Workshop on "The CCLME Alien Species Database: How to present the data gathered in the CCLME Eco-GIS Viewer"

20 November 2023 – On-line meeting

Meeting report

Sixth meeting of the project *Invasive alien species and other ocean stressors: Furthering the scientific knowledge and capacity basis in the Canary Current Large Marine Ecosystem*

A project implemented by the IOC of UNESCO, in partnership with the Instituto Español de Oceanografía (IEO-CSIC), and funded by the Spanish Agency for International Development Cooperation (AECID)

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Table of Contents

1. Context of the meeting

The Intergovernmental Oceanographic Commission (IOC) of UNESCO is currently implementing the project *Invasive alien species and other ocean stressors: Furthering the scientific knowledge and capacity basis in the Canary Current Large Marine Ecosystem* (CCLME), which is funded by the Spanish Agency for International Development Cooperation (AECID). The project is implemented in collaboration with the Instituto Español de Oceanografía (IEO-CSIC, Spain).

The project aims at furthering the scientific knowledge and capacity-building in the countries in the region - Cabo Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Morocco, Senegal, and Spain (Canary Islands)- by adding a focus on the effects of multiple ocean stressors to the knowledge base of the Canary Current system. This new focus includes a collaborative approach to the question of invasive alien species (IAS), its connection with other ocean stressors, and an assessment of IAS and other ocean stressors in the region.

The kick-off meeting of the project was held on 24 February 2022, counting with the participation of 46 experts. A total of 32 experts participated in the second and third meetings, held on 24 March 2022 and 5 May 2022 respectively, and the fourth meeting of the project was held on 23 June 2022 and attended by 19 experts. The fifth meeting was held on 28 July 2022 and garnered 16 participants. The presentations and the meeting reports are available on the dedicated meeting pages (24 February, 24 March, 5 June, 23 June and 28 July). These meetings are aimed at facilitating scientific discussions and all have counted with the participation of experts from all the above-mentioned countries in the region, as well as of experts from other countries.

This is the sixth of a series of project meetings shaped as a Workshop to discuss the most meaningful way to present in the CCLME Eco-GIS Viewer the data gathered in the CCLME Alien Species Database. Progress in the CCLME Alien Species database will be briefly introduced.

2. Summary of the meeting, discussion, and conclusions

This sixth meeting of the project, entitled Workshop on "The CCLME Alien Species Database: How to present the data gathered in the CCLME Eco-GIS Viewer", had as its main objective to discuss and agree on the most meaningful way to present in the CCLME Eco-GIS Viewer the data gathered in the CCLME Alien Species Database. In this regard, progress in the CCLME Alien Species database was briefly introduced.

The agenda of the meeting is presented in Annex 1.

A total of 20 experts participated in the meeting. The list of participants is presented in Annex 2, and a screenshot taken during the meeting is presented in Annex 3.

2.1 CCLME Alien Species Database: Implementation in the CCLME Eco-GIS Viewer

2.1.1 Progress in the elaboration of a CCLME Alien Species Database

Itahisa Déniz González, IOC Project Coordinator, presented progress in the elaboration of a CCLME Alien Species Database. Steps for the production of the database included:

(i) Bibliographic research: carried out as decided in a previous workshop; using an agreed list of keywords, in five languages (Arabic, English, French, Portuguese and Spanish) and in some specific databases (Web of Science, Scopus, and Google Scholar – the latest only when no references were found in the other two databases).
(ii) Agreement on definitions and terminology.
(iii) Agreement on a template for the CCLME Alien Species Database.

The CCLME Alien Species Database gathers so far 316 registers extracted from 140 publications and in the waters of Cabo Verde, Senegal, Morocco and Spain. Specimens of 13 phylum are included in the database.

Discussion focused on how to fill in the geographical gaps; there is no registers so far for Gambia, Guinea, Guinea-Bissau and Mauritania.

The presentation is available on the meeting dedicated page.

2.1.2 Brief introduction of the CCLME Eco-GIS Viewer

Stelios Contarinis, IOC Consultant, introduced the CCLME Eco-GIS Viewer and new developments.

Improvements include:

- CCLME Primary production database: Gathered within project's Phase III and containing 164 measurements for the CCLME, the data will be made available at the Spatio-Temporal Data Viewer with month and year as filter options (as shown in Figure 1).

