Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area, concluded under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Accord sur la Conservation des Cétacés de la Mer Noire, de la Méditerranée et de la zone Atlantique adjacente, conclu sous l'égide de la Convention sur la Conservation des Espèces Migratrices appartenant à la Faune Sauvage (CMS)

Seventh Meeting of the Parties to ACCOBAMS

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PROGRESS IN REVISING CETACEAN CRITICAL HABITATS

Delegates are kindly invited to bring their own documents to the Meeting.
This document will be available only in electronic format during the Meeting.

PROGRESS IN REVISING CETACEAN CRITICAL HABITATS

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Aim

Cetacean Critical Habitat (CCH) = potential manageable area where attention has to be drown/focused (no straight limits) because there exists a threat for cetaceans.

Where the threat is known, the CCH will be the area where to focus to find the relevant measures of mitigation, from place-based to sectorial-based.

Limits

CCH = still an on-going process that has to be fed by new results when they are available (for example, needs to include distribution and habitat suitability maps from ASI and CeNoBS).

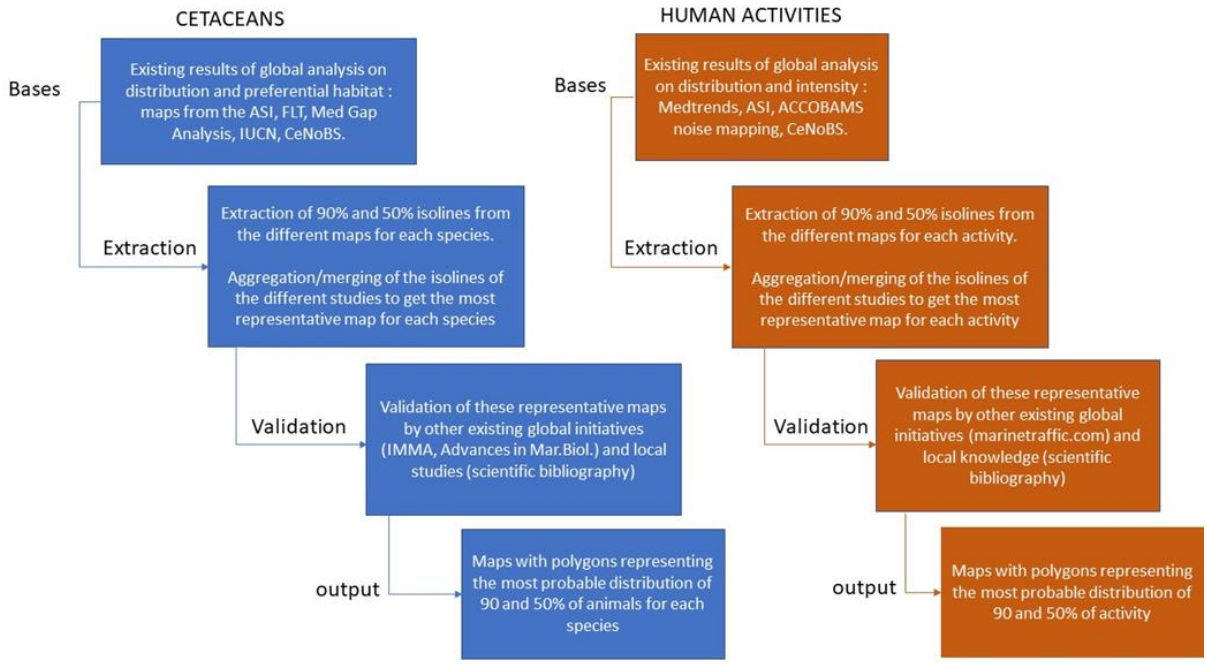
Complex exercise of getting precise geographic information from different sources and then simplify it through a generalisation of the shapes (degrading information to highlight the main areas).

CCH is not an MPA.

