

ON AND OFFSHORE

The Newsletter of the Coastal Zone Management Unit

Volume 2, 2021

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BUILDING TSUNAMI AWARENESS THE CARIBBEAN TSUNAMI INFORMATION CENTRE (CTIC), BARBADOS

Alison Brome, CTIC Director

Why do we have a Caribbean centre for tsunamis? We do not have tsunamis in our region and definitely not in Barbados.

What is the Caribbean Tsunami Information Centre?

The Tsunami Unit of the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organisation (UNESCO/IOC) works with Member States across the globe, other UN agencies, partners and NGOs to build sustainable tsunami early warning systems in the Pacific, Indian Ocean, Caribbean and Adjacent Regions, and the North Eastern Atlantic, Mediterranean and Connected Seas. The Caribbean Tsunami Information Centre (CTIC) is a subsidiary organization of the UNESCO/IOC-led Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS).

The Government of Barbados hosted the first meeting of the ICG/CARIBE-EWS in 2006 and immediately commenced hosting of the Interim CTIC. Barbados also chaired the ICG for 4 years from 2008, and was subsequently the first chair of the ICG Tsunami Ready Task Team. Currently Barbados holds membership in various ICG/CARIBE-EWS Working Groups and Task Teams.

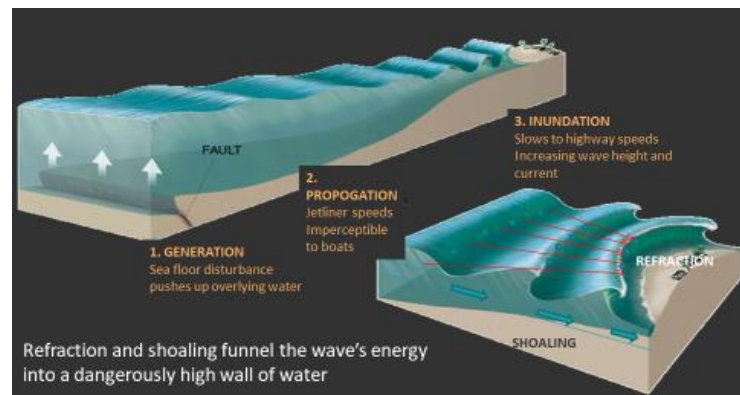
Where Is CTIC Located?

The fully established CTIC is located at the Coastal Zone Management Unit (CZMU), and has been hosted by the Government of Barbados in partnership with UNESCO/IOC since September 2013 through memoranda of understanding (www.ctic.ioc-unesco.org).

Tsunami Risk to Barbados, the Caribbean and Adjacent Regions

A tsunami is a series of waves caused by a major disturbance of a body of water. Tsunamis can be generated by a large coastal or underwater earthquake, landslide or volcanic eruption. Large meteorite impacts may also trigger a tsunami. All known sources capable of causing tsunamis are found within the Caribbean and its adjacent regions, and there is the risk from distant tsunamis across the Atlantic. Some countries are also exposed to tsunamis from the Pacific Ocean.

At least 75 tsunamis have impacted the Caribbean and adjacent regions over the last 500 years, with almost 20 tsunamis resulting in loss of life. In 1755, Barbados was impacted by a distant tsunami that travelled across the Atlantic Ocean from Lisbon, Portugal. Since 1842, an estimated 3000 deaths have been recorded in the region due to tsunamis. Based on this historical evidence, the Caribbean and adjacent regions can expect to experience approximately four destructive tsunamis per century.



Seismic Research Centre of the University of the West Indies,
St. Augustine, Trinidad and Tobago

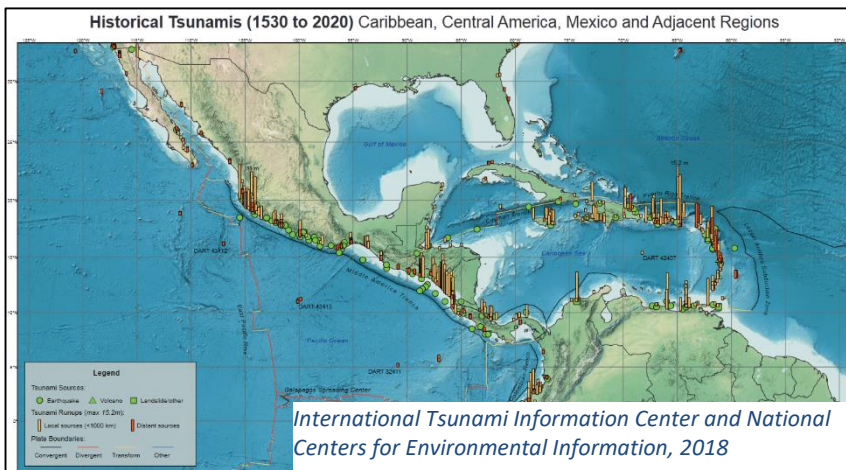
What Does CTIC Do?

