



Member's report on activities related to ICRI

United States of America

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?

Answer: Coral reefs strengthen our coastlines and protect them from storms, tsunamis, and erosion. This protection is especially important as sea level rises and the threat of coastal inundation during extreme events increases. Coral reefs protect the shorelines of more than 93,000 miles worldwide, sheltering villages and big cities alike. Coral reefs reduce wave energy by an average of 97%, functioning as effectively as or better than artificial breakwaters, and self-sustaining as long as they remain healthy (Ferrario et al 2014). U.S. flood damages averted due to coral reefs are estimated at \$94 million annually with the U.S. ranking in the top 10 of countries to receive risk reduction benefits from reefs, but if just the top 1 meter of coral reefs were lost, the annual expected damages from flooding would more than double globally.

Citation: Ferrario, F., M. W. Beck, C. D. Storlazzi, F. Micheli, C. C. Shepard, and L. Airoidi (2014) “The Effectiveness of Coral Reefs for Coastal Hazard Risk Reduction and Adaptation.” *Nature Communications*, 5:3794.

Question: Are you planning to add in your NDC the importance of coral reefs / mangroves?

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

Answer: Please find attached a list of U.S. federal, state, and territorial laws and regulations that govern activities in and around coral reef ecosystems. We also submitted this list in response to the ICRI request in August 2017.

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?

Answer: Quantified targets

- Micronesia Challenge:
 - The Micronesia Challenge is a commitment by the Federated States of Micronesia, the Republic of the Marshall Islands, the Republic of Palau, Guam, and the Commonwealth of the Northern Marianas Islands to preserve the natural resources that are crucial to the survival of Pacific traditions, cultures and livelihoods ([View signed declaration](#)). The overall goal of the Challenge is to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020. This ambitious challenge far exceeds current goals set by international conventions and treaties, which call for countries to conserve 10% of terrestrial and marine resources by 2010 and 2012 respectively.
- Sustainable Hawaii Initiative - 30 by 30 Oceans Target:
 - The 30 by 30 Oceans target is a part of the [State's Sustainable Hawaii Initiative](#). It includes commitments to protect 30% of priority watersheds and effectively manage 30% of nearshore ocean waters by 2030. Hawai'i also accepted the invitation to join the Global Island Partnership and will share their model for sustainability, the Aloha+ Challenge, with other island communities.

Answer: Area currently under protection

U.S. Marine Sanctuaries/Monuments with coral habitat- Total Area: TOTAL = 697,761 mi²

- Paphanoumokuakea MNM: 580,000 mi²
- Marianas Trench MNM: 96,714 mi²
- Pacific Remote Islands MNM: 86,888 mi²
- American Samoa NMS: 13,581 mi²
- Rose Atoll MNM: 13,436 mi²
- Florida Keys NMS: 3,800 mi²
- Flower Gardens NMS: 56 mi²

Of that 697,761 mi², 440 mi² are shallow hard bottom coral reef habitat – the larger footprint is important for connectivity between reefs and fishing impacts.

- *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?

Answer: President Obama signed into law a ban on rinse-off cosmetics that contain intentionally-added plastic microbeads beginning on January 1, 2018, and a ban on manufacturing of these cosmetics beginning on July 1, 2017. We have attached a copy of this law, the “Microbead-free Act 2015”.

- *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,

Answer: The U.S. Coral Reef Task Force (USCRTF) developed the “Handbook on Coral Reef Impacts: Avoidance, Minimization, Compensatory Mitigation and Restoration.” The Handbook is

a characterization of the federal mandates; review of existing policies and federal agency, state and territory roles and responsibilities; and a compendium of best practices, science-based methodologies for quantifying ecosystem functions or services, and protocols available for use when assessing, mitigating, and restoring coral reef ecosystems. The target product is an amalgamation of coral reef regulatory practices.

