Member's report on activities related to ICRI

Reporting period July 2012 - October 2013

1. **General Information (**note that this information will be posted on the ICRI website in your member page: http://www.icriforum.org/about-icri/members-networks**)**

Are you an ICRI Member?	Yes
Member type (Country / Organization):	United Kingdom
Focal Point 1:	
Name:	John Clorley
Organization:	Department for Environment, Food & Rural Affairs
Email:	John.Clorley@defra.gsi.gov.uk
Focal point 2:	
Name:	Tina Blandford
Organization:	Department for Environment, Food & Rural Affairs
Email:	Tina.Blandford@defra.gsi.gov.uk
Last meeting attended:	*2012 General Meeting*
Related website(s)	

2. **Updates on your activities (**new initiatives/programs/projects of your government /organization which will be of interest to the ICRI Members**).** Examples include MPA declarations, World Heritage sites status, economic valuation of reefs, policy changes in relation to coral reefs etc.

Update from UK

Special Areas of Conservation (SAC)

The UK Government submitted the following sites to the European Commission in 2012, all of which will either wholly or partly be designated for reef habitat:

Studland to Portland pSAC (lies off the south coast of England)
Pisces Reef Complex pSAC (situated in the western Irish Sea)
Wight Barfleur Reef pSAC (situated in the English Channel)
Skerries and Causeway pSAC (situated on the north coast of Northern Ireland)
The Maidens pSAC (situated north east of Larne, Northern Ireland)
Hatton Bank pSAC (offshore waters adjacent to Scotland)
Anton Dohrn Seamount pSAC (offshore waters adjacent to Scotland)
East Rockall Bank pSAC (offshore waters adjacent to Scotland)
Pobie Bank Reef pSAC (offshore waters adjacent to Scotland)
Solan Bank Reef pSAC (offshore waters adjacent to Scotland)

The UK Government is also funding research on 'Understanding and addressing the impacts of threats to marine ecosystems/biodiversity in the UK Overseas Territories in the Caribbean'. This research is being carried out by Newcastle University in relation to Anguilla, the Turks & Caicos Islands, and the British Virgin Islands. The research is expected to be completed this year.

Update from Bermuda

Bermuda is working on developing a new legislation, enhancing coral reef protection; this legislation would include a mechanism for reporting and dealing with vessel groundings, establishing a mitigation process when removing the vessel, and establish a damage compensation fee. A Cabinet paper has been written and is pending approval by Cabinet to authorise the drafting of this legislation. This directly stems from recommendations made in a policy brief on the economic value of coral reefs for Bermuda (2011).

Coral Reef Ecology and Optics Laboratory (CREOL)

- Coral Reef Ecology and Optics Laboratory (CREOL), at the Bermuda Institute of Ocean Sciences (BIOS) has recently added a more novel high-technology method to help understand coral reef ecosystem function. CREOL uses Remote sensing to assess a reef's biological communities and optics to study how the benthic community utilizes light in an effort to understand ecosystem function.(http://www.bios.edu/research/projects/creol/#sthash.08PsYQGK.dpuf)

- Monitoring the effects of thrusters wall removal at Heritage Wharf built to provide support to new mega cruise ships. Thruster walls are intended to deflect strong flows of water from the ships/ bow and stern thrusters and minimise the resuspension of sediments which might impact the fringing reefs. These thrusters walls have been damaged and now require removal or modification to prevent potential damage from cruise ships.
  The four main objectives of the monitoring project included:

- Measuring sediment flux across the area of potential impact by cruise ship activity;
- Determining the impact, if any, of cruise ship activity on the reef fish community;
- Determining the impact, if any, of cruise ship activity on the reef benthic community; and
- Determining the impact, if any, of cruise ship activity and coral health.

