



A bi-monthly electronic bulletin about interdisciplinary research, teaching and outreach at the
Centre for Resource Management and Environmental Studies (ERMES)
Editors: Maria Pena and Dr. Patrick McConney

CBF EbA Facility

By Maria Pena



In December 2016, The Caribbean Biodiversity Fund (CBF) with support from the Government of Germany, through the German Development Bank (KfW), established the Ecosystem Based Adaptation (EbA) Facility to support climate change adaptation measures in the marine and coastal zone in nine insular Caribbean countries (categorized as Official Development Assistance (ODA) countries) – Antigua and Barbuda, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Lucia, and St. Vincent and the Grenadines. The EbA Facility is a 5-year sinking fund of US\$ 26.5 million and is governed by the CBF Board of Directors through an appointed committee. The Facility will provide grants to local, national, regional, and international organizations operating in the Caribbean, through a competitive grant process.

In March 2018, the CBF Board approved the constitution of an EbA Facility Committee to provide technical supervision, advice and guidance to the operations of the EbA Facility. The six member EbA Facility Committee comprises climate change adaptation experts, project practitioners and donors representing the International Union for Conservation of Nature (IUCN), World Wildlife Fund (WWF) Germany, Kreditanstalt für Wiederaufbau (KfW) Development Bank, Caribbean Community Climate Change Centre (CCCCC), CERMES and the Caribbean Hotel and Tourism Sector. CERMES is represented on the committee by Maria Pena.

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EbA Facility Committee. L to R: Dr. Ulric Trotz, Ms Kim Halbach, Ms Maria Pena, Mr Karim ould Chih, Dr. Joth Singh, and Mr. Axel Krumsiek. Missing is Mr Ali Raza Rizvi.

The EbA Facility Committee had its very first face-to-face meeting during the 3rd Caribbean Challenge Initiative-Caribbean Biodiversity Fund (CCI-CBF) Week from 18-22 June at the Sonesta Coconut Grove Hotel, Miami, Florida. Karim ould Chih, EbA Facility Chair, and Dr Joth Singh, EbA Facility Programme Manager, sought to provide committee members with updates and seek

input on, among other things, the EbA Facility strategic approach, 2017/2018 workplan, operational manual currently under development, the consultation process to facilitate awareness of and buy-in to the EbA Facility, and the draft grant making rules.

There will be two funding tiers associated with the Facility. The first tier will be between US\$1 to 2 million targeting regional type projects, consortia submissions, and national projects. The second tier will be between US\$250,000 to 1 million, targeted to national organizations including government and civil society entities. It is expected that the first of four anticipated calls for proposals will occur in the last quarter of this year with disbursements made until 2022.

Key vulnerability factors for EbA Facility focus include – community livelihoods development, marine and terrestrial biodiversity, water quality and availability, agriculture and food security, coastal infrastructure and settlements, tourism, and natural disaster management. For more information on the CBF, CCI, and EbA Facility visit the [CBF](#) website. Look out for that first call for proposals later this year on the CBF website and its partner facilities.

Communities, conservation and livelihoods

By Patrick McConney

The Communities, Conservation & Livelihoods (CCL) Conference held at Saint Mary's University in Halifax, Canada, from 28-30 May, was an excellent opportunity for networking with colleagues from around the world who live and work in coastal communities or have an interest in their resilience. Indigenous people featured highly in the very interactive program that extended to the closing (see photo).



Although Caribbean representation was sparse, CERMES alumnus Dr David Gill was among the presenters on marine protected areas. David was literally on his way to Duke University where he takes up his new academic post. We look forward to his continued collaboration with CERMES in several areas of marine science.

IUCN celebrates its 70th anniversary

By Patrick McConney

The CCL Conference in Halifax was hosted in association with the IUCN, and we caught up with several colleagues from that international organization of which CERMES and staff are organizational and individual members. One of the IUCN highlights was its 70th anniversary lunch at which conservation pledges and calls for action were shared (see photo).