The target audience for this Handbook includes project applicants, proponents, permittees or consultants for projects that may affect coral reefs or for responsible parties (RP) and their consultants in the event of unplanned impact events. This Handbook is also intended to be a reference for resource managers who are charged with project permitting, damage response, impact mitigation, and habitat restoration. This Handbook was adopted by the USCRTF in the fall of 2016.

- *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,

Answer: There are a few funding opportunities and multiple programs in the United States that promote the use of mooring devices to prevent both large commercial and smaller recreational boat impacts. The following bullets are a few representative examples.

- [Port Everglades commercial vessel anchorage, Fort Lauderdale, Florida](#). The commercial anchorage for Port Everglades was moved to reduce the potential for future groundings off the coast of Fort Lauderdale. The former anchorage area was located between the second and third coral reefs running parallel to the shoreline. The new anchorage area is located further offshore and is approximately 13 percent smaller. The new configuration is expected to continue to meet the needs of ships conducting business in Port Everglades, a key regional economic engine.
- [Florida Keys National Marine Sanctuary Buoy Program](#): Mooring buoys, which are 18” in diameter with a blue stripe, have been used in the Florida Keys since 1981 as an alternative to anchoring, which can break and damage the coral reef. There are over 490 mooring buoys available for use within the sanctuary on a first-come, first-served basis at no cost to the boater. Anchoring on living coral within the sanctuary in waters less than 40 feet and when the bottom is visible is prohibited.
- [Puerto Rican Mooring Buoys](#): The Department of Natural and Environmental Resources of Puerto Rico has installed over 270 mooring buoys in seagrass, coral, and mangrove regions with the anticipation that they will curb boating damage and allow these natural environments to recover.
- [Hawaii Day-Use Mooring Buoy 10-Year Strategic Plan](#): With a grant from the NOAA Coral Reef Conservation Program, the Malama Kai Foundation published the Day-Use Mooring Buoy 10-Year Strategic Plan (DMB PLAN) to provide the state of Hawaii with a long term strategy to install and manage day-use moorings buoys throughout the main Hawaiian Islands. The DMB PLAN identifies existing and future sites for day-use moorings in order to reduce/eliminate anchor damage and minimize user conflicts, and over-use. The DMB PLAN recommends a long-term strategy to manage the moorings, necessary rule changes and identifies potential reliable and consistent funding sources.
- [Mooring Buoy Planning Guide](#): With funding from a NOAA Coral Reef Conservation Program, this guide was produced by Project AWARE Foundation and PADI International Resort Association to address some of the issues relating to the planning, installation and maintenance of a mooring buoy program.
- *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.

Answer: There is a developing body of scientific evidence showing that certain chemicals included in sunscreens that provide protection to people from the sun, including oxybenzone, can physiologically injure and/or kill a number of marine organisms, including coral species listed under the Endangered Species Act (ESA). Oxybenzone is toxic to coral and threatens overall coral reef health by:

- Inducing coral bleaching;
- Harming or killing coral larvae by inducing cross deformities, DNA damage, and bleaching;
- Acting as an endocrine disruptor; and
- Bioaccumulating in coral tissue.

NOAA scientists from the Coral Disease and Health Consortium participated in the development of some of these studies and are reviewing the results from others. (C. A. Down, 2016)

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?

Answer: The NOAA Coral Reef Conservation Program is actively working with its partners to address the impacts of climate change and ocean acidification on coral reef ecosystems. The Coral Program promotes resilience-based management (RBM) as the best strategy to achieve management goals in a changing climate. Resilience refers to the capacity of a system to resist and/or recover from a disturbance event and maintain structure and function to allow the continued provision of ecosystem goods and services. It is important to understand this is not the system's ability to “bounce back” to a single state but rather the ability of an ever-changing system to return to a healthy state after these impacts.