  By employing a variety of techniques, deployment of sediment traps, stationary point counting of fish species, analysis of in-water survey photo quadrats, and assessment of coral pigment levels via optical spectral reflectance, researchers were able to gather data to successfully address the above objectives. Full report has been submitted to the Bermuda Department of Environmental Protection in February 2013. http://www.bios.edu/research/projects/heritage-wharf-marine-monitoring/#sthash.goAb7QlU.dpuf

Benthic Mapping, Monitoring and Assessment Programme

In the summers of 2012 and 2013 the Bermuda Department of Conservation Services conducted benthic surveys across the entire Bermuda Platform as part of their Benthic Mapping, Monitoring and Assessment Programme (BMMAP), which was implemented in 2006 in response to an unexplained loss of seagrass habitat and general lack of baseline information about distribution and condition of the physical and chemical environment. Primary goals of this programme are to acquire a data set that allows: recognition of changes, identification of possible causes of recent changes, and determination of limiting factors on the Bermuda platform.

Marine Spatial Planning

The Bermuda Government is committed to developing a marine spatial plan and a marine spatial planning coordinator was appointed in June 2013.

Lionfish

In October 2012 a Lionfish Control Plan Development Workshop was held. James Morris, NOAA and Lad Adkins, REEF, were the workshop facilitators. Approximately 30 people, representing different stakeholder groups, attended the workshop. The main goals of the lionfish workshop were (1) to review what was known about lionfish globally, (2) to identify what we did and did not know about lionfish in Bermuda, and (3) to determine what resources we had for lionfish control in Bermuda. The main outcomes of the workshop were the frame work for the Bermuda Lionfish Control Plan and the formation of the Bermuda Lionfish Taskforce, an island-wide coalition of stakeholders. It was the responsibility of the Bermuda Lionfish Taskforce to produce the Bermuda Lionfish Control Plan, this will be released in the near future.

Key research needs identified by the workshop are presently being addressed by ongoing research funded by a Darwin Plus grant through DEFRA's Darwin Initiative. The research includes determining the spatial distribution of lionfish around the Bermuda platform, investigating ecological factors driving the distribution, and developing a lionfish specific trap.

3. Contribution to the ICRI GM

Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI action plan and objectives of the general meeting.

a. Community-based monitoring

Are you engaged in, or support community-based monitoring in your marine areas? If so, think about what works and what doesn't with it to be prepared for workshop discussions on this topic. The discussions will revolve around:

- The benefit of community-based monitoring for management and reporting
- Way forward and how countries could support each other through a network of persons involved in monitoring and an online database.

Bermuda's marine community-based monitoring

- ReefWatch – this community based monitoring of coral reef communities was initiated in September 2013 by the Bermuda Zoological Society, a charitable support agency for the Bermuda Aquarium and Museum and Zoo, a section of the Bermuda Government's Department of Conservation Services.
- Marine Debris Taskforce – initiated in 2012 is a coalition of relevant government departments and environmental NGOs which works to assess the quantity of marine debris , including tar, stranding on Bermuda's coastline, to promote awareness of the impact of marine debris, and to develop public education iniatives to reduce Bermuda's contributions to the marine debris problem.
- Lionfish culling and monitoring - The lionfish culling programme has been revised and expanded. Volunteers are trained in culling techniques and safety by an NGO, Ocean Support Foundation (OSF), and issued an annually renewable permit by the Department of Environmental Protection. The permit allows the permit-holder to spear within 1 nautical mile of the shore and to spear while on SCUBA and, which is not ordinarily allowed under the Fisheries Act. Permit holders are required, as a condition of their permit, to submit culling statistics through the OSF website, if they fail to do so they will not be able to renew their permit.

b. Co-management

Do you have co-management arrangements in place for your marine reserves? If so, start thinking about what they are, and what works for you in preparation for workshop and field trip discussions on this topic. There will be some interactive exercises to help guide your thinking and possible way forward.

