



**REPORT OF THE
ECS/ASCOBANS WORKSHOP ON SCOPING THE DEVELOPMENT OF
A EUROPEAN MARINE STRANDINGS DATABASE**



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Welcome and introduction to the workshop

Andrew Brownlow, Chair of the workshop, opened the session, outlined the aims of the workshop and explained the format of talks and workshops the session would involve.

The objective of the workshop was to identify the possible benefits and challenges associated with developing and curating a European wide strandings database for the ASCOBANS region. The workshop would aim to a) identify key drivers and benefits from developing a strandings database b) identify stakeholder requirements / specifications / concerns for a database, including issues of data ownership; c) identify important technical considerations and operational maintenance requirements; d) formulate a design brief, incl. potential outline costs and timescales for the project.

Jenny Renell, ASCOBANS Secretariat, [introduced](#) the ASCOBANS Agreement, the [Resolution 8.10 \(Rev.MOP9\) Small Cetacean Strandings Response](#), and ASCOBANS interests in strandings data. Strandings' analysis through necropsy and sampling can provide indications of reason for injury and death, and stranding numbers provide information on population status, abundance, and distribution. Effective response to strandings contributes to the maintenance of favourable conservation status of small cetaceans, which is one of the main objectives of ASCOBANS. Establishing a European stranding database would support the achievement of these objectives.

Rob Deaville, Institute of Zoology / UK Cetacean Strandings Investigation Programme, briefed the workshop participants on the historical timeline for ASCOBANS strandings database workstream. Question that arose post-2020 were:

- a) Is there still appetite for an ASCOBANS strandings/necropsy database? What are the current drivers/stakeholders?
- b) Still ASCOBANS region focused? Low cost/simpler approach or more substantial development? Or development explored in collaboration with other IGO's, e.g. IWC?
- c) What funding may be available to support development? What funding sources could be considered (e.g. Party countries directly, industry)?

Consequently, a potential intersessional workshop was suggested to reassess and scope scientific and technical aspect of an online database, and to identify process and potential candidates(s) to take this work forward.

[ASCOBANS database survey overview](#) (by Rachel Lennon)

An exploratory questionnaire was sent to European strandings networks to determine attitudes towards the development of a unified European stranding database. The survey had 30 responses, all of which were positive with participants expressing a desire to be involved with the database either through data contribution, occasional input, being part of the scoping committee or helping develop the database itself.

The five key benefits identified from the survey were:

1. Opportunity for international collaboration.
2. Advantage of a one-stop shop for European strandings.
3. Spatiotemporal overview of European strandings, satisfying requirements of international regulatory frameworks (e.g. ASCOBANS, ACCOBAMS).
4. Early warnings of unusual mortality events.
5. Providing an example of the benefit of stranding schemes for funding of local schemes.

There were also five key concerns raised:

1. Lack of standardisation of data However, many responses expressed that the database could provide an opportunity to develop a standardised practice across stranding networks.
2. Importance of timely uploading of stranding data to allow for real time responses.
3. Need for similar levels of data input whilst also recognising varying resources availability of local stranding schemes.
4. Rules of access to ensure data acknowledgement and sharing agreements are respected.
5. Practical issues: database host, database maintenance and associated costs.

A short summary of the survey was given at the opening of the workshop. Subsequent discussions identified ICES as potentially being interested in hosting and providing resources for such a database.

Overview of national strandings networks

[Data collection on live and dead marine mammals collected within the Schleswig-Holstein stranding network in Germany](#) (by Lehnert, K., Siebert, U. and colleagues, Institute for Terrestrial and Aquatic Wildlife Research, University of Veterinary Medicine Hannover)

In the northernmost province of Germany, Schleswig-Holstein, along the North and Baltic Sea coasts, a comprehensive marine mammal data collection system for live and dead stranded animals is in place. National Park rangers patrol the coastlines to collect, and where necessary euthanise, stranded animals. Carcasses are either stored frozen or transported for immediate necropsy, followed by histology, bacteriology, virology, toxicology and parasitology analysis. Additionally, life-history and ecological parameters such as diet analysis, age determination, reproductive biology, and genetics are explored. This effort is significant, with over a thousand seals and hundreds of harbour porpoises found annually, providing insight into health threat potential zoonotic implications for people from marine animals.