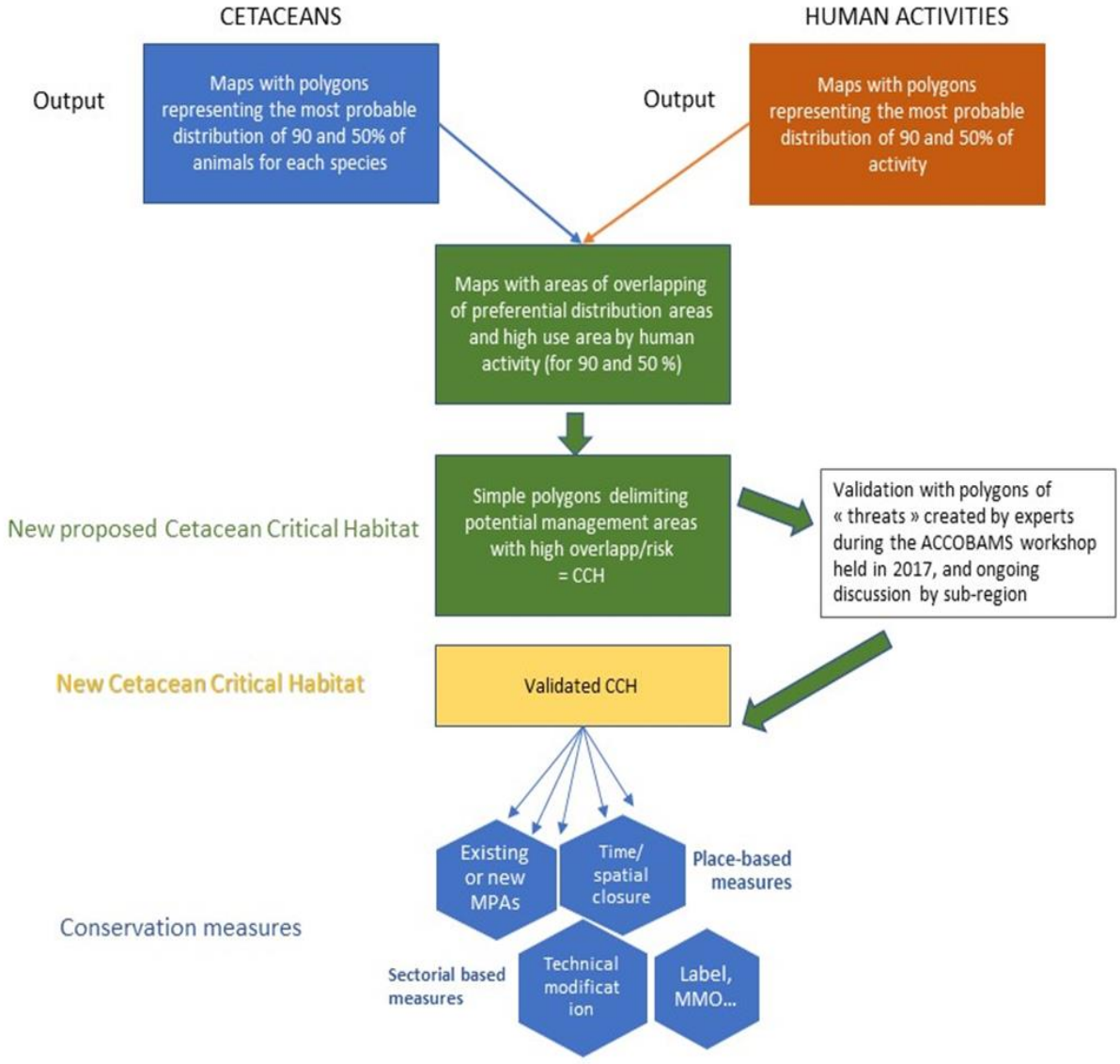
General Process

The general process of identifying the Cetacean Critical Habitat (CCH) in the ACCOBAMS area is described schematically, in two steps, in the figures below and is explained in more detains in this report.

STEP 1



STEP 2


CETACEANS
HUMAN ACTIVITIES
Output
Maps with polygons representing the most probable distribution of 90 and 50% of animals for each species
Output
Maps with polygons representing the most probable distribution of 90 and 50% of activity
Maps with areas of overlapping of preferential distribution areas and high use area by human activity (for 90 and 50 %)
New proposed Cetacean Critical Habitat
Simple polygons delimiting potential management areas with high overlapp/risk = CCH
Validation with polygons of « threats » created by experts during the ACCOBAMS workshop held in 2017, and ongoing discussion by sub-region
New Cetacean Critical Habitat
Validated CCH
Conservation measures
Existing or new MPAs
Time/ spatial closure
Place-based measures
Sectorial based measures
Technical modificat ion
Label, MMO...

1. Base and Choice

The base of Cetacean Critical Habitats is constituted by the "synthetic" studies/**analyses** that used a lot of existing data, for a large temporal and spatial coverage. The results of these kind of studies were merely distributional maps for species and human activities with quantified information, and suitable habitat for the species.

- **For species**

- Arcangeli A., Atzori F., Azzolin M., Babey L., Campana I., Carosso L., Crosti R., David L., Di-Méglio N., Frau F., Garcia-Garin O., Gregorietti M., Hamilton S., Monaco C., Moulins A., Paraboschi M., Pellegrino G., Roul M., Scuderi A., Tepsich P., Vighi M. 2019. Modelling habitat suitability of low density cetaceans species in the Mediterranean Sea. WMMSC, 8-12 Dec. Barcelona. *(for Ziphius, Risso's dolphin and Pilot whale)*

- Cañadas, Ana, M. Aissi, A. Arcangeli, M. Azzolin, A. B-Nagy, G. Bearzi, I. Campano, et al. « ACCOBAMS Ziphius Initiative ». ACCOBAMS Ziphius Initiative, 2016.