4. Is there any other topic you would like to raise during the meeting?

☐ **YES** ☒ **NO**

If yes, please indicate which topic and the reason why you would like to raise it:

[Insert text here]

5. Please list relevant publications, reports you have been released since the last meeting.

Title (incl. author and date)	Type of publication (Paper, report etc.)
Andersson, A. J., Bates, N. R., de Putron, S., Collins, A., and Noyes, T., 2012. *Seasonal trends in seawater carbonate chemistry and calcification in Bermuda*. 12th International Coral Reef Symposium, July 9-13, 2012, Cairns, Australia.	Proceedings
Goodbody-Gringley, G., Wetzel, D.L., Gillion, D., Pulster, E., Miller, A., and Ritchie, K.B., 2012. *Toxicity of Deepwater Horizon source oil and the chemica dispersant, Corexit 9500, to coral larvae.* PLoS ONE 8(1): e45574. doi:10.1371/journal.pone.0045574.	Paper
Kenkel, C.D., Goodbody-Gringley, G., Bartels, E., Davies, S.W., Percy, A.L., and Matz, M.V., 2012. *Evidence of local thermal adaptation in a Caribbean coral*. Integrative and Comparative Biology 52: E92.	Paper
Goodbody-Gringley, G., Woollacott, R.M., and Giribet, G., 2012. *Population structure and connectivity of the Atlantic scleractinian coral Montastraea cavernosa (Linnaeus, 1766)*. Marine Ecology 33: 32-48.	Paper
Jones, R., Johnson, R., Noyes, T., and Parsons, R., 2012. *Spatial and temporal patterns of coral black band disease in relation to a major sewage outfall in Bermuda.* Marine Ecology Progress Series 462:79-92.	Paper
Jones, R., Johnson, R., Noyes, T., and Parsons, R., 2012. *Spatial and temporal patterns of coral black band disease in relation to a major sewage outfall in Bermuda.* Marine Ecology Progress Series 462:79-92.	Paper
Kahng, S.E., Hochberg, E.J., Apprill, A., Wagner, D., Luck, D.G., Perez, D., and Bidigare, R.R., 2012. *Efficient light harvesting in deep-water zooxanthellate corals.* Marine Ecology Progress Series, 455, 65-77	Paper
Kuffner, I.B., Jokiel, P.L, Rodgers, K.S., Andersson, A.J., and Mackenzie, F.T., 2012. *An apparent "vital effect" of calcification rate on the Sr/Ca temperature proxy in the reef coral Montipora capitata.* Geochemistry Geophysics Geosystems, 13 10.1029/2012gc004128.	Paper
Andersson, A.J, and Mackenzie, F.T., 2012. *Revisiting four scientific debates in ocean acidification research.* Biogeosciences. 9:893-905, 10.5194/bg-9-893-2012.	Paper
Venti, A., Kadko, D., Andersson, A.J., Langdon, C., and Bates, N.R., 2012. *A multi-tracer model approach to estimate reef water residence times.* Limnology and Oceanography-Methods, 10:1078-1095. 10.4319/lom.2012.10.1078.	Paper
Total Economic Value of Bermuda's Coral Reefs: Valuation of Ecosystem	Technical Report-