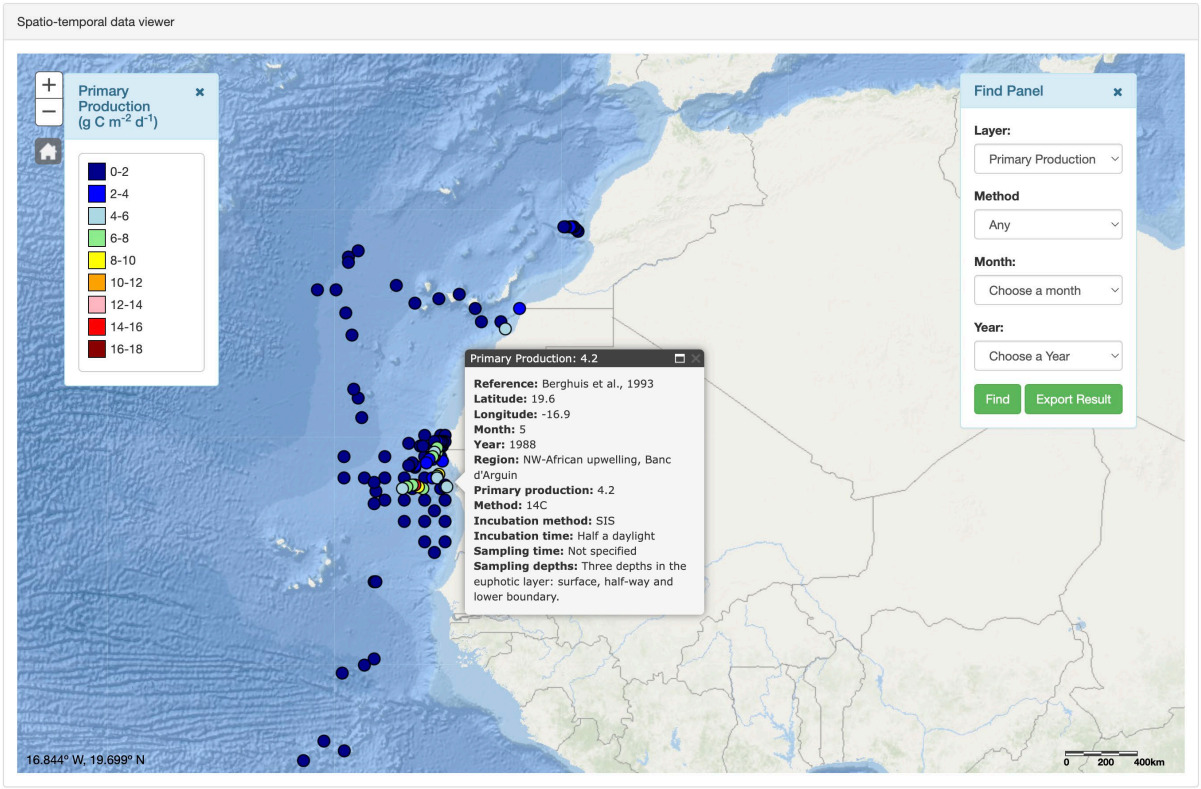

Figure 1. CCLME Primary Production database

- Improvements for a more user-friendly approach: These include guiding tours for each analytical tours, and sweet alerts to guide the user (i.e. there is no data available for a specific year or month).
- Listing the CCLME Eco-GIS Viewer and its 10 tools in ODIS Catalogue: As one project with 10 services.

Additionally, the possibility of organizing a project meeting to present the updates and improvements, as an "Avant première", was also evoked. It would be shaped as a full day hands-on workshop having as main objectives: (i) to showcase the improvements; (ii) to collect feedback and spot any details before launching the communication campaign.

The presentation is available in the meeting dedicated page.

2.1.3 The CCLME Alien Species Database as a layer or as a tool?: Discussing possibilities and decision making

The IOC Secretariat prepared some slides with proposals for discussions and decision-making. The discussion covered several topics.

- The CCLME Alien Species Database as a layer: It was proposed and agreed to add the CCLME Alien Species Database as a layer under the analytic tool "Biological data", as a way to allow comparisons of alien species occurrences with data from other sources; OBIS, IEO fisheries surveys, and FAO maps of species distribution. The layer will be named: *IOC (CCLME) Alien Species*.
- Adding additional layers as static layers: During the discussion, two additional static layers were proposed to be added under the tool "layer list":
  (i) Main harbours in the region, if possible, indicating if ballast water implementations are applied.
  (ii) Marine traffic routes, at least the main regular ones. I.e.marinetraffic.com (real time view), EmodNETtraffic density maps, or other visualization options.

