



HAZARD MANAGEMENT CAYMAN ISLANDS

ANNUAL REPORT 2022

PREPARING COMMUNITIES TODAY FOR
DISASTERS OF TOMORROW

Foreword from the Director



With the threat of the global pandemic receding, no significant earthquake activity and only two NEOC activations for tropical cyclones in 2022, the team at Hazard Management Cayman Islands had more time to work on preparedness and mitigation aspects, while further laying the groundwork for an improved response mechanism for other threats such as Hazardous Materials.

Irregular migration from Cuba surged towards the end of the year and reached a level where it could no longer be managed

by the first response agencies alone. In anticipation of the possibility of a mass migration crisis, HMCI was engaged to bring the coordinated national response mechanism approach to the issues.

Our geography near fault lines makes Cayman vulnerable to earthquakes. Also, rising sea levels and warming sea surface temperatures associated with climate change will likely lead to more intense and frequent hurricanes over time, but that does not mean that the Cayman Islands cannot prepare for these hazards and become more resilient to the threats we face.

We will adapt to the evolving threats, but there is a degree of urgency for the Cayman Islands to do so. At HMCI, we take that responsibility seriously and we urge all residents to join us and help build a stronger and more resilient society that can withstand and recover from all hazards.

Ms. Danielle Coleman
Director, Hazard Management Cayman Islands (HMCI)
March 2023

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 significant national threats and disasters. HMCI also has responsibility for maintaining the National Hazard Management plans for threats such as hurricanes and earthquakes and others.

Our Vision

To create a resilient and prepared community across the Cayman Islands, through proactive and effective hazard management strategies that minimise the impact of disasters on our residents and visitors.

Our Mission Statement

To enhance the Cayman Islands resiliency, by preparing for, responding to and recovering from all national emergencies through a coordinated all-hazard approach to disaster management.

Working with public and private entities as well as the community to provide continuous hazard management improvement through exercises, testing, public education and awareness programmes. Also, by strengthening and improving the infrastructure and providing sustainable development strategies.

Our Values

- **Teamwork** – working together to achieve a common goal
- **Honesty** – being open and honest in everything we do
- **Respect** – respecting people and entrusting them to do a good job
- **Integrity** – following through on promises made
- **Innovation** – seeking continuous improvement through collaboration & technology

Strategic Objectives

1. **E**nhance our capabilities to anticipate all hazards and assess the threat of those hazards
2. **D**evelop and implement appropriate hazard management plans and validate through exercise and testing
3. **D**evelop robust business continuity management programmes to enhance organisational resilience

4. **P**romote measures to mitigate the effects of hazards to enhance disaster preparedness
5. **P**rovide comprehensive disaster management training to public, private and community-based groups
6. **S**trengthen interoperability and response to national emergencies through multi-agency collaboration
7. **M**aximise public awareness of all identified hazards and associated risks through a comprehensive communications programme
8. **S**trengthen recovery and disaster relief through efficient and effective logistics operations and supply chain management

Preparedness

Public Outreach and Training

Hazard Management Cayman Islands (HMCI) provided numerous awareness and

training sessions to the private and public sector, schools, Government Agencies and community groups. Additionally, HMCI made over 35 media appearances to build awareness and knowledge of all hazards.

A robust public outreach campaign, including direct engagement and publicity drove over 5000 residents to sign up for the National Emergency Notification (NENS) App; an important tool for delivering life-saving messages in times of critical or large-scale emergency situations.