Services. 2010. Eds. Sarkis S, van Beukering PJH and McKenzie. Department of Conservation Services, Government of Bermuda. 200 pages.	Government
A summary of the Economic Valuation of Bermuda's Coral Reefs: Raising environmental awareness through economics. S. Sarkis	Policy Brief for Bermuda Cabinet
Estimating the Potential Impacts of Large Mesopredators on Benthic Resources: Integrative Assessment of Spotted Eagle Ray Foraging Ecology in Bermuda.(Ajemian MJ, Powers SP, Murdoch TJT. 2012) . Plos One 7:e40227	Paper
Tropical species at the northern limit of their range: Conposition and distribution in Bermuda's benthic habitats in relation to depth and light availability (Manuel SA, Coates KA, Kenworthy WJ, Fourqurean. 2013) . - Marine Environmental Research 89: 63-75	Paper
Introduction to Bermuda: Geology, Oceanography and Climate (Coates KA, Fourqurean JW, Kenworthy WJ, Logan A, Manuel SA, Smith SR. 2013) in: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 115-133	Book chapter
Biogeography and Biodiversity of Bermuda Coral Reefs (Locke JM, Coates KA, Bilewitch JP, Holland LP, Pitt J, Smith SR, Trapido-Rosenthal HG. 2013). In: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 153-172	Book chapter
Scleractinia, Octocorallia and Antipatharia of Bermuda's reefs and deep-water coral communities: a taxonomic perspective including new records (Locke JM, Coates KA, Bilewitch JP. 2013). In: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 189-200	Book chapter
Total Economic Value of Bermuda's Coral Reefs: A Summary (Sarkis S, van Beukering PJH, McKenzie E, Brander L, Hess S, Bervoets T, Looijenstijn-van der Putten L, Roelfsema M. 2013). In: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 201-211	Book chapter
Biology and Ecology of Corals and Fishes on the Bermuda Platform (Smith SR, dePutron S, Murdoch TJT, Pitt JM, Nagelkerken I. 2013). In: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 135-151	Book chapter
Smith SR, Sarkis S, Murdoch TJT, Weil E, Croquer A, Bates NR, Johnson RJ, dePutron S, Andersson AJ. 2013. Threats to Coral Reefs of Bermuda. In: Sheppard C (ed.) Coral Reefs of the World Vol. 4, Coral Reefs of the United Kingdom Overseas Territories. Springer Science and Business Media Dordrecht, pp 173-200	Book chapter
Report on the 2011 survey of recreational fishing activity in Bermuda (Department of Environmental Protection, 2012)	Technical report

6. Please indicate upcoming coral reef-related meetings you or your organisation will attend

2nd Global Conference on Land - Ocean Connections (GLOC-2) October 2- 4 2013, Montego Bay, Jamaica ☐

17th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the Convention on Biological Diversity (SBSTTA-17), 14-18 October 2013 Montreal, Canada ☒

2nd Global Marine World Heritage Site Managers Conference, 17-20 October 2013, Corsica, France ☐

International Marine Protected Areas Congress, 21-27 October, Marseille, France ☒

9th Pacific Island Conference on Nature Conservation and Protected Areas, 2-6 December, Suva, Fiji ☐

Other:
Department of Environmental Protection officers- Gulf and Caribbean Fisheries Institute, 4-8 November, Corpus Christi, TX, US

BIOS scientists- 12th International Coral Reef Symposium, July 9-13, 2012, Cairns, Australia.

BIOS scientists- Ocean Sciences Meeting 2012, Salt Lake City, Utah.

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7. **General Information (**note that this information will be posted on the ICRI website in your member page: http://www.icriforum.org/about-icri/members-networks**)**

Are you an ICRI Member?	Yes
Member type (Country / Organization):	Cayman Islands, Department of Environment
Focal Point 1:	
Name:	Gina Ebanks-Petrie
Organization:	Director, Department of Environment
Email:	Gina.Ebanks-Petrie@gov.ky
Focal point 2:	
Name:	Timothy Austin
Organization:	Deputy Director, Department of Environment
Email:	Timothy.Austin@gov.ky
Last meeting attended:	*2012 General Meeting*
Related website(s)	*www.doe.ky*

8. **Updates on your activities (**new initiatives/programs/projects of your government /organization which will be of interest to the ICRI Members**).** Examples include MPA declarations, World Heritage sites status, economic valuation of reefs, policy changes in relation to coral reefs etc.

   A. With United Kingdom (Darwin Initiative) funding engaged in a comprehensive review of the Cayman Islands Marine Parks (MPA) system and developed a proposal for an enhanced system of marine parks which aims to protect 40-50% of the shelf area as no take zones
   B. With the assistance of JNCC funding the DOE is piloting a Lionfish Economic Impact survey focussing on the diving and tourism community.