  The justification was that adding these layers would highlight the importance of the Ballast Waters Management Convention and allow us to see whether there is a connection between the transport of alien species (e.g. ballast waters, hull fouling, etc.) and their occurrences.
- How to search the data: The selection panel should allow an Advanced Search via an additional panel. It was proposed and agreed to use the following terms to do the search: (i) taxonomy (Phylum, Class, etc.); (ii) establishmentMeans; (iii) degreeOfEstablishment; (iv) pathway; and (v) eventDate (Year only)
- How to present the data: In what regards to data presentation, it was proposed to use the term degreeOfEstablishment having the concepts terms included within it displayed using a color code. As the suggested color code was not considered optimal by the experts, further discussion is needed to make a new proposal.
- In relation to the previous point, provided that we are working on an alien species database, and considering the definitions presented for degreeOfEstablishement at the Darwin Core Terminology, it seems that the following concepts are unlikely to be used: Native, Captive, Cultivated. Therefore, it was agreed to not have them listed and to not assign them a color code.
- As an option for consideration, it was proposed to present the database records with colored symbols, one term depicted with a color (e.g. establishmentMeans), and the other depicted with a shape (e.g. degreeOfEstablishment). However, when using the shapes, the choice is limited to 7 available colours while we have 8 possible concepts within the term degreeOfEstablishment. No decisions were taken during the meeting on this option.
- The use of time filtering capabilities: Experts confirmed that the use of time filtering capabilities on the eventDate were needed (e.g. year or month when the event was recorded), provided the importance of knowing the year of the first record and the pathway for the implementation

of management measures. It was agreed to do a search by eventDate (Year), allowing filtering by pathway. Event dates are important to analyze trends and pathways, and to see the human activity at the origin of the occurrence, e.g. marine traffic, aquaculture, etc. Feasibility is to be checked.

- Use of DOIs: It was proposed to prospect the possibility of assigning DOIs to the different products, as per the guidance provided in the OBIS manual.

The conclusions are presented in the slides summarizing the decisions, available on the meeting dedicated page. A timeline is presented in Annex 4.

2.2 Summary of the discussion and wrap-up

2.2.1 Developments in the CCLME Eco-GIS Viewer to include the CCLME Alien Species database

It was agreed to share the decisions with the group to gather any further insights before the agreed developments are implemented.

2.2.2 Next project meeting

The possibility to programme a seventh workshop was discussed, and it was agreed that a follow up workshop to present progress on the CCLME Alien Species Database will be organized by the IOC Secretariat on 11 December 2023, 11h –14:00h CET. The discussion will focus on the issues encountered while populating the database. Further, it will be an opportunity to present the developments on data representation as agreed in the current meeting, and to provide feedback on this new data service.

2.2.3 Follow up of the activities

1. The IOC Secretariat will address the geographical gap in the CCLME Alien Species database.

2. The IOC Secretariat will liaise bilaterally with the experts who highlighted the importance of a better choice of color code to represent the data of the CCLME Alien Species database in a map. The IOC Secretariat will share the new proposal of color code with the rest of the group for perusal.

3. The IOC Secretariat will share the conclusions of this meeting with the rest of the group to collect any further feedback before implementing any developments to improve the CCLME eco-GIS Viewer.

4. Some of the improvements can be already checked in the CCLME Eco-GIS Viewer. Experts are kindly invited to share comments and ideas with the IOC Secretariat.

5. The IOC Secretariat evoked the possibility of organizing one full-day hands-on workshop having as objectives: (i) to showcase the improvements in the CCLME Eco-GIS Viewer; (ii) to collect feedback and spot any details before launching the communication campaign. The IOC Secretariat will gather expressions of interest to fix a date.

6. The IOC Secretariat will liaise with the experts who have expressed their willingness to fill in the CCLME Alien Species Database with published data to further populate it.

8. A timeline with the tasks agreed for the month to come concerning work in the CCLME Alien Species Database and the CCLME Eco-GIS Viewer is attached as Annex 4.

