



HAZARD MANAGEMENT CAYMAN ISLANDS



ANNUAL REPORT 2020

Foreword from the Director



2020 was certainly a challenging year for all of us, between a number of emergencies including a 7.7M earthquake and 23 Aftershocks, a Tsunami threat, 2 large dump fires, a dust cloud, 3 Tropical Storm threats and the COVID-19 Pandemic, we had to endure and experience a wide range of emotions and set-backs, we had to slow down and isolate from our

loved ones, many were and continue to be deprived of their livelihoods and are in a difficult financial predicament, most of our basic freedoms were curtailed and life was very different from what we may have envisaged it would be when we welcomed in the New Year.

For our team at HMCI, we spent an unprecedented amount of time in the National Emergency Operations Centre (NEOC), had the challenge of dealing with multiple emergencies simultaneously and had to deal with new issues including the implications of social distancing on shelter capacity, etc.

2020 was a year for 'thinking outside the box' - with a global demand on various items and restrictions of various kinds in place, ordering medical supplies for the COVID-19 Emergency Field Hospital and Personal Protective Equipment on a national scale became significantly

more challenging. We were incredibly fortunate to have Cluster leaders in the NEOC who worked tirelessly together with their Emergency Support Team (EST) members to find creative solutions.

Despite the fact that the majority of the year was spent in 'response mode' HMCI achieved significant developments with the advance of Phase II of the National Emergency Notification System, streamlining of operational partnerships with the Cayman Islands Regiment and the UK Security Assessment Team, progression of CDEMA membership, Accession to the International Disaster Charter, implementation of digital Damage Assessment tools and increased situational awareness. Over 40 school presentations were delivered, and significant training was hosted for Emergency Responders. A 30-member Community Emergency Response Team (CERT) was also established in Little Cayman.

Whilst 2020 won't be a year we will forget any time soon, it has undoubtedly been a year for increased resilience, both on a collective and

individual level; a year of growth and development of our national disaster response mechanism and a year that has demonstrated to all how strong and resourceful we can be in the face of adversity.



Ms. Danielle Coleman

Director, Hazard Management
Cayman Islands (HMCI)
March 2021

Context

Hazard Management Cayman Islands

(HMCI) is the lead agency responsible for the national disaster management programme and acts as the coordinating agency of the National Emergency Operations Centre (NEOC) as well as being members of the National Hazard Management Executive (NHME), National Hazard Management Council (NHMC) and the Policy Group. We take the threat of all hazards seriously and continue to strive to increase and improve Cayman's resilience.

Preparedness and Planning are key to ensuring resilience, both on an individual and community level.

2020 has seen an unprecedented number of emergencies of a diverse

nature and as such, many of the activities that HMCI would pursue during a regular year have been somewhat different.

This report outlines HMCI's activities and challenges faced during the year of 2020.

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Our Vision

To ensure the Cayman Islands is resilient and prepared, able to withstand and recover from all major crises.”

Our Mission Statement

Enhance the Cayman Island’s resiliency to disasters with full community participation.

This will involve participation in the national approach to comprehensive hazard management through mitigation, preparedness, response and recovery thereby ensuring the preservation of human life, property and economic recovery.

As part of a World-Class Civil Service, we recognize that our success is built on a foundation that starts with our employees. Our values of passion, integrity, commitment and professionalism are therefore important guides to our interactions with colleagues within the broader Government, as well as with the public whom we are here to serve.

Our Values

- Integrity
- Passion
- Professionalism
- Enthusiasm
- Accepts Responsibility
- Seeks continual improvement
- Dedication
- Trust of Community
- Transparent and Accountable
- Connectivity
- Honest and Dignified
- Timely and Efficient.



Above photo showing L-R Inspector Roje Williams (RCIPS), Teresita DaSilva (HMCI) and Chinoy Logan (Planning Dept.) in front of a Royal Cayman Islands Police Service Helicopter



Above photo showing an aerial view of the south coast of Grand Cayman from a helicopter during Tropical Storm Eta.

About Us Organizational History

The Cayman Islands has had an official Hurricane Plan since the early 1970s. Regular revision kept the plan current; however, lessons learned from Hurricane Ivan in 2004 changed the approach to Disaster Management.

The Cayman Islands National Strategic Plan 1998-2008 included “comprehensive contingency planning” and the establishment of a “national emergency management agency” among its strategies. The document also mentioned prevention and mitigation as desirable activities to be undertaken to safeguard the country. The proposal to form a national agency with a comprehensive mandate to lead the risk management process was therefore in keeping with the plans for national development.

In January 2007, Hazard Management Cayman Islands (HMCI) was established as the government agency responsible for the

coordination of all programs dealing with national disasters, whether natural or human-made. HMCI has overall responsibility for the national hazard management program, including preparedness, response, mitigation, and recovery.

The agency deals with all hazards and is permanently staffed and ready to operate at all times. HMCI is responsible for the National Emergency Operations Centre (NEOC) which is located at the Government Administration Building in George Town. The NEOC is activated as required to direct and coordinate the response to national threats. HMCI also has responsibility for maintaining the National Hazard Management plans for threats such as hurricanes and earthquakes and others.

Hazard Management Cayman Islands (HMCI) National Emergency Management (NEM) Outputs

HMCI has five outputs that establish our priorities and define the expenditure and performance indicators within the immediate fiscal year. A summary of the outputs for the 2020 fiscal year is provided below.

NEM 1 - National Disaster Preparedness

Maintain a state of maximum preparedness through the provision of necessary resources and ensure the existence of hazard management plans from the community to the national level. Coordinate and monitor the implementation of the national disaster risk management program through public awareness training development and maintenance of disaster plans.

NEM 2 - Policy & Ministerial Advice

Provide policy advice to the Governor, Ministers, Deputy Governor, Chief Officers, Government Departments and others on matters relating to national hazard management and disaster preparedness. The provision of technical advice to the Ministry, Government agencies and the private sector on telecommunication matters.

NEM 3 - Hazard Mitigation

A proactive, cooperative partnership of the public and private sectors to build a culture of safety and resilience, to encourage and facilitate implementation of mitigation measures and minimize the consequences of natural and other disasters.

