REPORT OF THE ACCOBAMS WORKSHOP: "MAPPING HUMAN ACTIVITY DATA IN THE ACCOBAMS AREA" – 2024

Issue: Mapping human activities

Background

During the 15th Meeting of the ACCOBAMS Scientific Committee (May 2023) it was agreed to organise a workshop concerning the data of human activities at sea, from availability to analyses, toward the definition of metrics to be used within the CCH process.
Objectives of this workshop were: (i) to review data sources, access and availability on human activities at sea, (ii) to identify best and robust spatial analysis frameworks to obtain quantitative maps, (iii) to review and identify the best metrics to map human pressures and to agree on terminology.

Report of the workshop on "Mapping human activity data in the ACCOBAMS area"

Held during the 35th annual conference of the ECS, Catania, Sicilia, 2024

BACKGROUND

According to the ACCOBAMS Conservation Plan, Parties shall establish and manage specially protected areas corresponding to the areas which serve as habitat of cetaceans. In parallel, data on human pressures at an appropriate geographical and temporal scale are needed, with spatial mapping being an important tool to identify hot-/cold-spots of anthropogenic pressures (e.g., see Resolution 6.24). The obtained maps on human pressures will be overlayed with those on cetacean's density and will feed the Cetacean Co-occurrence with Human activity (CCH) initiative. The CCH will then provide a synoptic view on areas under actual or potential threats for different cetacean's species in the Mediterranean and the Black Seas. Once areas affected by single or cumulative anthropogenic pressures are identified, suitable mitigation and conservation measures can be discussed and proposed on a case-by-case basis. This process is linked to many other ACCOBAMS initiatives and to the implementation of other relevant policies that are of interest to ACCOBAMS Parties (e.g., Barcelona Convention EcAp/IMAP, EU Marine Strategy Framework Directive and Marine Spatial Planning, Natura 2000, EBSAs, etc.).

OBJECTIVES OF THE WORKSHOP

For each of the following human activities generating threats as:

Human activity	Threats
Large commercial vessels (cargo, ferries, tanker…)	Ship strike, continuous noise
Fisheries	Bycatch, competition, depredation
Whale-watching	Disturbance, harrassment
Recreational boating	Disturbance, harrassment, ship strike
Oil&Gas activity, coastal building, etc / maritime trafic	Noise: impulsive and continuous

1. Review the relevant sources of data, access and availability
2. Identify spatial analysis methods for each of the above to obtain quantitative maps (with associated measures of uncertainty and precision) and agree on terminology.
3. Review and identify metrics to use for the aim of mapping pressures in the context of cetaceans

PRESENTATIONS

Presentations of reference on how to map human pressure: good methodological synthesis for this type of work for 5 human activities, synthetised by experts (SHOM, Globalfishingwatch, CIMA foundation, University of Brest, SINAY), followed by discussion about the identification of limits and relevant methods for each.

MARITIME TRAFFIC (Laura Ceyrac, SHOM)
Mapping maritime traffic, including vessel and traffic density is essential to estimate properly the pressures of human activity on cetaceans. The Automatic Identification System (AIS is a protocol for the automated exchange of messages between vessels, transmitted through land and satellite-based stations. AIS allowed to identify the vessels, their status and position in real time as well as the size, speed, load and route in an area. Sources of AIS data vary widely and are very dependent of needs. Two main methodologies are used to produce traffic density maps: one based on snapshot process and the other one on statistical process. These methods complement each other and have some advantages and limits to map human activities. Metrics of AIS data are dependent on size of the interest area, computing power,

time series, vessel category interest and resolution. Choose of mapping parameters are the key to achieve a relevant view of traffic density.

FISHERIES ACTIVITIES (Luca Marsaglia, Global Fishing Watch)
A presentation of Global Fishing Watch, an international NGO using satellite technology, machine learning and data visualization to build an accurate picture of human activity at sea through free and open data and tools (Creating self-service tools and sharing open data).

WHALE AND DOLPHIN WATCHING ACTIVITIES (Aurélie Moulins, CIMA Foundation)
A presentation on the study led by ACCOBAMS in 2022, followed by some activities done in Italy in the framework of the NBFC and HQWW label, then an overview of through a questionnaire sent by emails about activities dealing with whale-watching in the ACCOBAMS area (answer from France, Portugal, Spain and Slovenia.

