, opening opportunities for underwater museums. Ten (10) Caribbean countries are currently party to the convention.¹³

CARIBBEAN UCH INITIATIVES

While several Caribbean countries have given consideration to strategies for utilizing their UCH, initiatives in Cayman Islands, Jamaica, Saint Kitts and Nevis and Trinidad and Tobago provide sound evidence of what might be possible for Caribbean SIDS.

Cayman Islands

This country has made efforts to strengthen its legislation, conducted surveys, inventories and developed a database, all of which are instruments of protection. It is critical to know the extent of the resource base to develop

Figure 1: Cayman Islands Maritime Heritage Trail



Source: World Heritage Status, 2019

adequate management and protection strategies. The Cayman Islands have also created a Maritime Heritage Trail, the first of its kind in the region, in partnership with the Museum, Department of the Environment, Archive and Trust. This facility "promotes the maritime legacy, combining heritage, education and recreational tourism",¹⁴ providing the opportunity to build capacity, instilling national pride among its citizens and simultaneously boosting the local economy.

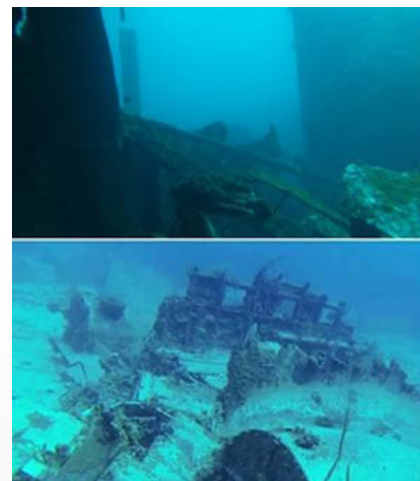
Jamaica

The sunken city of Port Royal is a story of great intrigue. The city, an economic hub teeming with activity was literally rocked by a devastating earthquake on 7 June 1692. The city sank within moments in the aftermath of the disaster, forever etched into history as a "catastrophic" site, a unique classification that places it alongside historical cities such as Pompeii and Herculaneum, in Italy, and Ozette in Washington. The city was preserved in situ because of the circumstances of the event, it is largely undisturbed, frozen

in time, and is of great historical and archaeological value. Part of the local folklore suggested, for example, that on a clear day, if you listened carefully you could hear the solemn tolling of the bell in the sunken cathedral.

Indeed, Jamaica's efforts are on-going as evidenced by the commissioning of its Seawalk Floating Pier, and Cruiseship terminal at Port Royal in January 2020. This major capital investment is intended to provide visitors with a modern-day experience of the sunken heritage, while at the same time mitigating the physical impact of ships berthing in this pristine marine area.

Figure 2: The Sunken City of Port Royal, Jamaica



Source: World Heritage Status, 2019

► (continued on page 14)

⁶ Some of the countries identified as having rich UCH include Anguilla, Bahamas, Barbados, Bermuda, Cayman Islands, Cuba, Dominica, Dominican Republic, the Dutch Islands, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Puerto Rico, Saint Martin, Saint Vincent and the Grenadines, Trinidad and Tobago and Turks and Caicos.

⁷ Bahamas, Turks and Caicos, Haiti, Cayman Islands, Dominican Republic, Saint Kitts Nevis, Martinique, Guadeloupe, Saint Martin, The Dutch Islands, Dominica, Saint Vincent and the Grenadines, Barbados, Grenada and Trinidad and Tobago.

⁸ Turks and Caicos

⁹ Martinique, Guadeloupe and Saint Martin

¹⁰ The Dutch Islands

¹¹ Dominican Republic

¹² Lucayan Paddle, Turks and Caicos

¹³ Caribbean SIDS that are party to this Convention include: Antigua and Barbuda, Barbados, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago

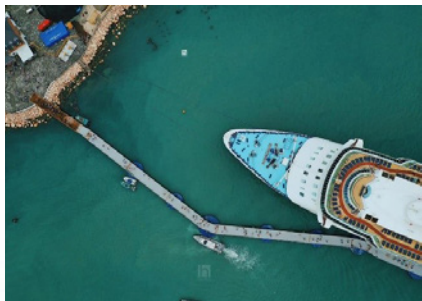
¹⁴ ICOMOS International Councils on Monuments and Sites (2006). Underwater Cultural heritage at Risk: Managing natural and human impacts. Foundations in Management of Maritime Cultural Heritage in the Cayman Islands