NEM 4 - National Disaster Response

Provide the tools and support needed

to ensure national response readiness in the event of any national disaster. The provision of assistance during or immediately after a disaster for the preservation of life and the provision of basic essential supplies and services for those people affected.

NEM 5 - Emergency Shelters Management and Preparedness Activities

Provide shelter management training activities and ensure availability of shelters during and after a disaster. Maintain emergency generators and other essential facilities for shelter operations.

STRATEGIC PLAN 2016 -2021

The Strategic Plan 2016-2021 was revised to reflect changes from a review of the department's operations and previous plan as well as incorporate the changes due to the shift in Ministerial responsibility. The following are some of the key strategies of the plan:

Ensure the best possible shelter environment for the population of the Cayman Islands through continued development and enhancement of infrastructure and equipment

Ensure that the Islands have adequate early warning and notification systems for all hazards (improving early warning systems) and enhance emergency communication

Enhance the country's resilience through an informed public and facilitate the strengthening of community resilience through organization and training (building community resilience)

Provide guidance and a legal framework for the reduction of risk and vulnerability to the physical and built environment through mitigation

- Comprehensive disaster plan development

- Dedicated recovery fund provisions to be made via annual contribution to a disaster recovery fund

The plan also identified service needs and gaps such as:

- Seismic data analysis - no local resource to scientifically analyze the information that is generated following a seismic event

STRATEGIC GOALS 2019-2020

Strategic Goal 1: Preparedness

HMCI will improve the national resilience by raising awareness of life-saving techniques and best practices which will assist citizens to prepare for all hazards; provide the knowledge and skills needed to assist in the aftermath of disasters; develop, review, maintain hazard plans.

HMCI is also working to improve not only internal communication through cross-training of roles for contingency

and succession planning but also external communication with national/international stakeholders to ensure a more coordinated response.

HMCI continues to make progress in increasing and sustaining the national preparedness of the Cayman Islands.

Objective 1: Refine existing and develop additional national disaster plans

Objective 2: Enhance the country's resilience through public education and training of Community Emergency Response Teams (CERTS) and Volunteer Agency Responders (VARs)

Objective 3: Improve internal and external communication

Strategic Goal 2: Mitigation

Reducing the damage and economic losses caused by natural or human-made hazards remains a top priority. HMCI began the process of developing,

implementing and managing mitigation activities and developing a National Emergency Notification System

Continuous efforts will be made to establish a system whereby the Cayman Island's population at large can be alerted to an impending hazard and can respond accordingly. These actions will assist in strengthening the Islands' institutional capacity.

Objective 4: Strengthen institutional capacity

Objective 5: Improve early warning systems especially for sudden onset hazards

Objective 6: Provide guidance and a legal framework for the reduction of risk and vulnerability

Strategic Goal 3: Response

Throughout 2021/2022 further support will be provided to NEOC members to ensure they are ready and trained to

respond to all potential emergencies when the NEOC is activated.

In addition, significant steps are planned to increase shelter capacity, improve the shelter environment and increase the number of 'pet-friendly' shelters. Whilst HMCI has already established two pet friendly shelters, we recognize that lives are at risk because residents opt to remain at home with their pets as opposed to seeking safer sheltering facilities.

Objective 7: Ensure National Emergency Operations Centre can be set up within 1.5 hours

Objective 8: Provide support needed to ensure national response readiness

Objective 9: Increase shelter spaces and improve the shelter environment for Cayman Islands population and incorporate sheltering for pets

Objective 10: Strengthen emergency Communication WebEOC and Radio Communications

Strategic Goal 4: Recovery

HMCI will continue to promote good practices, provide support and assist in the coordination of all actors and sectors required for the recovery process after a major disaster.

Objective 11: Effectively coordinate disaster recovery

Performance & Key Achievements Summary

Development of Phase II National Emergency Notification System (NENS) Implementation Plan



Flood Mapping - Tropical Storm Eta, 2020

R3 Cayman Foundation assisted with

HMCI in partnership with the Cayman Islands Fire Service (CIFS), reviewed the Incident Command structure in 2020.

Cayman Islands Joined Caribbean Disaster and Emergency Management Agency (CDEMA) membership

In June, the Cayman Islands became a member of the International Disaster Charter which allows authorized users at HMCI to task a network of over 60 satellites to access imagery of the Cayman Islands before, during and after a major disaster, or impact such as a hurricane, earthquake or tsunami.

Projects & Programmes

the national disaster readiness, relief and recovery response to COVID-19.

Key Achievements

Hurricane Simulation Exercise 2020

Establishment of the Little Cayman

Community Emergency Response Team
(CERT)

January 2020 Earthquake Response

Expansion of Emergency Situational



Awareness Dashboards

Capacity Building and Training

WebEOC training for several
Government Stakeholders

National Emergency Operations Centre (NEOC) Activation COVID-19

HMCI, in our role as the
coordinating agency of the National
Emergency Operations Centre (NEOC)
and members of the National Hazard
Management (NHM) Executive, NHM



First Responders trained
in Mass Casualty
Management (MCM) and
Incident Command
Systems (ICS)

Hazard Management published 81
press releases on the Cayman Prepared
website and made over 30 media
appearances on radio and television.



An overall increase of more than
215 % Facebook Followers -
During COVID Pandemic

Council and the Policy Group, spent 104
days in full NEOC activation for COVID-
19.

Considerable time was also spent prior
and post activation preparing for COVID-
19 with the Chief Medical Officer
including attending a Conference in
January hosted by Public Health England
on Pandemics.

Some of the highlights from the NEOC
were the establishment of the COVID-19
Emergency Field Hospital, operation of

repatriation flights, the planning and operations of isolation facilities, creation and dissemination of world class communications, sourcing and distribution of thousands of items of Personal Protective Equipment (PPE) and the regular use of WebEOC (a comprehensive tracking mechanism to ensure all decisions were recorded, etc.).

The COVID-19 Emergency Field Hospital was established in early May 2020 to serve as a potential overflow facility for COVID positive patients in the event that the hospitals became overwhelmed with patients. The facility was a collaborative effort coordinated by the NEOC and included resources and support from agencies across the civil service Health Services Authority (HSA), Hazard Management Cayman Islands (HMCI), Public Works Department (PWD), as well as private sector partners including Pastor Alson and the congregation at the Family Life Centre.