Although BIOPAMA was not well known among the mostly northern participants, synergies with the Natural Resource Governance (NRG) and People In Nature (PIN) initiatives of IUCN were quite evident. IUCN's World Commission on Protected Areas (WCPA) and Commission on Environmental, Economic and Social Policy (CEESP) were especially prominent at the CCL Conference.



Small Scale Fisheries Guidelines Protocol

By Patrick McConney

Success! The 12th Ministerial Council of the Caribbean Regional Fisheries Mechanism (CRFM) has adopted the *Protocol on Securing Sustainable Small-Scale Fisheries for Caribbean Community Fisherfolk and Societies* as the first protocol under the Caribbean Community Common Fisheries Policy (CCCFP). It integrates the SSF Guidelines into the fisheries policies of 17 Caribbean countries and entered into force immediately. The ground-breaking

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instrument is an output of the project partnership that includes CERMES, CANARI, CNFO and the CRFM Secretariat, supported by FAO.

Implementation of the protocol should enhance food security, improve the socio-economic situation of fisherfolk, and achieve sustainable use of fishery resources through the promotion of a human-rights based approach that includes gender. The ministers urged national fisheries authorities and other stakeholders in CRFM Member States to actively implement the Protocol on Securing Sustainable Small-Scale Fisheries within their jurisdictions. They called upon regional and international development partners and donors, including NGOs, to support and assist implementation. To this end the partnership of regional fishing industry organizations, academia and NGOs that helped to formulate the protocol has also committed to collaborate with the CRFM in its implementation.

CLME+ Project Steering Committee

By Patrick McConney

As one of the project Co-Executing Partners, CERMES attended the Second Steering Committee Meeting of the UNDP/GEF Project *"Catalyzing Implementation of the Strategic Action Programme for the Sustainable Management of shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems"* (CLME+) that convened from 18 – 20 June in Panama City, Panama (see photo).



We updated colleagues from around the region on the five specific outputs that CERMES is leading, and we heard from our partners in other outputs in which CERMES is collaborating. Two of the main CERMES outputs discussed were those on national intersectoral coordination mechanisms (NICs) that are important for ocean governance, and the Governance Effectiveness Assessment Framework (GEAF) to be used to monitor

and evaluate the long-term impact of the CLME+ Strategic Action Programme (SAP). The CLME+ Project is one of the largest in the region concerning the transboundary management of living marine resources. The meeting provided an opportunity for CERMES to network in several areas of current and potential collaboration. We also caught up with some CERMES alumni now in prominent positions around the region.

Strengthening GIS capacity in Barbados

By Kimberly Baldwin

Research Associate, Dr Kimberly Baldwin recently conducted a month-long *"Geoinformatics for Environmental Management"* training short course from April to May 2018 at CERMES for 20 persons in Barbados across five government agencies: Ministry of Energy and Water Resources - Natural Resources Unit and the Energy Conservation and Renewable Energy Unit; Government Electrical Engineering Department; Telecommunications Unit; UNDP - Disaster Risk and Energy Access Management (DREAM) project; and member of the Ministry of Health and Wellness - Vector Control Unit.



Government of Barbados GIS short course graduates.
Photo credit: Dale Benskin

The GIS course uses both theoretical and practical activities to establish key principles of GIS and its applicability for environmental management in the Caribbean. Additional skills included: constructing geodatabases, data management, conversion and data creation; coordinate systems and the Barbados National Grid; remote sensing, drone mapping and spatial analysis. Each participant also developed a GIS Pilot Project proposal for their respective department which outlined the benefits of using geoinformatics, a needs

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assessment and budget required. Kim will continue to mentor these agencies to allow them to implement these projects while continuing to strengthen their newly acquired GIS skills.

PAME workshop

By Carmel Haynes



The Biodiversity and Protected Areas Management (BIOPAMA) Programme held its Protected Areas Management Effectiveness workshop from 25-27 June at the Bay Gardens Hotel in Gros Islet, Saint Lucia.

