

**ICRI Discussion paper for the 21st Global Meeting of the Regional Seas
Conventions and Action Plans
Berlin, Germany, 3- 5 October 2019**

Value of coral reefs

Coral reefs provide human society with a wide array of goods and services worth at least US\$11.9 trillion per year. Coral reefs support 25% of marine life and through activities such as fisheries and tourism they support at least 500 million people worldwide with huge implications for food security and livelihoods. This huge diversity of life also provides potential medicines to treat some of the world’s most prevalent and dangerous illnesses and disease. In addition, healthy coral reef ecosystems reduce shoreline erosion by absorbing energy from the waves protecting coastal housing, agricultural land and beaches with a global net benefit of 9 billion USD/ year. The global social and economic dependence on coral reefs is represented in Figure 1. The benefits derived by human society from functioning coral reefs fit well within the concept of Nature Based Solutions and it will be engage with this debate so that the role that coral reefs can be articulated in these terms.

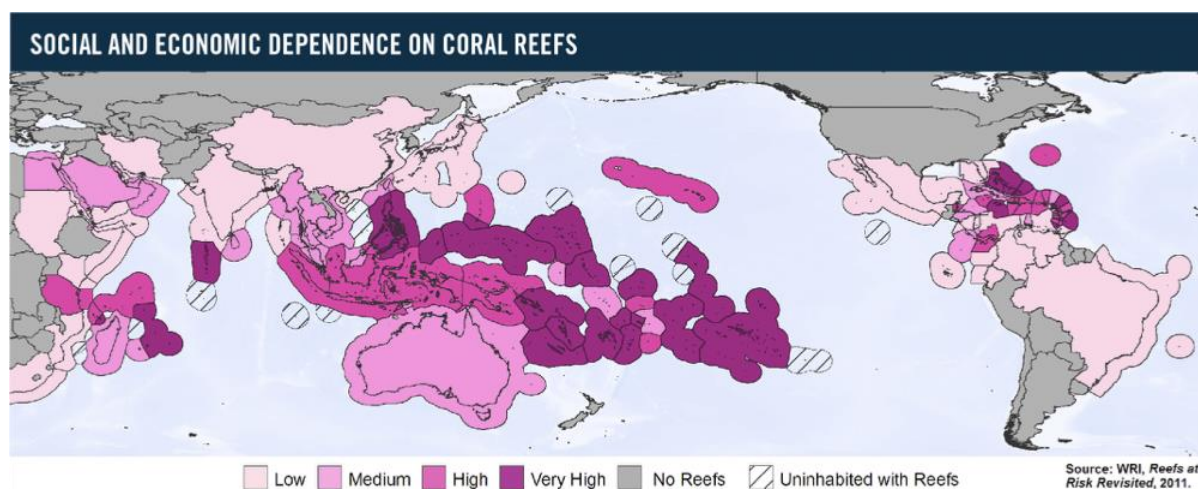


Figure 1: illustration of the social and economic dependence on coral reefs (source: Reefs at Risk revisited, Burke, 2011)

A recent study entitled “The Coral Reef Economy” found that proactive policies to protect and restore the health of the world’s coral reefs could generate a substantial economic gain, provide important societal benefits, including to local communities, and help deliver the UN Sustainable Development Goals. Coral reefs and closely associated ecosystems contribute to 10 of the 17 Sustainable Development Goals (SDGs) (ICRI, 2017) (figure 2). The key findings of “The Coral Reef Economy” report included:

- Coral reefs underpin significant economic value for the private sector
- The value of future healthy coral reefs is high
- Societal co-benefits of healthy coral reefs could exceed private gains
- Policies to enhance coral reef health generate a financial return on investment
- Climate change poses significant risk and adds uncertainty

Coral reefs and the benefits that human society derives from them must be considered within the broader context of both marine and terrestrial ecosystems. They are influenced by the health and condition of other ecosystems and in turn the health of the coral reef affects other ecosystems.



Status and projected trend for coral reefs

Shallow, warm water coral reefs occur in the waters of more than 100 countries, although 85% of these reefs are under the jurisdiction of only 25 states.