We were very fortunate that mobilization was not required in 2020 but having been through the exercise we have demonstrated that it can be activated in the future if needed.

In November, the Cayman Islands Government was awarded the 'Association of Project Management (UK) Award for Social Project of the Year' for this initiative, winning over a number of prestigious international projects including Rolls Royce's ventilator project.

NEOC Operations also included the "Bring 'em Home" project which worked closely with the Governor's Office on the original repatriation flights (prior to Curfew Time). In the early days, the Team worked tirelessly to bring home 800 passengers including many Caymanian students and assisted 2,600 persons who wished to depart the Cayman Islands. Given the quarantine policy of 14 day, NEOC teams were also responsible for establishing a number of isolation facilities to ensure those wishing to return could be housed safely. The logistics were complex given the civil service does not

ordinarily run isolation facilities; furthermore, there were challenges such as the need to match room availability to travel approval, getting passengers safely from the airport to the facilities without exposing staff /public and keeping persons motivated during their 14 days. There was the added challenge to secure separate accommodation for those persons who required a longer stay due to a positive test at the end of the 14 days. Clear protocols around security and infection control required bespoke arrangements for each location, which was selected based on an assessment by a multi-disciplinary team of personnel from the HSA/ Public Health, the RCIPS, the Cluster responsible for Shelter Operations and the Support Services Cluster with responsibility for sanitation, meals, laundry & security.



Above photo showing National Hazard Management Council briefing on COVID-19

The daily use by all NEOC members of WebEOC (web-based Emergency Operations Centre) was a very positive outcome given that in most years it is typically only used for practice exercises. The system tracked all decisions made and all stakeholders involved to ensure transparency and accountability. Such frequent usage also led to changes being made to the structure of the system to ensure easier usability during future emergencies, in particular for sudden onset events.

The fact that the NEOC maintained its operations for 104 days during the pandemic, highlighted the effectiveness of previous activation drills conducted by HMCI with NEOC members to ensure the equipment was fit for purpose and could adapt for utilisation by increased numbers of members.

The 17 NEOC Emergency Support Teams (ESTs) also held meetings with

their members to ensure readiness due to the unique multi-hazard response that had to be considered throughout the year. EST members reviewed their plans and considered potential limitations on their response due to COVID-19 and identified mitigating factors. Recommended changes to the plans by the ESTs were reflected along with lessons learnt from Tropical Storms, Tropical Storm Eta.

This is just a snapshot of the daily COVID-19 activities carried out by the NEOC Clusters and their Emergency Support Teams in what was an unprecedented period to deal with a never-before-experienced crisis.

The collaboration and cooperation exhibited by all was exemplary and we are proud to have been a part of this national achievement.

Mental Health

Whilst discussions had

commenced with the Ministry of Health and the Health Services Authority in 2019 about integrating mental health policies and practices into the National Hazard Management mechanism, the COVID-19 activation of the NEOC provided an opportunity for the full integration of a mental health practitioner to ensure that decisions being made took mental health issues into account. It also ensured that NEOC members had the support of a subject matter expert, and that communications included messaging on coping mechanisms and other related matters. A publicly available Mental Health Hotline was also established and manned by trained personnel from a number of Government departments.

In addition, all staff had the opportunity to take part in critical incident debriefing and counselling.

Incident Command Re-structuring

As a result of numerous activations

and with the assistance of the UK Security Assessment Team, HMCI in partnership with the Cayman Islands Fire Service (CIFS), reviewed the Incident Command structure in 2020.

HMCI and CIFS co-facilitated several workshops and stakeholder sessions to gain input and ownership of a revised model that better reflected first response protocols. Whilst work on this will continue throughout 2021, we envisage having an Incident Command Hub by mid-year 2021 located within HMCI's office.

Caribbean Disaster and Emergency Management Agency (CDEMA) membership

Subsequent to the ceremony on RFA

Mounts Bay (June 2019) where Cayman expressed an intention to join CDEMA, HMCI completed a very comprehensive audit as well as an orientation process in 2020.

Membership within CDEMA further strengthens our regional collaboration and improves both our ability to assist other member countries and our ability to obtain assistance when needed through a pooling of resources. A briefing of the National Hazard Management Executive and the signing of the letter of Accession are planned for quarter 2 of 2021.

In October, the Cayman Islands received a significant amount of humanitarian supplies coordinated by CDEMA to support the fight against COVID-19. The supplies, which were donated by the World Health Organization and the Jack Ma Foundation, included 3,640 N95 masks and 117,900 surgical face masks at an estimated value of USD\$195,050.

HMCI continued to work very closely with the British Overseas Territories and Bermuda to share best practices and assist each other throughout the year.

R3 Cayman Foundation

HMCI worked closely during 2020 with

the R3 Cayman Foundation which played a critical role in assisting with the national disaster readiness, relief and recovery response to COVID-19.

Specifically, R3 assisted with the purchase of relief distribution items, NEOC equipment and software auditing equipment to track all inventory, including items already owned by HMCI as well as all COVID-19 specific relief items. R3 also sponsored an Earthquake video that will form part of the Earthquake Roadshow in 2021.

Crisis Hub

This “affected” or “missing” person’s

tool was introduced by HMCI in 2019

with the support and collaboration of the Governor’s Office and the Royal Cayman Islands Police Service. The programme has been successfully operated by the Foreign, Commonwealth & Development Office dealing with crises across the world for many years. The software tool supports the NEOC by having dedicated call-takers from the Casualty Bureau recording and tracking information provided by concerned citizens. While its implementation directly adds complexity to the NEOC’s structure with another call-center, calls-for- service can be better managed in respect to their true purpose. Crisis Hub operators collaborate and cross- check emergency reported data with the various call-centers available during disaster operations to support the NEOC’s mission. True benefits of the software tool are especially evident during Search & Rescue

efforts as field personnel can reference mapping data identifying the locations of persons who need assistance.

