Workshop on "The CCLME Alien Species Database: Quality assurance and data visualization"

11 December 2023 – On-line meeting

Meeting report

Seventh 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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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. The fourth meeting of the project was held on 23 June 2022 and attended by 19 experts, and the fifth meeting was held on 28 July 2022 and garnered 16 participants. The sixth meeting took place 20 November 2023 and was attended by 20 experts. The presentations and the meeting reports are available on the dedicated meeting pages (24 February 2022, 24 March 2022, 5 June 2022, 23 June 2022, 28 July 2022 and 20 November 2023). These meetings are aimed at facilitating scientific discussions and experts from all the above-mentioned countries in the region, as well as of experts from other countries, were invited to participate.

This is the seventh of a series of project meetings shaped as a Workshop to discuss CCLME Alien Species Database's quality assurance and data visualization. Progress in the CCLME Alien Species database was briefly introduced.

2. Summary of the meeting, discussion, and conclusions

This seventh meeting of the project, entitled Workshop on "The CCLME Alien Species Database: quality assurance and data visualization", had as its main objective to (i) present progress on the CCLME Alien Species Database; (ii) discuss the issues encountered while populating the database, and taking decisions about how to address those; and (iii) present the developments in the CCLME Eco-GIS Viewer to present the CCLME Alien Species Database. The agenda of the meeting is presented in <u>Annex 1</u>.

A total of 17 experts participated in the meeting. The list of participants is presented in <u>Annex 2</u>, and a screenshot taken at the end of the meeting is presented in <u>Annex 3</u>.

2.1 CCLME Alien Species Database: Quality assurance

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 to produce the database included:

- 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 145 publications and in the waters of Cabo Verde, Senegal, Morocco and Spain, and covers the period 1836-2021. Specimens of 13 phylum are included in the database.

The <u>presentation</u> is available on the <u>meeting dedicated page</u>.

2.1.2 Discussion: Issues encountered while populating the CCLME Alien Species Database and Decision-Making

The IOC Secretariat prepared some <u>slides</u> to present the issues encountered for discussions and decision-making. The slides included also some clarifications as guidance for future work.

The following issues were discussed and decisions were taken in what regards quality assurance of the IOC CCLME Alien Species Database:

- Registers are extracted from publications (articles and grey literature): The database should not include registers from personal communications and unpublished materials. Registers are to be included only once published whether in scientific journals or conference communications (registers in books of abstracts).
- Citizen Science's data: Data are to be included if the data is ratified by an expert.
- Published registers not included in the database because taxonomic changes occurred since the publication of the first register: It was agreed that these should not be included in the database as already know as mistaken, provided that this is a dynamic process. It was suggested to keep track of those publications to mark them in our list of references, and to avoid making the effort again.
- Some species in the list might be cosmopolitan: It was agreed to identify the species, check, and delete from the database if appropriate.
- Proposal to add the taxon subclass in the Template, as relevant for corals: It was agreed to add the Term to the CCLME Alien Species database and fill in it for corals. No need to make an effort for other taxonomic groups.
- Important to note: Current changes on taxon order for fish: It was agreed to use WoRMS.
- Provision of more recent information associated to a published register: In principle, the database is to be filled with the information as it provided in the article. However, if changes occur in the status of a species, more recent status is to be indicated. In that case, a comment is to be added in occurrenceRemarks (previous status and latest reference for the change in the bibliography).
- Cryptogenic species: It was agreed to not include in the CCLME Alien Species database and wait until the species is ratified as alien. It was suggested to keep track of those publications/registers.
- eventDate: If the date is missing, to be left blank. The publication date should be evident from the associatedReferences, if not a comment could be added in occurrenceRemarks.

