

Agenda Item 8.1

Projects and Activities Supported by
ASCOBANS

Scoping the Development of a European
Marine Strandings Database

Document 8.1

Scoping the Development of a European
Marine Strandings Database

Action Requested

- Review
- Agree on next step
- Consider the proposal in Annex 1

Submitted by

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SCOPING THE DEVELOPMENT OF A EUROPEAN MARINE STRANDINGS DATABASE

Introduction

1. Throughout Europe, there are several regional stranding schemes collecting data about stranded marine animals and undertaking varying levels of investigation, from basic morphometrics to full necropsies. Several of these longstanding networks hold multi-decadal datasets collated and reported at a national level. These data are used to assess proximal cause of death and monitor the health of marine animals at a national level. Many marine mammal species are highly mobile, and the value of aggregating and collating strandings data throughout their ecological range has long been recognised. Some mechanisms exist to collate these data at scale, for example annual requests for national summaries made to Parties by intergovernmental organisations (ASCOBANS, ICES¹, IWC²).
2. There is an increasing need to have these data at finer resolution with shorter reporting lags in order to better identify emerging threats or unusual mortality events. This requires a more geographically inclusive view to effectively access trends and changes in marine mammal health and distribution. Therefore, a centralised stranding database was proposed by ASCOBANS to collate the data from regional stranding schemes into one centralised access point for better marine mammal monitoring.
3. As requested by the 27th Meeting of the ASCOBANS Advisory Committee (AC27/AP7), the Secretariat coordinated with Andrew Brownlow (University of Glasgow) to progress scoping of the development of a marine strandings database. A workshop [Scoping the Development of a European Marine Strandings Database](#) was organized on 16 April 2023 in conjunction with the European Cetacean Society (ECS) Conference in O Grove, Galicia, Spain.

Overview of the 2023 ECS/ASCOBANS workshop

4. The purpose of the above-mentioned workshop was to scope the feasibility of such a database through discussion with stranding networks across Europe. The objectives were to:
 - Identify stakeholder requirement / specifications / concerns for any database
 - Consider issues of data ownership
 - Identify technical considerations and operation maintenance
 - Indication of whether ASCOBANS develops its own database or a joint one with other IGOs
 - Formulate a design brief, including potential outline costs and timescales for the project
 - Identify interested individuals for a Working Group to elaborate further on objectives

Pre-Workshop Questionnaire Summary

5. Invited participants completed a preliminary [survey](#) shaping the workshop's structure and discussion focuses. All feedback remained confidential. The survey had 30 positive responses, indicating participants' eagerness to engage with the database—contributing data, offering input, joining the scoping committee, or aiding in database development.

¹ [International Council for the Exploration of the Sea](#)

² [International Whaling Commission](#)

6. The main benefit identified from the survey was the unique opportunity for international collaboration, highlighting the advantage of an open access, 'one-stop shop' for European stranding. This dataset would provide a detailed, spatiotemporal overview of marine animal strandings across Europe which could be of benefit to researchers, policy makers, interested public, as well as satisfying the requirements of various international regulatory frameworks (i.e., ASCOBANS, ACCOBAMS). A collaborative stranding database could also provide early warnings of unusual mortality events, allowing for coordinated and timely responses. Additionally, it was noted that the database could provide an example of the benefit of monitoring strandings which may be of value for local stranding schemes when applying for individual funding.
7. In addition to the stated benefits of the database, there were also concerns raised that can be collated in to five key points: Firstly, a lack of standardisation of data across the different stranding networks may cause difficulty in homogenisation of the database. However, many responses expressed that the database could provide an opportunity to develop a standardised practice across stranding networks. Secondly, the importance of timely uploading of stranding data was stressed to allow for real time responses. Thirdly, concerns over a unified collaboration were stated, highlighting the need for similar levels of data input whilst also recognising varying resources availability of local stranding schemes. Fourthly, it is vital to establish rules of access to ensure data acknowledgement and sharing agreements are respected. Finally, there are several practical issues that need to be considered including identifying a database host, database maintenance and associated costs.