In 2020, a temporary call-center solution was established that enabled operations within HMCI's office space. In the meanwhile, strides were being made for a more permanent solution near the NEOC. Unfortunately, the COVID-19 pandemic stalled installation of IT infrastructure in the space. Despite this, the software tool and temporary solution at HMCI offices became useful by managing information related to COVID-19 repatriation and UK air-bridge flights. With government services almost back to normal, resumption of activities to enable a permanent pop-up call-center are slated for completion in 2021.

Shelter Management

Historically, shelter management preparations would begin around April or May of each year for the upcoming hurricane season; however, the 2020 calendar year has proven that preparations must be done year-round. With two large fires, a magnitude 7.7 earthquake and 23 aftershocks, heightened weather-related activity, a large dust plume and the COVID-19 pandemic, shelter activation was quite eventful in 2020.

Despite office closures and reduced government services, HMCI and the Department of Children and Family Services (DCFS) conducted shelter management training in May. The session was held over zoom with one-hundred-fifty (150) volunteers being trained.

As COVID-19 suppression protocols lifted, HMCI lead preassigned shelter teams through orientation sessions at their respective shelters. This included a tour of their shelter that allowed members to view the space and determine how best to implement operational components such as registration and operational areas, and quiet and/or detention rooms to name a few. HMCI recorded this information on facility drawings that will be used for future activations. The sessions also included familiarisation with response-ready backpacks and communications kits.

Annual inspections of Grand Cayman's fifteen (15) Emergency Shelters was conducted and completed in May. With the assistance of the Public Works Department, the Department of Vehicle and Equipment Services and the Health Services Authority, HMCI was able to confirm the readiness of each site for activation.

Items such as backup generators, shuttering, plumbing and electrical, as well as, structural integrity of each building was inspected. Throughout the year, HMCI continually examined and replenished food stocks and Personal Protective Equipment (PPE) supplies at each shelter. Perishables nearing the best-before dates were donated to DCFS for distribution to families in need.

The need for social distancing in shelters to prevent transmission of COVID-19 resulted in a reduction of shelter capacity by approximately fifty percent.

To address this, the Director, HMCI mobilised a multi-disciplinary team identify and assess suitable buildings that may be used to increase shelter spaces. The team conducted inspections of twenty-two (22) buildings; of those eight (8) were identified to require minimal work, while eight (8) others require significant investment and upgrades.

If Cabinet gives approval for the expenditure, all buildings will be added as class A shelters once the required works are completed.

Current shelter capacity is at eight percent (8%) of the population in Grand Cayman; this will continue to diminish as buildings and their infrastructure become older and/or problematic. Whilst the Sister Islands have more capacity (proportionate to the population), HMCI is striving to increase the capacity to 20% in Grand Cayman by the end of 2021.



Above photo showing L-R Orrett "OC" Connor (Radio Cayman), Leslie "Lennox" Vernon (HMCI) and John Tibbetts (CINWS) on the Radio Cayman talk show discussing Hurricane Preparedness.

Implementation of the National Emergency Notification System – NENS - Phase II

The need to further develop an innovative National Emergency Notification System (NENS) to provide early warnings of sudden onset events and/or large-scale national emergencies, as well as real time instructions during such events, became increasingly apparent in 2020 with a number of emergencies that warranted its use.

Whilst NENS Phase I - Radio Interrupt was utilized during the earthquake, HMCI and stakeholders had recognised for some time that increased methods of communication were needed to support public safety. To adequately support the requirements of the upgrade of the

National Emergency Notification System, the current infrastructure was upgraded with the provision of a:

- Comprehensive Mobile strategy (Mobile Alert App) for public safety notification
- Single Interface notification messaging platform with the ability for multiple Communication channels (radio, social media, email, text)

In March 2020, HMCI commenced the process to deploy Phase II using a proprietary cloud-based platform from BlackBerry AtHoc to enable networked crisis communication. This platform is used to push notifications to smartphone devices via a Mobile App. When an alert is targeted at a user's smartphone/device, the BlackBerry AtHoc server signals the Personal Safety Service (PSS) to deliver the message.

The BlackBerry AtHoc Mobile App allows users to communicate bi-directionally with smart devices.

In other words, after a message is sent, if the receiver is using a smartphone or tablet, they are able to communicate back per the sender's parameters. If subscribers to the Mobile App are on pre-paid plans, they may leverage local Wi-Fi to receive messages.

HMCI is working diligently with local Internet Service Providers to make these messages free of cost to all users and it is hoped that this project will be finalized by the end of the second quarter of 2021.

Warehouse & Relief supplies

HMCI maintains a relief supplies

warehouse which is strategically located to support efficient and effective relief distribution activities post national emergency. HMCI staff regularly research industry vendors for suitable items to improve upon our stock of relief inventory.

Whilst we have continually increased our stockpile with items such as ready-kits for: flood clean-up, shelter operations, personal hygiene, tarpaulins, gas-containers, jerry cans for drinking water, etc., in 2020, with shelter capacity numbers being significantly reduced, the team focused on ordering items of necessity and efficiency. These included new space-saving sleep cots that are more comfortable for shelterees.

These cots enable persons to sleep with their belongings stowed securely underneath, thereby reducing the footprint of all. Various sizes and styles were ordered to accommodate those with medical and special needs. Each shelter has an Emergency Medical Centre with 2-3 of the new cots which allow caregivers to adjust them to a sitting position easily and also hang IV bags. Lifejackets and folding stretchers were also procured.

In response to the COVID-19 pandemic, the NEOC outfitted an Emergency Field Hospital to accommodate 61 (with the ability to expand to 80) beds. As suppression efforts have been successful thus far, HMCI was tasked to identify space to store the supplies and equipment from the Field Hospital so that it could be deactivated. Working alongside

the Central Procurement Office (CPO), HMCI published an RFQ which yielded no submissions. Following this, the assistance of Lands & Survey and the Public Works Departments was enlisted to identify suitable space, however, at year end the search was still ongoing.

It is the Department's hope to secure, acquire or build an NEOC storage facility and sufficiently stockpile items to support our national response and recovery mechanisms in the event of a disaster impact.

