

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

The ICRI member’s report outlines the activities of ICRI members; their progress and contributions towards the ICRI Plan of Action 2016-18. The contributions detailed below are taken from written responses by Brazil; Japan; Indonesia; Malaysia; Maldives; Monaco; UK; and the USA. The member report also includes responses from the Central Caribbean Marine Institute; Coastal Oceans Research and Development in the Indian Ocean; Fondation pour la Protection de la Biodiversité Marine; Great Barrier Reef Foundation; International Society for Coral Reef Studies; Reef-world Foundation; Science and Conservation of Fish Aggregations; The Nature Conservancy; UNEP Caribbean Environment Program; and the UN Environment World Conservation Monitoring Centre (as of December 1st, 2017). For more information, you can check directly the member report.

To address theme three, ICRI members were asked to outline legal frameworks that are currently in place in order to protect coral reefs and related ecosystems and how this is being measured. Members were asked how they are enforcing the regulations that prevent dredging. ICRI members also outlined the ways in which they are promoting the use of mooring devices, marine-friendly sun cream, and the reduction of the use of microbeads, to prevent coral reef and seagrass degradation and pollution. Contributions to theme three included laws, legislation, and policy improvements that protect coral reefs and relate ecosystems. Contributions also discuss the key role of MPAs in enforcing regulations. Brazil, Japan, Maldives, the UK and the USA have all banned, or are in the process of banning microbead manufacturing.

- **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**

Brazil

Currently, only 1.57% of Brazil’s seaboard territory is under the Marine and Coastal Protection Areas Network (MCPA), instituted by the Federal Government in 2000. The Marine and Coastal Protected Areas Project (GEF Mar), described above, will take place to expand the existing MCPA until 2019/2020 and also to promote its long term financial sustainability by developing innovative financing mechanisms. Joint efforts have been made within the scope of the GEF-Mar, mainly in 2016 and 2017. This is a great opportunity for Brazil to achieve part of the international goals of conservation of marine ecosystems and biodiversity. An example of ongoing action is the contracting of consultancies by FUNBIO to compile and gather information necessary to support the

process of expansion of the Abrolhos National Marine Park, and creation and implementation of Amazonas River Mouth Protected Area, Foz do Rio Doce Protected Area and Vitoria Trindade Chain Protected Area.

Besides GEF Mar, Brazil implemented a National Plan of Action for conservation of ecosystems, coral reefs and mangroves.

National Action Plan for Coral Environments Conservation (PAN Corais) includes and establishes priority conservation strategies for 52 species of fish and aquatic invertebrates considered to be endangered, listed in the National List of Endangered Species. Simultaneously, it establishes strategies for the conservation of 11 other species that are known to benefit from the maintenance of the latter. This has a validity period that ends in February 2021. PAN Coral will be implemented in 18 focus areas located along the Brazilian coast, from the State of Maranhão to Santa Catarina, including areas within the Exclusive Economic Zone, in addition to its territorial sea.

10 specific objectives were defined:

1. To promote the integrity and maintenance of habitats, ecosystem services and populations of target and benefited species.
2. To contribute to the management and monitoring of fishing activity in coral reef environments.
3. To use ecosystem-based approaches to promote the sustainable exploitation of fish stocks.
4. To enhance the general knowledge about coral reef environments that are still poorly investigated.
5. To minimize activities and enterprises that directly or indirectly affect coralline environments.
6. To contribute to the organization of tourism activity in coral environments in order to minimize its impact, considering the local socioeconomic situation.
7. To prevent the introduction and spreading of invasive exotic species in coral reef environments, and to evaluate and mitigate impacts in already affected regions.
8. To evaluate and minimize chemical, physical, organic and biological pollution in coral environments.
9. To promote the revision, integration, innovation and effectiveness of current public policies. This will consider the sustainability perspective of coral environments in the social, environmental and economic contexts; broadening and strengthening participatory mechanisms and social control in the management of territories.
10. To evaluate and highlight the role of environmental services of coral reefs in climate change related issues and its impacts, as well as to develop strategies for the

successful mitigation and adaptation of these environments based on the building of specific scenarios. The previous objectives comprehend 146 actions and over one hundred organizers and contributors of various institutions.

Periodic Assessment

The action plan will be evaluated annually to review and adjust the implemented measures. In addition, a mid-term evaluation is expected to be administered half-way through the project's cycle. A final assessment will be administered at the end of the management cycle. The National Action Plan for the Conservation of Threatened and Economically-Important Species of the Mangrove Ecosystem (PAN Manguezal) is aimed at conserving Brazilian mangroves, reducing degradation, and protecting the focal species of the National Action Plan. This insures a level of maintenance of areas and preservation of their traditional uses; incorporating traditional and academic knowledge.