According to Hyacinth Armstrong-Vaughn, International Union for Conservation of Nature (IUCN), Protected Areas Officer responsible for coordinating the BIOPAMA Programme in the Caribbean, the workshop was designed to introduce the IUCN protected area management effectiveness framework, the tools and their implementation in the Caribbean and to promote the implementation of management effectiveness in the protected areas of primarily the 15 Caribbean countries in which BIOPAMA operates. The 30 participants from governmental and non-governmental organizations in 15 Caribbean countries also gained insight into the challenges of environmental management in and around a popular World Heritage Site as they were taken on a land and sea field trip led by the Pitons Management Area Office and the Soufriere Marine Management Association.

Armstrong-Vaughn added that the workshop also provided an opportunity to introduce the IUCN Green List of Protected Areas Standard and identify opportunities for pilot cases for the implementation of management effectiveness and the Green List.

The IUCN Green List is a new global standard for protected areas that aims to improve the contribution made by equitably governed and effectively managed protected areas to sustainable development through the conservation of nature and provision of associated social, economic, cultural, and spiritual values. It is also the standard the BIOPAMA programme will use to guide

countries and sites in achieving overall improvements in governance and management.

CERMES field tripping

This year our annual student field trips for our ENVT 6003 Field Skills Study overlapped in April with the Coastal and Marine Resources Management students heading to Grenada and the Climate Change and Water Resources Management groups journeying to Belize. The coastal and marine folks were able to obtain some insights on small island developing states (SIDS) issues on sustainable development and sustainable tourism concerns and conflicts; the role of organization and capacity of community-based organizations involvement in sustainable development in SIDS; factors affecting governance for sustainable development; integrated coastal zone management practices; and status and management of coastal and marine habitats.



Chatting about tourism development with Roland Baldeo (Grenada Coral Reef Foundation) on Grand Anse

The Climate Change and Water Resources Management crews had some real hands-on experience in the field! The Climate Change group were kept busy estimating carbon stocks and the role of forest resources in carbon sequestration; measuring greenhouse gas emissions from agricultural sources; quantifying/assessing the pros and cons of exploiting renewable energy sources; monitoring beach and coastal change as a response to sea level change and anthropogenic factors, and its impact on coastal communities; and evaluating the efficacy of adaptation and mitigation strategies in the coastal and marine, forestry and energy sectors. The Water Resources Management crowd were knee and sometimes waist-deep into hydrological and hydrogeological measurement and monitoring of water resources and water quality sampling and testing. Additional insights on the impact of climate change on

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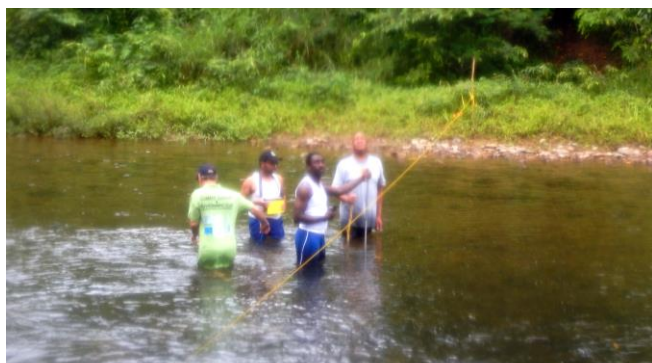
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water resources; land use and riparian mapping, water and gender issues and governance of water management; application of GIS to water resources, among other things, were gained.



Flow gauging at North Stann Creek river, Belize.

Photo credit: Renata Goodridge

CERMES has found this course provides students with the opportunity to apply the theory, knowledge, skills and techniques that they have obtained in the classroom to real situations in the field. It helps students understand the role field work plays in the development of natural resource management strategies, teaches them the importance of consistent application of protocols for data collection and record keeping, the analysis and presentation of field data.