UNDERWATER CULTURAL HERITAGE IN CARIBBEAN SIDS (CONTINUED)

Saint Kitts and Nevis

In 2016, in response to an attempted sale of a cannon, part of this country's underwater cultural heritage, on eBay,¹⁵ the Department of Maritime Affairs of the Government of Saint Kitts and Nevis led the development of a legal framework which would guard against such activities in the future. Saint Kitts and Nevis, while protecting its UCH, is also exploring the development of educational and tourism opportunities particularly with respect to the expansion of its dive industry. The country is also pursuing the identification of the sunken Christena vessel as an official UCH site and taking steps to protect the wreck from further deterioration.¹⁶

Figure 3: Seawalk Floating Pier, Jamaica

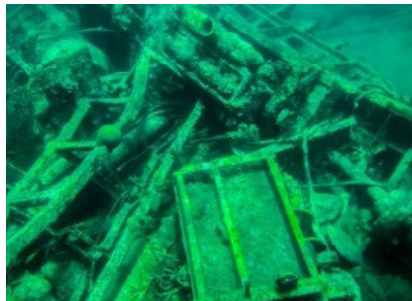


Source: Port Authority of Jamaica

Trinidad and Tobago

Trinidad and Tobago has also sought to obtain benefits from UCH, particularly through the efforts of Tobago which has a rich history of maritime engagement and adventurism. For instance, the island has been able to use its undersea heritage as a backdrop in the creation of a path-breaking docudrama, entitled 'Tobago 1677',¹⁷ which chronicles one of several

Figure 4: Underwater heritage of Saint Kitts and Nevis



Source: Caribbean Times

maritime battles fought off the island's coasts over its turbulent colonial past. This effort also served to identify and catalogue the extensive range of marine archaeological artefacts of roughly 20 shipwrecks which still lie on the sea-floor off the island's capital of Scarborough.

Additionally, physical presentation of some of Tobago's marine artefacts have already begun under the Rockley Bay Research Project¹⁸ commissioned by the Tobago House of Assembly, the island's municipal government.

CONCLUSION

Taking into context the geography and common history of the Caribbean Sea, Caribbean countries have a competitive advantage in developing a regional position on the protection, conservation and marketing of UCH.

This regional approach should seek to address the development of UCH in advancing the Caribbean SIDS sustainable development trajectories and at the same time, control such

irreversible threats as pillage, commercial exploitation, irresponsible diving, trawling and resource extraction. This approach would call for legislation, data generation, policy support, science, technology, protection and conservation initiatives,¹⁹ education, skills and capacity development and awareness raising. Countries should also be encouraged to ratify the UCH Convention as this will facilitate the identification, research and protection of UCH through agreed and accepted rules and standards. ■

¹⁵ Saint Kitts Nevis ratified the UNESCO Convention on the Protection of the Underwater Cultural Heritage in 2009

¹⁶ UNESCO Focuses on Protection of the Underwater Cultural Heritage July 2014 <https://www.sknvibes.com/news/newsdetails.cfm/88307>

¹⁷ See: <https://repeatingislands.com/2011/03/29/tobago-1677-film-brings-tobago%E2%80%99s-history-to-life/>

¹⁸ See: <https://tobagoshipwrecks.com/#!/C/3>

¹⁹ United Nations Educational, Scientific and Cultural Organization (2001). The UNESCO Convention on the Protection of the Underwater Cultural Heritage

Table I. Caribbean SIDS membership in global and regional marine agreements relevant to the WRC¹