- Mannocci L., J.J. Roberts, and P.N. Halpin. 2018. *Development of Exploratory Marine Species Density Models in the Mediterranean Sea.* Final Report. Report prepared for Naval Facilities Engineering Command, Atlantic under Contract No. N62470-15-D-8006, Task Order TO37, by the Duke University Marine Geospatial Ecology Lab, Durham, North Carolina. March 2018. *(for all species).*

- Notarbartolo-di-Sciara, G. et A. Birkun. « Conserving whales, dolphins and porpoises in the Mediterranean and Black Seas ». ACCOBAMS status report. Monaco: ACCOBAMS, 2010.

The first maps prepared with the raw data of cetacean sightings collected during the ACCOBAMS Survey Initiative in the Mediterranean Sea and in the Black Sea (CeNoBS) were used, but the whole process has to be updated when the final maps of the ASI and CeNoBS are available.

- **For human activities**

- Piante, C., et Denis Ody. « Blue Growth in the Mediterranean Sea: the Challenge of Good Environmental Status». MedTrends Project. WWF-France, 2015.

- Maglio, A., G. Pavan, M. Frey, M. Bouzidi, F. Claro, N. Entrup, M. Fouad, F. Leroy, et J. Mueller. « Overview of the noise hotspots in the ACCOBAMS area, Part I - Mediterranean Sea ». Final report. ACCOBAMS, 2016.

The first maps prepared with the raw data of vessels sighting collected during the ACCOBAMS Survey Initiative in the Mediterranean Sea and in the Black Sea (CeNoBS) were used, but the whole process has to be updated when the final maps of the ASI and CeNoBS are available.

2. Process

2.1 Creation of "species" and "human activity" polygons

When the information was available in files with format as .tiff, raster or .shp, they were directly included in the GIS (QGIS) project. For raster files, an extraction by contour has been done, to get the delineated areas excluding the very low values, and a polygon including 90% of the distribution or habitat and another with 50% have been extracted and used. When we did not get raster or shape

files, we took the picture, georeferenced it and manually delineated the areas, depending on the colour, to create the two polygons with the 90 and 50% limits.

2.2 Validation

For one item (species or human activity), all polygons created from the different previous studies were compared by overlapping them. They were then also validated by other independent works for the same item, which results are merely based on expert's knowledge. If several newly created polygons matched between each other and if they also matched with the independent expert's work, the areas were kept. If there were differences, a more review process was carried out in order to assess if the area had to be kept or not, based on existing local studies and type of analysis and results.

- **For species**

The main works used for the validation process are:

- Bearzi, Giovanni, Randall R. Reeves, G. Notarbartolo di Sciara, Elena Politi, A. N. A. Canadas, Alexandros Frantzis, et Barbara Mussi. « Ecology, status and conservation of short-beaked common dolphins Delphinus delphis in the Mediterranean Sea ». Mammal Review 33, n° 3-4 (2003): 224–252.

- Druon, Jn, S Panigada, L David, A Gannier, P Mayol, A Arcangeli, A Cañadas, S Laran, N Di Méglio, et P Gauffier. « Potential Feeding Habitat of Fin Whales in the Western Mediterranean Sea: An Environmental Niche Model ». *Marine Ecology Progress Series* 464 (19 septembre 2012): 289-306. https://doi.org/10.3354/meps09810. (for Fin whale)

- IUCN Marine Mammal Protected Areas Task Force. 2017. Final Report of the Workshop: First IMMA Regional Workshop for the Mediterranean, Chania, Greece, 24-28 October 2016, 29pp. https://www.marinemammalhabitat.org/imma-eatlas/

- Lewis, T., O. Boisseau, M. Danbolt, D. Gillespie, C. Lacey, R. Leaper, J. Matthews, R. McLanaghan, et A. Moscrop. « Abundance estimates for sperm whales in the Mediterranean Sea from acoustic line-transect surveys ». Journal of Cetacean Research and Management 18 (2018): 103-17.

- Notarbartolo di Sciara, Giuseppe, Michela Podestà, et Barbara E. Curry, éd. *Mediterranean Marine Mammal Ecology and Conservation*. First edition. Advances in Marine Biology, volume 75. Amsterdam: Elsevier, Academic Press, 2016.

For more local studies, literature helped in confirming the areas, and Databases gathering sightings were also consulted:

- OBS en Mer (level expert) : http://www.obsenmer.org/

- OBIS-Seamap website : http://seamap.env.duke.edu/

- **For human activities:**

The annual density map created and visible on the web site https://www.marinetraffic.com/ was used to validate or complete the information regarding the maritime traffic.

2.3 Creation of the "threats" polygons

The "species" polygons are overlapped with the "human activity" polygon through GIS. The resulting overlapping part defines the potential "threat" areas.

2.4 Creation of the new CCH polygons

2.4.1 Proposed new CCH

From the resulting maps of threats, polygons are drawn, as “proposed new CCH”. These polygons are then smoothed, generalised and simple shapes, including a small buffer and that can be easily mapped for conservation purpose. When several “threats” areas are close to each other’s, then they might be all included in a larger potential manageable area, a CCH. These simple polygons are aiming at highlighting the areas requiring particular focus because of :

- high potential threats that are not yet known by the scientific communities, needing confirmation,

- existing known threats that need to be mitigated through measures.