HMCI posted 640 times across three social media accounts in 2022 (Facebook, Instagram and Twitter) generating 1.5 million impressions which

were seen by 1.3 million users. HMCI's social media pages now have 18,000 followers with 2,700 new followers added in 2022 representing a 15% increase. Other major outreach activities included the beginning of Hurricane Season media awareness blitz and National Day of Preparedness activities, which involved direct engagement with residents at hardware stores every Saturday during the month of May. Hundreds of Hurricane Information Booklets and Youth Activity Booklets were distributed over the course of the year and HMCI's website

"Cayman Prepared" attracted thousands of site visits, from persons seeking preparedness information. Key dates in the calendar were observed and supported with publicity including "World Tsunami Awareness Day", "United Nations International Day for Disaster Risk Reduction", "World Wetlands Day" and the anniversaries of Hurricane Ivan and the 2020 Earthquake. Preparedness tips were updated for radio rotation, HMCI assisted with content production for the Compass Emergency Guide, and worked with Department of Communications on hurricane season messaging with monthly themes, media appearances and preparedness posts.

Press releases were issued to mark the anniversary of the 2020 earthquake along with accompanying public awareness and interviews on radio, and approximately 28 seismic related social media posts were issued over the course of the year to raise awareness of the seismic threat. Additionally, 400 earthquake and tsunami posters were printed and distributed in schools, including on the Sister Islands and numerous presentations were provided covering subject matter relating to

preparedness for the earthquake and tsunami threat.



Hurricane Ian Debris Clearance 26 September, 2022

Community Emergency Response Team (CERT) Training

Two separate Community Emergency Response Team training sessions were provided in May and August, and resulted in an additional 47 volunteers being added to the CERT program. This intensive training included an overview of the structure of an established CERT team, fire safety and suppression, disaster preparedness, search and rescue operations, stress management and disaster psychology, shelter management, initial damage assessment and vulnerability and capacity assessment.

HMCI works in partnership with the Cayman Islands Red Cross and the Cayman Islands Fire Service (CIFS) to deliver CERT training and maintain the program. There are currently 7 active CERTs established in the Cayman Islands, including teams in North Side, Little

Cayman, Cayman Brac, Savannah Meadows, Prospect, North Sound Gardens, and West Bay.



Community Emergency Response Team
Training May 2022

Working with the Elderly and Persons with Disabilities

Over the course of 2022, HMCI held 12 meetings with the Older Person's Council and Disabilities Council, Red Cross, Department of Children and Family Services, Health Services Authority (EMS and Mental Health) in an effort to advance the support and intervention mechanisms to assist the elderly and persons with disabilities in disasters and serious hazard threats.

Numerous areas for proposed strengthening of systems, interventions and new elderly support mechanisms were identified; including proposals for the provision of additional cots and privacy screens in the shelters and earlier activation of the NEOC Call Centre to facilitate transport of vulnerable elderly or disabled persons who lack family support mechanisms or wheelchair accessible vehicles, to Emergency Medical Centre Shelters. An additional proposal to strengthen the support mechanism was to identify volunteer groups such as CERTs and

the Volunteer Agency Responders Emergency Support Team to provide post disaster welfare checks to vulnerable elderly persons. Other measures include the provision of visual aid boards in shelters and a pilot program was designed for data collection, in keeping with appropriate data protection principals and guidelines.

HMCI's public outreach and awareness efforts also aligned to provide more support for elderly persons. Presentations were made to the East End and North Side elderly community groups and with their feedback, a draft Hazard Awareness and Preparedness Guide for the Elderly was produced towards the end of 2022 and is awaiting approval from the Older Persons Council prior to dissemination. Over the course of the year, 100+ Medic Alert Kits were also distributed to seniors. These kits help to speed up care in critical situations by providing details of family contacts, any pre-existing medical conditions and / or medications which are made readily accessible to EMS personnel in a pouch typically attached to the household fridge.

Mitigation

In 2022, HMCI was able to gather additional baseline data such as the detailed bathymetry mapping of the inshore marine environment, which is critical for better forecasting of storm surge and storm driven waves.

IoT Flood Sensors

In 2022, progress was made on one of our most frequent threats, with the launch of the Internet of Things (IoT) flood sensor project. The pilot project will help provide improved insight into the flood threat which is critical in the context of climate change and rising seas in our low-lying Islands.

