



**UNITED  
NATIONS**

**EP**

UNEP/MED WG.500/Inf.3



**UNITED NATIONS  
ENVIRONMENT PROGRAMME  
MEDITERRANEAN ACTION PLAN**

19 May 2021

Original: English Only

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Meeting of the Ecosystem Approach Correspondence Groups on Monitoring (CORMON) Biodiversity and Fisheries

Videoconference, 10-11 June 2021

**Agenda item 4.1: 4.1. Monitoring and Assessment Elements for the IMA Common Indicators related to Marine Mammals**

**Main Results of the ACCOBAMS Survey Initiative (ASI) Project**



## 1. The first regional-scale marine megafauna monitoring surveys

1. The ACCOBAMS Survey Initiative (ASI) project was launched in 2016 at the Sixth Meeting of the Parties to ACCOBAMS (Monaco, 22-25 November 2016). It aims to establish an integrated, collaborative and coordinated monitoring system of the status of cetacean populations across the ACCOBAMS area, and to ultimately strengthen the conservation effort and governance for cetacean species in the Region.
2. Developed and implemented by the ACCOBAMS Secretariat, in coordination and with the support of Mediterranean riparian countries and national scientists, the ASI is an unprecedented effort and a first step to assess cetacean abundance and distribution in such a diverse, heterogeneous and geopolitically complex Region.
3. Thanks to the ASI, the first-ever regional-scale marine megafauna monitoring surveys were carried out in the Mediterranean Sea in 2018 and 2019, combining visual monitoring methods - from aircrafts and boats - with acoustic detection methods. The ASI was a unique opportunity to collect data on cetaceans, but also on other marine species such as turtles, rays, sharks, birds, as well as on floating marine litter.
4. The aerial component of the ASI was carried out between June and August 2018. The survey blocks were specifically designed for this component, considering previous knowledge of cetacean distribution, national airspaces, geopolitical situations and security constraints. Overall, eight planes monitored more than 55,000 km along predetermined transects, over a surface of almost 2 million km<sup>2</sup>.
5. The vessel-based surveys of the ASI were conducted from five vessels between May 2018 and November 2019 and involved over 100 scientists. The survey blocks were largely the same as those designed for the ASI aerial component, with some changes made due to permitting or security constraints. The vessel surveys incorporated more than 17,000 km of track-line over 43 degrees of longitude, covering an area of more than 1.3 million km<sup>2</sup>. A total of 1,672 sightings of cetaceans, totalling 22,652 individuals, were recorded.
6. In total, eleven species of cetacean were encountered during the ASI surveys: common bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), rough-toothed dolphin (*Steno bredanensis*), striped dolphin (*Stenella coeruleoalba*), long-finned pilot whale (*Globicephala melas*), Cuvier's beaked whale (*Ziphius cavirostris*), sperm whale (*Physeter macrocephalus*), fin whale (*Balaenoptera physalus*), killer whale (*Orcinus orca*), minke whale (*Balaenoptera acutorostrata*), with a possible sighting of a twelfth species, false killer whale (*Pseudorca crassidens*), made in the waters of Egypt.

## 2. The ASI results

7. Data collected during the ASI aerial and boat-based surveys were analysed using established design- and model-based analytical frameworks and estimates of abundance for cetacean species, as well as for large vertebrates and marine birds for which sufficient data were

obtained. Significant effort was also dedicated to collect data on floating marine debris, with the results of this effort detailed in recent published paper by Lambert *et al.*, 2020<sup>1</sup>.

8. The outcomes have been released on April 2021 and the report “Estimates of abundance and distribution of cetaceans, marine mega-fauna and marine litter in the Mediterranean Sea from 2018-2019 surveys” is available on the ACCOBAMS website: <https://accobams.org/wp-content/uploads/2021/04/ASI-Med-Report.pdf>

9. This report includes estimates of abundance and distribution. In particular, design-based analysis provides **numbers of estimated abundance and density** and model-based analysis provide **density maps** where animals are distributed in relation to abundance and habitat preferences. A presentation of the report prepared for an online event organized in April 2021 is included in Annex I of the present document.

### **3. A major capacity-building effort**

10. In addition to these scientific results, the capacity building component developed in collaboration with the UNEP/MAP/SPA-RAC is among the main achievements of the ASI. It allowed to train in 2018 and 2019 more than 100 scientists from all the ACCOBAMS Area on cetacean and marine megafauna monitoring.

11. The Capacity-building programme was developed to serve the preparation of the teams in charge of conducting the surveys and on the basis of the capacity building needs identified by each Riparian Country. In practice, two dedicated workshops were organised in Cuers, France, in May 2018 and in Samos, Greece, in June 2018 to train cruise leaders and the observers for both the aerial and vessel components of the survey, respectively.

