



Member's report on activities related to ICRI

Central Caribbean Marine Institute

Reporting period November 2016 – November 2017

1. **Contribution to the ICRI Plan of Action 2016-2018.** *Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI Plan of Action (<http://www.icriforum.org/icri-secretariat/current>)*

Theme 1 – “Help raise awareness of how coral reefs and related ecosystems help to fight climate change”

- *Goal 1-1: highlight the contribution of coral reefs, mangroves and seagrasses to mitigate and adapt to climate change and its impacts*

Question: Do you have examples of solutions provided by coral reefs and coastal systems to mitigate and adapt to climate change?

We received a 3 year grant from the Darwin Plus Initiative in April 2017 to understand which herbivorous fish have the most significant impact on the overall health and biodiversity of coral reefs today. This study will inform recommendations for which species need the most protection as part of a biodiversity action plan. Protecting key fish species benefits the health of the reef overall, and the reef provides crucial protection for coastal communities as sea levels rise and storms intensify.

Question: Are you planning to add in your NDC the importance of coral reefs / mangroves?
N/A- CCMI is a non-profit.

Theme 3: “Help to reduce human threats to coral reefs and associated mangroves and seagrasses, by making greater use of regulatory tools”

- *Goal 3-1: promote legal frameworks for the protection of coral reefs and associated mangroves and seagrasses, with quantified targets and effective enforcement to protect these ecosystems*

Question: What are the legal frameworks for the protection of coral reefs and associated mangroves and seagrasses in place in your countries? If you already replied to the previous request, you don't need reply

The Cayman Islands Department of Environment has eight different categories of marine protected areas, including marine parks, designated grouper spawning areas, environmental zones, replenishment zones, wildlife interaction zones, animal sanctuaries/Rasmar sites, prohibited diving zones, and no diving zones. These zones and conservation laws can be found here: <http://doe.ky/wp-content/uploads/2015/01/Conservation-Brochure-8-Dec-2016.pdf>

The recently passed National Conservation Law in the Cayman Islands empowers the National Conservation Council to require that developers or government ministries conduct environmental impact assessments on major development plans before approval.

Question: Did you to set quantified targets to protect their coral reefs, mangroves and seagrasses? And are you able to provide a % of what is currently protected in your country? Please define what you mean by protection?

The Cayman Islands Department of Environment is responsible for establishing these targets. Over 43.91% of the total shelf area surrounding the Cayman Islands is designated as a marine protected area. 15.01% of the total shelf area is designated as no take zones. The government is also currently in the process of gaining stakeholder support for a revision and expansion of marine protected areas.

- *Goal 3-2: encourage a ban on plastic microbeads in cosmetic products*

Question: How did you implement the recommendation to reduce plastic microbeads pollution in marine environment?

CCMI has an Ocean Literacy campaign to address environmental issues in relation to coral reefs. We address the problem of microbeads and microplastics with all education and citizen science groups at the station, as part of a larger presentation and activity on marine debris and plastic pollution. We encourage participants to be mindful of plastic use and consumption.

- *Goal 3-3: improve regulation and enforcement to reduce direct anthropogenic damage due to dredging and physical alteration of reef structures*

Question: are you working on this topic? If yes, could you please share with us your work. Please note that the information provided will help us to develop a recommendation for the next ICRI General Meeting. Please send us information as soon as possible,

N/A: As a research, conservation, and education-focused non-profit institution, CCMI is not involved in regulation or enforcement.

- *Goal 3-4: promote the deployment of mooring devices limiting the mechanical destruction of coral reefs and seagrasses*

Question: are you working on this topic? If yes, could you please share with us your work. Please note that the information provided will help us to develop a recommendation for the next ICRI General Meeting. Please send us information as soon as possible,

Public moorings are widely available in the Cayman Islands. CCMI uses public moorings to minimize impact on coral reefs and seagrasses. We also have installed moorings on sites such as our coral nurseries where we frequently dive for research and conservation work.

- *Goal 3-5: review issues related to the impact of sunscreens and other endocrine disruptors on coral reefs, and encourage the production of sunscreens that are proven not to damage coral reefs*

Question: are you working on this topic? If yes, could you please share with us your work. Please note that the information provided will help us to develop a recommendation for the next ICRI General Meeting. Please send us information as soon as possible.