The IoT local sensor network will consist of water level detectors and rain gauges transmitting data to cloud servers. Using predetermined alarm thresholds, low-cost software will automatically recognize the threat of flooding, sending flood warning messages to HMCI staff, Cayman Islands

National Weather Service (CINWS) and the Department of Public Safety Communications (DPSC). HMCI will use this data to enhance communication, and provide a digital display of flood hazard information. This data will then be used to notify the public of potential flooding ahead of time. Progress over the course of the year included the establishment of a working group which researched the most flood prone communities, followed by a site selection process for deployment of the sensors. The sensors were subsequently procured and design requirements were being finalized at year end.



Map showing flooding hotspots in the Randyke Gardens Community

National Emergency Notification System App (Phase 2)

The reach and capacity of the National Emergency Notification System increased substantially in 2022 with thousands of new sign-ups for the emergency app. Analysis on the feasibility and technical requirements for the next phase (NENS Phase 3), the Cell Broadcasting System and software commenced at the end of 2022.

Shelter Management

In May, HMCI worked with key stakeholders to provide Shelter Management Training which resulted in the training of 270 shelter volunteers. Additionally, in 2022, the Cayman Islands Regiment was fully integrated into the shelter management program and these members can now serve as leads for shelters in a prolonged activation, or when the need arises.

Shelter capacity in Grand Cayman is currently at 7% (based on the 2021 ESO Census) of the population (Cayman Brac 50% and Little Cayman 100%) and there is a real need to increase the capacity in Grand

Cayman to approximately 20% - this will require significant work to ensure buildings are fit for purpose and appropriately stocked. Efforts to increase the available shelter space included ongoing dialogue with Bodden Town Church of God to incorporate design alterations to accommodate the HSA/EMS Ambulatory Unit and also with John Gray High School (JGHS) which will result in approximately an additional 4,000 shelter spaces coming on line in Q2 2023.

Climate Change

HMCI significantly increased its involvement and engagement on the issue of climate change in 2022, contributing extensive input to the Cayman Islands Climate Change Policy, especially as it relates to the increasing threats to life and property from storm driven waves, storm surge and in the context of rising sea levels.

Representatives from the department provided advice and input for the Joint Nature Conservancy Council (JNCC) funded Wood Report and attended the Cayman Flood Model Verification and Nature Based Solutions Workshop, as well as the (UK

funded) Climate Change Risk Assessment project and technical workshop. HMCI assisted Baird and Associates with data requests for the East-West Arterial Road Environmental Impact Assessment Coastal Risk Study and provided hazard risk input to Environmental Advisory Board for Cayman Brac Marina Project, including an environmental impact scoping opinion.

Additional work in this area included attending and providing input at all Beach Erosion Working Group and Coastal Setback meetings, and working with our Ministry of Sustainability and Climate Resiliency to advance climate change mitigation and adaptation strategies.

The team reviewed the Cayman Islands Climate Change Risk Assessment Evidence Report from the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and submitted input on the UN Art.73 Working Paper on the Cayman Islands to the Governor's Office, in relation to the constructive measures for development in the context of climate change and other hazards. Additionally, staff provided information for Cayman Islands Assessment report for the Caribbean Disaster Emergency Management Agency (CDEMA)

especially in relation to the existence of economic incentive programmes for Climate Change Adaptation in the Cayman Islands.

Access to evidence-based risk and vulnerability analysis for hazards was an increasing overall priority for HMCI in 2022. High quality, scientific modeling data is recognized as an important goal with implications for public safety and in order to better inform the planning and development process, to reduce avoidable impacts to properties and the inappropriate positioning of structures that contribute to beach erosion, especially in the context of rising sea levels and more frequent and more intense cyclones.

Response

Hazardous Materials

One of the areas that saw increased focus in 2022 was the development of our national capacity in hazardous materials, in particular, radiation and chemical threats. The groundwork laid in this area in 2022 will

lead to significant progress and improvement in 2023.

Following a hazardous materials response capability assessment conducted by a team from the UK Health Security Agency (UKHSA), there were additional chemical and radiation workshops with local stakeholders taking part in a table top exercise. Towards the end of the year, the Hazmat Technical Working Group was established.