2.4.2 Validation of the proposed new CCH

The resulting new CCH proposed maps is then compared and **validated with the polygons issued from the ACCOBAMS workshop on expert’s knowledge** (ACCOBAMS, 2017. Inputs to the ACCOBAMS ongoing effort to map human threats on cetaceans in the Mediterranean and Black Seas. Workshop realised during the annual European Cetacean Conference in Denmark, April 2017). Other experts have been consulted since then and this process is ongoing for each sub-region and each CCH.

The final step will be that the new validated CCHs will be proposed to the ACCOBAMS Scientific Committee for further submission to the Meeting of Parties of ACCOBAMS for adoption.

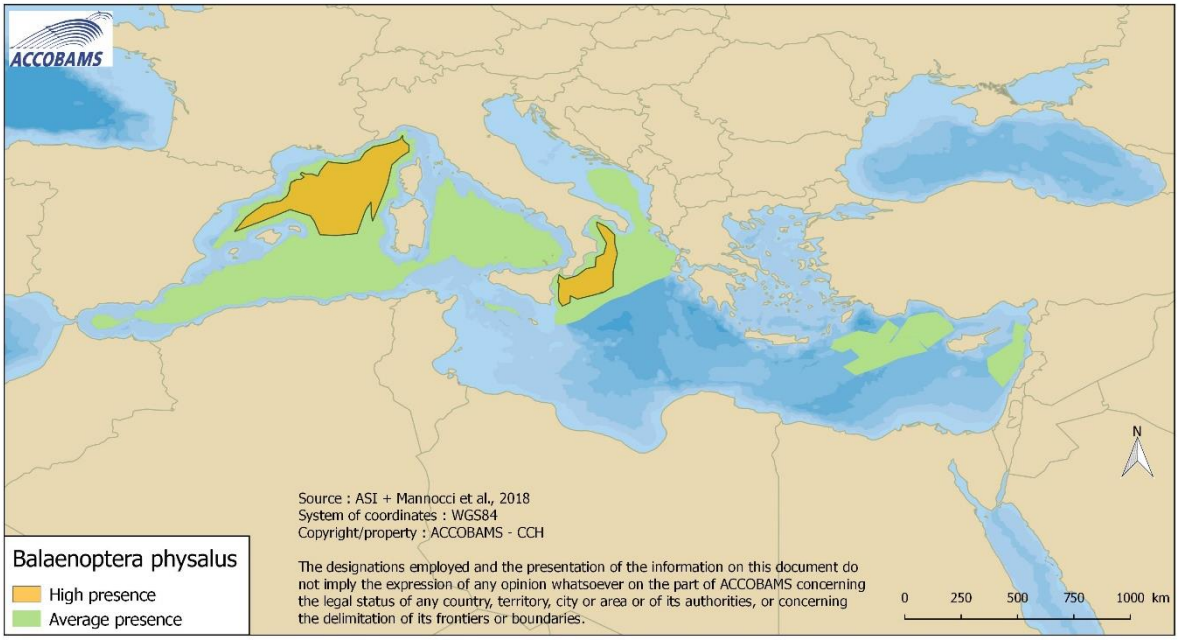
2.5 Next step: management and/or conservation measures

Support implementation of relevant measures for adequate management in each CCH will have to be discussed as a next step. The first one, i.e., identifying and promoting relevant management measures in pilot CCH, in collaboration with all stakeholders, can be launched. This step will be done in collaboration with other Organizations, such as UNEP-MAP/RAC-SPA, BSC, IMO, IWC, and GFCM, in particular through the Joint Cooperation Strategy on Spatial-based Protection and Management measures for Marine Biodiversity among the Secretariats of ACCOBAMS, GFCM, IUCN-Med, UNEP/MAP through SPA/RAC and in collaboration with MedPAN (Resolution 6.11) .

