



## **Training workshop on “Research for sustainable management of Blue Carbon Ecosystems in the Indian Ocean”**

**Date: 27 November - 2 December 2022**

**Venue : Institut Halieutique et des Sciences Marines**

**Toliara, Madagascar**

### **CONCEPT NOTE**

#### **A. BACKGROUND**

Blue Carbon Ecosystems (BCE) such as mangroves and seagrass are threatened by natural phenomena and human activities. The implementation of sustainable management and the conservation of these ecosystems requires reliable information which in turn requires the best available science. Generating better knowledge about these ecosystems will contribute effectively to their conservation, and help fight climate change, sustain human health, food security and economic development in our coastal areas. The effective participation of scientists is an asset for the sustainability of the services offered by these ecosystems. The effectiveness of this strategy is much greater when scientists help decision makers in an intelligent way by providing them with appropriate information directed at solving problems.

Regarding research for sustainable management of BCEs, the majority of the IORA Member States are in a similar situation although some countries are a little more advanced. Thus, there is a need to build capacity and networks in the purpose of sharing information and knowledge and learning from each other. The proposed training workshop will be a follow-up of the first one held in April 2019, in Toliara, Madagascar, with the milestones:

#### **Short-term:**

Organisation of a training workshop that would share information among the IORA Member States about how to fill known knowledge gaps. The training workshop will also enable Member States to learn standardized protocols and methods for sustainable management, conservation and restoration of BCEs (based on case studies, fieldwork and lab work and demonstrations) to improve the skills of the Member States delegates.

#### **Medium-term:**

Doctoral research projects were initiated after the first workshop and are ongoing and aim to assess and monitor the actual situation of BCE and the potentiality to sequester carbon in the south-west coast of Madagascar. Researchers from other countries of the Indian Ocean may do the same according to their

priority. The training-workshop will also technically support the implementation of the ongoing research and will help to start new and/or supplementary research areas.

#### **Long-term:**

Throughout the networks established within the framework of the Blue Carbon Hub, supported by IORA, the information and research findings will be pooled to produce action plan, provide recommendations to policy makers and provide tools to managers to ensure sustainable management, conservation and restoration of the ecosystems.

## **B. PROPOSAL**

BCEs are known as very productive ecosystems and provide goods and services to the coastal communities. They host numerous endangered species such as marine turtles, dugong, seahorses, crabs. Research is very helpful for policy-makers, for the local community as well as for the environment because scientific tools are the pillar of sustainable management.

IORA, through the Blue Carbon Hub, has been organizing several capacity buildings programs on Blue Carbon, including in Madagascar in 2019 on improving knowledge for research on blue carbon in the Western Indian Ocean, with a focus on seagrass and mangrove ecosystems. This training workshop is a follow-up of the aforesaid workshop whereby Member States will have the opportunity to further enhance their knowledge on seagrass mapping and blue carbon measurement. This project will also constitute a blueprint to advance knowledge on blue carbon ecosystems especially on seagrass in Madagascar and the other IORA Member States.

With the help of the senior scientist, we seek to address the two following questions:

- How to create data for BCE mapping using remote sensing tools
- How to measure carbon in seagrass and Mangrove soil and estimate the amount of carbon
- How to consider and involve the coastal communities from the process of generating data to the management implementation.

## **C. AIMS AND OBJECTIVES**

The aim of the training workshop is to organize a follow up training workshop for the delegates from IORA Members States regarding BCE. The follow up training workshop will also be a platform where Members States can share experiences, best practices and success stories, for the sustainable management of the blue carbon ecosystems in the Indian Ocean.

Moreover, the training will focus on the following:

- Seagrass Mapping: lectures, field work and lab-based demonstration and practices with Member State's data.
- Assessment of stored carbon in seagrass meadows. Lectures, field trips and demonstrations.
  - o Sampling and samples treatment, including field trips
  - o Measuring total carbon in a seagrass soil (organic and inorganic carbon).

The specific objectives of the training proposal are to:

- share information among the IORA Member States and to fill the gaps;
- learn standardized protocols and methods for the sustainable management, conservation and restoration of BCE based on case studies, fieldwork and lab work and demonstrations;
- carry out field and lab demonstrations to improve the skills of the Member States delegates.
- demonstrate the current blue carbon initiatives of Madagascar; and
- identify the knowledge and research gaps of IORA Member States on blue carbon assessment and measurements.

## D. EXPECTED OUTCOMES

- Researchers (at least 5, including 3 PhD students) from Madagascar gained skills and can finalize research on BCEs in Madagascar. This project will be the precursor for a thorough research perspective. Preliminary basic information will be used accordingly.
- Researchers from IORA Member States gained skills and knowledge about research on BCE
- Scientific tools for the sustainable management of BCE (policy, system of governance and management...) are prepared. In other words, in the medium term, the results of the workshop will have an impact on the management of these ecosystems and therefore has a prominent role in the development of the blue economy.
- Through this project, we aim to contribute to the elaboration of a sustainable management plan for BCE which correspond to the actual needs of the countries.

## E. HOST

Madagascar is chosen because it has one of the main training and research institute focusing on marine science in the WIO Region with more than 30 years experiences in organizing international training workshops. The institute provides facilities needed for the training. And especially, the country, particularly, the southwest region, has an extended distribution of seagrass meadows and seagrass species which constitute an excellent training ground for participants and an excellent field demonstration material for experts.

## F. PARTICIPATION

### **IH.SM Organizers and lecturers**

The training program will take place at the Fishery and Marine Science Institute (IH.SM) of the University of Toliara, Madagascar from 27 November to 2 December 2022. The institute has the necessary facilities to host the workshop.

### **Proposed lecturers from Madagascar:**

- Dr. Gildas Todinanahary (IH.SM, University of Toliara), Dr Lantoasinoro Ranivoarivelo and
- Mr. Aina LeDon (IH.SM, University of Toliara).

### **Other trainers**

- Trainers are composed by experienced specialists from Australia, including from the IORA Blue Carbon Hub and experts from IORA Member States.

### **Participants (trainees)**

Delegates (fellows) from IORA Member States will be invited. We will also open the workshop to few more researchers/technicians (about 5 persons) from Madagascar or other countries, who could attend the workshop without any support from IORA, depending on the participation rate from Member States.

## G. IMPLEMENTATION AND FUNDING

It is proposed that the training workshop be sponsored under the IORA Sustainable Development Program (IORA-SDP): 90% of the funding for the project will come from the IORA Special Fund, and the remaining 10% is expected from the host Member State. The 10 % contribution can be in

any form agreeable to the Member States in consultation with the Secretariat. Contributions from Member States or sponsorship by other stakeholders will be appreciated.

For this training workshop, France, through the French Development Agency (AFD), will contribute to the 10% counter funding. The administrative, logistical and budgetary arrangements will be finalized by the IORA Secretariat in consultation with the Member States.