Workshop Outcomes

8. Outcomes from workshop talks and breakout discussions highlighted the support and willingness of European networks for developing a collaborative database. It was suggested that this is approached in stages, with the initial phase including basic data ('what-where-when') as a trial, with an option to also hold and display more detailed information. This can be built on with more detailed information as the practicalities of the database develop (i.e. issues of data harmonisation). However, the opportunity to address data harmonisation as a component of this project was welcomed. It was noted that issues of funding, hosting, and management need to be addressed. It was further discussed that a second workshop should focus on determining the aims of the database and what data should be included, as well as identifying database hosts and potential funders. (The workshop report will be available on the [ASCOBANS website](#).)
9. Participants identified the ICES [data centre](#) as a potential collaborator due to their track record for designing and managing data services that contains elements that meet the requirements of this unified database.

Subsequent work post-workshop

10. The ECS/ASCOBANS workshop confirmed an appetite among strandings networks and intergovernmental groups to establish an International Strandings Database (ISD). Subsequent discussions explored the option to contract ICES data centre to design, host and manage the database. The Secretariat with Mr Brownlow approached ICES, who has built a proposal for developing a phased database (Annex 1).
11. The paper emphasizes a consistent flow of data into a portal and the capacity to promptly displaying these data and maps for management and reporting purposes. The proposal underscores the need for a universally accepted format, which would additionally facilitate rigorous data validation checks. Notably, the initiative aligns with principles promoting Findable, Accessible, Interoperable, and Reusable (FAIR) data, thereby fostering data that adheres more closely to these principles.

12. A secondary, useful outcome of this initiative would be the strengthening of communication channels among experts across different countries. Improved interconnectedness offers the potential to streamline the recording and management of marine stranding incidents, enabling the collaborative effort required for efficient data collection and analysis. By amalgamating these elements, the proposal would help advance marine conservation through data-driven standardization and international cooperation.

Asks for the Advisory Committee

13. In order to progress with the development of the stranding database, it is requested that the Advisory Committee provide endorsement for the processing of and assistance in “Phase One” as outlined by ICES in the attached proposal. After this approval, it is requested that a Steering Group to progress the work be convened. The table below includes all those who at the workshop indicated their interest in being part of this group.

Table 1: List of people interested in serving in the Steering Group.

Name	Affiliation	Country
Andrew Brownlow	Steering Group Chair / University of Glasgow	United Kingdom
Alessio Maglio	Marine Environment Project and Business Manager, Sinay / ACCOBAMS	Monaco
Andrea Fariñas Bermejo	PhD Student, Institute of Marine Research (IIM-CSIC)	Spain
Dylan Verheul	Managing Director, Observation International	The Netherlands
Emma Neave-Webb	Strandings Co-ordinator, International Whaling Commission	United Kingdom
Graham Pierce	Research Professor, Institute of Marine Research (IIM-CSIC)	Spain
Helene Peltier	Research engineer (anthropogenic cause of death of cetaceans), La Rochelle University / CNRS, Observatoire Pelagis	France
Kristina Lehnert	Research Associate, University of Veterinary Medicine Hannover	Germany
Mariel ten Doeschate	Data Manager, Scottish Marine Animal Stranding Scheme, University of Glasgow	United Kingdom
Maÿlis Salivas	Projects and Programmes Officer, ACCOBAMS	Monaco
Miguel Grilo	Assistant Professor, Egas Moniz School of Health and Science / RALVT	Portugal
Morgana Vighi	Researcher and consultant / External consultant of the EU JRC	Spain
Oifa Chaieb	Focal point of the sea turtles and cetaceans stranding network, Institute National des Sciences et Technologies de la Mer (INSTM)	Tunisia
Paula Méndez Fernandez	Research engineer, La Rochelle University - Pelagis observatory	France
Rachel Lennon	PhD Student, University of Glasgow	United Kingdom
Rebecca Boys	Research Associate, Cetacean Ecology Research Group, Massey University	New Zealand
Rob Deaville	CSIP Project Manager, Institute of Zoology/Cetacean Strandings Investigation Programme	United Kingdom
Sarah Wund	Veterinarian, Observatoire Pelagis (La Rochelle Université)	France
Thierry Jauniaux	Associate professor, University of Liege	Belgium
Zaynab Sadozai	Biology Bachelor of Science Student, University of Cologne	Germany
Jenny Renell	Coordinator, ASCOBANS Secretariat	Germany

Proposal and options for the development and hosting of an International strandings data portal

About this document: The proposal has been prepared by the Secretariat of the International Council for the Exploration of the Sea in response to a request from the ASCOBANS Secretariat. The International Whaling Commission (IWC) have given input in the preparatory stages.