Cuban Migration

The number of Cuban migrants surged in 2022 to the point that the combined number of Cubans being fed and accommodated by the Cayman Islands Government was over three hundred at any one time: a total which exceeded the total prison population in the Cayman Islands.

With the population of Cayman at approximately 72,000 this influx of immigrants from neighbouring Cuba presented significant economic, logistical and human resource challenges to the

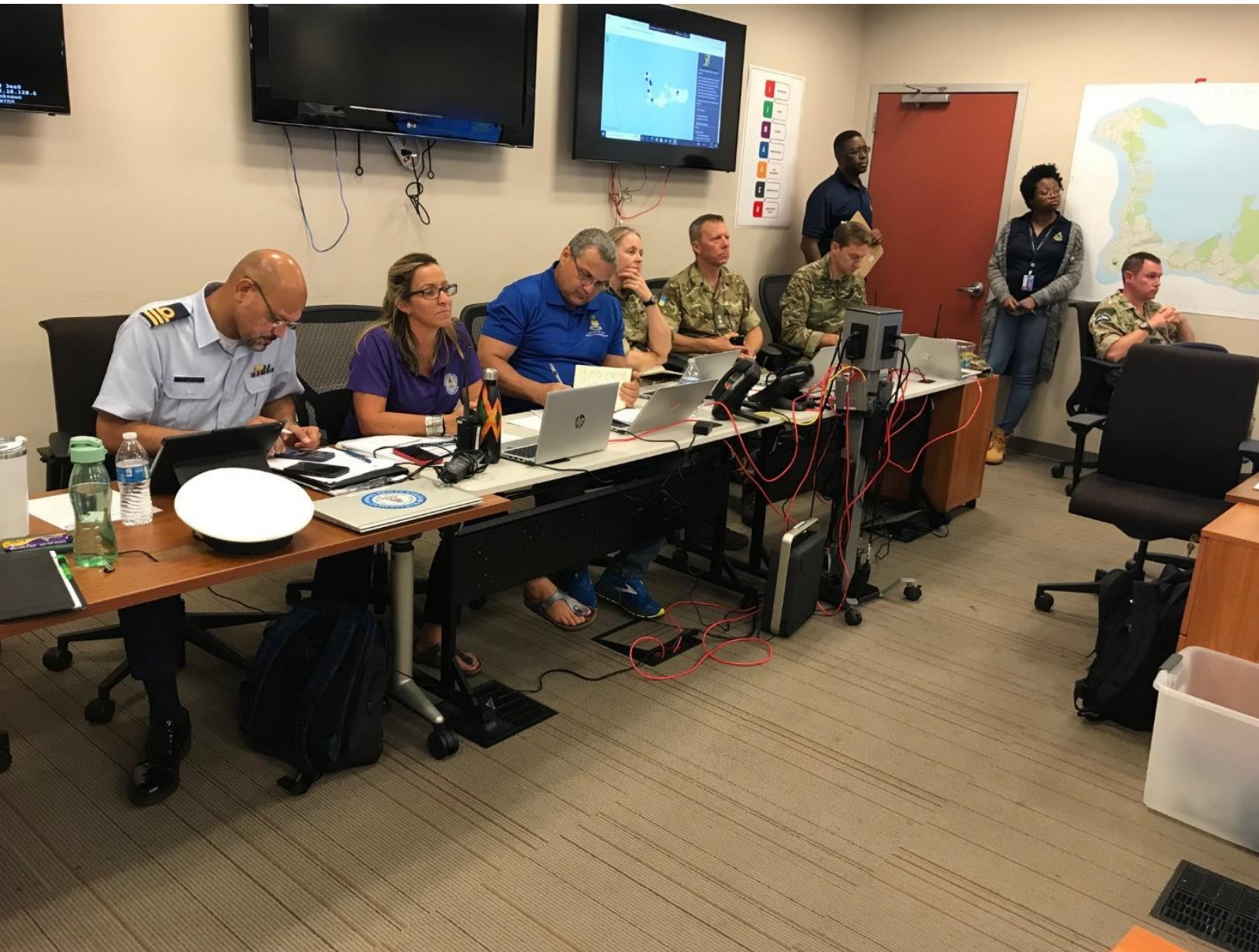
Cayman Islands and as a result, HMCI became involved in helping to coordinate the Mass Migration Plan, with a partial activation of the NEOC that included activation of some emergency shelters to house the migrants.