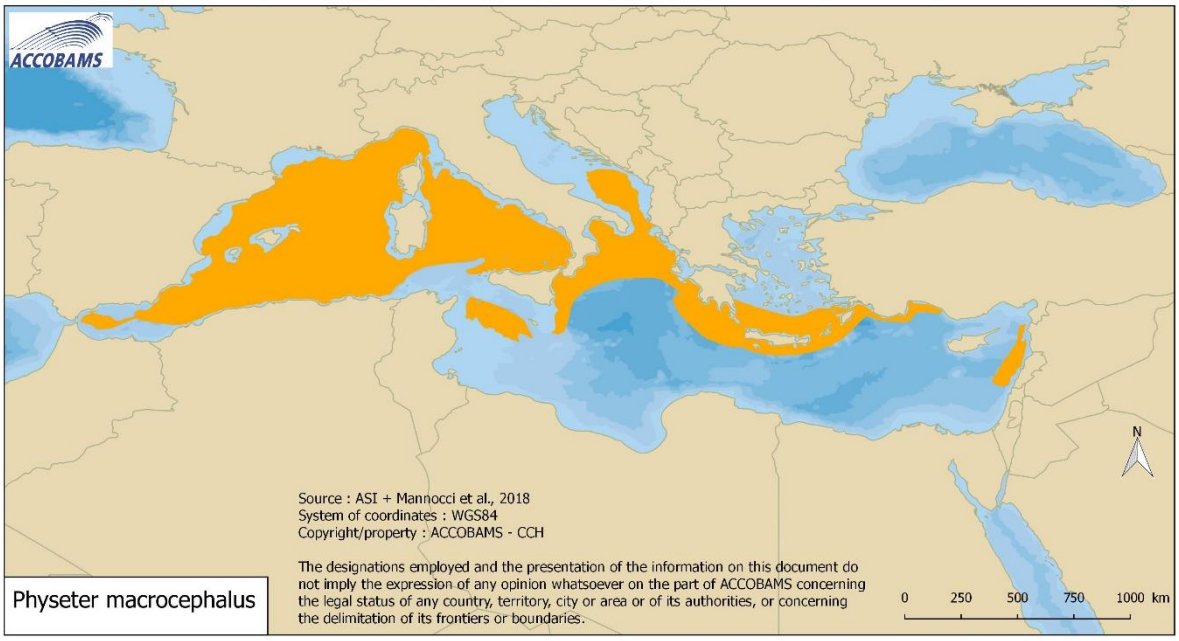
3. Example of Results

3.1 Resulting polygons for species

Fin whales

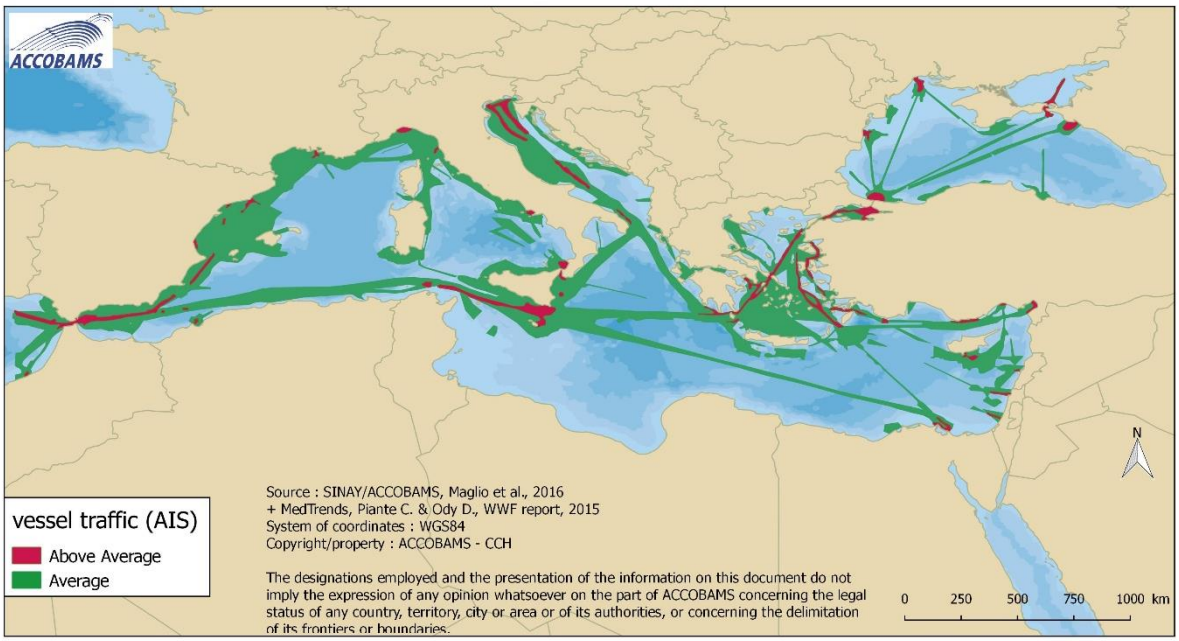


Sperm whales



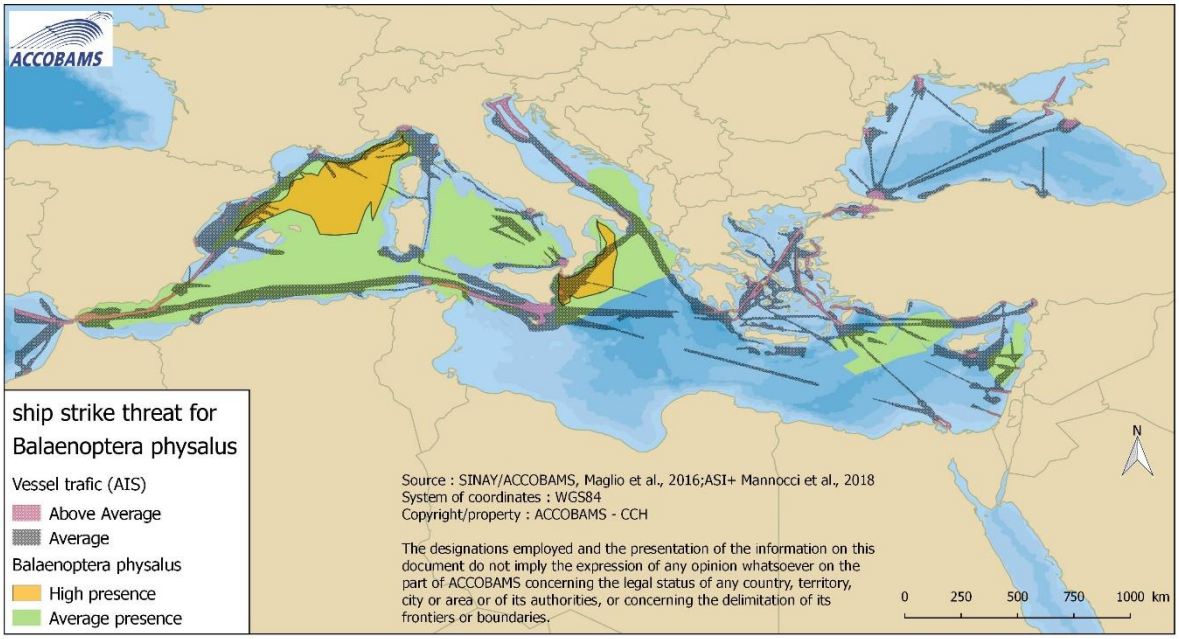