The CTIC serves 48 Member States and Territories of the ICG/CARIBE-EWS including Barbados. With a mission to mitigate the impact of tsunamis and other coastal hazards, CTIC is an information resource from which government agencies, public and private stakeholders at all levels, and the general public can draw to implement tsunami and other coastal hazards safety measures to save life and property. This calls for a high level of coordination at various levels that allow for many actors across the region to work together. CTIC provides this coordination role through its core functions to:

- Monitor the effectiveness of the CARIBE EWS
- Encourage active Member State participation in the ICG/CARIBE EWS

- Assist Member States in establishing national tsunami early warning systems (TEWS) comprising Risk Knowledge; Monitoring and Warning; Warning Dissemination and Communication; and Response Capability components
- Act as a technical resource for strengthening the technical and institutional aspects of the ICG/CARIBE EWS as well as the development, publication and distribution of multi-lingual educational and preparedness materials on tsunamis and other coastal hazards
- Act as an information resource on tsunami and other coastal hazards events and investigations

Remember that CTIC does not issue warning information. The designated regional tsunami service provider - the US NOAA NWS Pacific Tsunami Warning Center, issues Tsunami Information Statements and Threat Information to national authorities. National authorities (such as the Barbados Meteorological Services) then interpret this information and issue the appropriate level of tsunami alert to their population.



REDUCING VULNERABILITY TO TSUNAMIS THE TSUNAMI READY PROGRAMME FOR THE CARIBBEAN

Alison Brome, CTIC Director

Local authorities have recently received Tsunami Ready recognition for a community on the West Coast. What is Tsunami Ready?

Recent experiences worldwide confirm that when a tsunami arrives and communities are ready to respond, lives are saved and fewer people die. CTIC therefore continues to support national and community-level (last-mile) implementation to ensure that all persons in vulnerable coastal areas are prepared and respond appropriately and in a timely manner upon recognition that a potential destructive tsunami or other coastal hazard may be approaching. One such initiative led by UNESCO/IOC and CTIC is the Community Performance Based Tsunami Recognition Programme for the Caribbean and Adjacent Regions (Tsunami Ready).

What is Tsunami Ready?

Tsunami Ready was established in the United States in 2001 by the National Weather Service and the National Tsunami Hazard Mitigation Program. This US program was adapted through a phased approach in the Caribbean and adjacent regions from 2011, and Tsunami Ready was officially approved by the ICG/CARIBE in 2015. Tsunami Ready is now an international community preparedness programme being administered by UNESCO/IOC throughout its four regional basins.

Tsunami Ready currently comprises ten requirements that communities must fulfil in order to be eligible for recognition. These requirements span mitigation (designated and mapped tsunami hazard zones, signage and public display of information), preparedness (tsunami evacuation map, development and distribution of tsunami public education materials, outreach activities, annual community tsunami exercise) and response (development of a community tsunami emergency operations plan, mechanisms for emergency response during tsunami events, community communication tools to receive and disseminate warning information on a 24x7 basis) actions.

Tsunami Ready is a sustainable programme, as national authorities are required to apply for renewal every three (3) years and report annually to the ICG/CARIBE EWS on progress. From 2018 UNESCO/IOC and CTIC were pleased to lead Tsunami Ready related initiatives in Anguilla, Antigua and Barbuda, Barbados, British Virgin Islands, Dominican Republic, St. Vincent and the Grenadines and Trinidad and Tobago, through European Commission Humanitarian Aid Department's Disaster Preparedness Programme (DIPECHO) funding. As a key project output UNESCO/IOC was proud to recognise the community of Shermans, St. Lucy to Mullins, St. Peter in September 2020 as Barbados' first Tsunami Ready community. The IOC looks forward to working with the Government of Barbados and other Member to increase the number of Tsunami Ready communities in the region from its current toll of fourteen since 2011. Resulting in enhanced preparedness for at-risk coastal communities, Tsunami Ready is a key programme action to be highlighted during the UN Decade of Ocean Science for Sustainable Development 2021 - 2030. Please visit <https://www.oceandecade.org/> to learn more.