IMPULSIVE AND CONTINUOUS NOISE MAPPING (Alessio Maglio, SINAY)
The spatial and temporal representation of anthropogenic underwater noise is a challenging topic due to the nature of underwater sound itself as well as the complex and still not fully understood relationship with the impact on marine fauna. From an ecosystem perspective, the insonification of the marine environment by anthropogenic sources can be assessed from the simple distribution of sources or using complex deterministic models for the estimation of sound propagation at sea. Simpler methods can be adequate if the objective of a study is identifying hotspots of noise emissions and regulating human activities responsible for those emissions. On the other hand, if the objective is assessing the consequences of noise on cetacean populations, the use of a risk-based approach and hence the inclusion of biological/ecological data may be a better choice. Each method is associated to uncertainty which is due to several factors such as the availability and quality of input data, the hypotheses and approximations made for modelling, and the choices made for the several intermediate steps in the computation process. The presentation provides an overview of available sources of data and methods used for mapping underwater noise with a focus on the data products available in NETCCOBAMS, a digital tool managed by ACCOBAMS with the purpose of enhancing cetacean conservation through data-driven decisions. Questions are also presented to discuss the improvements needed to reduce uncertainty and enhance the robustness of assessment outputs.

RECREATIONAL BOATING (Iwan Le Berre & Ingrid Peuziat, LETG UMR6554 CNRS, IUEM-University of Brest)
A presentation made about different ways of data acquisition and monitoring spatio-temporal nautical activities at sea.

RECOMMENDATIONS FROM THE DISCUSSION DURING THE WORKSHOP

MARITIME TRAFFIC

- Use the same supplier over the time series.
- Reconstructing navigation routes is more accurate and limit uncertainties

FISHERIES ACTIVITIES

- ACCOBAMS Secretariat should liaise with Globalfishingwatch and GFCM for a close collaboration on mapping human activities
- Request Parties or other stakeholders to provide VMS data and other data relevant information
- Request ACCOBAMS SC, through relevant WG, how to use data / to assess what should go into NETCCOBAMS
- Small scale fisheries (not covered with AIS) must be assessed in terms of time, space and quantity

IMPULSIVE AND CONTINUOUS NOISE MAPPING

- Increase accuracy and precision
- Include in situ data into the models

- Bring Resolution(s) / Recommendation(s) coming from ACCOBAMS to TGNoise / UNEP MAP
- Include propagation models in the analyses of impulsive noise
- Cooperation with navies

WHALE AND DOLPHIN WATCHING ACTIVITIES

- Go further with efforts of mapping this activity (use AIS tracks)
- Request Parties for legal framework of commercial WW
- Capitalize French decree for Code of Conduct at sea
- Continue to standardize/harmonize protocols on data collection and collaborate between countries
- Suggest a biologist onboard

RECREATIONAL BOATING

- List existing datasets that could help to map this activity in the ACCOBAMS area
- Model such activities
- Compare AIS and *in-situ* data
- Define and standardise protocols

FINAL OUTPUTS

- **5 Presentations of reference on how to map human pressure**: good methodological synthesis for this type of work for 5 human activities, synthetised by experts (SHOM, Globalfishingwatch, CIMA foundation, University of Brest, SINAY), including some work in link with existing ACCOBAMS initiatives (noise, whale-watching)

- **Final global recommendations**
    - **Enhance collaboration** between ACCOBAMS Scientific Committee and other relevant organizations to collect and share data on human pressures, such as noise pollution, shipping, fishing and WW activities.
    - Agree and develop **standardized methodologies** for mapping human pressures to ensure **consistency and comparability** across different regions.
    - Prioritize **CCH areas** within the ACCOBAMS area that are particularly vulnerable to human pressures, such as high density or critical habitats for cetacean species, for **targeted conservation efforts**.
    - Foster public awareness and stakeholder engagement to promote sustainable practices and reduce human pressures on cetaceans within the ACCOBAMS area.