[Stranding.nl – Dutch marine strandings platform](#) (by Dylan Verheul)

In December 2022, Observation.org launched Stranding.nl, the new Dutch platform for marine strandings. Observation.org is an international non-profit foundation based in The Netherlands which collects, validates and shares nature observations around the world. Stranding.nl has been commissioned by the Ministry of Agriculture, Nature and Food Quality, in collaboration with Naturalis Biodiversity Center, Wageningen University, University of Utrecht and the Dutch seal centres. Stranding.nl is a PostGIS database connected to a Python backend. It is multilingual and prepared for international use. Users can manually create and edit stranding events with measurement data or take stranding-like observations from Observation.org and mobile apps. A stranded animal has multiple unique identifiers, enabling different institutes to use their own codes. Data can be shared through GBIF, the Dutch National Database for Flora and Fauna, or through Observation.org API. We are open to sharing Stranding.nl technology, data or the entire platform with other organizations, or in working towards a European stranding database.

[Scottish Marine Animal Stranding Scheme \(SMASS\)](#) (by Mariel ten Doeschate)

The Scottish Marine Animal Stranding Scheme (SMASS) began in 1992 as part of the UK wide Cetacean Strandings Investigation Programme (CSIP) but split into its own entity in 2022. With this separation, SMASS began development of a new database in collaboration with Glasgow University Software Services (GUSS). SMASS started by establishing the “user journey” to capture how data entry, download and upload processes should be specified. Different levels of data come in at different times, and case updates happen frequently when results from ancillary tests update diagnoses. This requires an expandable, robust, and resilient data management system. SMASS chose a postgresql platform, which is a free and open-source object-relational database management system offering robust flexibility, and which is easily linked to supporting programs (R, python, QGIS, etc). It allows quick and efficient searches, data dashboarding, (bulk) import, and

export functionality, which would also be required for the European database. SMASS supports a European database as development will promote collaboration and harmonisation of data and sample collection beyond the European strandings protocol.

Strandings database from Pelagis Observatory, France (by Paula Méndez-Fernandez, Willy Dabin, Éléonore Meheust, Fabien Demaret, Cécile Dars, Sarah Wund, Hélène Peltier, Bruno Mansoux, Jérôme Spitz and Florence Caurant)

The Pelagis observatory operates a unique marine megafauna information system to integrate data from sea surveys and stranded animals. These data are partly made public through national (INP, Sextant) and international (Obis Seemap) platforms or can be viewed directly on the observatory's website (<https://www.observatoire-pelagis.cnrs.fr>). The French National Stranding network (RNE), coordinated by Pelagis, has been collecting stranding data for over 50 years. This network involves citizens and veterinarians across French territories, trained by Pelagis. Data collected include stranding details, samples, and necropsy results, contributing to an extensive database. The stranding database is a MySQL system developed by the Paris Museum of Natural History. Interfaces like Phpmyadmin, xataface, and the web app Pelabox aid data management and access by network members. Various users, including the public, researchers, policymakers, and media, benefit from this data. Requests span a wide range of information, but most commonly focus on stranding events and basic individual data.

Stranding network in Poland, the WWF Blue patrol (by Katarzyna Kamińska)

The Polish stranding database records grey seals, harbour seals, ringed seals, and harbour porpoises in the Baltic Sea. Prof. Krzysztof Skóra of the University of Gdansk's Hel Marine Station has overseen the database since 1980. Since 2010, data collection has involved WWF Blue Patrol volunteers, coordinated through WWF Poland with the help of tourists, and beachgoers, aided by information boards along the coast. Management of the database is commissioned by WWF Poland and carried out by a single competent expert to ensure reliability and credibility of data. This collaborative effort enables prompt reporting of stranding incidents to increase chances of carcasses being collected fresh for necropsy. Complete health and life history data collection is not always possible due to decomposition, but genetic samples are obtained. Data on stranding incidents are managed by the Hel Marine Station UG, and are also submitted to the HELCOM/ASCOBANS stranding database on a regular basis. Requests for data have been from investors in offshore windfarms, to use the data within the EIA procedure, and from the fisheries sector to improve availability of bycatch data.