The National Emergency Operations Centre (NEOC)

The NEOC was activated on two separate occasions in 2022: On September 26th, Tropical Storm Ian brought rough seas, heavy rains and winds gusting to 50 mph to Grand Cayman. An Operational Liaison and Reconnaissance Team (OLRT) from the Ministry of Defence (UK) pre-deployed to Grand Cayman prior to the approach of Tropical Storm Ian, and HMS Medway also followed behind the storm as it approached the Islands. Fortunately, only minor damage was recorded to a few coastal properties, however the UK groups assisted with supplies, response delegation, the emergency shelters and debris clearance once the storm moved out of the Cayman area. The diversion of HMCS Medway

provided a degree of reassurance that UK support can be counted on when we really need it, and that it can integrate effectively into the Cayman Islands Disaster Response Mechanism.

The only other system that threatened the Cayman Islands was Tropical Storm Lisa towards the end of October, but a last-minute shift in the path took the system sufficiently far away from the Islands that there were no recorded impacts from this storm.



Tropical Storm Ian Activation 26 September, 2022

In 2022 the Cayman Islands also made it through without any significant seismic activity. At no point was the Cayman Islands placed under a tsunami watch or warning, however there were a number of small tremors on the afternoon of

June 16th, with 4 earthquakes occurring, ranging from Magnitude 4.3 up to Magnitude 5.0. The epicentres of all of these tremors were in the divergent plate boundary line, about 60 miles South South West of George Town. None of the earthquakes caused damage and there were only a handful of 'felt' reports. There were also very few landfill fires in 2022 and those that occurred were quickly brought under control.