Caribbean SIDS ²	Global and Caribbean Regional Ocean Related Agreements (Selected)															
	UNCLOS ³	UNFCCC ⁴	UN CDB ⁵	NAGOYA PROTOCOL ⁶	FAO Compliance ⁷	MARPOL 73/78 ⁸					Cartagena Convention ⁹				CRFM ¹⁰	ESCAZU Agreement ¹¹
						Annex I/II	Annex III	Annex IV	Annex V	Annex VI Protocol	Convention	Oil Spill Protocol	LBS Protocol	SPAW Protocol		
Antigua and Barbuda	B	B	B	B	-	B	B	B	B	B	B	B	B	B	B	S/P
Bahamas	B	B	B	-	-	B	B	B	B	B	B	B	B	B	B	-
Barbados	B	B	B	-	B	B	B	B	B	B	B	B	-	B	B	-
Belize	B	B	B	-	B	B	B	B	B	B	B	B	B	B	B	-
Cuba	B	B	B	B	-	B	-	-	B	-	B	B	-	B	N	-
Dominica	B	B	B	-	-	B	B	-	B	-	B	B	-	-	B	-
Dominican Republic	B	B	B	B	-	B	B	B	B	-	B	B	B	B	N	S
Grenada	B	B	B	S	-	B	-	-	-	-	B	B	B	B	B	S
Guyana	B	B	B	B	-	B	B	B	B	B	B	B	B	B	B	S/P
Haiti	B	B	B	-	-	-	-	-	-	-	B	-	-	-	B	S
Jamaica	B	B	B	-	-	B	B	B	B	B	B	B	B	-	B	S
St. Kitts and Nevis	B	B	B	B	B	B	B	B	B	B	B	B	-	-	B	S/P
St. Lucia	B	B	B	-	B	B	B	B	B	-	B	B	B	B	B	S
St. Vincent and the Grenadines	B	B	B	-	-	B	B	B	B	B	B	B	-	B	B	S/P
Suriname	B	B	B	-	-	B	B	B	B	-	-	-	-	-	B	-
Trinidad and Tobago	B	B	B	-	-	B	B	B	B	B	B	B	B	B	B	-

B: binding agreement by ratification, accession, acceptance or adoption¹²
S: signatory; - : Not a Party ; S/P: Signatory and State Party (agreement not in force); N: country not eligible to join this agreement

¹ Note that there are other non-SIDS countries that are part of the WRC² For the Non-Un Members/Associate Members of the Economic Commission of America and the Caribbean: The legal obligations to agreements are usually considered as:

Netherlands Antilles including St. Maarten, Aruba, and Curacao,

United Kingdom Overseas Territories including Anguilla, Bermuda, British Virgin Islands, Cayman Islands and Turks and Caicos Islands.

France including Guadeloupe and Martinique,

United States of America territories: Puerto Rico and US Virgin Islands

³ United Nations Convention on the Law of the Sea, cited April 25, 2020 available at: https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm⁴ United Nations Framework Convention of Climate Change, Paris Agreement, cited April 25, 2020, available at United Nations Treaty Collection: treaties.un.org⁵ UN Convention Biodiversity, cited April 25, 2020, available at United Nations Treaty Collection: treaties.un.org⁶ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity: cited April 25, 2020, available at United Nations Treaty Collection: treaties.un.org⁷ Food and Agriculture Organisation (FAO) Compliance: Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, cited April 25, 2020, available at [fao.org/iuu-fishing/international-framework/fao-compliance-agreement/en](https://www.fao.org/iuu-fishing/international-framework/fao-compliance-agreement/en)⁸ International Convention for the Prevention of Pollution from Ships (MARPOL)International Convention for the Prevention of Pollution from Ships (MARPOL), cited April 26, 2020, available at: www.imo.org

Annex I: Regulation for the Prevention of Pollution of Oil

Annex II: Regulations for the Control of Noxious Liquid Substances in Bulk

Annex III: Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form

Annex IV: Prevention of Pollution by Sewage from Ships

Annex V: Prevention of Pollution by Garbage from ships

Annex VI: Prevention of Air Pollution from Ships

⁹ Cartagena Convention (and its Protocols), date cited April 25, 2020: cep.unep.org/Cartagena-convention¹⁰ Caribbean Regional Fisheries Mechanism, cited April 25, 2020, available at: [crfm.int](https://www.crfm.int)¹¹ Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú, Agreement), cited November 25, 2020 (this agreement is not yet in effect as of November 25, 2020)¹² See UN Treaty for definitions available at: <https://treaties.un.org/>



The Magazine of the Caribbean Development and Cooperation Committee
ECLAC Subregional Headquarters for the Caribbean

PO Box 1113, Port of Spain, Trinidad and Tobago

Tel: 868-224-8000

E-mail: eclac-spou-pos@eclac.org

vrb.al/eclaccaribbean