12. In addition, the ASI Capacity building programme continued to be implemented in 2019, in collaboration and with the support of the EU funded Project "EcAp MED II project" (Mediterranean Implementation of the Ecosystem Approach, in coherence with the European Union (EU) Marine Strategy Framework Directive (MSFD)) coordinated by the UNEP/MAP/SPA-RAC, through a series of 4 sub-regional workshops conducted to train national experts from the entire Mediterranean region on a range of monitoring techniques and software use.

### **4. Relevance of the ASI results in the UNEP/MAP context**

13. The ASI programme is particularly important in respect to several regional policies related to marine biodiversity conservation and marine resources management. In particular, the ASI contributes to support the countries in achieving their commitments regarding the implementation of the UNEP/MAP Integrated Monitoring and Assessment Program (IMAP) as

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<sup>1</sup> Lambert C, Authier M, Dorémus G, Laran S, Panigada S, Spitz J, Van Canneyt O, Ridoux V. 2020. Setting the scene for Mediterranean litterscape management: The first basin-scale quantification and mapping of floating marine debris. *Environmental Pollution*: 114430.

regard Common Indicators 3 (Species distributional range) and 4 (Population abundance of selected species) of Ecological Objective 1 on Biodiversity, as well as the implementation of EU Regulations and Directives (Habitats and Marine Strategy Framework Directives).

#### 4.1. 2023 Mediterranean Quality Status Report

14. The 2018-2019 monitoring effort has provided an overall picture of the distribution and abundance of cetaceans throughout the ACCOBAMS area, providing robust estimates to be considered as a baseline for further regional systematic monitoring programmes, coordinated and comparable amongst all areas. This baseline could then contribute to cover some of the knowledge gaps identified in the 2017 Mediterranean Quality Status Report<sup>2</sup>, as listed below, in particular in the view of the preparation of the 2023 Mediterranean Quality Status Report:

- For Common Indicators 3 Species distributional range (related to marine mammals):

*“Knowledge gaps*

- *Most of the Mediterranean Sea has been surveyed to some extent to evaluate cetaceans’ occurrence, distribution and ranges.*
- *Nonetheless, there is a great disparity in the overall distribution of research effort, with most research been done and still carried out in the north-western portion of the basin, where long time series of data, covering up to three decades, exist. In southern Mediterranean countries information on species occurrence and distribution mostly arises from anecdotal information and localized research projects. Systematic surveys in these areas are still scarce. Effort should be done to allocate research in those areas to consolidate baseline information and to eventually obtain long time series of data.*
- *The current gap in the availability of data, and by consequence of knowledge, is hampering the identification of protection measures towards the conservation of species at the regional level.”*

- For Common Indicator 4 Population abundance of selected species (related to marine mammals)

*“Knowledge gaps*

- *Gaps still exist on baseline information such as abundance and density for many species of cetaceans occurring in the Mediterranean Sea, especially in those sectors where research is carried out on limited resources and not systematically.*
- *Even though for some species such as the striped dolphin and the fin whale estimates have been obtained for a large portion of the Basin, for none of the species there are available estimates at the regional scale.*
- *The lack of these baseline critical information is therefore detrimental for conservation, slowing down the identification of potential and actual threats, the assessment of their effect on populations and eventually the evaluation of trends and the triggering of mitigation and conservation measures.”*

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<sup>2</sup> [https://www.medqsr.org/sites/default/files/inline-files/2017MedQSR\\_Online\\_0.pdf](https://www.medqsr.org/sites/default/files/inline-files/2017MedQSR_Online_0.pdf)

15. Collaboration between ACCOBAMS and UNEP/MAP is of high importance in the context of the preparation of the 2023 MED QSR. This is also in line with Decision IG.22/7 related to the “Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria” adopted by the Parties to the Barcelona Convention at COP19 in 2016 that provides:

*25. In light of the above, it is an absolute necessity for UNEP/MAP to strengthen its cooperation with the relevant regional bodies, especially in relation to:*

*• EO1, both with the General Fisheries Commission for the Mediterranean (GFCM) for commercial species of fish and shellfish and the Secretariat of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS), noting that the ACCOBAMS Survey Initiative, to be undertaken during 2016-2019, will provide important inputs (in terms of monitoring methodologies, capacity building and reliable data on abundance and distribution of cetaceans);*

#### **4.2. Long Term Monitoring of Cetaceans**

16. ACCOBAMS is now developing a strategy to ensure the long-term implementation of this regional cetacean monitoring programme as it remains crucial that such monitoring efforts be replicated systematically and regularly over time, in synergy and complementarity with other regional environmental policies. An ACCOBAMS Long Term Monitoring Programme will be then presented for the consideration of the Eighth Meeting of the Parties to ACCOBAMS to be held in Malta in 2022.

17. In this context, and in view of pursuing our efforts to increase synergies between UNEP/MAP and ACCOBAMS, ACCOBAMS expressed, through a letter sent to the UNEP/MAP Coordinating Unit in 2020, its availability to support UNEP/MAP and the countries involved in the development and implementation of the EU funded Project "EcAp MED III project", in order to take advantage of the experience gained during the ASI and ensure the best possible synchronization of these monitoring efforts and the valorization of the new results that will emerge.