England and Wales (by Rob Deaville)

The web-accessed database of the UK Cetacean Strandings Investigation Programme (CSIP) was developed 2008-2009, and brought together separate existing datasets into a single combined UK-wide entity. It contains collated data on UK stranded cetaceans, seals, marine turtles and some shark species; and data on necropsies. Full UK dataset exists from 1990 to 2021 (post-2021 Scotland data is now collated separately by SMASS/University of Glasgow). Data is also contributed by Northern Ireland, Isle of Man, Channel Islands Governments. The data is currently accessible to project partners and funders only, but a public facing access to data is planned for third quarter of 2023, with public output/updates likely on an annual basis.

Monitoring marine animal strandings as a part of health and disease surveillance in Sweden
(by Aleksija Neimanis)

Surveillance of stranded cetaceans in Sweden has been limited but in 2020 an enhanced health surveillance program was initiated. This is managed by the National Veterinary Institute (SVA) and the Swedish Museum of Natural History (NRM) and funded by the Swedish Agency for Marine and Water Management. The program covers stranded, bycaught and hunted cetaceans (harbour porpoises) and phocids (grey seals, harbour seals, and ringed seals). NRM maintains a national stranding reports database, where stakeholders and the public report seal and porpoise strandings via a web form (marinadaggdjur.nrm.se). The database features an open-access, interactive map to visualize reports, with raw data available on request. A volunteer-based stranding network with coastal freezers was established for collecting stranded animals. Suitable animals undergo necropsy with an extensive suite of tissues and data analysed and archived. Real-time reports (.xls and .csv files) are shared with SVA and can be accessed on dataportalen.se (search term "marine mammal"). Data users include SVA and NRM (document threats and follow trends), wildlife and marine resource managers (inform wildlife management, international reporting), health authorities (when relevant for domestic animal and human health), municipal and regional authorities (management of public shoreline), researchers, non-governmental organizations and the public.

Discussion

There are many, well established stranding schemes across Europe collecting extensive data on marine animal strandings, though to various degrees and following different collection protocols. Many of these schemes also have their own existing databases with various users (Table 1).

Table 1: European stranding schemes.

Country	What, where, when data	Necropsy data	Diagnostic data	Bespoke database	Database type
Germany	TRUE	TRUE	TRUE	Integrated	
Holland	TRUE	TRUE	TRUE	TRUE	PostGIS
Scotland	TRUE	TRUE	TRUE	TRUE	PostGreSQL
France	TRUE	TRUE	TRUE	TRUE	MySQL
Poland	TRUE	FALSE	Genetics	Integrated	
England	TRUE	TRUE	TRUE		
Sweden	TRUE	TRUE	FALSE	Integrated	

Discussion after these presentations highlighted that it may be difficult to integrate different schemes with varying methodologies in data collection. It is important to establish what kind of information the European database should contain as the level of data will also dictate costs. However, most schemes have some experience with developing databases that will be useful when it comes to integrating a collaborative one as technology can be shared. Several schemes have integrated reporting systems and data management platforms, with benefits noted in involving the public as it bolsters awareness and adds value to policy making. This should be considered when developing the European database.

Strandings data integration – Pathways and pitfalls

[Harmonisation of stranding data and data repositories – where are we? Results from an EU JRC survey across European stranding networks](#) (by Morgana Vighi)

JRC launched a study in December 2022 on the impact of marine macro litter ingestion, ship collisions and fisheries related interactions on marine mammals and other marine megafauna. The study involved a survey intended to collect information on the data collection and reporting procedures on these issues, addressed to institutions dealing with strandings from 22 MS. By the time of the end of the study (1st March 2023), responses were still missing from 6 MS. The results from the surveys so far suggest that a lack of harmonisation in the data collection process as well as in data reporting on the impact of marine litter ingestion, ship collisions and fisheries related interactions for marine megafauna.

Action Point: Member States, through the MSFD Expert Network on Marine Biodiversity, are kindly asked to urge their institutions in charge of these activities to respond to the surveys to gain a better overview of the current situation on these issues across the EU. WG GES is kindly asked to encourage the development of an EU-level coordinated network of stranding networks, with harmonised protocols and data reporting, which is already being discussed by ACCOBAMS, ASCOBANS and IWC.

