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DISCUSSION:
ISSUES ENCOUNTERED WHILE POPULATING THE CCLME ALIEN SPECIES DATABASE AND DECISION-MAKING

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

Organized within the project

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

11 December 2023 – On-line

Alien species database for the CCLME – Data Model

Terms - Database fields (page 1)

Suggested terms	Some clarifications
Database ID	Number given within the database to facilitate exchanges within experts engaged in the database and the assessment
scientificName	Scientific name of the species
scientificNameID	Worms identifier
higherClassification	Taxa
taxonRank	The taxonomic rank of the most specific name in the scientificName.
kingdom	The full scientific name of the kingdom in which the taxon is classified.
phylum	The full scientific name of the phylum or division in which the taxon is classified.
class	The full scientific name of the class in which the taxon is classified.
order	The full scientific name of the order in which the taxon is classified.
family	The full scientific name of the family in which the taxon is classified.
organismQuantity	A number or enumeration value for the quantity of organisms
organismQuantityType	The type of quantification system used for the quantity of organisms
establishmentMeans	Introduced to a given place and time through the direct or indirect activity of modern humans; e.g native, introduced, etc.
degreeOfEstablishment	The degree to which an Organism survives, reproduces, and expands its range at the given place and time; e.g. native, invasive, etc. https://www.highcharts.com/products/highcharts/
habitat	A category or description of the habitat in which the Event occurred, e.g. estuarine, marine; and coral reef, rocky reef, sand, etc.
Impact	It could be either positive or negative, e.g. economic, ecologic, ecosystem services, etc. Free text.
Impact Classification	If deleterious impact, to be described using: (i) Environmental Impact Classification for Alien Taxa, e.g. Cryptogenic (CG), Data Deficient (DD), Minimal Concern (MC), Minor (MN), Moderate (MO), Major (MR), Massive (MV), No Alien Population (NA), Not Evaluated (NE); or (ii) Socio-Economic Impact Classification of Alien Taxa (SEICAT) according to observed changes in people's activities, e.g. Minimal concern (MC), Minor (MN), Moderate (MO), Major (MR), Massive (MV), Data deficient (DD).

Alien species database for the CCLME – Data Model

Terms - Database fields (page 2)