Mass Casualty Management (MCM)

The most recent MCM training course was conducted in March and lasted five (5) days. It was led by a visiting Instructor from the Pan-American Health Organization (PAHO) who led forty (40) students through classroom

and practical training exercises, the successful completion of which required their full engagement. In addition to these 40 students, 7 others who were pursuing certification as instructors, co-facilitated sessions and delivered presentations as part of their course requirements.

At the end of the week, all students were graded on a final written examination followed by an overnight exercise where they had to demonstrate their newly acquired skills in a field environment. The new Instructors assisted in the development of real- life scenarios in which participants role-played victims in three multi-casualty events together with emergency first-responders. Each scenario concluded when team members displayed their individual and collective ability to move affected persons from a scene to a primary care facility, in accordance with established protocols.

The programme focused on the effective management of an event with multiple casualties, scene safety management, coordination of first- response personnel, information dissemination and the conveyance of patients to care facilities. Whist MCM is particularly beneficial to the health services and requires their participation, such an event requires a coordinated, multi-agency response, hence the inclusion of all relevant agencies in the training.

Upon completion of the overnight exercise, HMCI and the PAHO representative conducted an intimate graduation ceremony during which students and Instructors received their certificates.

Participants represented the following

government entities: Royal Cayman Islands Police Service, Department of Public Safety Communications, Her Majesty's Cayman Islands Prison Service, Cayman Islands Fire Service, Customs and Border Control and Cayman Islands Coast Guard. Statutory Authorities represented included: Cayman Islands Airports Authority, Health Services Authority and Water Authority Cayman Islands. Private sector and volunteer agencies represented included SOL Cayman Islands, Community Emergency Response Teams and the Cayman Islands Red Cross.

Royal Cayman Islands Police Service (RCIPS) Secondment

In January, Police Constable Patree Walcott, who was seconded to HMCI in 2019, presented an overview on Disaster Preparedness and Continuity Planning to the Commissioner of Police and other members of the RCIPS Senior Command Team.

In February, a joint RCIPS and HMCI Project Team was established with Ms. Walcott as the Project Lead. The Team was tasked with the development of the 'Crime Information Situational Dashboard' to improve evidence based operational strategy by incorporating RCIPS Crime Data.

In July, the Dashboard was presented to the RCIPS Senior Command Team and initial training of the project team was conducted in September with HMCI's Mitigation Officer as the Training Specialist. A Project Charter was completed and approved by Senior Management of RCIPS and HMCI.

Additionally, during her secondment, Ms. Walcott has been working on Fire, Earthquake and Flood drills for the RCIPS and has drafted a Contingency

Plan for the RCIPS in the Sister Islands. Given the intention to cross train and break down silos, Ms. Walcott has also worked on Shelter Management and Warehouse Management, including assisting with the decommissioning of the Emergency Field Hospital, inventory of Shelter and Warehouse supplies and Shelter Inspections.

The Office of the Commissioner of Police (OCP) All Hazards Plan, RCIPS Pandemic Plan and the Immigration Plan were all reviewed and updated.

2020 Earthquakes

Earthquake Annual Report

There were 31 earthquakes in the general vicinity of the Cayman Islands in 2020 including one large 7.7 Magnitude event approximately 80

miles east of the Sister Islands at 2:10 pm on January 28th. The 7.7 earthquake was strongly felt across all three inhabited Cayman Islands and by several other Caribbean neighbors. At 2:17 pm on the 28th January, the Pacific Tsunami Warning Centre (PTWC) issued a tsunami warning statement indicating tsunami waves were possible for the Cayman Islands.

Two minutes after receipt of the tsunami warning from the PTWC, HMCI used Phase I of the National Emergency Notification system to interrupt all local FM radio stations to alert local residents of the impending tsunami threat, and to provide recommended response actions to minimize the risk associated with the approaching wave. HMCI also immediately posted tsunami warning notifications on HMCI's website and social media sites. At 3:14 pm, HMCI confirmed that a 1.5-foot tsunami wave had been recorded on the Sea

Level Monitoring gauge in George Town Harbor. At 3:49 pm, HMCI issued the 'All Clear' for the tsunami threat.

Despite the large size of the earthquake there were few reports of structural damage, however a number of sink holes opened up across the Cayman Islands, including 4 sink holes in the Government Administration Building parking lot and one in the parking lot across from the George Town Hospital. Between January 28th and February 2nd there were 23 aftershocks including a large 6.1 magnitude tremor 35 miles off the East coast of Grand Cayman.

Prior to the 7.7 magnitude event, many persons dismissed the possibility of an earthquake of this magnitude on the transform plate boundary in the vicinity of the Cayman Islands.

If we learned anything from these events, it was that schools and other

institutions need robust plans. Picking up children from the schools, heading out onto the main coastal roads during a tsunami warning and causing gridlock puts you, your kids and everyone else at risk and blocks the passage of legitimate first response vehicles. Following the earthquake, HMCI conducted over forty earthquake / tsunami awareness presentations, with a special focus on the schools, including presentations for teachers and parent teacher associations. Additionally, HMCI worked closely with the Ministry of Education to review School Hazard Plans to ensure they are fit for purpose. The emergence of more than 20 sinkholes following the earthquake raised concerns about the existence of hollow cavities under the limestone Karst and prompted discussion about the need for a geological survey to

examine the threat posed to critical infrastructure. The urgency to conduct this type of survey was somewhat eclipsed when HMCI pivoted in response to the landfill fire, the COVID-19 global pandemic and the most active hurricane season in history. However, this is a priority for 2021.

2020 Hurricane Season

The 2020 Hurricane Season goes into the history books as the most active season on record, and one of the costliest. Thirty (30) named storms formed of which thirteen (13) developed into hurricanes and six (6) became major hurricanes.

The Cayman Islands was spared a direct hit, but six (6) of the systems caused varying degrees of impact;

numerous vessels and docks were damaged or destroyed, and sections of Seven Mile Beach suffered significant beach erosion.

The Cayman Islands National Weather Service (CINWS) began reporting on the first cyclone to threaten the Cayman Islands on 20 August. Tropical Depression 14 strengthened to Tropical Storm Marco as it passed south and then west of the Cayman Islands bringing some rain and gusty winds. By 22 August Marco no longer posed a threat and residents began monitoring Tropical Storm Laura as it crossed into the Caribbean Sea. On 23 August it became clear that Tropical Storm Laura was drifting further south than expected and the Sister Islands were placed under a Tropical Storm Warning.