Summary of the proposal

ASCOBANS propose to establish an International Strandings Database (ISD) to comprehensively collect, manage, and share data related to marine animal strandings for its contracting parties. ASCOBANS would like to align with other initiatives where this is possible and viable, for example the IWC is also considering a strandings database. This initiative would facilitate collaboration among research communities (i.e. ICES, ASCOBANS, IWC) and governmental agencies, enabling timely information sharing, increased quality control, effective data analysis, and informed decision-making. The ISD will serve as a centralized platform to consolidate stranding data, contributing to a better understanding of marine ecosystems, and aiding in the identification of the main conservation threats to marine species.

The proposal describes the minimum viable product¹ that would provide sufficient functionality to be useable by ASCOBANS contracting parties to ingest and validate data from individual stranding events as well as display basic graphical and map summaries of the strandings data. Considerations and assumptions are detailed in the Annex: Background information.

Current strandings data and reporting

Presently, national strandings databases exist, primarily collecting data on marine mammals. Each database is characterized by unique formats and standards. Different countries or regional stranding networks have varying degrees of functionality to manage and provide access to data and metadata. Reporting of these data at an international level is currently performed via a document-based survey facilitated by the ASCOBANS Secretariat.

¹ https://en.wikipedia.org/wiki/Minimum_viable_product



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At the same time, national and regional stranding networks submit data on marine mammal strandings to selected ICES Working Groups such as Working Group on marine Mammal Ecology ([WGMME](#)) and Working Group on Bycatch of Protected Species ([WGBYC](#)). The ICES advisory committee (ACOM) has also recommended to initiate the systematic collection of stranding data and develop the data format.

The benefit of an International Strandings Database

The establishment of an international strandings database will yield benefits for the community:

- Improve standardized approaches to documenting strandings;
- Timely and continuous flow of data into a portal and the display of these data/maps for management and reporting
- A common agreed format, which would also facilitate data validation checks
- Data that are closer to achieving FAIR principles²
- This initiative will create communication channels among experts from different countries, streamlining the recording and management of marine stranding incidents.

This project aims to deliver an accessible data resource that will maximise the use of current data collection efforts from partners, research institutes, industry and academia.

Establishing an International Strandings Database

The minimal viable product (MVP) would deliver:

- An agreed data format and vocabularies (managed code lists)
- Basic data validation rules
- A database that allows for the upload and validation of data records detailing instances of strandings
- An online summary of uploaded data with information from individual stranding events
- An online map that plots presence/absence of stranding events by species/taxa
- A recognised data licence
- Data download functionality (open access licence data)

Additional elements that are desirable/recommended to be established:

- A governance model for the ongoing maintenance, funding and development that includes representatives of the main stakeholders (data providers, data users and content experts)
- Restricted data (not open access by default)
- Extended data validation rules
- Web services (an API interface)
- Data products (i.e. state indicators)
- ISO Meta data records

For working examples of these features, please see references below:

² <https://www.go-fair.org/fair-principles/>

- Cetaceans <https://cetaceans.ices.dk/>
- Vulnerable Marine Ecosystems <https://vme.ices.dk>
- Impulsive underwater noise <https://www.ices.dk/data/data-portals/Pages/impulsive-noise.aspx>

Milestones and Timeline

The timeline is to be used a general outline only and greatly depends on a number of factors from the ASCOBANS and ICES perspective (availability of experts, other resource commitments, review and testing etc.)

Month from inception	Milestone
3	Agreement on data format and vocabularies
5	Database and portal infrastructure
7	Data ingestion and testing completion
9	Public launch to contracting parties

Estimated cost

The estimated effort for the development of the MVP amounts to a total of **23.421 EUR** (excluding VAT). This estimate does not cover the costs of experts from the ASCOBANS contracting parties, nor the ASCOBANS Secretariat that would be involved in the development.

This is comprised:

Budget Item	Days
Project management and facilitation	3
Programming development	27
Data management, setup and helpdesk	10
Total effort (days)	40

Costings for additional elements are not calculated, but can be taken individually as needed.

In addition, an annual maintenance and helpdesk fee would be required to ensure the data portal can be updated and adapted to user needs, and users are supported in uploading, data validation and download. This would amount to **5 768 EUR** based on 2023 calculations.