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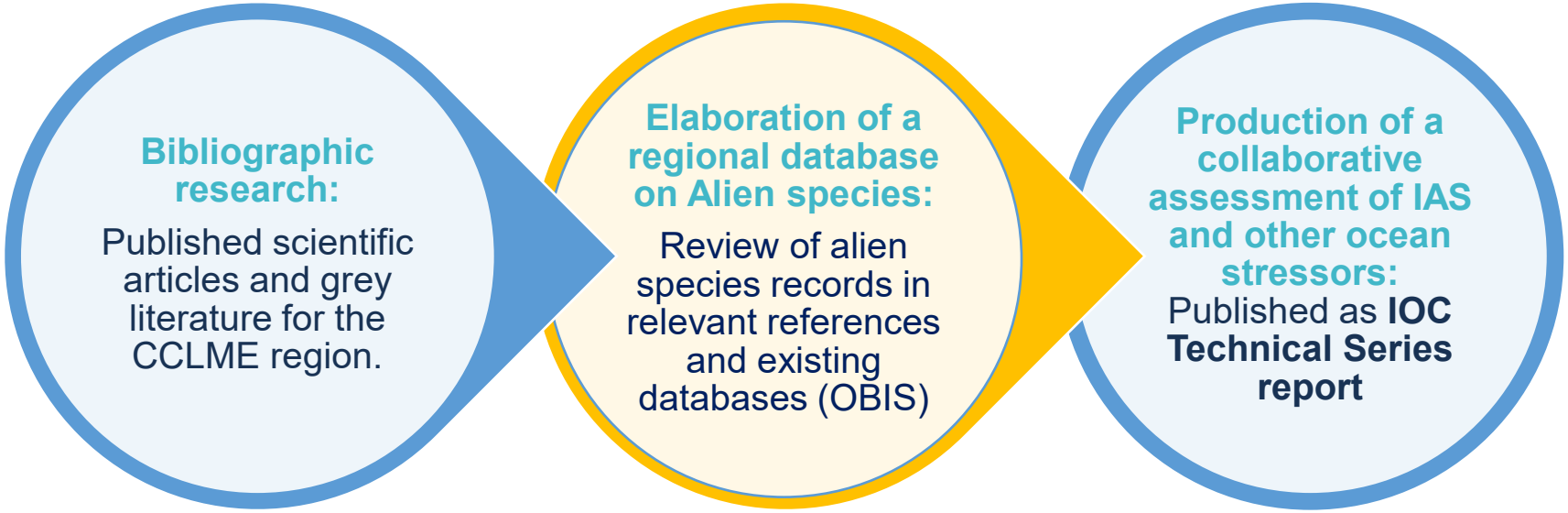
Suggested terms	Some clarifications
pathway	The process by which an Organism came to be in a given place at a given time; e.g. parasiteOnAnimals, ballastWater, hullFouling, etc.
eventDate	Date-time when the event was recorded; e.g. year-month-day, year-month, year, year/year, etc.
associatedReferences	A list of identifiers of literature associated with the Occurrence; e.g. bibliographic citation
decimalLongitude	The geographic longitude in decimal degrees
decimalLatitude	The geographic latitude in decimal degrees
minimumDepthInMeters	The lesser depth of a range of depth below the local surface, in meters.
maximumDepthInMeters	The greater depth of a range of depth below the local surface, in meters.
verbatimDepth	The original description of the depth below the local surface; e.g. 100-200 m
coordinateUncertaintyInMeters	The horizontal distance (in m) from from the given decimalLatitude and decimalLongitude describing the smallest circle containing the whole of the Location
country	The name of the country in which the Location occurs.
islandGroup	The name of the island group in which the Location occurs. Proposed in what regards the Canary Islands, as it is the only Spanish region for which data will be gathered
georeferenceRemarks	Comments about the spatial description determination, explaining assumptions made, i.e. in case the exact geographical location is not provided in the article, and we use an approximate point (e.g. a geographical position within a port)
occurrenceRemarks	Comments or notes about the Occurrence; i.e. additional information deemed important, such as as associated environmental condition (salinity, temperature, and its intensity)
Criteria	Criteria (to be agreed) met
Presence in the analysis	Species validated considered in the assessment (1) or not (0)

Discussion

Starting point



Registers are extracted from publications (articles and grey literature)

- In principle, the database should not include registers from **personal communications** and **unpublished materials** (need to review some registers)

- Shall we include registers extracted from **books of abstracts** and **news**?

Discussion
scientificName

- Case of data provided by the IEO:

Some registers were not included in the CCLME Alien Species Database as they has already been withdrawn from the IEO database.

This decision is related to taxonomic changes since the publication of the first register.
e.g. According to the pictures provided in the article, species identification was wrong, leading to the identification of a native species as an exotic one.

Do you agree with the approach?

Discussion
scientificNameID

Some clarifications for future work:

This field has been filled in different ways by the experts that have contributed to the CCLME Alien Species database (need to review)

scientificNameID: Worms identifier (https://dwc.tdwg.org/list/#dwc_scientificNameID).

Example of the valid way: urn:lsid:marinespecies.org:taxname:564660

Discussion
Briozoa

- Some species in the list might be **cosmopolitan**.

Suggestions on how to proceed to address this question are welcome.

Discussion
subclass

- What do you think about including the taxon **subclass** be included in the Template?
  For some species taxonomic descriptions, such as for corals, this taxonomic level is relevant. So far, this information has been added to 18 registers in the database.

Note: subclass does not appear in the Darwin Core List of Terms

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Discussion
establishmentMeans

Registers are extracted from publications

- In principle, the database is to be filled with the information as it provided in the article.

Example: A species considered alien in an article published in 2010, is now considered as invasive.

Do you agree indicating the register in the database as alien?