Annex 1 : Agenda

8h30 – welcome registration

1. **INTRODUCTION** (Maylis SALIVAS, Léa DAVID, Simone PANIGADA - ACCOBAMS) **– 9h00 / 9h30**
   1.1. ACCOBAMS - Objective of the Agreement/ Maylis Salivas (ACCOBAMS Secretariat)
   1.2. CCH approach and needs
   - Simone Panigada (Chair of the ACCOBAMS SC)
   - Léa David (ACCOBAMS Task Manager on CCH)

2. MARITIME TRAFFIC (Laura CEYRAC, SHOM) – **9h30 / 10h30**
   2.1. Relevant sources of data at sea (access, availability,…)
   2.2. Spatial analysis methods to obtain quantitative maps (with associated measures of uncertainty and precision).
   2.3. Metrics
   Discussion and recommendation

10h30 – 11h00 COMFORT BREAK

3. FISHERIES ACTIVITIES (Luca MARSAGLIA, Global Fishing Watch) – **11h00 / 12h30**
   3.1. Relevant sources of data at sea (access, availability, temporal and spatial coverage…)
   3.2. Spatial analysis methods to obtain quantitative maps (with associated measures of uncertainty and precision).
   3.3. Metrics
   Discussion and recommendation

12h30 – 14h00 LUNCH BREAK

4. **IMPULSIVE AND CONTINUOUS NOISE MAPPING** (Alessio MAGLIO, SINAY) - **14h00 / 15h00**
   4.1. Relevant sources of data at sea (access, availability,…)
   4.2. Spatial analysis methods to obtain quantitative maps (with associated measures of uncertainty and precision).
   4.3. Metrics
   Discussion and recommendation

5. **WHALE WATCHING ACTIVITIES** (Aurélie MOULINS, CIMA Foundation) - **15h00 / 16h00**
   5.1. Relevant sources of data at sea (access, availability,…)
   5.2. Spatial analysis methods to obtain quantitative maps (with associated measures of uncertainty and precision).
   5.3. Metrics
   Discussion and recommendation

16h00 – 16h30 COMFORT BREAK

6. RECREATIONAL BOATING (Iwan Le BERRE & Ingrid PEUZIAT, LETG UMR6554 CNRS, IUEM-University of Brest) **– 16h30 / 17h30**
   6.1. Relevant sources of data at sea (access, availability,…)
   6.2. Spatial analysis methods to obtain quantitative maps (with associated measures of uncertainty and precision).
   6.3. Metrics
   Discussion and recommendation

7. CONCLUSION (Léa DAVID, Maylis SALIVAS) - **17h30 / 18h00**

Annex 2: List of participants

ABDERRAHIM Marwan	ACCOBAMS
AIUTI Camilla	University of Milano-Bicocca
AMAHA OZTURK Ayaka	TUDAV
ARCANGELI Antonella	ISPRA
BARBACCIA Eleanora	Politecnico a Milano
CEOLLETO Luca	UNIPD
CEYRAC Laura	SHOM
COTTALORDA Jean-Michel	CNRS
DAVID Léa	ACCOBAMS SC
DE TREZ Mélodie	
DELAHOZ Maria	
ELOI Delphine	
FARINA Marianna	SZN
GAUFFIER Pauline	Madeira whale museum
GIARETTO Florinda	Marecamp
GIMENEZ Joan	IEO-CSIC
HARVEY Beth	Plymouth University
LEDEZMA ROJAS Nathalia Maria	TIHO
LOKAR Crista	MORIGENOS
MAGLIO Alessio	SINAY
MARSIGLIA Lucas	Globalfishingwatch
MARTEL Sophie	
MARTENS-OBERWELLAND	Thünon Institute
MOULINS Aurélie	CIMA Foundation
NAVARRO-GONZALEZ Patricia	Atlantic technological University
NEVES Francisco	University of
PANIGADA Simone	ACCOBAMS SC
PARADELL Oriol Giralt	University College Cork
PERFEITO Margarida	Univ-Vienna, Circe
PIETROLUONGO Guido	University di Padova
ROMULUS-PAIU Marian	Mare Nostrum
SALIVAS Maÿlis	ACCOBAMS
SCUDERI Alessia	NEREIDE
SOKCIC Nikolina	Univ. Liverpool, Circe
SZEGEDI Aniko	
TODD Nicole	University college Cork
VOSS Julika	Bioconsult SH