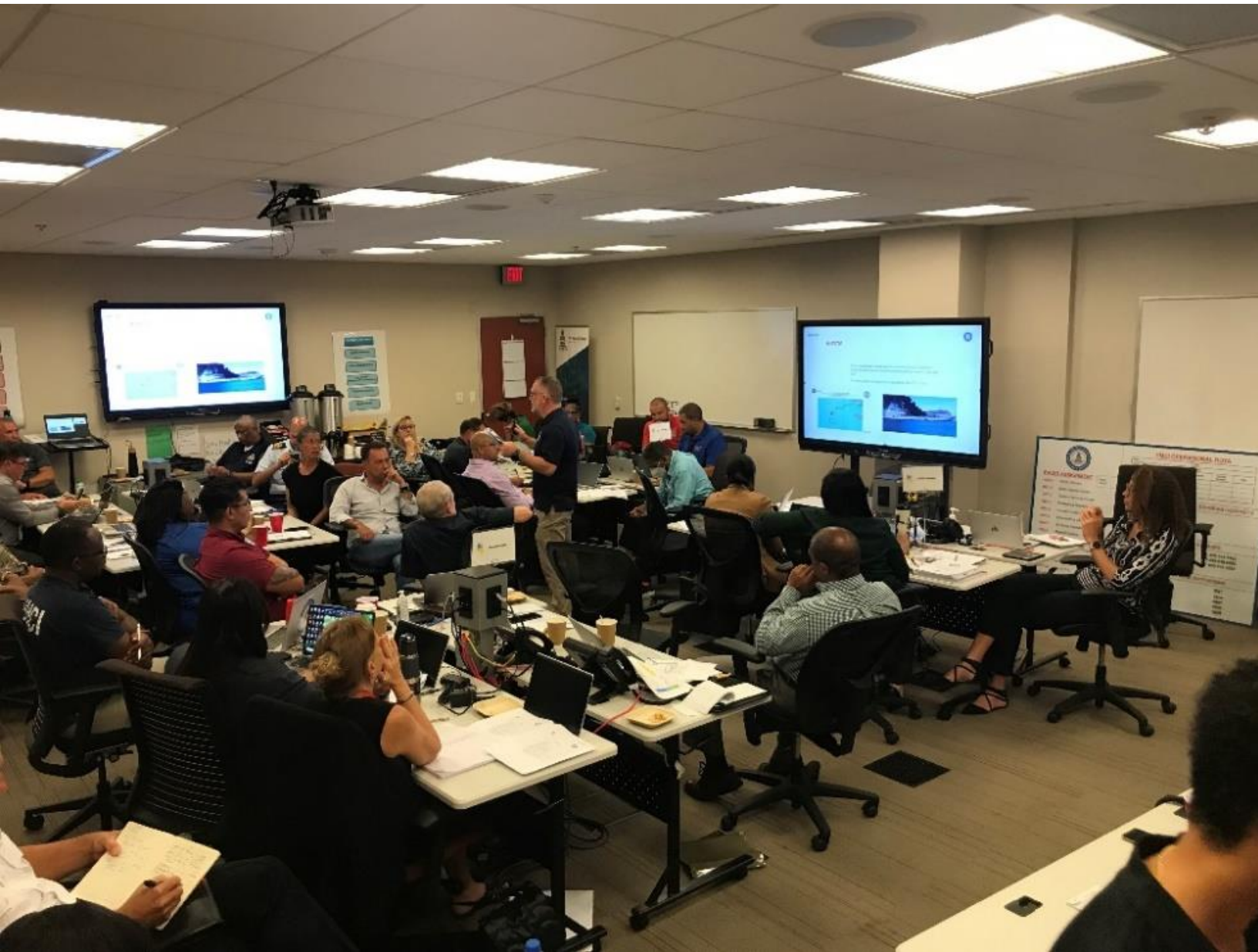
Exercises

The National Response Mechanism was not seriously tested by any of the activations in 2022, a number of exercises helped to maintain a degree of overall readiness and provided an opportunity to test the NEOC structure and review the operational

procedures set out in National Hazard Management Plan. In March, HMCI took part in the regional Caribe WAVE tsunami exercise. In July, Hurricane Exercise ('Bad Day') provided an opportunity to test, validate and rehearse preparedness and response protocols for a major hurricane, while at the same time dealing with another major concurrent event which involved a cruise ship fire. In October, HMCI assisted with an Aircraft Accident Simulation Exercise at Owen Roberts International Airport.

During the year, the National Emergency Operations Centre was further strengthened by the procurement of equipment for emergency response, damage assessment, and Incident Command Systems; this included the acquisition of tablets, screens, a printer, new radios and video equipment.

New warehouse equipment was purchased, including a forklift which can be used to support the distribution of relief supplies. More broadly, the warehouse management system was improved with the incorporation of new infrastructure for relief supplies storage.



Hurricane Exercise – “Exercise Bad” 25th July



Multi Agency Gold Incident Command (MAGIC)
International Workshop, March 2022

Incident Command Improvement Plan

HMCI is working on a Cayman Islands Incident Command Improvement Plan which involves the transition of the Cayman Islands national response mechanism to all major incidents at a National, Strategic and Tactical Level from its current structure to one that incorporates UK Concept of Operations and Joint Emergency Services Interoperability Principles (JESIP) methodology. The first phase of this transition was successfully delivered throughout 2022 and included various training initiatives such as the Tactical Commanders Development Training.

In March, representatives from Hazard Management Cayman Islands, Royal Cayman Islands Police Service and the Cayman Islands Coast Guard, along with other participants from the Overseas Territories took part in a Multi-agency Gold Incident Command (MAGIC) training course which was sponsored by the Foreign, Commonwealth and Development Office.