PAN Manguezal is made up of eleven specific objectives, each with its own actions, being:

1. Contribute to the effectiveness of territorial planning in areas of mangrove and associated ecosystems (landholding regularization/ territorial planning).
2. Contribute to the strengthening of social participation and integration between government agencies by means of public policies on strategic areas of the PAN Manguezal.
3. Align the legislation in accordance with regional specificities for the implementation of fisheries and aquaculture management at the areas of the PAN, taking into consideration the participation of traditional people and communities.
4. Reduce impacts resulting from different types of pollution and from the introduction of exotic species in mangroves and associated ecosystems.
5. Reduce habitat loss and expand mangrove and associated ecosystem's recovery and conservation areas.
6. Reduce risks of environmental accidents and mitigate their socio-environmental impacts in activities that directly or indirectly affect mangrove and associated ecosystems.
7. Strengthen the supervision and monitoring of licensed enterprises with potential for negative impacts, as well as mangrove and adjacent areas.
8. Inhibit the implantation and expansion of economic enterprises that result in negative impacts for the mangrove ecosystem.
9. Contribute to the eradication of shrimp farms and salt evaporation ponds' enterprises at the intertidal zone, and to the recovery of ecosystems already affected by these practices.
10. Train social agents and managers involved in the PAN Manguezal.

11. Elaborate communication strategy for the PAN Manguezal.

Project “Mangroves of Brazil”

Half of mangrove’s area is concentrated on the North region of the country and 87% of mangroves are located inside federal, state or municipal Protected Areas. The project Mangroves of Brazil was conceived by the Ministry for the Environment, with the objective of improving Brazil’s capacity in promoting the effective conservation and sustainable use of resources in mangroves, based on the strengthening of the National System of Conservation Units, and on the designation of permanent preservation areas for all Brazilian mangroves.

The project is executed by the Chico Mendes Institute for Biodiversity Conservation which, in order to reach this goal, aims to create a management strategy for protected areas. This strategy will focus on the effective conservation of a representative sample of Brazilian mangroves, acting mainly on existing shortcomings that compromise management effectiveness; hereby promoting the conservation and sustainable use of mangrove ecosystems, and the environmental services and functions necessary for national development and the well-being of coastal communities.

It is expected that the actions will assist on the conservation of 568.000 ha of mangroves that hold global relevance, as well as generating positive impacts on the livelihoods of communities which depend on this ecosystem. The project will enable the replication of lessons learned to all Brazilian mangroves. This initiative has also naturally aligned with the Sustainable Development Goals of the 2030 Agenda, especially with Goal 14, “Conserve and sustainably use the oceans, seas and marine resources”. The initiative, supported by resources of the Global Environment Fund (GEF), aims at developing actions for the effective management and conservation of mangrove areas, acting along the Brazilian coastline.

In 2000, Brazil created the National System of Conservation Units (SNUC) (Law 9,985, July 18, 2000) gathering all existing instruments and regulations, constituting a framework for the creation, implementation, consolidation and management of protected areas. In 2006, Brazil established the National Strategic Plan for Protected Areas (PNAP) with the commitment to consolidate a comprehensive, ecologically representative and effectively managed protected area system integrated with broader land and marine landscapes by 2015. The PNAP attends the deliberations of the World Summit for Sustainable Development, Strategic Plan of Convention on Biological Diversity and National Environmental Conferences.

In this context, the Marine and Coastal Protected Areas Project (GEF Mar) started in 2014 with the main objective to support the creation, enlargement and implementation of a representative and effective system of marine and coastal protected areas to reduce biodiversity loss. GEF Mar is financed by the Global Environmental Fund with \$18.2 million



approved by the World Bank. The goal of project is to increase the marine protected area from 1.57 to 5%, totaling 175,000 km², most of this percentage must include coral reefs and associated ecosystem. Brazil is strongly committed to creating at least 10% of new MPAs, including areas with coral reefs such as São Pedro and São Paulo Archipelago and the submerged reefs at the mouth of the Amazon River recently mapped. Several studies are in progress to elaborate the processes of creation of new MPAs.

Brazil is signatory of five international MPAs conventions

- Convention on Biological Diversity 2010
- United Nations Convention on the Law of the Sea
- Ramsar Convention on Wetlands of International Importance
- International Coral Reef Initiative
- The World Heritage Convention.