[Summary of IWC strandings data and plans for IWC strandings database](#) (by Emma Neave-Webb)

IWC receives strandings data through annual National Progress Reports. The digitised data are available from 2013 to present and contain over 5,000 records from 24 member nations. Data fields collected include date, location, species, sex, and ownership details. Both the IWC Scientific Committee and the Strandings Initiative Work Plan have several recommendations and action items targeting the advancement of strandings data and focusing on scoping the development of a global database.

A global database would be valuable to IWC through helping data sources make their data more widely accessible and useable. Data are in a wide range of formats, from online accessible websites to local databases, and the need to have data collated and standardised to be useful and useable. IWC use of a global database ranges from guiding IWC Strandings Initiative work to identifying areas of increased incidence and areas of data gaps to informing risks to cetaceans at varying scales. A proposed data model would be user-centred design to work backwards on how data will be used to design a database, create data documentation, conduct data processing, and collect data. Additionally, having a data access platform developed would provide on-demand access and use of data in various forms to meet research, conservation, and management needs.

The IWC are in the early stages of developing a new database, and an overview of a proposed global database will be presented at IWC SC69A. How it's done is very much open for debate, questions are directed to the IWC data manager Lydia O'Loughlin.

[Contribution of European stranding networks to understanding and quantifying marine mammal bycatch: Key results from ICES questionnaires analyses](#) (by Marie Petitguyot & Andrea Fariñas Bermejo)

The Working Group on Marine Mammal Ecology of the International Council for the Exploration of the Sea (ICES WGMME) created a survey to investigate European stranding networks' role in assessing bycatch mortality and monitoring protocols. From 2021 to 2023, 41 respondents from 17 countries provided information on 1) general organisation of the networks 2) data collection of stranded animals, and 3) bycatch mortality.

The results of this study can help identifying data available for a European database. The most common data collected are the location, date, species, sex, length, and decomposition code, with

photographs and external signs of bycatch also taken. Information on body condition (i.e., girth, weight, body condition code, and blubber thickness) is rarely taken on animals not fully necropsied. Samples are mainly collected on necropsied animals, and include a wide range of organs, most often skin. Necropsies are mainly carried out by veterinarians. Most networks rely on both external and internal signs to diagnose bycatch mortality and half of them provide an index of uncertainty for their bycatch diagnosis. Networks perform analyses on the data and samples collected including gross pathology, histopathology, parasitology, bacteriology, virology, POP analyses, and demographic parameters to a lesser extent.

Most networks are willing to provide detailed data on strandings and diagnosed bycatch mortality if there is a regular data call from ICES. The eagerness of networks to collaborate is encouraging for initiatives such as this European database.

ACCOBAMS initiatives on stranding issues and conservation concerns (by JAUNIAUX Thierry, LEVY Etienne, MAGLIO Alessio, SALIVAS Maylis)

During marine mammal necropsies, lesions are identified and help for the identification of the main cause of death such as capture in fishing net, collision or diseases. At the cetacean population level, causes of death may highlight the main threat. Regional organizations such as ASCOBANS and ACCOBAMS may use those main threats to develop or to adapt conservation and protection issues.

To deal with the interest of necropsies and conservation/protection issues, ACCOBAMS (since 2017) is supporting the organization of annual marine mammal necropsy workshop held at the Dept of Veterinary Pathology, University of Liege, Belgium. In 2022, a 5-day training was organized for all experts designated in ACCOBAMS Parties back-to-back with the 15th Annual Marine Mammal Necropsy Workshop. An ACCOBAMS initiative between Morocco and University of Liege has then been established to develop post-mortem investigations with a first step of standardization of scientific pictures taken during necropsy. After validation, pictures will be sent to external experts (ACCOBAMS Emergency Task Force for Stranding events) to help in the interpretation of lesion, identification of cause of death and then local threats for cetaceans. The next step of this ACCOBAMS project will be to perform online consultancy by teleneecropsy.