3.2 Resulting polygons for the human activities

Maritime traffic

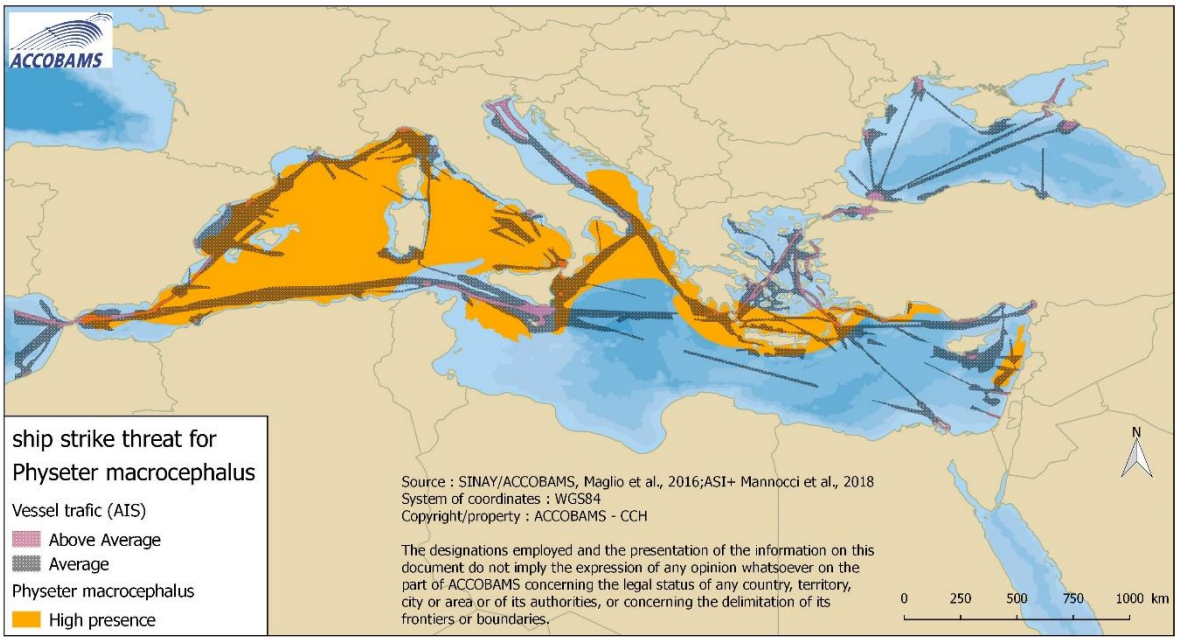


3.3 Resulting polygons for the threats

Ship strike threat for Fin whales (overlap of maritime traffic and Fin whales distribution)