- eventDate and data representation in the CCLME Eco-GIS Viewer: As eventDate can be filled as
 a period of time, and provided it is important to know the year of the first record to implement
 management measures, it was agreed to add a new column to help in data representation in
 the CCLME Eco-GIS Viewer, and use the first year in case of a period.
- Old sightings for species which were not seen again: It was agree that this should not be included in the database as to be considered as native or cryptogenic. There is a need to define a limit in what regards sample date (if appropriate), i.e. 1970. Check dates of existing registers
- Registers in a specific port, village, island (no precise coordinates provided): It is proposed to use random points so that all registers are presented in the map. It was suggested to check with data representation experts about the interest of using c-squares.
- Article referring to species occurrence in two islands: It was agreed to check case by case, looking at the dates (did the occurrence take please the same date in the two places, or on different dates)
- CoordinateUncertaintyInMeters use of a standardized accuracy: It was suggested to discuss bilaterally with the data contributor.

To sum up, discussion addressed: (i) narrowing down the data to be included; (ii) decisions on how to fill in the data in some specific cases; (ii) the possibility of adding new columns to the database; (iii) the presentation and filtering of data in the CCLME Eco-GIS Viewer, as a tool aimed at making meaningful data analysis.

2.2 CCLME Alien Species Database: Data visualization

2.2.1 Results of the questionnaire set up to collect further feedback on how to present the data gathered in the CCLME Eco-GIS Viewer

Itahisa Déniz González, IOC Project Coordinator, presented the results of the questionnaire set up to collect further feedback on how to present the data gathered in the CCLME Eco-GIS Viewer. The results of the questionnaire can be consulted in the <u>summary slides</u>.

IOC received a total of 13 replies, from which six came from respondents who did not participate in the workshop and nine from respondents' field of work is alien species (research or teaching).

The questionnaire included a new proposal of color bar to represent the data in a map using the term degreeOfEstablishment.

The majority of the respondents confirmed agreement with the agreed decisions (for further detail about the decisions, see the <u>report of the workshop held 20 November 2023</u>):

- (i) adding the CCLME Alien Species Database as an additional layer in the Biological data analytical tool, named "IOC CCLME Alien Species";
- (ii) adding two additional static layers: main harbours in the region, and marine traffic routes;
- (iii) using the term degreeOfEstablishment to present registers in the map using a color code (Fig. 1), and withdrawing the Darwin Core Terminology concepts which are unlikely to be used (native, cultivated, captive);
- (iv) adding a search by search by eventDate (Year), allowing filtering by pathway.

Comments and proposals were discussed, and clarifications were provided when needed.

Released	
Failing	
Casual	
Reproducing	
Established	
Colonizing	
Invasive	
Widespread invasive	

Figure 1. Proposal of color code to present the registers in the map.

Further, the majority of the respondents (9 out of 10 replies) confirmed that associating DOI's to the different products would be useful for their work; and that they (10 out of 11 replies) would be interested in participating in a one-day hands-on workshop on the use of the CCLME Eco-GIS Viewer.

For further detail about the questionnaire results, please see the <u>summary slides</u>.

2.2.2 The CCLME Alien Species Database as a layer in the CCLME Eco-GIS Viewer

Stelios Contarinis, IOC Consultant, introduced the new developments in the <u>CCLME Eco-GIS Viewer</u> to reflect the decisions of the last meeting.

A number of enhancements were proposed to augment the functionality and visualization of the IOC CCLME Alien Species Database at the CCLME Eco-GIS Viewer. These recommendations aim to improve user experience and data accessibility:

- (i) Expansion of Temporal Filtering Options: It was proposed that the database incorporate a more flexible time filter, allowing for the selection of data over multi-year periods rather than being confined to a single-year view. This would facilitate a more comprehensive temporal analysis of alien species occurrences.
- (ii) Geographical Data Filtering Enhancements: There was a recommendation to develop a feature for filtering data by specific geographical regions, such as Exclusive Economic Zones (EEZ). This targeted filtering would be invaluable for region-specific ecological assessments and management plans.
- (iii) Visualization of Data Volume: The addition of a data count display was suggested, potentially in the form of a legend, to provide users with immediate insight into the quantity of records shown under the selected parameters.
- (iv) Integration of Port Data as Distinct Layers: The incorporation of ports and their associated names as a static layer on the database's map was recommended. This would enhance the identification of key sites for the introduction of alien species.
- (v) Inclusion of Data Entry Attribution: A further suggestion was made to prospect the inclusion of the name, affiliation, and contact details of the individuals responsible for data entry. This would serve to validate the data and encourage communication and collaboration between researchers and metadata providers.