Discussion
establishmentMeans

- In the case of Cabo Verde, many species are described as **cryptogenic**, should these species be included in the list?

  https://dwc.tdwg.org/list/#dwc_establishmentMeans

  establishmentMeans = uncertain?

  Impact Classification: Environmental impact Classification for Alien taxa → Cryptogenic (CG)

Discussion

Impact and Impact Classification

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Impact	It could be either positive or negative, e.g. economic, ecologic, ecosystem services, etc. Free text.
Impact Classification	If deleterious impact, to be described using: (i) Environmental Impact Classification for Alien Taxa, e.g. Cryptogenic (CG), Data Deficient (DD), Minimal Concern (MC), Minor (MN), Moderate (MO), Major (MR), Massive (MV), No Alien Population (NA), Not Evaluated (NE); or (ii) Socio-Economic Impact Classification of Alien Taxa (SEICAT) according to observed changes in people's activities, e.g. Minimal concern (MC), Minor (MN), Moderate (MO), Major (MR), Massive (MV), Data deficient (DD).

Thinking in the presentation of data in the CCLME Eco-GIS Viewer, as a tool aimed at making meaningful data analysis:

- Do you think that it would be useful to include Impact and Impact Classification to the **Advanced search** options?
- If so, would it be useful to split Impact Classification column in two columns?
  - Environmental Impact Classification
  - Socio-economic Impact Classification

Discussion
eventDate

Some clarifications for future work:

- If the date is missing, leave blank. The publication date should be evident from the associatedReferences, if not a comment could be added in occurrenceRemarks.

- <1986. This is not a valid example → leave blank

https://dwc.tdwg.org/list/#dwc_eventDate

→ There is a need to review several registers

Discussion
eventDate

- Data representation in the CCLME Eco-GIS Viewer:

An additional column shall be added to have the possibility to filter data by **Year.**

eventDate can be presented as a period, e.g. 2004/2006.

Provided that it is important to know the year of the first record to implement management measures, do you agree in using the first year of the period?

Discussion

eventDate

- Should **old sightings for species which were not seen again** be included in the CCLME Alien Species Database and, if so, what article date or sample date should be the threshold?

  Example: *Primeros registros de invertebrados marinos para las islas canarias y de Cabo Verde IV* (Moro et al., 2020)
https://www.researchgate.net/publication/349311802_Primeros_registros_de_invertebrados_marinos_para_las_islas_canarias_y_de_Cabo_Verde_IV

  The article mentions the species *Cassiopea andromeda* which was found in Sal (Cabo Verde) in 1775.

Discussion

decimalLongitude and decimalLatitude

- Registers in a specific port, village, island.

  It was suggested to indicate an **approximate point** and provide clarifications under georreferenceRemarks.

  Shall we select one approximate point for each and use the same in all registers?
  Or better use random points so that we can see **all the registers presented in the map**?

  Canary Islands
  Gran Canaria
  Tenerife
  Port of Las Palmas
  …

Discussion

decimalLongitude and decimalLatitude

- An article refers to species occurrence in two islands. Proposal to include it as two separate registers.

  e.g. González Lorenzo, 2008. *Argyrosomus regius* in Tenerife and Gran Canaria islands (Spain).

Discussion
verbatimDepth

- Some clarifications for future work:

  Example of depth: “0-40 m" should be added as minimumDepthInMeters (0) and maximumDepthInMeters (40). verbatimDepth could be added as well but this is mostly important when there is interpretation (for example fathoms to meters), so not really necessary here.

Discussion

CoordinateUncertaintyInMeters

- Case of data provided by the IEO:

In the IEO database, there is one column with the “Accuracy”, that ranges from 1 to 5 (from more accurate to less accurate)

Blank: The exact coordinates are indicated
1: Around 100 meters (port, beach)
...
5: A sea, a large region.

Equivalence applied:

1 → 100 m
2 → 1000 m
3 → 10000 m
4 → 100000 m
5 → 1000000 m

What are your views?
Shall we keep or better leave blank?

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THANK YOU