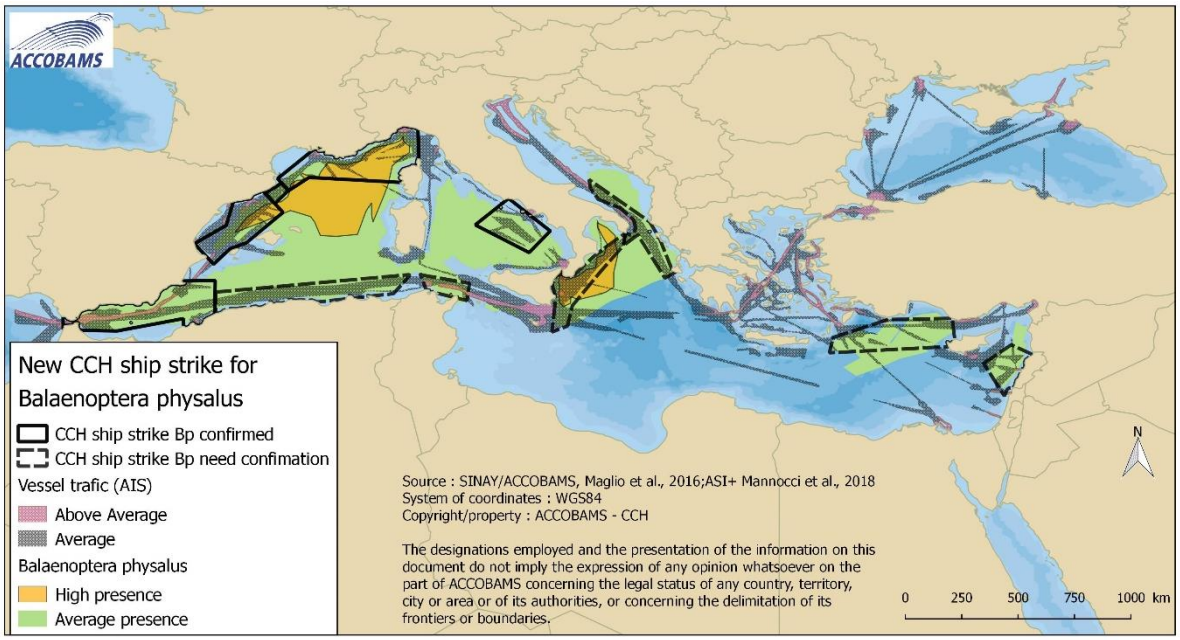
Ship strike threat for Sperm whales (overlap of maritime traffic and Sperm whales distribution)