TS Laura proceeded to track about 70 miles north of Cayman Brac generating no significant reports of damage on land, but the storm

brought large waves to the west coast of Grand Cayman and a number of boats broke their moorings and washed ashore on Seven Mile Beach.

On 31 August advisories were disseminated regarding a vigorous tropical system located in the Central Caribbean Sea. By September 1 the system was located south of Jamaica and had strengthened into Tropical Storm Nana. Over the next 24 hours the storm drifted south passing 130 miles south of the Cayman Islands before making landfall as a hurricane in Belize on 3 September.

By 18 September the Atlantic Hurricane Season had already cycled through all the names in the alphabet list issued by the World Meteorological Organization, and for the second time in history, was operating from the Greek alphabet list. It should be noted that at this point there was still over two months left to go until the official end of the hurricane season.

On 4 October the National Hurricane Center (NHC) in Miami began issuing advisories about a broad area of low-pressure south-east of Jamaica. The NHC in Miami cautioned that the system was becoming better organized and interests in the Cayman Islands should begin closely monitoring the progress of the disturbance. Later that same day, a meeting of the National Hazard Management Council was convened, and the Cayman Islands was placed under a Tropical Storm Warning. By 5 October the area of disturbed weather had strengthened into Tropical Storm Delta and the Cayman Islands was positioned in the center of the forecast track issued by the NHC.

The National Emergency Operations Centre was partially activated in response to the threat and Emergency Shelters were opened as the storm quickly strengthened into a hurricane. By 6 October Hurricane Delta was

100 miles away from Grand Cayman and had strengthened into a formidable Category 4 hurricane with sustained winds of 130 miles an hour. The wave action contributed to some beach erosion, but despite large 8-to-10-foot waves battering the south and west coasts, Hurricane Delta tracked sufficiently far away that the Islands were spared from any significant impacts, and the 'All Clear' was issued later on 6 October as Hurricane Delta began pulling away from the Cayman Islands.

On 24 October an area of low pressure just west of the Cayman Islands that had been stationary for about 48 hours, began drifting north while slowly strengthening. The following day, the National Hurricane Centre announced that the system had developed into Tropical Storm Zeta and was located 115 miles SW of Grand Cayman. The Cayman Islands National Weather Service issued a

flood warning as Zeta continued to remain virtually stationary the following day. On 26 October Zeta began rapidly strengthening as it began tracking away from Grand Cayman. The hurricane brought wave heights of up to 7 feet on the south and west coasts, and 1.7 inches of rain which caused some flooding, but again the Islands came through unscathed.

On 31 October Tropical Storm Eta formed southeast of Jamaica. The following day the Cayman Islands National Weather Service issued a severe weather advisory and a small craft warning for the Cayman Islands. By 2 November TS Eta strengthened into Hurricane Eta and while the Hurricane was located over 300 miles south of the Cayman Islands it began interacting with an area of high pressure to the north leading to increasingly strong, gusty winds for the Cayman Islands. The following day

on 3 November Hurricane Eta became a powerful category 4 hurricane and was bearing down on the coast of Nicaragua. On 5 November the remnants of Eta re-emerged off the coast of Central America and the National Weather Service quickly issued marine and flood warnings for the Cayman Islands.

Later that day the Cayman Islands was placed under a Tropical Storm Watch and the following day the alert level was raised to a Tropical Storm Warning leading to an NEOC activation and shelter openings. On 7 November Tropical Storm Eta was located 45 miles West North-West of Grand Cayman. The storm brought winds of up to 70 mph and dumped nearly 10 inches of rain, leading to extensive flooding, downed trees and powerlines, and some beach erosion. By 4 pm on 7 November the "All Clear" was issued for the Cayman Islands.

The Cayman Islands was fortunate to get through the 2020 Hurricane Season without significant impacts to persons or property, especially given the challenges of simultaneously dealing with the COVID-19 pandemic, which further complicated shelter arrangements during storm warnings.

Despite the minimal impacts, it should be noted that the loss of beach sand along the Seven Mile Beach (particularly the southern section) is concerning and significant. Currently there is no sand in front of the Marriot Hotel and lack of beach has been cited as a reason for the closure of certain restaurants.

HMCI would like to highlight the fact that there is overwhelming consensus in the disaster management community that the sea level is rising, and climate change is real. These factors are leading to stronger and more frequent hurricanes; in view of that, HMCI believes it would be timely

to revisit the coastal setbacks in the Planning and Development Law, to more accurately and realistically reflect the increasing threat from sea level rise, storm surge and storm driven waves.



Above photo showing a vessel which washed ashore during a Tropical Storm Laura.

Preparedness and Public Education

Hazard Management published 81

press releases on the Cayman Prepared website and made over 30 media appearances on radio and television. Subject matter included general preparedness for hurricanes and other threats and more specific appearances relating to COVID-19, landfill fires, earthquakes and NEOC activations for hurricanes and storms.

HMCI was an active participant of the Joint Communications Service (JCS) Emergency Support Team participating in over 80 meetings of the JCS Emergency Support Team both during the extended activation of the National Emergency Operations Centre (for the COVID-19 pandemic) and thereafter. HMCI was also present

at every COVID-19 Community Outreach Meeting and Press Briefing to answer questions on NEOC activities, quarantine facilities, etc. HMCI worked in close partnership with the Red Cross to design and produce a child friendly COVID-19 video on washing hands with characters 'Bobo and TeeDee'. The agency also generated hundreds of social media releases, responded to numerous enquiries on Facebook and Twitter and delivered 40 Hazard Awareness Presentations in 2020. These included presentations to schools, Government agencies, civic clubs and private businesses. Some of these presentations were specifically directed at teachers and school administration staff, while others were for the benefit of Parent Teacher Associations (PTAs) or students. Additionally, HMCI conducted several site visits to support schools in the selection of muster

points and evacuation routes and assisted with the development of school Hazard Plans.