Annex 1. Agenda for the meeting

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WORKSHOP ON "THE CCLME ALIEN SPECIES DATABASE:
HOW TO PRESENT THE DATA GATHERED IN THE CCLME ECO-GIS VIEWER"

VENUE: ON-LINE MEETING (MICROSOFT TEAMS)
DATE: 20 NOVEMBER 2023 11:00 – 13:00 H
TIMES INDICATED IN CET (UTC+1)

AGENDA

TIME	
11:00-11:15	**WELCOME, MEETING AGENDA AND BRIEF REMINDER OF PROJECT OUTPUTS** Speaker: Itahisa Déniz González (IOC-UNESCO)
11:15-11:30	**CCLME ALIEN SPECIES DATABASE: IMPLEMENTATION IN THE CCLME ECO-GIS VIEWER** Moderator: Nuno Castro (MARE-Madeira, Portugal) *PROGRESS ON THE ELABORATION OF A CCLME ALIEN SPECIES DATABASE* Speaker: Itahisa Déniz González (IOC-UNESCO)
11:30-12:00	*BRIEF INTRODUCTION OF THE CCLME ECO-GIS VIEWER* Speaker: Stelios Contarinis (IOC-UNESCO)
12:00-12:15	HEALTH BREAK
12:15-12:55	*THE CCLME ALIEN SPECIES DATABASE AS A LAYER OR AS A TOOL?: DISCUSSING POSSIBILITIES AND DECISION-MAKING*
12:55-13:00	SUMMARY OF THE DISCUSSION AND WRAP UP

Annex 2. List of participants

- Kandè BANGOURA (Centre de Recherche Scientifique de Conakry-Rogbanè, Guinea)
- Amadou Oury BARRY (Centre de Recherche Scientifique de Conakry-Rogbanè, Guinea)
- Tijani BOJANG (Ministry of Fisheries & Water Resources, Gambia)
- Eva CACABELOS (IIM-CSIC – Vigo, Spain, MARE – Madeira, Portugal)
- Nuno CASTRO (MARE-Madeira, Portugal)
- José M. CAÑIZARES (Instituto Español de Oceanografía-CSIC, Spain)
- Guilherme DA COSTA (Ministério do Ambiente e da Biodiversidade, Guinea-Bissau)
- Anis DIALLO (ENVOCEAN SARL, Senegal)
- Jesús M. FALCÓN (Instituto Español de Oceanografía-CSIC, Spain)
- Rafael GONZÁLEZ-QUIRÓS (IEO-CSIC, Spain)
- Ricardo J. HAROUN (University of Las Palmas de Gran Canaria, Spain)
- Amadou JALLOW (Ministry of Fisheries & Water Resources, Gambia)
- Mamudou JALLOW (University of The Gambia, Gambia)
- Bouya M'BENGUE (Institut Mauritanien de Recherche Océanographique et des Pêches, Mauritania)
- Edwin MWASHINGA (Intergovernmental Oceanographic Commission of UNESCO, Kenya)
- Pericles SILVA (Instituto Nacional de Desenvolvimento das Pescas – INDP, Cabo Verde)
- Luis VALDÉS (Instituto Español de Oceanografía-CSIC, Spain)
- Stelios CONTARINIS (Intergovernmental Oceanographic Commission of UNESCO, France)
- Aude LE BOURHIS (Intergovernmental Oceanographic Commission of UNESCO, France)
- Itahisa DÉNIZ GONZÁLEZ (Intergovernmental Oceanographic Commission of UNESCO, France)

Annex 3. Screenshot of the meeting

Annex 4. Timeline with next steps

IOC-UNESCO

Legend: All | IOC Secretariat | Experts engaged in the assessment | Event

Activity	Assigned to	Comments	Start	End
WORK IN THE CCLME ECO-GIS VIEWER				
Share the decisions taken during Meeting 6 with the rest of the group	Itahisa	With the support of Stelios	20/11/2023	21/11/2023
Review of the proposal of implementation of the CCLME Alien Species Database in the CCLME Eco-GIS Viewer - including color code.	All	Itahisa and Stelios to collect input and feedback	22/11/2023	29/11/2023
Work in the developments in the CCLME Eco-GIS Viewer	Stelios	Stelios to develop the layer as agreed. Itahisa to provide support as functional analyst	30/11/2023	06/11/2023
WORK IN THE CCLME ALIEN SPECIES DATABASE				
Share published data owned by the experts in the group using the database template, to fill in data gaps	IAS experts engaged in the assessment	Itahisa to compile inputs from the experts, provide support and produce a list of references included so far.	21/11/2023	06/11/2023
Workshop on "The CCLME Alien Species Database: progress and decision-making"	All	All to confirm attendance. Stelios to present the developments. Itahisa to organize the meeting, and circulate the materials to be discussed ahead of the meeting.	07/11/2023