The <u>presentation</u> is available in the <u>meeting dedicated page</u>.

2.3 Summary of the discussion and wrap-up

2.3.1 CCLME Alien Species Database: Quality assurance

It was agreed that the IOC Secretariat will review the database to make sure that the decisions of the meeting are reflected, and proposals are studied and taken onboard if time allows.

2.3.2 CCLME Alien Species Database: Data visualization

The IOC Secretariat will evaluate the new recommendations for the CCLME Eco-GIS Viewer and implement those that are achievable.

2.3.3 Organization of a hands-on workshop on the use of the CCLME Eco-GIS Viewer

The IOC Secretariat will identify and propose a date for the organization of a hands-on workshop on the use of the CCLME Eco-GIS Viewer and to present new developments, 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.

2.3.4 Follow up of the activities

1. The IOC Secretariat will review the database and will bilaterally reach out metadata providers if needed.

2. The IOC Secretariat will implement the recommendations (those achievable taking into account time constraints) to improve the CCLME Eco-GIS Viewer.

3. The IOC Secretariat will follow up on the organization of a hands-on workshop to showcase the improvements in the CCLME Eco-GIS Viewer and to test if before communicating widely about it.

Annex 1. Agenda for the meeting







WORKSHOP ON "THE CCLME ALIEN SPECIES DATABASE: QUALITY ASSURANCE AND DATA VISUALIZATION"

VENUE: ON-LINE MEETING (MICROSOFT TEAMS) DATE: 11 DECEMBER 2023 11:00 – 14:30 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: QUALITY ASSURANCE
	Moderators: José Manuel Cañizares (IEO-CSIC, Spain) and Ismaïla Ndour (ISRA/CRODT, Senegal)
	PROGRESS ON THE ELABORATION OF A CCLME ALIEN SPECIES DATABASE
	Speaker: Itahisa Déniz González (IOC-UNESCO)
11:30-12:00	Discussion: Issues encountered while populating the CCLME Alien Species Database and
12 00 12 15	DECISION-MAKING
12:00-12:15	HEALTH BREAK
12:15-13:15	DISCUSSION: ISSUES ENCOUNTERED WHILE POPULATING THE CCLME ALIEN SPECIES DATABASE AND
	Decision-Making (Ctd')
13:15-13:30	HEALTH BREAK
13:30-13:40	CCLME ALIEN SPECIES DATABASE: DATA VISUALIZATION
	Moderators: José Manuel Cañizares (IEO-CSIC, Spain) and Ismaïla Ndour (ISRA/CRODT, Senegal)
	RESULTS OF THE QUESTIONNAIRE SET UP TO COLLECT FURTHER FEEDBACK ON HOW TO PRESENT THE DATA GATHERED
	IN THE CCLME ECO-GIS VIEWER
	Speaker: Itahisa Déniz González (IOC-UNESCO)
13:40-14:25	THE CCLME ALIEN SPECIES DATABASE AS A LAYER IN THE CCLME ECO-GIS VIEWER
	Speaker: Stelios Contarinis (IOC-UNESCO)
14:25-14:30	SUMMARY OF THE DISCUSSION AND WRAP UP

Annex 2. List of participants

- Mamie Rose BADJAN (Ministry of Fisheries & Water Resources, Gambia)
- Kandè BANGOURA (Centre de Recherche Scientifique de Conakry-Rogbanè, Guinea)
- Eva CACABELOS (IIM-CSIC Vigo, Spain, MARE Madeira, Portugal)
- Bakary CAMARA (University of The Gambia, Gambia)
- 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)
- Bintou DIBBA (University of The Gambia, Gambia)
- 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)
- Ismaïla NDOUR (ISRA/CRODT, Senegal)
- J. Magdalena SANTANA-CASIANO (Instituto de Oceanografía y Cambio Global Universidad de Las Palmas de Gran Canaria, Spain)
- Stelios CONTARINIS (Intergovernmental Oceanographic Commission of UNESCO, France)
- Itahisa DÉNIZ GONZÁLEZ (Intergovernmental Oceanographic Commission of UNESCO, France)

Annex 3. Screenshot of the meeting