HMCI also produced displays at the Agriculture Show and the Career's Fair, created new hazard awareness tips for rotation on radio stations, assisted in the production of the Compass Hurricane Supplement and a 'mental health in a crisis' video for Kelly Holdings and distributed numerous hazard specific brochures. The agency created disaster awareness content for 'The Resident' magazine and produced promotional material to encourage participation in the Cayman Islands Regiment and the Community Emergency Response Team (CERT) program.

Additionally, HMCI led or supported a wide range of training initiatives including Continuity of Operations Plan (CoOP) training, Satellite and UHF Radio operations training for members of the Joint Communications Service, Shelter Management training, the training and formation of the Little Cayman Community Emergency Response Team, training for the Regiment and Mass Casualty Management Training for first responders.



Above photo showing L-R Patree Walcott, Shanelle Martinez and Leanna Rivers-Myles at the HMCI booth for a CIFEC Career fair

Social Media

HMCI produced hundreds of social media posts in 2020 and significantly increased its reach and the number of people following the pages. The total number of Facebook followers increased from 2,853 on January 1st to 9,087 by December 31st (an overall increase of more than 215 %). Followers of HMCI's Twitter account rose from around 800 to 2,600 (225 % increase). Additionally, HMCI launched an Instagram account in 2020, and worked on acquiring video equipment in anticipation of the launch of the HMCI YouTube channel.

HMCI's social media accounts were vital during the first several months of the COVID-19 pandemic as well as all other emergencies in 2020, with the accounts being used not only to

inform the public in a timely way of new developments, changes to regulations and lockdown requirements, but also to respond to hundreds of concerns and questions from residents. This timely communication helped build trust and confidence in Government's COVID- 19 response measures, and provided the public with fast, unimpeded access to a dependable source.

HMCI's social media accounts are among the most followed accounts for the Cayman Islands Government. They remain an important tool for delivering life-saving information in a crisis or threat, as well as, providing a vehicle for transmitting general preparedness tips and information.

Continuity of Operations Plans

In early March, even before the World Health Organization declared a pandemic, Hazard Management Cayman Islands, in conjunction with the Portfolio of the Civil Service (PoCS), conducted Continuity of Operations Plan training for Government Departments focusing on strategies for limiting the health and safety impacts of COVID-19 on staff, and ensuring the continued delivery of essential Government services and functions.

All Government Departments were required to fill out their CoOP plan which included their phased COVID response plan (or what we called at

the time - the Four Stage Pandemic Response Plan).

Additionally, in March all Government Schools were required to produce a COVID-19 Continuity of Operations Plan to ensure safety of students and staff.

One of the action items from the previous year was to increase oversight of Government Continuity of Operations Plans submissions, to ensure they were delivered on time, well thought through and fit for purpose. In support of this initiative, HMCI established closer working relations with PoCS who took the lead on receipt and oversight of Government continuity planning.

We also worked with PoCS to revise the Hurricane Template to account for the impact of the COVID-19 pandemic on Continuity of arrangements.

The relationship with the Portfolio was a critical factor in Government's successful response to the Pandemic. Departments were required to identify key staff in their Plans, which then allowed other less essential Government workers to be redeployed to assist with the pandemic response. Redeployments were made to areas such as communications, oversight of quarantine facilities and to provide additional control at ports of entry.

The path for the redeployment of Government workers is covered in the Disaster Preparedness and Hazard Management Law (2019 Revision) which makes it a legal requirement for Government agencies to submit their CoOP annually, and the law specifically speaks to redeployment of Government workers in a crisis.

HMCI's focus on vulnerable persons

HMCI made progress delivering on its mandate to incorporate vulnerable persons into the disaster preparedness and response mechanism in 2020.

Elderly Persons

The elderly were appropriately protected and prioritized during the NEOC activation in response to COVID-19.

HMCI also worked throughout the year with the Older Persons Council as well as DCFS to deliver targeted presentations.

In 2021, HMCI will be procuring emergency supply kits for the most vulnerable elderly and working with partner agencies at the Needs

Assessment Unit and DCFS to identify such persons.

Persons with Disabilities

HMCI also took a closer look at how the agency can better respond and assist persons with disabilities and other persons who are more vulnerable in such times.

HMCI personnel met with representatives of the Disabilities Council on several occasions and partnered with the Ministry of Community Affairs to deliver community-based activities and regular hazard presentations to advance the safety and well-being of older persons in our community.

Mental Health

HMCI advocated for more mental health support generally and acknowledged that in disaster management, mental health is a genuine health concern and should

not be considered a personal weakness. With assistance from our partners, mental health professionals are now available during emergency shelter activations in the Cayman Islands. During large scale emergencies, the mental health hotline will now be activated.

Single Parent Families

HMCI also looked deeper at gender imbalances such as the stresses on children and working, single mothers post emergency and how the NEOC can provide mechanisms and resources to protect children and mothers in the response and recovery phases.

The NEOC called for access to computers and internet for those children (without access) during the early days of the COVID-19 crisis, recognizing some children could get left behind in their studies. Fortunately, through a variety of

interventions, including an intense and determined initial lockdown period, clear communication about the importance of mask wearing and good hygiene, rigorous quarantine requirements, and a robust testing programme, the community spread of COVID-19 was halted, and children in the Cayman Islands returned to normal social interactions and in-person education relatively quickly. Only one local resident succumbed to COVID-19 virus in 2020: the frail elderly and vulnerable persons were protected in part through diligence and oversight by many in the NEOC.

HMCI is working to become truly all-inclusive in its disaster management approach, while accepting there is much work to be done, we remain committed to ensuring vulnerable persons are mainstreamed into the Cayman Islands disaster management mechanisms.

The International Charter 'Space and Major Disasters'

In June, the Cayman Islands became a member of the International Disaster Charter which allows authorized users at HMCI to task a network of over 60 satellites to access imagery of the Cayman Islands before, during and after a major disaster, or impact such as a hurricane, earthquake or tsunami. The service could be an important assessment tool following a crisis event and could assist in the response phase.