At present, CCMI is not working on this topic, though we promote the use of reef-friendly sunscreens along with a no impact rule for our students.

Theme 4: “Monitor the state of reefs in order to better manage them”

- *Goal 4-2: better monitor the phenomena of coral bleaching*

Question: How did you implement the recommendation on addressing the decline in coral reef health due to global bleaching events?

We maintain an annual reef monitoring program which encompasses bleaching surveys. Researchers at CCMI are studying resilience in staghorn coral which was reared in our coral nursery and has since been outplanted on the neighbouring reef. CCMI scientists are aiming to better understand the nature of resilience among some of the coral and causes of mortality among others.

Theme 5: “Progress via education”

- *Goal 5-1: prepare for the 2018 International Year of the Reef (IYOR)*

Question: How did you implement the Recommendation designating 2018 as the third International Year of the Reef? Please let us also know what are you planning to celebrate IYOR2018.

CCMI has developed a communications plan for IYOR2018 to increase local and international awareness of the IYOR and in support of UN Sustainable Development Goals 13 and 14. We are currently seeking local partners who will help convey messages regarding the value of coral reefs and the threats they face. As per our UN Chronicle Article, “Can We Save Coral Reefs?” we will be advocating the need for greater societal-level changes and individual actions to mitigate anthropogenic impacts to coral reefs.

CCMI will also launch Reefs Go Live in conjunction with IYOR. Reefs Go Live is an interactive telepresence educational programme, wherein students in classrooms and at informal science learning centres will be connected to researchers at work under the ocean in a two-way video dialogue. Topics focus on coral reefs will be tied into their school curriculum in an engaging, interactive format.

Please also list the educational material that you’ve developed in the past, so we can share it on the IYOR website.

Question: Would you like to report on one of your activities during the ICRI GM meeting?

Our new Reefs Go Live production will be available for broadcast anywhere. We can provide dates for broadcast that ICRI can use to promote IYOR.

2. Publications. Please list relevant publications/reports (related to the ICRI plan of action) you have released during this reporting period.

Banks, S. & Foster, K. (2017) Baseline levels of *Siderastrea siderea* bleaching under normal environmental conditions in Little Cayman, *Open Journal of Marine Science*, 7, 142-154, DOI: 10.4236/ojms.2017.71011.

Bartels, E., Drury, C., Goergen, E.A., Galván, V., Johnson, M.E., Lirman, D., Maxwell, K.E., Manfrino, C., Nedimyer, K., & Schopmeyer, S.A. (2017). Genomic patterns in *Acropora cervicornis* show extensive population structure and variable genetic diversity. *Ecology and evolution*. DOI: 10.1002/ece3.3184.

Lohr, K. E., McNab, A. A., Manfrino, C., & Patterson, J. T. (2017). Assessment of wild and restored staghorn coral *Acropora cervicornis* across three reef zones in the Cayman Islands. *Regional Studies in Marine Science*, 9c, 1-8. DOI: 10.1016/j.rsma.2016.11.003.

Peach, K. E., Koch, M.S., Blackwelder, P.L., Manfrino, C., (2017) Calcification and photophysiology responses to elevated pCO₂ in six *Halimeda* species from contrasting irradiance environments on Little Cayman Island reefs, *Journal of Experimental Marine Biology and Ecology*, 486, 114-126. 55 DOI: 10.1016/j.jembe.2016.09.008.

Manfrino, C. (2017), "Can we save coral reefs?", *UN Chronicle*, Vol. 54/2. DOI: 10.18356/39bc820c-en.

Protecting coasts and communities. (2017, November). *Darwin Initiative Newsletter*, 5.

Coral gardening and action plans to protect key species balancing reef ecosystems in the Cayman Islands. (2017, August). *Darwin Initiative Newsletter*, 13.

Report: Rethinking the Future for Coral Reefs- <https://reefresearch.org/wp-content/uploads/2017/08/Report-CCMI-Coral-Reef-Report.pdf>

3. General Information. (Note that this information will be posted on the ICRI website on your member page: <http://www.icriforum.org/about-icri/members-networks>.)

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