In addition, Brazil is member of The Regional Seas Conventions. Therefore, the effective creation of Marine Protected Areas is a commitment assumed by Brazil. Brazil has also internalized the Aichi Biodiversity Targets by Resolution CONABIO (National Biodiversity Commission) n. 06, September 3, 2013.

Under the Brazilian Forest Code, mangroves, including hypersaline tidal flats were considered permanent preservation zones. However, in 2012 the national congress voted a reform of the forest code (Law n. 12.651, May 25, 2012) and hypersaline tidal flats were excluded from protection against land development and maritime culture, in particular shrimp farming, with some safe conduct provided in the Law n. 12.727, October 17, 2012, as to protect adjacent mangroves, among other requirements. A Ministry of Environment Normative Instruction n. 03, April 16, 2008 does not allow shrimp farm in mangroves within Protected Areas.

Environmental crimes law (n. 9.605, February 12, 1998) provides fines and detention penalties for activities harmful to the environment, including corals (casting vessels or throwing debris of any kind on banks of mollusks or corals, duly marked in nautical chart) and mangroves (Destroying or damaging native or planted forests or dune-fixing vegetation, which protects mangroves, which is the object of special preservation).

Indonesia

Regulation of Minister of Economic Coordinator Number 4 Year 2017

Regulation of Minister of Economic Coordinator Number 4 Year 2017 on Policy, Strategy, Program and Performance Indicator of National Mangrove Ecosystem Management is a mandate from Presidential Regulation Number 73 year 2012 on the National Strategy of Mangrove Ecosystem Management. This regulation is a guideline for the related parties in order to manage mangrove ecosystem which consist of ecology side, socioeconomic and institutional to guarantee function and the benefit of mangrove for the community welfare. In order to accelerate the implementation of this regulation each related party must establish activity based on its responsibility such as rehabilitation, protection of mangrove ecosystem which is covering the location, target (quantitative), time, and budget.

Laws associated:

- Law Number 5 Year 1990 Concerning the Conservation of the Living Natural Resources and its Ecosystem;
- Law Number 41 Year 1999 Concerning the Forestry;
- Law Number 32 Concerning Protection and Environment Management;
- Law Number 45 Year 2009 Concerning Amendment to Law Number 31 Year 2004 about Fisheries;
- Law Number 27 Year 2007 Concerning the Management of Coastal Areas and Small Islands;
- Government Regulation Number 28 Year 2011 Concerning Management of Nature Reserve Area and Natural Conservation Area;
- Presidential Regulation Number 73 Year 2012 Concerning National Strategy of Mangrove Ecosystem Management;
- Presidential Decision Number 48 Year 1991 Concerning Endorsement on *Convention on Wetlands of International Importance Especially as Waterfowl Habitat*;
- Decree of the Minister of Marine Affairs and Fisheries Number: Kep.38 / Men / 2004 About the General Guidelines of Coral Reef Management;
- Regulation of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia Number Per.17 / Men / 2008 About Conservation Area in Coastal Areas and Small Islands.

Quantified Targets

Based on Act No. 5 year 1990 Concerning Law of The Republic Of Indonesia On Conservation Of The Living Natural Resources And Its Ecosystem, conservation of the living natural resources and its ecosystem is based on preservation of ability and usefulness of the living natural resources in its ecosystem in harmonious and well-balanced manners.

Japan

As reported, Japan formulated the Japan's National Coral Reef Ecosystem Conservation Action Plan for 2016-2020. This plan is not a legal framework, though it mentions nature restoration projects and projects for child-nature friendship in national parks. There are legal frameworks relating to nature restoration and national parks in Japan (e.g. Natural Parks Act), and hence such laws are relevant to nature conservation, including the protection of coral reefs and mangroves.

MPA is defined in Japan's "Marine Biodiversity Conservation Strategy" as follows; "Marine areas designated and managed by law or other effective means, in consideration of use modalities, aimed at the conservation of marine biodiversity supporting the sound structure and function of marine ecosystems and ensuring the sustainable use of marine ecosystem services."