Sendai Framework for Disaster Risk Reduction

One of the foundational principals of the Sendai Framework for Disaster Risk Reduction (DRR) 2015 – 2030 is the need for a regional approach to supporting countries in their efforts to build whole of society resilience, reduce disaster risk and impacts, and contribute to well-being. In keeping with that principal, there were a number of opportunities over the course of 2022 to build relationships and support structures within the region.

The Commanding Officer of the United States Coast Guard (USCG) District 7, Rear Admiral McPherson met with the HMCI team on March 11th, which provided an opportunity for HMCI to discuss Humanitarian Aid and Disaster Response (HADR) assistance in the immediate aftermath of a disaster.

Additionally, the Executive Director of the Caribbean Disaster Emergency Agency, Elizabeth Riley presented the findings of the Comprehensive Disaster Management

Audit of the Cayman Islands to the National Hazard Management Executive. This detailed audit included input from 22 key stakeholders in the Cayman Islands and resulted in the identification of areas where the disaster management program has gaps and can be improved, including in relation to the current development planning framework, processes for climate change adaptation and the need for more detailed assessments of risk and vulnerability from a range of hazard threats.

Rear Admiral Antonette Wemyss-Gorman, the Chief of Defence Staff of the Jamaica Defence Force (JDF) paid a visit to the Cayman Islands and met with HMCI Director, Dani Coleman on Friday, May 6th. Rear Admiral Wemyss-Gorman is the senior commanding officer of all JDF resources. During the meeting, they discussed the role that JDF plays regionally with the Caribbean Disaster Management Agency (CDEMA). and while at HMCI, she was provided with an overview of the resources and capabilities of the Department and details regarding the broader disaster response mechanism in the Cayman Islands which HMCI coordinates.



United States Coast Guard District 7 Visit, 11th March, 2022

Recovery

The National Hazard Management structure incorporates the National Hazard Management Executive, the National Hazard Management Council, the Policy Group and the 18 Emergency Support Teams that form the National Emergency Operations Centre.

The effectiveness of this structure has proven itself in the response to both COVID-19 and in response to Hurricanes and Tropical Storms. While the need for the extended activation of the NEOC is expected for major impact events resulting in significant damage to infrastructure, the economy and threats to public health and safety, it has always been accepted that once the crisis situation is stabilized through the application of the structures of the National Hazard Management mechanism, that a Recovery Coordinator would be appointed. While HMCI was not established at the time, in the aftermath of Hurricane Ivan a Recovery Coordinator was appointed after a period of about three months, once a degree of normalcy had returned. During

this time, there were still significant issues with debris and hundreds of families remained in precarious situations because their homes were significantly damaged or destroyed and they were not covered by insurance or otherwise not in a position to move out of temporary homes or trailers provided by Government. The work of the Recovery Coordinator to assist persons in the Cayman Islands was aided by millions of dollars that were donated to the National Recovery Fund.

Recognising the importance of this recovery phase, HMCI took initial steps in 2022 to move beyond the appointment of a Recovery Coordinator alone, to establish and include a broader supporting mechanism called the National Recovery Task Force. The composition and functions of the Recovery Task Force are still in development, but once established, the group will meet regularly to anticipate the likely needs, to ensure the recovery process can rollout in an efficient and orderly way, so normal life and stable economic activity can resume as quickly as possible following a major impact. The focus on the "Recovery" phase will be significant for HMCI in 2023.



Tropical Storm Ian, 26 September 2022

Summary

There are several first response agencies in the Cayman Islands that are tasked with "Incident Response." In most cases these agencies can effectively respond and contain situations on their own, or with minor support from other agencies. Less frequent, but still possible are the events that can have great consequences for nearly every aspect of life in the Cayman Islands as we know it. It is this space that HMCI is tasked with preparing for, mitigating against, responding to and recovering from. Disaster Risk Management (DRM) is made more challenging because many years may pass between those times when we are either threatened or impacted by a disaster, but unless we prepare for, mitigate against, and always stand ready to apply a highly efficient and coordinated response to these disasters, they can be overwhelming with consequences that are widespread, and with implications that stretch far into the future. Ensuring we have a population that is well prepared in advance, especially for the most frequent and wide-ranging threats such as hurricanes is critical, but it is only a small

part of HMCI's role. Disasters can come in many forms: whether through a large oil slick coming ashore on our beaches, a major aircraft transportation accident, a tsunami or an earthquake and more.