Tsunamis can be fast on-set phenomena that leave little time for official warning from national and community authorities. As a secondary hazard, the capacity of the national tsunami early warning system may be compromised by the impact of the initial hazard. With the risk, which exist, it is therefore very critical that the public is very aware of the natural warning signs of a tsunami and can take independent action to save lives. It is estimated that over 500,000 residents and visitors are exposed to the threat of tsunamis on a daily basis in our region and adequate mechanisms must be put in place. The work of UNESCO/IOC, CTIC, the Government of Barbados and other Member States, as well as partners must therefore continue to protect our populations.

The poster features logos for UNESCO (United Nations Educational, Scientific and Cultural Organization), Intergovernmental Oceanographic Commission, and CTIC (Caribbean Tsunami Information Centre, a Government of Barbados - UNESCO/IOC Partnership). It includes a QR code and the title 'Mitigating the Impacts of Tsunamis and Other Coastal Hazards within the Caribbean and Adjacent Regions'.

BE TSUNAMI SMART, KNOW THE NATURAL SIGNS

FEEL → **RUN**
a very strong or long earthquake?

SEE → **RUN**
a sudden rise or fall of the sea level?

HEAR → **RUN**
a strange or loud noise coming from the sea?

RUN to high ground or inland
if **ANY** of these signs occur

Tsunami Ready

The above graphic was developed under the TCHWS Project (2008 – 2010), implemented by the Caribbean Disaster Emergency Management Agency in association with the UWI Seismic Research Centre.

ENHANCING HAZARD MANAGEMENT CAPACITY

THE DIPECHO PROJECT OF THE UNESCO/IOC CARIBBEAN TSUNAMI INFORMATION CENTRE

Tori Bryan-Carter

Support of the DIPECHO Project by the CZMU

The Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO), as part of its Tsunami Programme, has been implementing major initiatives aimed at reducing the vulnerability of its member states in the Caribbean and adjacent regions to tsunamis and other coastal hazards. The pilot countries participating in this project are Antigua and Barbuda, Barbados, Dominican Republic, St. Vincent and the Grenadines and Trinidad and Tobago. The UNESCO/IOC/Caribbean Tsunami Information Centre (CTIC) DIPECHO project: “Strengthening Capacities of Early Warning and Response for Tsunami and Other Coastal Hazards in the Caribbean” focuses on supporting the CARIBE EWS, coordinated by ICG/CARIBE, to develop accurate products towards the reduction of vulnerabilities to tsunamis and the advancement of global tsunami preparedness in the region.

The project supported the continued development of an effective end-to-end Tsunami and Other Coastal Hazards Warning System (CARIBE-EWS) coordinated by the UNESCO/IOC-led Intergovernmental Coordination Group for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS). The overall objective was to build resilience through emphasis on coordination, hazard assessment, warning communication, preparedness, response, and resilience at regional, national and community levels.

The project area “Shermans St. Lucy to Mullins, St. Peter” was selected because of its diverse constituents. The diversity of this coastal segment comprised of rural housing, commercial development, marina infrastructure, a small urban area and city center, and tourism properties made up of both luxury villa and hotel accommodation.

The Coastal Zone Management Unit (CZMU) and the Department of Emergency Management (DEM) were the lead agencies representing Barbados for the achievement and promotion of project outputs. Specifically, the agencies facilitated access to the relevant data, policies and plans at national and local scales. In addition, supporting the planning of national and community engagements for project activities.