Malaysia

Marine protected areas in Malaysia are designate through various legislations. Marine Protected Areas in Malaysia generally are composed of Marine Parks and Fisheries Prohibited Areas. The history of the establishment of MPAs in Malaysia dates back to the 1970s. For Marine Parks and Fisheries Prohibited Areas in the Peninsular Malaysia and Federal Territory of Labuan, Ministry of Agriculture and Agro-based Industry has the jurisdiction to establish new marine parks of which these parks are manage by Ministry of Natural Resources and Environment through Department of Marine Park Malaysia. For Sabah and Sarawak, MPAs are established and managed by the State Governments – Sabah Parks and Sabah Wildlife Department, for the State of Sabah and Sarawak Forestry Department for the state of Sarawak. In Sabah, marine areas are protected via the Parks Enactment 1984 and Wildlife Conservation Enactment 1997. In Sarawak, two State level legislation are used for the establishment and management of MPAs namely the National Parks and Nature Reserves Ordinance 1998 and the Wildlife Protection Ordinance 1998. In Peninsular Malaysia, marine parks are created by way of gazzetment under the Fisheries Act of 1985. The Fisheries Act 1985 contains only one out of 11 Parts which is relevant to marine parks. Section 43 of the Act contains prohibited activities within marine parks.

Malaysia has set a quantifiable target to protect their marine ecosystem in Malaysia's National Policy on Biological Diversity. It is defined under Goal 3, Target 6 of the Policy. Malaysia aims to conserve 10% of their coastal and marine areas by 2025 through a representative system of protected areas and other effective area based conservation measures. Currently, 3.48% of Malaysia's Exclusive Economic Zone (EEZ) are gazzeted as MPAs. Currently, only areas designated and gazzeted through legislations are recognize as an MPAs. However, the Ministry is considering to widen the definition of protected areas.



This is to include areas which are managed by local communities whereby there are conservation programmes and communities practice sustainable consumption. This study is carried out through a GEF funded Project on Enhancing effectiveness and financial sustainability of Protected Areas in Malaysia.

The Republic of Maldives

National Biodiversity Strategy and Action Plan 2016 – 2025.

The National targets for 2025 are to protect 10% of coral reefs, 20% of mangroves and wetland, one sandbank and one uninhabited island under the Environment Act.

United States of America (USA)

Please find attached a list of U.S. federal, state, and territorial laws and regulations that govern activities in and around coral reef ecosystems.

Quantified targets

The Micronesia Challenge

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.

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: The 30 by 30 Oceans target is a part of the State's Sustainable Hawaii Initiative.

Area currently under protection

U.S. Marine Sanctuaries/Monuments with coral habitat: TOTAL AREA = 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.

Fondation pour la Protection de la Biodiversité Marine (FoProBiM)

Haiti's protection laws are extremely weak; however, FoProBiM are hoping to have the laws updated soon, and Haiti's first MMA management plan has been completed. Haiti is currently above the 20% target with more MMA declarations in the works. All remain paper parks (but with the beginnings of management activities).

The Nature Conservancy

Seychelles Marine Spatial Plan (MSP) Initiative

An output of the government-led Debt-for-Climate-Change-Adaptation Swap in which the Government committed to expanding marine biodiversity protection to 30% of the EEZ and Territorial Sea by 2020. The Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) was created from the debt swap, and is an independent public-private trust mandated to support the implementation of the MSP and other marine conservation and climate adaptation activities in Seychelles. Seychelles is the first country to have implementation funding in place before it has completed its marine spatial plan.

In Manus Province in Papua New Guinea and Choiseul Province in Solomon Islands, TNC are assisting communities and government partners with establishing ridges to reefs protected area networks. These protected area networks are helping to conserve biodiversity, enhance food security and build community resilience to climate change.

The 4th year of the Caribbean Marine Biodiversity

A five-year project (2014-2019), funded by the U.S. Agency for International Development and The Nature Conservancy, operating in five target countries- Dominican Republic, Grenada, Haiti, Jamaica and St. Vincent & the Grenadines. The program focuses on creating and effectively managing marine conserved areas and establishing and promoting sustainable fisheries.

UNEP Caribbean Environment Program, Jamaica

Protection of marine species under the SPAW Annexes

Contracting Parties to the SPAW Protocol (adopted in 1990 and entered into force in 2000; currently 16 Contracting Parties) adopted the Annexes of species requiring special protection. These Annexes outline coastal and marine species of flora (Annex I), and fauna (Annex II), requiring the highest level of protection for which exploitation is forbidden. Species of flora and fauna for which exploitation is authorized but regulated to ensure and maintain population at an optimal level are listed under Annex III. Recognizing the growing threats to reef ecosystems and the urgent call for action, coral species are listed under Annex III of the SPAW Protocol since 1991, ensuring legal protection to coral reefs among Contracting Parties to the Protocol. Acropora and Faviid corals have since been listed to Annex II in 2014 due to their IUCN “Endangered” status.