9. **Contribution to the ICRI GM**

   Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI action plan and objectives of the general meeting.

c. Community-based monitoring

Are you engaged in, or support community-based monitoring in your marine areas? If so, think about what works and what doesn't with it to be prepared for workshop discussions on this topic. The discussions will revolve around:

- The benefit of community-based monitoring for management and reporting
- Way forward and how countries could support each other through a network of persons involved in monitoring and an online database.

The Cayman Islands embarked on a number of small scale community-based monitoring programmes. Using social media and web site based forums the Department of Environment solicits and records observations of large or notable marine organisms (cetaceans,

elasmobranchs, turtles) from the public which are fed into a variety of management programmes.

The DOE's Marine Turtle Nesting Programme relies heavily on organised public participation in morning beach surveys.

Additionally the DOE coordinates the local Lionfish Culling Programme through training, permits, equipment and culling events.

d. Co-management

Do you have co-management arrangements in place for your marine reserves? If so, start thinking about what they are, and what works for you in preparation for workshop and field trip discussions on this topic. There will be some interactive exercises to help guide your thinking and possible way forward.

The Cayman Islands only has one co-managed marine reserve, where an artificial dive site (shipwreck) was created within a protected area and entry control of that section of the protected area, along with management responsibility for the shipwreck itself, was devolved to the Cayman Islands Tourism Association responsible for arranging the creation of the artificial dive site.

10. Is there any other topic you would like to raise during the meeting?

☐ **YES** ☒ **NO**

If yes, please indicate which topic and the reason why you would like to raise it:

[Insert text here]

11. Please list relevant publications, reports you have been released since the last meeting.

Title (incl. author and date)	**Type of publication (Paper, report etc.)**
Maintaining Reef Resilience: The Characteristics and Spatial Distribution of Fishing Pressure from the Recreational and Artisanal Fisheries of the Cayman Islands. Beth Henshall, MSc Thesis – Marine Environmental Protection, School of Ocean Sciences, Bangor University, Wales. 2009	MSc Thesis
Quantifying the Impact of Recreational and Artisanal Fisheries in the Cayman Islands. R. E. Meier. 2011	Report
The Effect of Long Established Marine Protected Areas on the Resilience of Caymanian Coral Reefs. Sarah Gall, MSc Thesis – Marine Environmental Protection, School of Ocean Sciences, Bangor University, Wales. 2009	MSc Thesis
An Assessment of Caymanian Coral Reefs, Are the Long Established Marine No-Take Zones Enough? Adam Barton, MRes Environmental Biology – University of St Andrews. 2010	MSc Thesis
Creating Environmental Risk Surfaces and Integrating Field Data with Conservation Targets for Goal Setting Purposes in Marxan – The Nature Conservancy Trip Report, 2011	Report
Estimating Marine Reserve Effects through Quantification of Macro-Algal Biomass on a North-West Caribbean Coral Reef. CroyMcCoy, Laura Richardson, John Russell Turner. Association of Marine Labs of the Caribbean 2011	Poster

Quantifying the Impacts of Recreational and Artisanal Fisheries in the Cayman Islands through the use of Socioeconomic Questionnaires. Croy McCoy, Rhiannon Meier, John Russell Turner. Association of Marine Labs of the Caribbean 2011	Paper

12. Please indicate upcoming coral reef-related meetings you or your organisation will attend

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International Marine Protected Areas Congress, 21-27 October, Marseille, France ☐

9th Pacific Island Conference on Nature Conservation and Protected Areas, 2-6 December, Suva, Fiji ☐

66th Annual meeting of the Gulf and Caribbean Fisheries Institute, 4 – 8 November, Corpus Christie, USA ☒

Other: FORCE - Workshop_Coral Reef Science of Management: Tools & Practical Solutions_November 2013