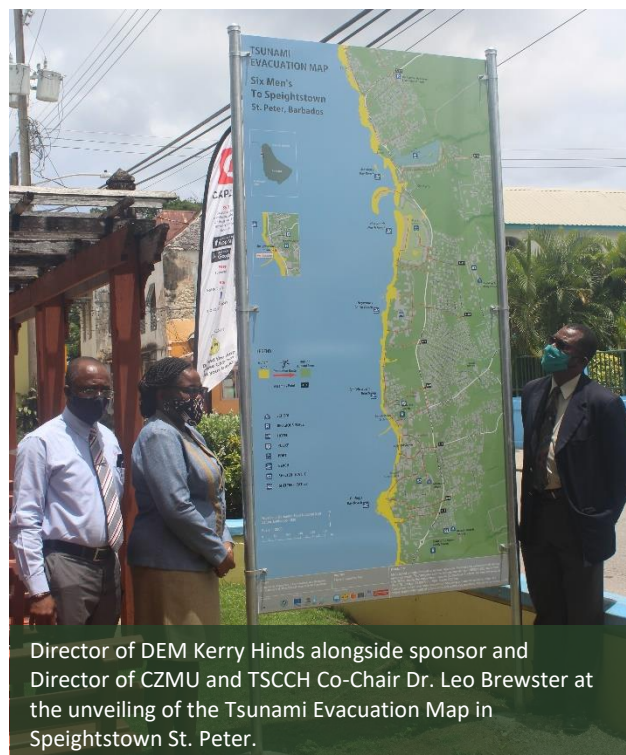
IH Cantabria (IHC) was the implementation consultant responsible for using the data collected by the CZMU. The data was utilized in a numerical model, to produce the inundation and evacuation maps for the project area. Furthermore, a presentation on the maps and the consultants’ findings was delivered at a community engagement workshop. The community’s comments were incorporated into the mapping of the evacuation routes, as the local knowledge was instrumental in confirming the feasibility of the routes. All evacuation routes were field inspected and tested prior to finalization of the maps and modified as required.

The role of the Technical Standing Committee on Coastal Hazards (TSCCH) as participating agencies within the project was the review of documents and providing feedback on the Standard Operating Procedures (SOP), Emergency Operations Plan (EOP) and evacuation maps.

Tsunami Ready Recognition for the northern community from Shermans, St. Lucy to Mullins, St. Peter was achieved as a designation under the project. Additionally, the other main outputs of the project were:

- Updated National SOP and EOP for tsunami early warning and response
- Tsunami inundation and evacuation maps
- Installation of signage (i.e. two billboard signs, directional route and assembly point signs) in accordance with the signage plan
- Communication equipment for the representatives of the District Emergency Organizations (DEOs) within the project area
- Prizes for the winners of the Tsunami Ready Art Competition for Barbados.

The IOC Tsunami Ready designation will be reviewed in three years, therefore the DEOs must remain active within the communities to ensure continued operational support and dissemination of information in the project area. The CZMU is immensely proud of its involvement with this project, which will ultimately contribute to the saving of lives in the event of a tsunami. The CZMU’s commitment to tsunami preparedness is exemplified by its hosting of the office of CTIC and the provision on technical and administrative support to its operations.



Director of DEM Kerry Hinds alongside sponsor and Director of CZMU and TSCCH Co-Chair Dr. Leo Brewster at the unveiling of the Tsunami Evacuation Map in Speightstown St. Peter.



Alison Brome, Project Coordinator CTIC, presenting the Co-Chairs of TSCCH with the official Tsunami Ready Recognition sign for the Shermans, St. Lucy to Mullins, St. Peter community.

COASTAL AND OCEAN NEWS

LOCAL AND GLOBAL STORIES

Delivering a safer ocean in the Caribbean

Communities in Antigua and Barbuda, Barbados, St. Vincent and the Grenadines, and in Trinidad and Tobago have recently been recognized as “Tsunami Ready” at the end of a two-year tsunami early-warning and preparedness project funded by the European Commission and implemented by the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

<https://ioc.unesco.org/news/delivering-safer-ocean-caribbean>



IOC-UNESCO and European Commission boost development of Marine Spatial Planning and Sustainable Blue Economy worldwide

With the support of Sweden, as well as national and regional authorities and partners, a series of online and face-to-face events took place throughout the months of October and November 2020 to build collective capacities to respond to emerging ocean issues, facilitate exchanges among public and private stakeholders, and formulate recommendations for the development of MSP and the Sustainable Blue Economy in each country/region.

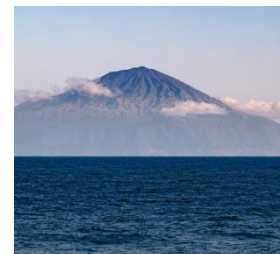
<https://ioc.unesco.org/news/ioc-unesco-and-european-commission-boost-development-marine-spatial-planning-and-sustainable>



Tristan da Cunha designates largest fully-protected MPA in Atlantic

In November, the government of the remote UK Overseas Territory of Tristan da Cunha in the South Atlantic Ocean designated a 687,000-km² MPA around 90% of its waters. The MPA will be off-limits to all extractive activity, and is the largest fully-protected MPA in the Atlantic Ocean. The designation was the result of collaboration among the Tristan da Cunha government, the UK government, and a number of conservation groups. Planning of the MPA has been underway for over four years. About 245 people live on Tristan da Cunha.