In the light of an ecosystem based management of coral reefs, fisheries species including Queen Conch, Caribbean Spiny Lobster and Nassau Grouper have also been listed under Annex III of the SPAW Protocol (1991 for Queen Conch and Spiny Lobster, 2017 for Nassau Grouper). An additional nine species of sharks and rays associated with reef habitats have also been added to Annexes II and III of the SPAW Protocol. Despite parrot fish fisheries being prohibited in Belize, Turk and Caicos, Bonaire, Puerto Rico and the U.S Virgin Islands (Choat et al 2012), the need to list parrot fish under the SPAW protocol was one of the main recommendation ensuing from the GCRMN report “Status and Trends of Caribbean Coral Reefs: 1970-2012” addressing the trophic cascade associated with the overfishing of herbivorous fish and the shift to microalgae dominated state (Mumby et al 2006), reiterated during 15th and 16th WECAFC sessions (Trinidad and Tobago, March 2014 and Guadeloupe, June 2016 respectively).

Protected Areas listed under the SPAW Protocol

Through the aforementioned activities, UN Environment – CEP is not only working towards meeting global Aichi Targets, but is also in line with ICRI’s Call of Action Plan (2016-2018) Goal 3.1 to “Promote legal frameworks for the protection of coral reefs and associated mangroves and seagrasses, with quantified targets and effective enforcement to protect these ecosystems”.

Within the CaMPAM database, 32 marine protected areas officially listed under the SPAW Protocol ensuring a legal framework for the protection of reefs. Some of the benefits associated with the listing of protected areas under the SPAW Protocol are:

- Access to additional avenues for dialogue and information sharing
- Strengthening the leadership role of Contracting Parties in marine conservation in the wider Caribbean
- Higher visibility resulting in possible increases in employment opportunities and income (e.g. from tourism)
- Increased likelihood of benefiting from SPAW grant of the current 32 SPAW-listed

protected areas, 20 directly protect coral reefs.

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

Country/ Organisation	No use of microbeads	Ongoing efforts to ban microbeads
Brazil		Commercial industry has not yet stopped manufacturing. In 2018, sectoral meetings will decide which recommendations should be included in the National Plan.
Japan	The cosmetic industry in Japan is refraining from using them in compositions of cosmetic products on a voluntary basis, while replacing them with natural materials such as cellulose	
Maldives		Maldives joined UN Environment's Clean Sea Campaign to eliminate marine litter (September 2017). Maldives pledged to collect and remove plastic rubbish from the sea by fishermen while they fish.
UK		The UK is currently working to implement this legislative ban and expects to do so in 2018
USA	A ban on manufacturing of cosmetics with microbeads commenced on 1 st July, 2017	

Brazil

Brazil has undertaken a voluntary commitment to the World Ocean Conference, in June 2017, titled "Development of a national strategy to combat marine litter." Brazil must



follow UN Resolutions on the subject - Resolution 1/6 and Resolution 2/11, which mention a ban on microbeads as a goal, but, at the same time, urges people to reflect on the cost-effectiveness of the alternatives. It is important to mention that Brazil should follow UNEA. The private industries and services are already aware of the issue but have not yet commented specifically on the microbeads matter in a clear and specific way. Between 6 and 8 of November 2017, the Ministry of Environment, in partnership with the United Nations Environment Program and the Oceanographic Institute of the University of São Paulo (IOUSP), held the 1st National Seminar to fight marine litter, with support from the World Animal Protection and the Consulate General of France in Rio de Janeiro. This was the first step towards the development of the National Plan to Combat Marine Litter by the federal government. In 2018, sectoral meetings will decide which recommendations should be included in the National Plan.

Japan

Regarding microbeads, the cosmetic industry in Japan is refraining from using them in compositions of cosmetic products on a voluntary basis, while replacing them with natural materials such as cellulose. The current situation of micro-plastics in the ocean including microbeads is being monitored continuously.

Malaysia

Malaysia's effort to reduce the use of plastic bags began when the Penang State in 2009 banned the use of plastic bags from shopping stores on Mondays. In 2010, Selangor state followed to ban the use of plastic bags for customers on Saturdays. Both State Governments ultimately imposes the ban on the use of plastic bags on any day. Customers are charged MYR0.20 (USD0.06) for each plastic bag they requested and the money is channeled to charity bodies or consumerism programs and environmental conservation efforts.

The federal government through the Ministry of Domestic Trade, Cooperative and Consumerism (MDTCC) in 2011 launched the No Plastic Bag Day (NPBD) Campaign throughout Malaysia for each Saturday. The objective is to reduce the use of plastic bags in order to reduce its negative impact on the environment. Stores charge a levy of MYR0.20 (USD0.06) for each new plastic bag requested by customers during the program. The Malacca State Government has directed retailers to replace conventional plastic bags with biodegradable ones instead but without any additional charge.