13th Regional Training of Trainers Regional Course on MPA Management

By Georgina Bustamante



In the thirteenth edition of this regional training of trainers (ToT) course on marine protected area management, UWI-CERMES was invited by the Specially

Protected Areas and Wildlife (SPAW) Secretariat of the UN Environment in the Caribbean to organize and implement this training program which typically occurs every 1-3 years. Additionally, IUCN-ORMACC (Mexico, Central America and the Caribbean) supported the regional course by funding about half of its costs (transportation and accommodation) for 14 participants. This partnership was essential to the successful implementation of the program and illustrated previous collaboration among the [CaMPAM](#), [BIOPAMA](#) and [SocMon](#) programs. The partnership allowed for a better representation of the region by accepting applications of signatories of the SPAW Protocol of the Cartagena Convention and the BIOPAMA Asia, Caribbean and Pacific countries. Furthermore, the participation of and implementation of the activity at The University of the West Indies and its partner the IUCN Caribbean program, facilitated the use of highly qualified and experienced staff of CERMES and BIOPAMA as local coordinators and instructors.

The 21 participants represented a large proportion of Caribbean English speaking countries - Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Dutch Caribbean, Grenada, Guyana, Jamaica, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Trinidad and Tobago and US Virgin Islands. Participant job responsibilities ranged from MPA staff at the site level (5 managers, 5 technical personnel) to the national level (9 persons from marine environment and fisheries departments with responsibilities for MPA planning and management), as well as two researchers with UWI-CERMES.

The course aimed at strengthening competencies of MPA managers and marine environmental officers through a combination of classroom lectures, interactive exercises and field trips on basics of: the biophysical characteristics and interaction of the Caribbean coastal habitats at cross shelf and regional levels, their ecological services, and the local and global threats to their ecological resilience; ecological and socio-economic research and monitoring and its application to improve marine area management; marine spatial planning, participatory GIS, and ecosystem-based decision support systems; environmental education and stakeholder engagement in MPA governance at the site and national levels; the job of an MPA manager; communication tools for MPA

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managers; and sustainable financing and business planning.

There is potential for the implementation of follow-up activities pertaining to the training at all MPA sites. Subscribe to the [CaMPAM network and forum](#) for more information on the 13th Training of Trainers course and its outputs and outcomes.

Fulbright Fellow Hilary

By Hilary Lohmann



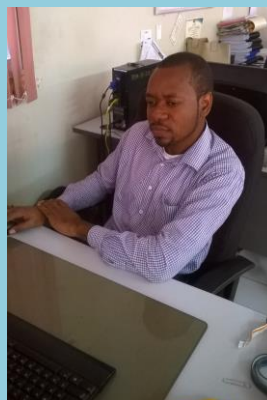
Hilary Lohmann is working with Maria Pena and Dr Patrick McConney on a ten-month Fulbright Scholarship from the US State Department. She is reviewing historical cases of the Socio-economic Monitoring for Coastal Management (SocMon) initiative from around the Caribbean to evaluate if and

how their results were turned into recommendations, and considered in decision-making. This project looks at the context in which SocMon is implemented and what impact SocMon makes in protected area and management decisions. She will also conduct interviews with key stakeholders of the designated Carlisle Bay/South Coast Marine Managed Area (SCMMA) to inform a baseline SocMon report on the area. Hilary will support the ongoing development of the SocMon Spatial tool and BIOPAMA Caribbean Gateway online platform with the results of her projects, and other communication support tools for data to better inform decision-making.

Hilary is originally from New Jersey. She studied Animal Behaviour and Spanish at Bucknell University and later received a Masters in Marine Affairs from the University of Rhode Island. She is joining us from St. Croix in the USVI, where she spent two years working at the East End Marine Park. Growing from academic and professional experience in coastal management and resilience, of late, Hilary is also interested in combined land-and-sea spatial planning and conservation finance (but always keen for a field day!)

Keeping up with our alumni

It's a proud moment when a CERMES staff member comes across their alumni at national, regional and international forum in various capacities. It truly reinforces the impact and reach of our teaching program. We wanted to save a space within this newsletter to highlight the achievements and progress of our past students. Written by the alumni themselves, their articles will give insight into where they are now and some perspective on their time here at CERMES. Enjoy.