<https://www.smithsonianmag.com/smart-news/tiny-island-atlantic-just-protected-giant-tract-ocean-180976308/>



Public Consultation Meetings for the Draft Integrated Coastal Zone Management Plan for Barbados (2020-2030)

Between June and July 2021, the CZMU conducted a series of eight public consultation meetings for the updated Draft Integrated Coastal Zone Management Plan for Barbados (2020-2030). The meetings were conducted online using the Zoom platform and provided attendees with details on the proposed policy guidelines and their justifications by Plan subarea as well as the opportunity to provide feedback on all aspects of the components and intent of the Plan.

<http://www.coastal.gov.bb/iczmplan>



Several more nations commit to the 30x30 target

30x30 is a call to action to safeguard at least 30% of the world's ocean by 2030. Through a network of highly protected marine areas where no destructive or extractive activities like fishing or mining can take place. The 30x30 target continues to gain momentum, with a growing number of national governments making commitments to it. As of May 2021, 48 countries have joined the Global Ocean Alliance, a group that favors the 30x30 target and supports its adoption under the Convention on Biological Diversity in 2021. Several additional governments have committed to protecting 30% of their waters as part of agreements with the Blue Prosperity Coalition, which supports those nations' work to produce comprehensive marine spatial plans, including MPAs

<https://www.gov.uk/government/topical-events/global-ocean-alliance-30by30-initiative/about>



Communicating MSP

As the leading institution on Marine Spatial Planning, IOC-UNESCO contributed to the European Commission's new interactive guide on communicating MSP with concrete examples on how to promote knowledge exchange and ensure that the largest number of stakeholders are allowed to perform their activities in a fair, sustainable and collaborative way within MSP processes.

<https://communicatingmsp.msp-platform.eu/>



BUILDING SKILLS FOR THE FUTURE DEVELOPING THE NEXT GENERATION OF COASTAL ZONE MANAGERS

Marina Cuselli

An Internship at Home

My name is Marina and I'm an Italian student from the University of Milano-Bicocca currently studying my Masters in Marine Sciences. The first years of my life were spent in Barbados, where I developed an innate passion for the Ocean. With a background in Environmental Engineering from the University of Trento, when the time came to choose my Master's course I wanted something that would bring me closer to my passion for the marine environment. As part of my master's course, I had to find where to undertake an internship of three months and my mind quickly went to Barbados, my home away from home. While I was considering where to apply I found the Coastal Zone Management Unit and knew that it would be the perfect match for my interests.

Covid-19, unfortunately, hit the world in 2020 and the internship had a late start, but thankfully it was still possible to carry through and everyone was very welcoming. October came along and I started at Coastal, during my stay I had the pleasure of working with the Engineering section of the unit. I learned how to assess and evaluate the coastal



engineering structures that are so essential for the maintenance of the beaches and the coastline. We did this by walking along the different stretches of beach around Barbados and taking measurements and location of each structure, while also trying to define their conditions and effectiveness. With the information collected on the field, it was then possible to integrate it into the structures inventory, which is part of a five-year monitoring program that is part of the Coastal Zone Management Plan. Towards the end of the Internship, I was also part of the beach profiling, which is done every three months, with the intent of monitoring the amount of sediment along the different beaches. During my time here I also had the chance to experience some of the work that the other sections do. From assessing coral restoration projects to analyzing locations for planning applications and external projects. Overall it was an amazing learning experience, and it gave me an outlook on what I would like to work on once I finish my studies. It was a great occasion to work with like-minded people and to see how everyone on the team is passionate about their jobs and loves what they do.

And who knows, they might just be getting another Italian intern in the future!



Operating survey equipment in the field to measure the height of coastal structures.



Measuring the width of coastal structures on the west coast.



Recording the condition of coastal structures on the south coast of the island.

COASTAL CHAMPION

THE RETIREMENT OF WINSTON RUDDER AFTER YEARS OF SERVICE

Leo Brewster

A Fond Farewell Tribute to One of Our Stalwarts – Winston “Bachee” Rudder

The CZMU was sad as it said Happy Pre-Retirement to one of its longest serving members in November 2020. Mr. Winston Rudder, known to everyone as “Bachie, Batchai, Bashee, Bachee,” depending on your pronunciation, has been with the office from the days of the Coastal Conservation Project Unit (CCPU) way back in the early 1980s. His 35-year attachment to the office has therefore allowed him to see every Director that has passed through its doors.