In parallel, ACCOBAMS has developed a digital platform: NETCCOBAMS with the aim of centralizing all data which are necessary for the achievement of the objectives of the Agreement. Today the platform includes a Big Data architecture for the storage of large amounts of data, a GIS service for the visualization of georeferenced data and a number of user interfaces (modules) with dedicated features to address specific needs (e.g., monitoring the habitat and abundance of cetacean, monitoring the noise levels, sea surface temperature, pollution levels, ship tracking, etc.). The platform also includes common features of digital platforms such as a user management system and a project management service which is connected to the different modules according to the topic of the project. Today, NETCCOBAMS includes data sourced from open data platforms containing cetacean stranding data (e.g., OBIS). Such data are stored in the system and can be viewed in the GIS service but currently they are not used for specific analyses.

The topic of cetacean strandings is not addressed in a specific module of NETCCOBAMS indeed. However, the technology used for NETCCOBAMS allows to upgrade the system with a new module that includes dedicated features for the stranding issue, such as a dashboard with key figures and statistics on stranding data, a mapping system to view stranding location, a service for searching and downloading data, as well as information on national stranding networks, ongoing scientific programs and more.

[Overview of the process with the Joint Cetacean Data Programme in terms of initial funding, scoping, database and platform development, and long-term governance](#) (by Nikki Taylor)

The Joint Cetacean Data Programme (JCDP) is a platform with the aim of standardising and collating cetacean data from across the NE Atlantic and making it accessible to all. The platform currently

hosts effort-related at-sea data which can be filtered and downloaded: <https://jncc.gov.uk/our-work/joint-cetacean-data-programme/>

To develop the platform, the JCDP went through a process to identify the needs of all relevant stakeholders to ensure the system was fit for purpose and delivered on the objectives. This provided a framework from which to develop the system. This process had elements that are highly relevant to the plans to develop a strandings database and therefore lessons learned from the JCDP were communicated at the workshop including:

- What is the need – why collate the data?
- Identify users and data needs
- Established vision
- Clear objectives, set boundaries
- Develop and agree a data standard

Breakout groups

The workshop divided into four breakout groups, discussing the following issues: why build a European strandings database, what data should the database contain, how should this database be built and managed, and funding.

Issue one: Why build a European strandings database

Possible outcomes: Identify the main reasons for this project, who are the beneficiaries and what data do they need? What does the database need to achieve this?

Serving as a centralized access point, the database would foster collaboration, harmonise practices, and help support achieving/maintaining Good Environmental Status (GES) by enhancing data-driven conservation efforts. The breakout groups suggested a database should encompass spatio-temporal trends, distribution, cause of death, unusual mortality events and environmental and human impacts to aid mitigation assessments. This would be of benefit to researchers, policymakers, resource managers, stakeholders, NGOs, the media and the public. The main concern raised was the issue of data protection when using sensitive data from multiple countries and having multiple users accessing it. Suggestions included having different levels of access (i.e., partly open access, partly upon request) to reflect the varying needs of the users.

Issue two: What data should the database contain?

Possible outcomes: Identify the main types of data the database needs to store and potential strategies for addressing issues around this such as harmonisation, validation, and curation.

There was strong agreement on the inclusion of what, where and when data for cetaceans, with several individuals stating the need for the inclusion of pinniped data and other exotic taxa (marine turtles, sharks). This level of data should be presented on a map to allow for clear interpretation. The cause of death data (CoD) was also discussed, though this is more complicated due to the need to standardise reporting and include a degree of certainty for the CoD assessment. CoD must also include ID codes for NEP works, expertise of the recorder, decomposition code, level of ancillary testing, traceability of data (ownership) and detail what samples are available for collaboration and any associated ongoing projects.

Issue three: How should this database be built and managed

Possible outcomes: Decide if there is a modular or phased approach to development. How should the data be managed. Who would curate this? What can we learn from other systems?

The main discussion points stressed the need for this to be a collaborative undertaking, with collaboration from key organisations such as ICES, IWC, ASCOBANS, ACCOBAMS. A data management framework should be determined at the start to ensure compliance, with frequency of data uploads agreed upon. The 'what, where, when' data should form the first layer of the database

with more detail added later in order of priority. The data needs to be validated to ensure quality control and include a function for networks to update their own data once submitted to accommodate changes. It is also important to maintain data security, with temporal embargos included to protect any sensitive data.

Issue four: Funding

Possible outcomes: Identify funding sources. Considerations for building in addition to maintenance?