By getting a really good understanding of the most significant risks we face, HMCI can propose and implement disaster risk reduction (DRR) strategies to reduce the impacts and adapt to the threats (and some cases even prevent them), we can also gain insight into the likely response requirements based on our knowledge and understanding of the hazards, their probabilities of recurrence and our innate vulnerabilities.

The response process is guided by the Hazard Management Plan which establishes the National Emergency Operations Centre structure and the roles and responsibilities of the 18 Emergency Support Teams in the key functional areas of the national disaster response mechanism (DRM), for a whole range of hazard threats. These teams are grouped into four clusters (Infrastructure, Emergency Response, Human Concerns and Support Services). Emergencies are complex, and HMCI is tasked with ensuring these support teams (with specific skill sets)

are ready and have the appropriate training, whether that is in shelter management, continuity of operations, damage assessment, or in the case of the first response agencies - in incident command systems and mass casualty management. Also, without testing, ongoing training and exercises, it is not possible for these teams to work together efficiently, especially in the absence of regular activations of the response mechanism.

HMCI ensures exercises occur and the Plan is updated with new insights and lessons learnt including from exercise and actual activations. The Cayman Islands can't always avoid disasters, but the Plan is essential for minimizing potential damage and ensuring things get back up and running smoothly and quickly, the mechanism and structure of the NEOC (as outlined in the plan) is also critical to the effectiveness of the response. Because disasters typically affect all aspects of society, the private sector, including utilities and civic clubs and organisations are also built into the national response mechanism, and they too are provided with training and are guided by the plan as well. A broader National Hazard Management Council is part of the structure (primarily

including the heads of all Government Departments and Agencies) because they advise on the implications and important considerations that the hazard / disaster may have on their functional areas and how that can affect deliverables and core services to public, that should be raised and considered by the Executive and the NEOC. Finally, a Policy Group comprised of senior management, are tasked with providing strategic advice and guidance to ensure the response mechanism is effective and challenges are confronted and overcome. HMCI does not lead the national response to all major emergencies in the Cayman Islands; HMCI's role in the response is to coordinate, and bring together all the different elements to deliver on their functional areas in the plan and provide an efficient platform for the Hazard Management Executive to lead, guide and navigate the Cayman Islands through the crisis or disaster as quickly and as effectively as possible, while minimizing the negative consequences to public health and safety, the economy and the reputation of the Cayman Islands.

As we saw during the Pandemic, large-scale emergencies often necessitate

humanitarian support mechanisms, significant economic resources and even new laws and regulations that can only be provided from the legislative arm of Government.

Conclusion

2022 was an opportunity to expand refine and improve our existing disaster risk management processes, while further developing our preparedness and response capacity for other hazards such as chemical and radiological threats. While hazardous material incidents may occur less frequently than hurricanes, they still present a significant risk to our residents and our natural environment, if a significant incident were to occur.

The Department benefited from two additional staff, who bring added depth and expertise to the Preparedness and Planning program, and also to Business Continuity Planning. Every year, Government agencies are required to submit a continuity of operations plan, detailing their procedures for minimizing disruptions and maintaining and restoring their critical functions as

quickly as possible following a disaster, and the improved capacity in this area will ensure better quality control, so the plans are fit for purpose when they are needed most.

Finally, HMCI would like to acknowledge the contribution and commitment from the vast number of stakeholders who contribute to the disaster management process in the Cayman Islands. HMCI primarily has a coordinating role and function, and without the involvement and dedication of Civil Servants, Volunteers, and the private sector the Department would not be able to achieve its mission and mandate.