- Over 50% of known living coral has been lost on coral reefs due to a combination of local factors and global climate change.
- Almost 33% of reef forming coral species are threatened with extinction.
- Coral reefs continue to be on a catastrophic trajectory if substantial action is not taken urgently.
- The IPCC 1.5 report, published in 2018 stated that coral reefs would all but disappear in a scenario of up to 2°C warming and up to 90% of coral reefs would be lost even if warming does not exceed 1.5°C.
- Annual bleaching events are expected to occur by the 2050s although in some countries this may be as soon as 2033.
- Ecosystems that are closely associated with coral reefs are also facing significant declines.
 - Mangroves protect coastlines, sequester carbon, and support fish nurseries. 30-50% have been lost over the past 50 years.
 - Seagrass beds support fisheries, carbon sequestration, stabilizing sediments and provide nutrient cycling; 29% of the known extent of seagrasses has disappeared since it was first recorded in 1879.
- In 2017, approximately 40% of the global human population lived within 100 km of the coastal zone.
- The most recent population predictions suggest a global population of 8.6 billion by 2030, and 9.8 billion in 2050. More than half of this growth is expected to come from just 9 countries, including India, Tanzania, USA and Indonesia, all countries with coral reefs (UN, 2017).

The International Coral Reef Initiative (ICRI)

The International Coral Reef Initiative (ICRI) is a partnership between Nations and organizations which strives to preserve coral reefs and their related ecosystems around the world. ICRI was founded in 1994 by Australia, France, Japan, Jamaica, the Philippines, Sweden, the United Kingdom, and the United States of America, and now counts more than 60 members.

The foundational objectives of ICRI are to:

- Encourage the adoption of best practice in sustainable management of coral reefs and associated ecosystems,



- Build capacity,
- Raise awareness at all levels on the plight of coral reefs around the world.

Since July 2018, and until June 2020, the ICRI Secretariat is jointly co-chaired by Monaco, Australia and Indonesia (more information at www.icriforum.org).

ICRI has a unique opportunity to coordinate across member countries and organisations in order to help streamline/ coordinate policy instruments relating to coral reef management and conservation, as called for by UNEA Resolution UNEP/EA.4/L.14 on “Sustainable coral reefs management” (adopted 15 March 2019).

The Global Coral Reef Monitoring Network (GCRMN)

The Global Coral Reef Monitoring Network (GCRMN) is an operational network of the International Coral Reef Initiative (www.icriforum.org), and works through a global network of scientists, managers, institutions and organisations to provide the best available scientific information on the status and trends of coral reef ecosystems for their conservation and management. It was established in 1995, initially with the primary task of reporting on the condition of the world’s coral reefs. The Australian Institute of Marine Science (Australia) is coordinating the GCRMN globally and the 2020 reporting process.

At the last ICRI General Meeting in Monaco (December 2018), ICRI members adopted the new GCRMN Implementation and Governance Plan (IGP), which strengthens the GCRMN at global, regional and national levels, and articulates four primary goals for the GCRMN:

- Improve understanding of coral reef of status and trends, globally and regionally;
- Analyse and communicate coral reef biophysical and social and economic trends, providing science-based recommendations in support of raising awareness, management and policy development;
- Enable and facilitate greater utilisation of coral reef data, including in research;
- Build human and technical capacity to collect, analyse and report biophysical and socio-economic data on coral reefs.

In addition, ICRI members endorsed a workplan for the publication of the next GCRMN *Status of Coral Reefs of the World* report by mid-2020. This report will be first report on the global status of coral reefs in 12 years.

In order to produce this report, the GCRMN is seeking contributions of coral reef data from monitoring programs around the world (see Annexe 1). The data will be assembled to analyse the global status of and trends in commonly measured indicators of reef condition (e.g. live coral cover). These analyses will provide a quantitative foundation for the 2020 *Status of Coral Reefs of the World*. All contributions of data will be appropriately recognised in the report.

Coral Reef restoration

In response to declines in coral reef health, there has been a resurgence in interest in coral reef restoration. The ICRI Ad-hoc Committee on Reef Restoration was formed in December 2018 with the objectives



1. assessing global needs and priorities for reef restoration programs and,
2. identifying opportunities and mechanisms for joint planning for and co-funding of research and development.