The Charter is a worldwide collaboration, through which satellite data is made available for the benefit of disaster management. By combining earth observation assets from different space agencies, including satellites controlled by the Russian, Chinese, American and

European Governments (amongst others), the Charter allows the Cayman Islands Government and the National Emergency Operations Centre to identify the most heavily impacted areas after a disaster and this will inform the decision-making process about where resources and support mechanisms need be directed and coordinated in response to a major impact.

Through this unique initiative, Hazard Management is now able to mobilize the assets of international space agencies around the world through a single access point that operates 24 hours a day, 7 days a week and at no cost to the Cayman Islands Government. Once the satellites have been mission tasked by HMCI, the department can expect to receive data of affected areas within a matter of hours or days; depending on the

type of the disaster and available satellite resources.

Climate Change

Hazard Management Cayman Islands believes there is overwhelming scientific evidence and consensus within the global scientific community that climate change is occurring, and the sea level is rising. Furthermore, HMCI believes that these changes could lead to more powerful hurricanes occurring with greater frequency, increasing the threat to life and property in the Cayman Islands.

This belief is supported by evidence of retreating polar ice sheets, another record-breaking year of Atlantic hurricane activity, and the Intergovernmental Panel on Climate Change (IPCC) which has said that warmer sea surface temperatures could intensify hurricane wind speeds, delivering more damage. Also, rising

seas will likely lead to increasing impacts related to storm surge and hurricane driven waves.

The record breaking 2020 hurricane season left significant stretches of Seven Mile Beach eroded of sand, and unlike in previous years, there is still no evidence of significant return of the sand and recovery of the beach in areas where it has eroded.

The Cayman Islands Planning and Development Law and the Development and Planning Regulations 2017 currently applies arbitrary set-backs values from the high watermark, for example properties along the iron shore must be set back at least 50 feet and along the beach they must be at least 75 feet from the mean high-water mark. HMCI is concerned that these setbacks do not accurately represent the site specific, localized risks associated with cyclones, especially in

the context of a changing climate and rising seas.

In 2020, HMCI increased outreach to stakeholders to better understand the climate change threats in the context of the Cayman Islands and this work will continue.

HMCI worked with the UK Government and the Caribbean Community Climate Change Centre in an effort to secure detailed underwater LIDAR Bathymetry Data, which is an important input in the creation of more accurate models for storm surge and hurricane driven waves. HMCI believes these models will eventually provide a source of accurate science and evidence-based information that would more realistically represent the inundation threat for a specific coastal property or proposed development. These models are not only valuable resources for assessing risk to properties but even more importantly

for assessing the drowning threat associated with surge and inland flooding. Unfortunately, the onset of the global pandemic pushed back the expected work of the UK Hydrographic Department. However, HMCI received indications that the survey was being tendered and would likely proceed in 2021.

Community Emergency Response Team (CERTs)

HMCI in partnership with the Cayman Islands Red Cross (CIRC) continued with our commitment to enhance the capacity of communities across the three Cayman Islands and develop the CERT training program.

Despite the limitations COVID-19 posed, HMCI and CIRC conducted training in the 4th Quarter of 2020 and established the first CERT team in

Little Cayman. Thirty (30) members were trained in topics such as; Search and Rescue, Fire Safety, Damage Assessment, First Aid/CPR, to name a few. They also visited the Emergency Shelter and participated in tabletop exercises to enhance knowledge and application. The training course spanned over thirty-two (32) hours and concluded with a graduation of fully trained members of diverse backgrounds and skills.

In Quarter 3 twenty-six (26) CERT members from communities across Cayman attended a virtual Damage Assessment training designed by HMCI's Mitigation Officer that utilized ESRI's Survey123 application. This enhanced training allows for instantaneous delivery of information to the NEOC during post-impact activities. A visual representation of damaged areas and information will

prove useful for decision-making at the NEOC level and NHM Executive.

CERT's across the islands were activated during the COVID-19 Pandemic to assist with mask and leaflet distribution, as well as, quarantine monitoring. Furthermore, during Tropical Storm Delta, CERT's assisted with wellness checks and dissemination of official information. These are a couple of highlights that display the diversity of the CERT's and the vital role they play in assisting the NEOC.

In 2021 we plan to conduct two (2) Generalist CERT trainings to the wider community. These will provide an opportunity for persons to become fully trained per the CERT programme

-despite not having a team established in their community. CERT Generalist members will be utilized in emergencies to assist across the islands in various capacities to support the NEOC mission. In addition, HMCI is

planning training to continuously enhance the skills of our members through CERT 'Challenges'; CERT teams will compete in practical exercises against other and share best practices.

Annual Hurricane Exercise

The 2020 Annual Hurricane Exercise

was hosted on the 20th May. Due to COVID-19 restrictions, HMCI adapted to the restrictions and hosted the 2-day exercise virtually. A tabletop was conducted which provided the opportunity for NEOC Emergency Support Team members to participate for the very first time in their core teams. The exercise incorporated themes that surfaced – both locally and globally - from the COVID-19

pandemic. Participants were also asked to consider how response mechanisms would adjust to a hurricane threat. These case studies incorporated social distancing measures, food security concerns, COVID-19 positive patients (how and where they would shelter), the flooding of PCR testing facilities etc.

HMCI also provided support to the Cayman Islands Airport Authority during their tabletop and mini- activation exercises. These exercises offer the opportunity to continuously enhance inter-agency coordination and our response to major events.

National Disaster Fund

In 2019, amendments were made to The Disaster Preparedness and Hazard Management Law 2016 to formally establish the National Disaster Fund, which existed previously but was not protected by any legislative framework. Each year significant funds from General Revenue and the surplus of HMCI's budget is added to this fund, and provided that we are not impacted, that money will continue to grow and be available if required to fund relief operations in the aftermath of a disaster.

Closing Remarks

As always, HMCI would like to acknowledge our Stakeholders and Partners who have worked closely with us throughout 2020.

Whilst it has been a very busy year for emergency activations, we are grateful to each and every one of you for working tirelessly at our side to ensure Cayman stays safe and can respond effectively to all emergencies.



Above photo showing members of the HMCI team encouraging sheltering in place during the COVID-19 pandemic. L-R Mark Codling, Danielle Coleman, Simon Boxall and Teresita DaSilva