He first started in the office as a Chainman working with the Surveyor in the Proctor and Redfern Coastal Conservation Prefeasibility Study and later with the Hydrographer in the subsequently the Delcan Feasibility Study. It was during the Delcan study that Bachee expressed an interest in becoming a Driver Messenger for the office as he realized that relying on the then Ministry’s messenger at the time was not always an easy feat for the office. He approached senior management with the suggestion and the Director at the time, Dr. Leonard Nurse agreed to investigate the creation of the post. During the Halcrow Coastal Conservation (Phase 1) Study, the post was created and Bachee was able to gain promotion to the post.

It must be said that once he got behind the wheel, it was then that Bachee excelled. He became one of the hardest working members of staff. Unfortunately, his contribution to this office may have been underappreciated and overlooked. He always had a persistent willingness to work and to go the extra mile for staff to assist them in any circumstance which is a credit to his temperance, his dedication to the job and the persons with whom he has worked. You could always call on Bachee and no matter the request, he always made time to get it done! Selfless dedication to duty – from staking out the Treasury Department to ensure cheques were ready (especially when staff had to be travelling overseas); to opening the office and checking the vehicles when we were based in Oistins; opening the office on weekend for cleaning crews - and occasionally staying the whole day (when we were based on the seafront in Oistins); to collecting the ice and driving the CZMU support vehicle on Coastal Walks.



The praises of Winston Rudder being sung by Director of the CZMU Dr. Leo Brewster.



Minister of Maritime Affairs and the Blue Economy Kirk Humphrey thanks Mr. Rudder for his years of service.



Executive Officer Rosalind Thomas leads the presentation of gifts to Mr. Rudder in gratitude for his commitment to service excellence.

Bachee is possibly the best known Messenger across the Civil Service - Bar None! Always willing to help, always being asked to help across several different avenues of work: from driving the former Permanent Secretary of the Ministry of Maritime Affairs and the Blue Economy, when it was necessary to attend town hall meetings at night; to working for other departments when their Messenger may have been ill while doing his own work; to working with the Electoral Office during elections transporting officers to different polling stations. All the while making new friends at all levels – never complaining, just enjoying and just getting the job done to the best of his ability.

I can only say that to have been with an organization almost literally from its inception to this point – over 35 years - and to have seen the many staff changes and different personalities that have crossed his path, it is a marvel that he has been able to maintain his character unchanged.

Bachee Boy, your service to this office is noteworthy and will not go unnoticed nor will it be easily forgotten. Over the years you have worked hard, been committed and dedicated to a job, that you have to all intents and purposes thoroughly enjoyed and moulded into your own in your own way. We at the CZMU appreciate your contribution to this office. Your determination, self-sacrifice and support to the office makes you a gem and you will be really and truly missed! As an unsung stalwart of the CZMU, your place in the memory of this office is permanently engraved. For all who never knew “Bachee” is short of Bachelor! Which he has remained to this day, as he has always said he would!

It has been an honour and a privilege to work with you. Thank you again for your unwavering service. Now go and enjoy your retirement!

Learn More about Our Coast

Bathsheba – Journey Through Time

1966



1983



2020



Front Cover Image – High swell event at Holetown in March 2014

Did You Know?

Bathsheba is located in St. Joseph, the smallest parish on the island.

The iconic beach was the second last stop on Barbados' railway which was 24 miles long and ran from Bridgetown to Bellplaine from 1883 to 1937.

Riddle Me This (Answers below)

1. I have an eye but cannot see. I'm faster than any man alive and have no limbs. What am I?
2. What do the letter T and an island have in common?

Jokes Time (Answers below)

1. Why are there fish at the bottom of the sea?
2. What do fish take to stay healthy?
3. Why do seagulls fly over the sea and not the bay?

Riddle Me This: (1) A Hurricane, (2) They're both in the middle of water
Jokes Time: (1) Because they dropped out of school, (2) Vitamin Sea, (3) Because then they would be called bagels!



On and Offshore is the newsletter of the Coastal Zone Management Unit and aims to provide our stakeholders with key insights into our projects, programmes and operations, as we strive to achieve our mission of providing all of our citizens and visitors with a coast to be proud of.

Coastal Zone Management Unit

Ministry of Maritime Affairs and the Blue Economy
Warrens Towers 2
Warrens
St. Michael
Barbados

Tel: (246) 535-5700
Email: info@coastal.gov.bb
Website: www.coastal.gov.bb
Facebook: [czmubarbados](https://www.facebook.com/czmubarbados)

A new CZMU website is coming in 2021. Stay tuned!