Resilience-based management (RBM) involves using knowledge of current and future drivers of ecosystem condition and function to identify, prioritize, and adapt management actions that sustain ecosystem resilience and human well-being. RBM actions are those that reduce stressors on the ecosystem, reduce the exposure to stressors, build or maintain system resistance and promote recovery after disturbance. This can include direct interventions to reduce stress and proactive and/or reactive restoration activities. A key aspect of RBM is using the best available knowledge to identify sites that contribute disproportionately to system resilience and prioritize actions that maintain and/or build that resilience at those sites. This requires a dynamic understanding of the system and agility to adaptively manage these systems as conditions change.

In order to provide support to the jurisdictions to implement RBM, there are three areas of focus for the program; to provide an understanding of past, present and projected future impacts to coral reefs caused by coral bleaching and other climate impacts; to assess and understand likely social and ecological responses to climate change; and to support the identification and prioritization of management actions to support ecosystem resilience and human well-being. The RBM approach unifies the work under all the pillars of the program and will assist the program and its partners in being strategic about how we invest in conservation.

Climate Strategy: Increase coral reef resilience to climate change and ocean acidification
To achieve this, we will:

- We will provide enabling conditions for resilience-based management by supporting an ongoing dialogue with jurisdictional partners on the approach and benefits and the necessary training and capacity on the principles of RBM and tools that support the approach.
- We will ensure that jurisdictions have climate change vulnerability assessments, including periodic reassessments and the understanding of how to use that information in planning.
- We will support the integration of multiple types of monitoring and modelling to provide a dynamic understanding of the system to inform decisions and allow for adaptive management.
- We will support research at the national and jurisdictional level to answer key research questions to validate and improve upon the RBM approach.
- We will support and encourage jurisdictional partners to use RBM to apply the climate lens to planning efforts and to prioritize and tailor management actions to increase resistance and support recovery in an effort to increase resilience of coral reef ecosystems.

NOAA has also funded a study (below) on intervention strategies to address coral bleaching impacts.

NAS Study on coral intervention strategies

There is increasing scientific interest in the utility of various intervention strategies (e.g., artificial selection, manipulation of symbioses, translocation of stocks, stress hardening/conditioning) to enhance coral resilience and recovery under rapidly changing ocean environments. NOAA is sponsoring a National Academies of Science study on the utility of various coral reef intervention strategies. Given that these interventions carry inherent risk, there is a need for proactive consideration and evaluation of this evolving science to weigh the likely risks and benefits of these strategies.

Components of the study are as follows:

1. A global review of science related to a range of intervention strategies including, but not limited to, translocation of non-native coral stocks, manipulation of symbiotic partnerships within the coral meta-organisms, artificial selection or genetic modification, and stress-hardening. This review should have a particular focus on potential risks and the likelihood of benefits for each.
2. Recommend risk/decision framework for considering interventions and evaluating risks, including the types of studies that would narrow uncertainties and risks for different strategies.
3. Evaluation of specific Caribbean reef strategy options that would most appropriate and feasible for implementation in most-impaired Caribbean reef systems.

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.

Answer: We are currently considering a series of events and activities for IYOR2018 and will share information about these events at the 2018 ICRI meeting.

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

Please see the attached “Handbook on Coral Reef Impacts: Avoidance, Minimization, Compensatory Mitigation and Restoration”.

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

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

U.S. Coral Reef Task Force Handbook on Coral Reef Impacts: Avoidance, Minimization, Compensatory Mitigation and Restoration

2. **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>.)

Member type (Country / Organization):	Country - United States of America
Focal Point 1:	
Name:	Christine Dawson
Title/Organization:	U.S. Department of State
Email:	DawsonCL@state.gov
Focal Point 2:	
Name:	Stephanie Aktipis
Title/Organization:	U.S. Department of State
Email:	AktipisS@state.gov
Focal Point 3:	
Name:	Jennifer Koss
Title/Organization:	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Coral Reef Conservation Program Director
Email:	Jennifer.Koss@noaa.gov

Thank you very much for sharing your valuable experiences and information with ICRI.