



# CARICOOS

CARIBBEAN COASTAL OCEAN OBSERVING SYSTEM

## Caribbean Marine Biodiversity Observation Network

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*Performance Period: June 1, 2020 – November 30, 2020*

### **LONG-TERM GOALS**

Our long-term goals are to process and manage biological datasets of interest to our stakeholders and provide regional expertise in regards to OBIS (Ocean Biogeographic Information System), MBON (Marine Biodiversity Observation Network), and derived applications.

### **MILESTONES / OBJECTIVES**

- Improve accessibility of the Puerto Rico Coral Reef Monitoring Program (PRCRMP) data by providing OBIS and MBON system updated and cured datasets
- Facilitate integration of PRCRMP data available in OBIS into the MBON data portal
- Ensure input from the Department of Natural and Environmental Resources (DNER) POC in the development of the MBON data visualization tool.

### **WORK COMPLETED**

- A thorough revision of the PRCRMP data product and the MBON mapping application developed by Axiom Data Science was performed. Technical advice regarding the PRCRMP monitoring design and biological data was provided to Axiom developers during revisions of the PRCRMP data layer in MBON.
- Issues in the visualization tool were identified and addressed accordingly in coordination with Axiom Data Science. These issues included data processing errors, mapping tool bugs, and other formatting inconsistencies.
- Outreach has been initiated with key stakeholders to promote awareness of MBON and the use of the MBON data portal mapping application. A demo webinar was provided to key staff in partner agencies who sponsored this project and to potential data users and data owners. There were more than 50 participants who contributed with comments and questions. The webinar was recorded and is available on the CARICOOS YouTube channel.
- Collaboration with stakeholders of the University of the U.S. Virgin Islands has been initiated to translate the Territorial Coral Reef Monitoring Program Database following the Darwin Core Standard.
- Participation in IOOS and OBIS meetings regarding the experience working with biological datasets in the Caribbean in support of MBON.

### **MAJOR OUTCOMES**

- The PRCRMP database is now publicly accessible as a map layer in the MBON data portal. This product is the first coral reef monitoring layer that allows the visualization of



spatial and temporal trends in the U.S. Caribbean by processing site-specific transect biological data.

- The data layer and mapping application revision process required effective communication between biologists and data scientists. This was crucial to develop and adapt the mapping application while maintaining the integrity of the biological dataset. A series of steps in this revision process further expands an integrated workflow which consists of translating biological datasets to Darwin Core, publishing the data in OBIS, and ingesting the data into the MBON data portal mapping application.
- By showcasing the MBON PRCRMP layer as a proof of concept layer in the Caribbean region, interest from data owners and custodians to integrate their data products into MBON has been expressed. Currently, we have started to process and manage another important biological dataset, the USVI Territorial Coral Reef Monitoring Data which includes benthic and fish data from 2001 to 2019. Additionally, the Caribbean Fisheries Management Council has agreed to transfer a recent database on mesophotic coral reefs (fish and corals). To further develop the repository of Caribbean biological data available in MBON it will be key to continue and expand targeted outreach efforts that instruct users on how to navigate the MBON mapping application, extract data, and create data views. Specific examples of data views based on relevant species or research questions resulted in effective engagement of webinar participants.

## **RELATED PROJECTS**

- CARICOOS Regional Ocean Partnership (ROP): The Regional Ocean Partnership effort seeks to integrate diverse data-based tools in support of ocean-coastal management and research. In this regard, the MBON data portal serves as a tool that facilitates the use of biological data in research and decision-making agendas.

## **WORK PLAN FOR UPCOMING PERFORMANCE PERIOD (June 1, 2020 – November 30, 2020)**

- Continue the workflow with USVI TCRMP data (translation, OBIS archival, MBON ingest).
- Initiate workflow with CFMC mesophotic coral reef data.
- Continue and expand targeted outreach about MBON data layers with Caribbean data.
- Establish the Caribbean MBON as a long-term project.

## **REFERENCES**

- PRCRMP Database Compilation (NOAA NCEI Accession): <https://data.nodc.noaa.gov/cgi-bin/iso?id=gov.noaa.nodc:0204647>
- PRCRMP Database Compilation (OBIS archive): <https://obis.org/dataset/52f99f08-fc90-4684-aea8-a015150968ea>
- Darwin Core quick reference guide: <https://dwc.tdwg.org/terms/>
- MBON Data Portal: <https://mbon.ioos.us/>
- USVI TCRMP: <https://sites.google.com/site/usvitcrmp/available-data>

## **PUBLICATIONS & PRODUCTS**

- OBIS data publication - Puerto Rico Long-Term Coral Reef Monitoring Program Database Compilation - <https://obis.org/dataset/52f99f08-fc90-4684-aea8-a015150968ea>
  - Citation:



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*Department of Natural and Environmental Resources of Puerto Rico (2019) Puerto Rico Long-Term Coral Reef Monitoring Program Database Compilation (1999-2019). [indicate subset used]. Ocean Biogeographic Information System. Dataset. <https://obis.org/dataset/52f99f08-fc90-4684-aea8-a015150968ea>*

- PRCRMP Database layer in MBON data portal: <https://mbon.ioos.us/?ls=XhVqD2sv#map>
- Demo webinar on the PRCRMP data layer: <https://www.youtube.com/watch?v=DI73hAsxK38>