On a smaller scale, the Ministry, through Department of Marine Park Malaysia carries out annual beach and reef clean up within their marine park areas. Besides that, tourism operators are also encouraged to reduce the use of plastic food containers. As for day trippers, the operators are required to pack all garbage to be dispose of on mainland. Diving operators are also encouraged to be members of Green Fins and to be involved



actively in conservation programs. To date, there are 33 active Green Fins members operating on marine park islands.

The Republic of Maldives

Marine litter and microplastics have been identified as a serious issue at a national level and the government is planning the necessary steps to be taken to address this issue. On 12th September 2017 Maldives joined UN Environment's Clean Sea Campaign to eliminate marine litter. Maldives also has pledged to collect and remove plastic rubbish from the sea by fishermen while they fish. After they are collected the rubbish will be shipped to the capital, Malé, where it will be transferred to long-distance ships for recycling into plastic-based fabrics.

United Kingdom

The UK has sought to implement a ban on both the manufacture and sale of plastic microbeads in cosmetic products in order to reduce their entry into the marine environment. To do so the UK sought scientific evidence to underpin the legislative directive (scope of potential bans), undertook public consultation processes in accordance with UK law and consulted the EU and World Trade Association in accordance with standard protocol. The UK then developed an Impact Assessment including advice/evidence supplied from Industry and recommendations from economists before engaging within government and across associated governments (devolved administrations) on the potential impacts of such a ban. The UK is currently working to implement this legislative ban and expects to do so in 2018.

United States of America (USA)

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.

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

Brazil

In Brazil, harbors and dredging activities must be licensed by state and national



Environmental Agencies. Federal environmental licensing is done by the Brazilian Institute for the Environment and Natural Renewable Resources (IBAMA). Also, to obtain authorization for marine disposal of dredged material, an environmental licensing protocol must be followed according to the CONAMA (Brazilian National Council of the Environment) resolution 237/1997.

In addition, CONAMA published another resolution 454/2012 establishing general guidelines and reference procedures for the management of material to be dredged in marine areas within national jurisdiction. An environmental monitoring program is also required to identify and quantify the impacts that may be caused by dredging. Water turbidity is monitored, based on a risk scale, through fixed oceanographic stations regularly calibrated to issue warnings and stop dredging while the turbidity lies above acceptable range levels. Nevertheless, these resolutions do not prevent Marine Protected Areas near harbors and dredging areas from being affected by the impacts of such activities. If a Protected Area is affected by dredging activities it receives an environmental compensation. Article 36 of SNUC (Brazilian National System for Conservation Areas) determines that in cases of environmental licensing for constructions of significant environmental damage, the entrepreneur is forced to upkeep the implementation and maintenance of an Area of High Level Conservation, or, in case it affects a specific Conservation Area, or its buffer area, that area it should be one of the beneficiaries for the compensation, even if it's not a High-Level Conservation Area. However, the compensation value doesn't amount to more than 0.5% of the cost of the project.

Japan

In national and quasi-national parks, reclaiming land in marine areas, physical alteration of sea floors, and some other activities are legally regulated according to Natural Parks Act.

Malaysia

All development activities within marine park areas are prohibited unless allowed for by the Director General of Marine Parks. Development activities that are allowed are required by law to carry out Environment Impact Assessment (EIA) regardless of size of the project. This is provided under Environment Quality Act 1974 – Environmental Quality (Prescribe Activities) (Environmental Impact Assessment) Order 2015. Under the Order, development projects in areas on or adjacent to marine ecosystems which are deemed as Environmental Sensitive Areas are also required to carry out EIA.

The Republic of Maldives



Separate regulation under Environmental Act has been formulated to address dredging and reclamation of reefs and lagoons of Maldives. The regulations also contain standards and guidelines to follow to minimize the negative impacts of such activities.

United Kingdom

As most of the UK's cold-water coral reefs occur in the deep-sea they are not typically exposed to dredging activity. However, the UK has a marine licensing system to ensure that dredging (and other regulated industry activities) do not adversely affect priority habitats and species, including coral reefs. The licensing process identifies potential adverse impacts of activities and developments and where appropriate will refuse consent, or impose license conditions to monitor or mitigate impacts. If a project is likely to have a significant effect on the environment an Environmental Impact Assessment (EIA) must be carried out before a license can be granted; most aggregate dredging applications require an EIA. There is also a strict set of rules concerning adverse effects on the designated habitats of SACs, such as cold-water coral reefs and seagrasses. This 'Habitats Regulations Assessment' process requires developers (e.g. dredging companies) to demonstrate no impact of the activity on the protected habitats, or to put in place mitigation measures if an impact is anticipated.