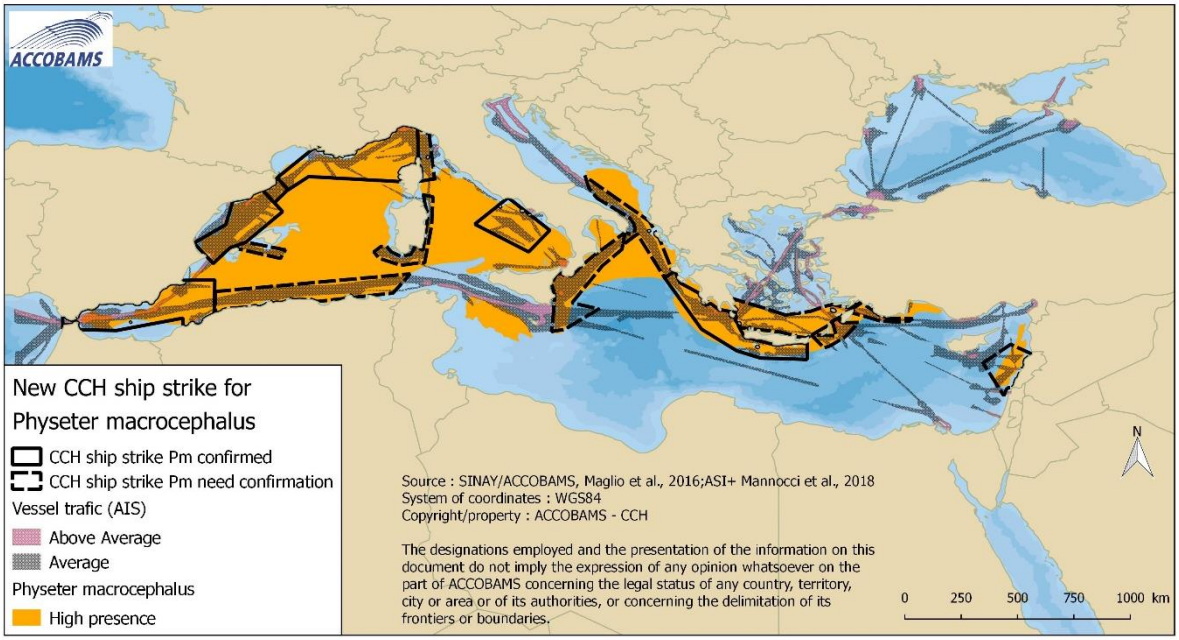
3.4 Proposed new CCH

- Proposed new CCH in link with Ship strike threats

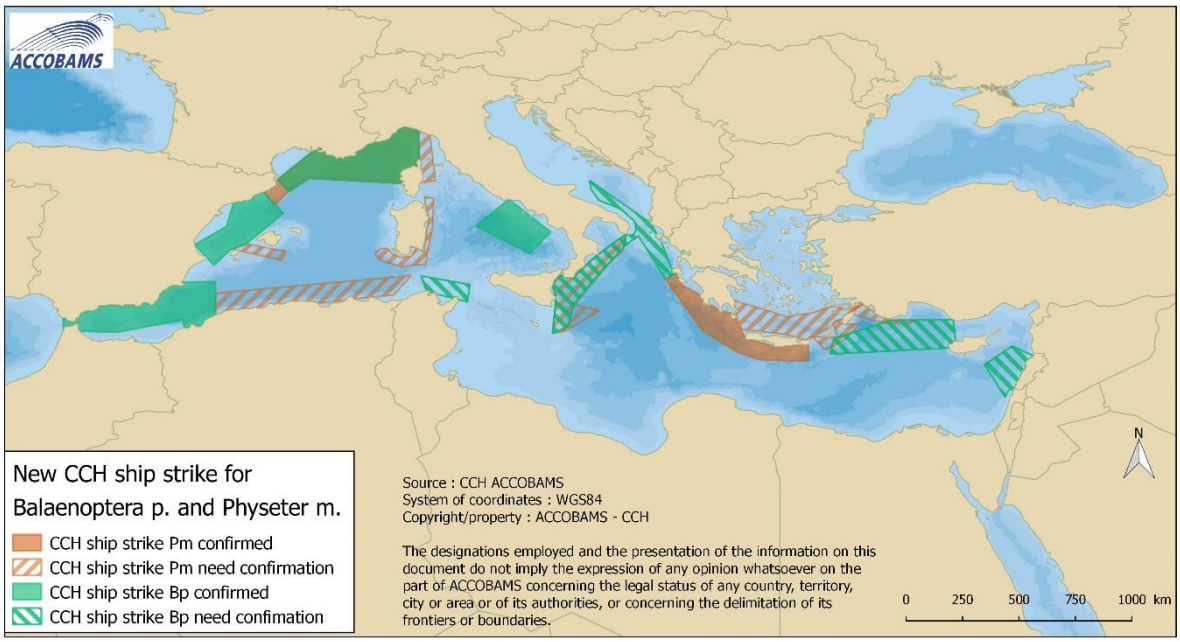
Fin whales



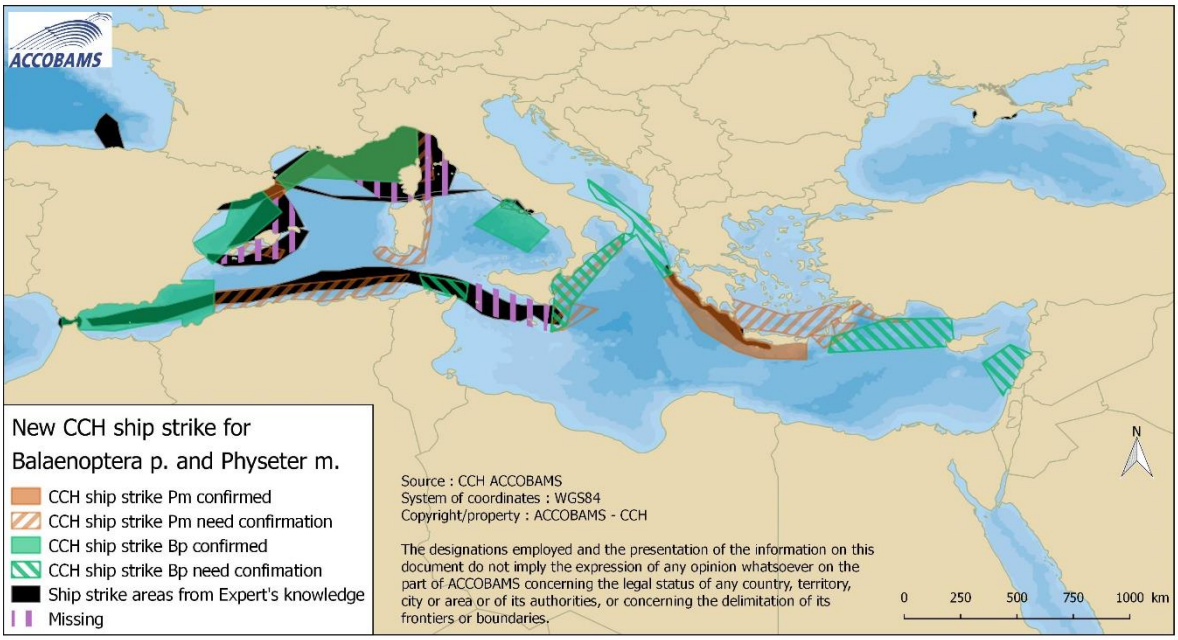
Sperm whales



Large species: Fin whales and Sperm whales



Comparison with expert's knowledge



3.5 Defined New CCH

The suggested new CCHs will be validated/completed by experts. Those final "New CCHs" will be then proposed to the Meeting of Parties of ACCOBAMS for adoption. From that, for each CCH, a panel of experts can find the relevant measures to mitigate the threat(s).

4. Example of management/mitigation measures

4.1 Management/mitigation measures addressing Ship strikes threat for large cetaceans species