Integrating the PRCRMP Database into OBIS-MBON
Miguel G. Figuerola Hernández
UPRM CID 114
mfiguerolahernandez@gmail.com
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LONG-TERM GOALS

CARICOOS, in its role as steward of ocean observations in the US-Caribbean-EEZ, has engaged its DMAC Subsystem towards the management of biological datasets from our region. We have taken the first steps towards what on a long-term basis will be an operational component of the CARICOOS DMAC Subsystem. Our long-term goals are to process and manage those 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. Coral reef biological data provide essential information for the management and conservation of the most productive and biodiverse coastal/marine ecosystem in the Caribbean. In this regard, CARICOOS is targetting the Puerto Rico Coral Reef Monitoring Program (PRCRMP) Database to be included in the MBON Data Portal which provides data visualization support. To meet stakeholder data access and visualization needs, the workflow established to integrate PRCRMP data in MBON is projected to be transferable to other biological datasets available.

MILESTONES / OBJECTIVES

- Translate the PRCRMP Database following the Darwin Core Standard format
- Publish the PRCRMP Database in the OBIS repository
- 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, Ernesto Díaz, in the development of the MBON data visualization tool.

WORK COMPLETED

- The PRCRMP Database was successfully translated following the Darwin Core standards. This involved the creation of three files including all sampling event data, occurrence information, and measurements. These files were created from the PRCRMP Database Compilation available at the NOAA National Center for Environmental Information (NCEI). Using a combination of R scripts and MS Excell functions, Jose Santiago and Miguel Figuerola developed the event, occurrence, and measurement files. Thes files were constantly revised by the OBIS POC, Abigail Benson.
- The translated PRCRMP Database was submitted to OBIS and subsequently published.
- A collaboration was established with IOOS-MBON partners, Axiom Data Science, to ingest the PRCRMP data published in OBIS into the MBON data portal. The data is currently being ingested into a data visualization tool.

- DNER POC, Ernesto Díaz, has been updated during progress report meetings of this project. The input of PMAC lead Jorge Capella and CARICOOS executive director Julio Morell has been incorporated during revisions of the draft data visualization tool to ensure stakeholder needs are taken into consideration.

MAJOR OUTCOMES

- We have developed a workflow to translate biological datasets of interest following the Darwin core standards and publish them in the OBIS repository. This workflow is paramount to integrate Caribbean data into the MBON data portal. We used an R script provided by the OBIS POC, Abby Benson, but it posed serious challenges when running it with the PRCRMP database. It was noted that an updated R script can optimize this workflow by selecting R commands which run under an updated version of the software. Also, the workflow would benefit from having a high-performance workstation given the file size of long-term biological datasets and the operations needed during the translation process.
- The collaboration with OBIS, MBON, and Axiom Data Sciences has been very effective. Each collaborator was responsive and extremely helpful during the steps of the data translation, publishing, and MBON ingestion.
- To ensure the data is projected correctly, the MBON data visual tool is currently under a series of revisions. These included updating occurrence information, measurement data, and data ingestion functions so the right parameters are shown in the visual.

RELATED PROJECTS

None

CHANGES/PROBLEMS

There were no major impacts on tasks and/or operations due to the Covid-19 pandemic during the reporting period of this project.

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

- Finish revisions to the MBON data visualization tool for the PRCRMP database and publish it.
- Other tasks to be determined

REFERENCES

- PRCRMP Database Compilation (NOAA NCEI Accession): https://data.nodc.noaa.gov/cgi-bin/iso?id=gov.noaa.nodc:0204647
- Darwin Core quick reference guide: https://dwc.tdwg.org/terms/
- MBON Data Portal: https://mbon.ioos.us/

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:
      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
- Draft MBON visualization tool for the PRCRMP Database (under revisions)