The Marine Management Organisation and Marine Scotland are responsible for licensing of dredging activities in the UK. Please get in contact if further detail on the UK licensing process would be useful to ICRI.

Benthic habitats and species need to be considered within the relevant EIA, where this is required. This includes all habitats and species listed as Annex 1, SSSI or UK or local BAP designations and the OSPAR list of threatened and/or declining species and habitats. Consideration is also given to whether or not the effects of activities requiring a license might affect the 78 Descriptor 1 and 6: Benthic habitats conservation objectives of sites designated under the EU Natura Directives. Where there is a risk of such an effect a formal assessment of the potential activity is made in relation to the sites conservation objectives. The Strategic Environmental Assessment and Environmental Impact Assessment (EIA) Directives both require the effects of developments to be assessed for their impact on the environment, including seabed habitats. The objective of these directives is to ensure no significant impacts, and to ensure all relevant considerations are made before developments occur.

United States of America (USA)

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.

UN Environment Program World Conservation Monitoring Centre (UNEP-WCMC)

Within the Proteus Partnership, UNEP-WCMC provide leading extractive companies with global marine and coastal habitats data to strengthen business approaches for biodiversity management. Specific focus is given to 'Critical Habitat', including coral reefs and associated ecosystems, as identified under International Finance Corporation Performance Standard Six (ICF PS6) through production of global layers of these marine and coastal habitats, hosted on the Ocean Data Viewer.

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

Brazil

The rules on anchoring in coral reefs and seagrass in Brazil are only for MPAs and are recommended in actions in the management plans of these MPAs. For example, Abrolhos National Marine Park has mooring devices on sandy areas for tourist and research boats, the number of boats is also controlled. At Rocas Atoll Biological Reserve, where only research is allowed, a fixed mooring is used by the boat that takes the research teams to the Atoll. At Fernando de Noronha National Marine Park, an important tourist destination and diving, in most dive sites the boat anchorage is not authorized. At Costa dos Corais Marine Protected Area (sustainable use), anchoring is not allowed in coral reefs and seagrass in 135 km extension, however enforcement is a challenge in such a large area.

Example: Public Use Plan for Abrolhos: "...the number of vessels allowed to operate will be conditioned to the quantity and distribution of mooring points, to avoid anchoring over the reef or algae bottom". The anchoring system consists in determining fixed points for diving activities and, upon local approval by the Brazilian Institute for the Environment and Renewable Natural Resources, a stainless-steel cable may be attached to parts of the reef top (*chapeirão*). At the other end of the cable, a tire is attached (preferably painted red to

facilitate location) at an approximate depth of 2.5 meters below the surface at high tide. The system allows the master of the vessel, sailor or the one responsible for the diving operation, to easily see the diving spot. Upon seeing it, a cable coming from the vessel is passed through the tire, returning it to the vessel. With this maneuver, the need for installing moorings or releasing anchors on the *chapeirão* is eliminated, thus avoiding damage to its structure. The geographic coordinates of those points should be widely disclosed by the Park. The suggested model is based on the diving operation carried out in other Conservation Units of several countries such as Bonaire, Grand Cayman, Bahamas, Papua New Guinea, Australia and others. This model is adopted for its cost vs. benefits relationship, since it is efficient and of low cost and maintenance, compared to other models.

Japan

Significant recovery of coral reef was observed at a diving point, which was closed for three years (1998-2001) by Zamami Fishery Cooperative after being damaged by ship anchors and divers. Thereafter, the same point has been opened to the public again. Herein, mooring devices are deployed to avoid anchor drop, and also the number of incoming ships is limited. By doing so, local people are trying to protect coral reefs. A similar measure is implemented in Tokashiki as well, and these efforts have resulted in effective conservation of coral reefs.

Malaysia

The Ministry, through Department of Marine Park Malaysia provides mooring buoys to all marine parks. This is carried out on an annual basis where buoys are replaced and added as required. Boats are prohibited by law under Fisheries Act 1985 to anchor on reefs within marine parks. Therefore, mooring buoys are provided on suitable sites especially dive sites and snorkel sites. Mooring buoys are also provided to villagers to prevent beaching of boats to the beach.