An online survey of ICRI members followed up with a series of focus group discussions will be used to gather this information. Results will be brought together in a report and presentation delivered at the ICRI General Meeting in Townsville, Australia in December 2019.

As not all countries with coral reefs are part of ICRI, Regional Seas could distribute the survey to non-ICRI countries to provide a wider base of responses. If useful for Regional Seas we could provide a summary of results by Regional Sea Programs/areas.

The Regional Seas programmes and coral reefs

Since at least, 8 out of the 18 Regional Seas programmes (see below) are involved in the management of tropical coral reefs and related ecosystems, their engagement in looking for and providing data is crucial.

- The Abidjan Convention
- Caribbean Environment Programme (CEP) – member of the GCRMN Steering Committee
- Coordinating Body on the Seas of East Asia (COBSEA)
- Regional Organisation for Protection of the Marine Environment (ROPME) Sea Area
- South Asia Cooperative Environment Programme (SACEP) – existence of a South Asian Coral Reef Task Force
- Secretariat of the Pacific Regional Environment Programme (SPREP) – 2018-2019 is the Pacific Year of Coral Reefs. SPREP is also developing the Pacific Coral Reef Action Plan 2020- 2030.
- The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA)
- The Nairobi Convention - existence of a Nairobi Convention Coral Reef Task Force (CRTF).

Currently, the ICRI secretariat is working with several UNEP RS (PERSGA, ROPME, SACEP) to organize regional workshops on Regional Data Analysis of Coral Reef Monitoring.

Upcoming opportunities

1. The next ICRI General meeting will take place between the 2-7 December 2019 in Townsville, Australia.
2. The 6th International Tropical Marine Ecosystems Management Symposium (ITMEMS) will take place between the 14-17 April 2020 in Manado, Indonesia.

Annexe 1 - Factsheet on data for the GCRMN

About GCRMN

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The Australian Institute of Marine Science, through David Souter, is coordinating the GCRMN globally and the 2020 reporting process.

Data needed

What type of data are needed?

We are looking for **benthic** (cover percentage) and **fish** data (abundance and size). Because the goal of the *Global Coral Reef Monitoring Network* is to present trends of coral reefs, we are looking for at least **two consecutive years** of monitoring.

Should I send my data in a specific format?

In order to standardize the data homogenization process, we are looking for **raw data** and their associated **metadata**. Thus, you don't need to provide your data in a specific format. The main **variables needed** for benthic and fish data are described in the following tables. These tables are **not exhaustive**, you can provide more variables (or less if they are not available). Do not hesitate to provide any documents describing the methods used (e.g. report, publication) or any recommendation to guide the data cleaning process (e.g. possible bias). To ensure the quality of the data cleaning, you may be contacted by the person in charge of this process (Jérémy Wicquart, jeremywicquart@gmail.com).

- **Benthic data**

Variable	Description
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Location	Location or island of the country
Site	Site within the location
Zone	Reef zone (<i>e.g.</i> lagoon)
Latitude	Latitude
Longitude	Longitude
Depth	Depth of the benthos monitoring
Method	Method used (<i>e.g.</i> line intercept transect)
Category	Category (<i>e.g.</i> live hard coral)
Cover	Cover percentage of a given category

- **Fish data**

Variable	Description
Location	Location or island of the country
Site	Site within the location
Zone	Reef zone (<i>e.g.</i> lagoon)
Latitude	Latitude
Longitude	Longitude
Depth	Depth of the fish monitoring
Method	Method used (<i>e.g.</i> belt transect)
Category	Category (species, family, <i>etc</i>)
Abundance	Number of fishes of a given category
Size	Size of the fish of a given category

The Data Sharing Agreement (DSA)

These products, including the 2020 report, rely on the provision of high-quality scientific data and information from numerous contributors. In order to share the data, a data sharing agreement (DSA) has been developed. The DSA specifies the terms and conditions by which data are shared and used under the auspices of the GCRMN.

Contacts

The main points of contacts are listed below:

- **Global GCRMN coordination:** David Souter (d.souter@aims.gov.au)
- **Data gathering:** Jérémy Wicquart (jeremywicquart@gmail.com), and Serge Planes (planes@univ-perp.fr)
- **ICRI Secretariat:** Francis Staub (fstaub@icriforum.org)