Annex 1: Background information

Information gathered and discussed through online meetings between ASCOBANS, ICES and IWC in July/August 2023

Supporting information:

1. ASCOBANS links to national reports:
https://www.ascobans.org/sites/default/files/document/ascobans_ac27_inf2_summary-compilation-nr-2021.pdf
2. Belgium online DB <http://www.marinemammals.be/observations>
 - Example record <http://www.marinemammals.be/observations/view/9379>
3. IWC Excel template (supplied as an attachment)

Who would be the principal data providers?

ASCOBANS Contracting Parties:

1. National reporting requirements; institutionally based i.e. JNCC (UK)
2. National Focal Points, but the stranding networks would be the operational data providers
3. In total 10 contracting parties i.e. 1 or 2 institutes per country

Beyond ASCOBANS:

1. In the US, this could be much bigger in terms of number of operational data providers
2. Other data providers i.e. non contracting parties (NO, ES, PT) would be welcome

Data collection methodologies/standards

1. Guidance and standards are network based and have changed over time
2. National reporting includes some information on methods/protocols used
3. Potential to include survey/effort information in a [meta data catalogue \(ICES example\)](#)

Minimum Viable Product

1. A core working version would be a good way to go, allowing other actors to follow but also consider how they could build on the system in a modular way

Data formats

IWC have a collisions database (Global) and it would therefore make sense to be globally applicable as they are looking to either join forces or develop their own strandings database.

1. Data are collected at the individual level (not aggregated)
2. One specific to deal with is a mass stranding, which is technically individuals but seen as a whole unit
3. IWC data may be aggregated or could be inferred as individual
4. No reporting? ASCOBANS positively report if they have no strandings
5. **Presence/Absence will be the main core output**
6. Survey effort/Incidental

7. ASCOBANS: Controlled lists for species and areas although it would be preferable to have a more granular way of doing this i.e. position lat/lon; screening to include visualisation of data points position
8. Shipstrike, marine litter ingestion, bycatch/entanglement, *cause of death* more finer scale and may be under restricted license?

Field	Occurrence	Type	Notes
Images (of species)	Optional	JPEG's etc	Potential to include? i.e. as link rather than upload?
Link to original record	Optional	URL	Link to detailed meta data
Decomposition status	Optional	Code list/text	Can be mapped between national encoding;
Position/record accuracy	Optional	Code list/text	Can be mapped between national encoding;
Location	Mandatory		Varied, from Lat/Lon point with bounding box
Stranding Type (observation type)	Optional	Code list/text	National lists, could be mapped
Necropsy category	Optional	Code lists/text	

Data validation

1. ASCOBANS would benefit from a more harmonized and extensible data validation on their strandings data, which a central portal could offer. This is something that ICES already has through their screening programme (DATSU), example of checks <https://datsu.ices.dk/web/rptChk.aspx?Dataset=149>

Data license

1. What/Where/When as included in national reports are public open access information.
2. If data are to be restricted upon upload, this adds a layer of complexity to the data portal

Data Governance

1. Important and often overlooked once the develop phase is complete
2. Examples given of ICES expert groups giving governance to specific data types/portals:
 - <https://www.ices.dk/community/groups/Pages/WGjcdp.aspx> (Cetaceans)
 - <https://www.ices.dk/community/groups/Pages/JWGBIRD.aspx> (European Seabirds at Sea and OSPAR Biodiversity data on nesting seabirds and seal sightings)
 - <https://www.ices.dk/community/groups/Pages/WGBYC.aspx> (Bycatch)

Data Products

1. ICES ACOM would like to be able to use the data for advisory work at some point
2. IWC would have a similar interest
3. Map and Dashboard essential

Extensibility

1. One data portal? Data portals that talk to each other, one shared format? All are possible and need to be judged against the need/purpose
2. Example of Impulsive noise, where originally made for OSPAR, adapted for HELCOM with shared portal and then the format jointly used by ACCOBAMS with their own specific portal. So, 1 data format with 2 European portals.

Update Frequency (Data, products) and data provision timings

1. Currently requested/updated for previous monitoring year;
2. And on a 4-year cycle for Meeting of Parties (MOP)
3. Opportunity to have a more regular and continuous dataflow (every quarter) which would enable a more timely assessment of the 'on the ground' situation of strandings in the ASCOBANS area
4. IWC, reporting frequency is similar; national (annual) progress reports are challenging as they often lack timely data