The Republic of Maldives

There are no mooring programs at a national level, but mooring programs are being set at protected areas. Currently, there are mooring buoys deployed in the Baa atoll biosphere reserve. The Environment Ministry is planning on extending the deployment of mooring buoys to other marine protected areas which are famous dives sites.

United Kingdom



A 'Marine Biodiversity Impacts Evidence Group' led by the Department of Environment, Food and Rural Affairs (Defra) has nearly completed a review of eco-mooring techniques using case studies of where these methods have been explored and tested in England and Wales. The review considers whether these devices would provide a suitable approach for managing recreational mooring activities in MPAs and explores potential funding mechanisms for their implementation. The UK will happily share the project report with ICRI as soon as it becomes available.

Eco-mooring projects are being piloted at a number of seagrass bed sites in the UK. The Porthdinllaen Seagrass Project in North Wales is trialing ways to reduce impacts on seagrass while allowing people to continue recreational and economic activities. This project will: trial helix anchors to replace concrete moorings; design adaptations for chain mooring; and consider establishing designated anchoring zones away from seagrass beds. In Pembrokeshire Marine SAC in south-west Wales, a voluntary no-anchor agreement has been established in sensitive habitat zones and visitor moorings have been provided outside of key seagrass areas. This has successfully deterred anchoring on seagrass beds and further steps are now being considered, such as trialling seagrass-friendly moorings that can also benefit sea users (e.g. through better protection in adverse weather and greater boat density in mooring zones). The UK can share experiences and lessons learned from these projects as they continue to develop.

United States of America (USA)

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.

Reef-World Foundation

Through the Green Fins Code of Conduct #5 (*Participate in the development and implementation of a mooring buoy program and actively use moorings, drift or hand place anchors for boats*) governments responsible for the protection and sustainable use of coral reefs are working alongside scuba diving businesses to help install mooring buoys. As government departments usually lack the skills, training and equipment needed for installing mooring buoys, the Green Fins approach has helped to forge new relationships with businesses who are able to provide resources and assistance in these areas. Private sector businesses are commonly not legally allowed to install mooring buoys at dive sites and acquiring the correct permission and authority to do so is often a major limiting factor due to complicated bureaucratic systems in place. Enhanced communications channels between public and private sectors establish through the Green Fins initiative allow for better cooperation, removing barriers to enable to installation of mooring buoys at dive sites leading to an overall reduction in damage from anchoring.

Reef-World have recently developed a series of two-minute videos that have received a

large online uptake with one of the videos specifically addressing this threat. The How to Use Alternatives to Anchoring video has been viewed over 30,000 times since its release in August 2017.

- *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*

Japan

In Kerama/Zamami in Japan, coral-friendly sunscreens are sold. The sunscreens do not contain oxybenzone (Benzophenone-3), which is allegedly harmful to corals. However, scientific background of this idea is not clear, according to an ecologist. Furthermore, artificially produced chemicals, such as DCMU (which is used for paintcoating of ship bottoms and agricultural chemicals), is damaging to growth of corals, according to research by WWF and others.

Malaysia

There were preliminary studies on the impact of sunscreens on coral reefs by researchers from local universities in Malaysia. There has no recommendation or policy call to produce sunscreens that do not damage coral reefs yet.

United Kingdom

Sunscreens are regarded as cosmetics and as such are regulated under EU Regulation 1223/2009. The legislation requires that products are notified to the EU Commission and safety assessments carried out by safety assessors. The EU Commission is required to update this regulation to cover endocrine disrupting effects.

United States of America (USA)

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
- 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)

Reef-World Foundation

Through the Green Fins initiative, The Reef-World Foundation actively raise awareness to the issues associated with the use of sunscreens in coral reef areas, advocating the restricted use of sunscreen during snorkeling and diving activities and instead where possible promoting the use of eco-friendly alternatives to marine tourism businesses. The charity is currently not engaged in any specific academic research but has carried out its own literature review into current research that has identified the specific compounds and active ingredients that are considered harmful to coral reefs and other marine life in order to better educate Green Fins members and provide alternatives. Reef-World would be interested in knowing more information based on scientific findings to enhance current awareness raising activities.

The Reef-World Foundation successfully acquired consumer discounts for Green Fins members interested in purchasing coral reef 'safe' sunscreen that does not have any active ingredients that have been identified as being harmful to corals or other marine life. Through collaborating with www.humanheartnature.com based in the Philippines, The Reef-World Foundation were able to provide a discount code specifically for Green Fins members based in the Philippines who were interested in purchasing sunscreens for re-sale purposes to their customers or guests.