My name is Douglas Brown. I'm an Air Quality Management Officer at National Environment and Planning Agency (NEPA), Jamaica. I attended CERMES from 2013 - 2014. One of best memories at CERMES was going on the trip to Belize and the interactions we shared between ourselves in order to

complete the projects. It was fun. Since CERMES I have worked as a Research Intern at UWI Mona, and a Planning and Research Officer for the national Library Service among other assignments.

CERMES helped me significantly. The education received has broadened my knowledge base tremendously. Currently I'm benefiting so much from learning GIS (ArcGIS), technical writing and data analytical skills, research skills, climate change knowledge etc., all of which I gained at CERMES. The guidance I received from my project supervisor was invaluable. The connections I made have also proven to be very valuable.

I hope to build on my current knowledge base and do further work, probably research, to advance air quality management in Jamaica. I would encourage prospective students to attend CERMES if they intend to have a career in environmental management in the Caribbean. It will be worth it.

Get your CERMES Technical Reports!

CERMES Technical Reports (CTR) are useful resources for staff and students that we share with the world on our website. Many of the CTRs are the work of students and from staff engaged in projects. Feel free to add these recent titles to your personal electronic library on vulnerability assessment in fisheries and applying ecosystem approaches to fisheries and marine protected areas:

Alleyne-Greene, C. K. 2016. Assessing vulnerability to climate change and variability at Six Men's Bay fishing community. Centre for Resource Management and Environmental Studies, The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 83. 77pp.

Jobe, K.MC. 2016. Introducing the ecosystem approach to fisheries in Tobago: an investigation of two sites. Centre for Resource Management and Environmental Studies, The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 90. 91pp.

If your interest is in gender in fisheries, coastal and marine matters you may also like to get:

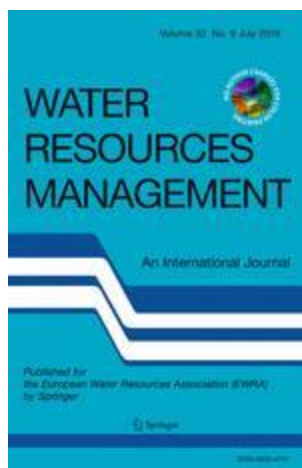
GIFT. 2018. Gender Scoping Preliminary Report: Caribbean Fisheries in the Context of the Small-scale fisheries guidelines. Gender in Fisheries Team (GIFT), Centre for Resource Management and Environmental Studies (CERMES), The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 86. 60pp.

CoopeSolidar, CNFO and CERMES. 2018. Caribbean women small-scale fisheries learning exchange with Costa Rica. Centre for Resource Management and Environmental Studies, The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 89. 21 pp.



New journal publication

Check out this article in *Water Resources Management, The Economic Value of Groundwater Irrigation for Food Security Under Climate Change: Implication of Representative Concentration Pathway Climate Scenarios*, recently published by our Post Doc Abdelaziz Gohar and Dr Adrian Cashman. The abstract follows:



Sustainable management of groundwater resources to support food security under the potential effects of climate change is an emerging area of research and particularly relevant in the context of Small Island Developing States.

Employing three regional downscaled Representative Connection Pathway (RCP 2.6, RCP4.5, and RCP 8.5) emission scenarios that have

been linked to an economic evaluation framework, the potential impact of climate change on groundwater scarcity, economic value of groundwater irrigation, food security, and farming livelihoods is investigated. A nonlinear hydro-economic framework, which integrates groundwater hydrology, climate data, land use, economics and institutions, has been applied for the island of Barbados. Results indicate that climate change would intensify the dependency on groundwater irrigation overtime, modulated by climate intensity. The strength of climate change will boost the marginal value of groundwater irrigation, as food price will scale up, presenting negative impacts on food security and reducing farming livelihoods. The climate change would also result in higher cost of producing foods resulting from increased cost of pumping, mainly driven by the effect of meeting abstraction needs for domestic and municipal consumption. Our primary results show that for a small island, sustaining groundwater resources will be a challenging objective to achieve under severe climate change.

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