European level of funding was highlighted as the best target for initial building, with a contribution from each region for maintenance. However, issues were raised that it is important for regional funding to be proportional to the country's economics and the number of strandings they receive. To ensure that this is cost effective, it was strongly recommended that an existing database is used. As different layers are developed, funding could become issue driven (i.e., bycatch, ship strike) to target appropriate funding sources.

Plenary discussion and identification of key points for next steps

At the close of the workshop, a short mentimeter survey was presented to attendees to determine what data should be included in the proposed database and to record any enduring concerns. Results are summarised below.

The type of data that attendees believe should be prioritised are listed in order of importance:

- What, where, when
- Cause of death
- Necropsy reports (as metadata)
- Diagnostic results i.e., toxicology, histology, virology (as metadata)

Enduring concerns in order of most mentioned:

- The need to establish users of the database
- The need to establish clear aims of the database
- To determine funding, hosts and management of the database
- What data should be included and how it will be standardised

The workshop closed with a short discussion in which key next steps were identified:

- Set up a second workshop with all stranding networks present
 - Establish aims, data included, funding, hosts
- Develop prototype database as a foundation to build upon during this second workshop

Close of the workshop

ASCOBANS received thanks from the participants for the initiative to discuss a European-wide strandings database. Gratitude was expressed to Andrew Brownlow for his work on this initiative, and for successfully chairing the workshop. The workshop closed at 13:30 on Sunday 16 April 2023.

Annex: List of Participants

Firstname	Lastname	Affiliation	Country
Aleksija	Neimanis	National Veterinary Institute (SVA), Sweden	Sweden
Alessio	Maglio	Sinay / ACCOBAMS	Monaco
Andrea	Fariñas-Bermejo	Institute of Marine Research (IIM-CSIC)	Spain
Andrew	Brownlow	University of Glasgow, SMASS	United Kingdom
Daniel	Jarvis	British Divers Marine Life Rescue	United Kingdom
Dylan	Verheul	Observation International	Netherlands
Emma	Neave-Webb	International Whaling Commission	United Kingdom
Farina	Reif	German Oceanographic Museum	Germany
Graham	Pierce	Instituto de Investigaciones Marinas, CSIC	Spain
John			
Hélène	Peltier	La Rochelle University / CNRS, observatoire Pelagis	France
James	Barnett	Cornwall Marine Pathology Team	United Kingdom
Jenny	Renell	ASCOBANS Secretariat	Germany
João	Goncalves	Associação Portuguesa de Observadores de Ambiente Marinho	Portugal
Kate	Kaminska	the fisheries dept	Poland
Kristina	Lehnert	University of Veterinary Medicine Hannover	Germany
Marie	Petitguyot	Spanish National Research Council (IIM-CSIC)	Spain
Mariel	ten Doeschate	Scottish Marine Animal Stranding Scheme, University of Glasgow	United Kingdom
Maylis	Salivas	ACCOBAMS Secretariat	Monaco
Miguel	Grilo	Egas Moniz School of Health and Science / RALVT	Portugal
Morgana	Vighi	Independent / External consultant of the EU JRC	Spain
Niki	Clear	Joint Nature Conservation Committee (JNCC)	United Kingdom
Nikki	Taylor	Joint Nature Conservation Committee (JNCC)	United Kingdom
Olfa	Chaieb	INSTM Sea turtle rescue centre; Assistant Professor - Marine Biodiversity Lab	Tunisia
Pablo	Covelo	CEMMA Coordinadora para o Estudo dos Mamíferos Mariños	Spain
Paula	Méndez Fernandez	La Rochelle University - Pelagis observatory	France
Peter	Evans	Sea Watch Foundation / Bangor University	United Kingdom
Rebecca	Boys	Cetacean Ecology Research Group, Massey University	New Zealand
Rachel	Lennon	University of Glasgow, SMASS	United Kingdom
Robert	Deaville	Institute of Zoology/Cetacean Strandings Investigation Programme	United Kingdom
Sarah	Wund	Observatoire Pelagis (La Rochelle Université)	France
Thierry	Jauniaux	University of Liege	Belgium
Zaynab	Sadozai	University of Cologne	Germany