18. The continuation of this major programme represents a great opportunity to bring additional information on cetaceans distribution and abundance, and, in line with ACCOBAMS's current efforts, to reinforce and support the cetaceans monitoring efforts within the region, in particular in Southern and Eastern Mediterranean countries.

**ANNEX I - OVERVIEW OF THE ASI MEDITERRANEAN RESULTS –ASI Results Release online Event, 22 April 2021**



Estimates of abundance and distribution  
of cetaceans, marine mega-fauna and  
marine litter in the Mediterranean Sea  
from 2018-2019 surveys

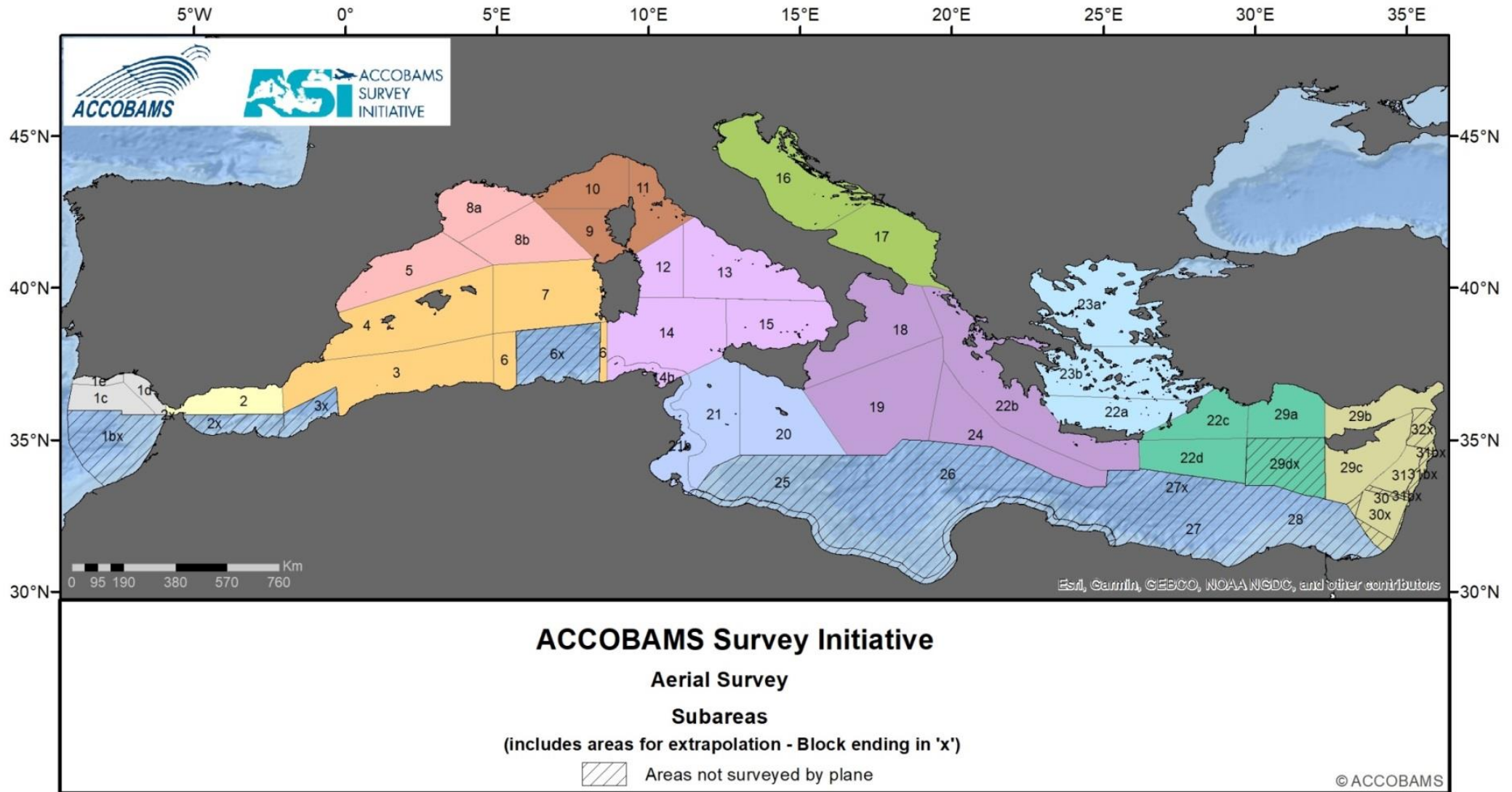


# Overview of the ASI Results in the Mediterranean Sea

ACCOBAMS, 2021. Estimates of abundance and distribution of cetaceans, marine mega-fauna and marine litter in the Mediterranean Sea from 2018-2019 surveys. By Panigada S., Boisseau O., Canadas A., Lambert C., Laran S., McLanaghan R., Moscrop A. Ed. ACCOBAMS - ACCOBAMS Survey Initiative Project, Monaco, 177 pp.

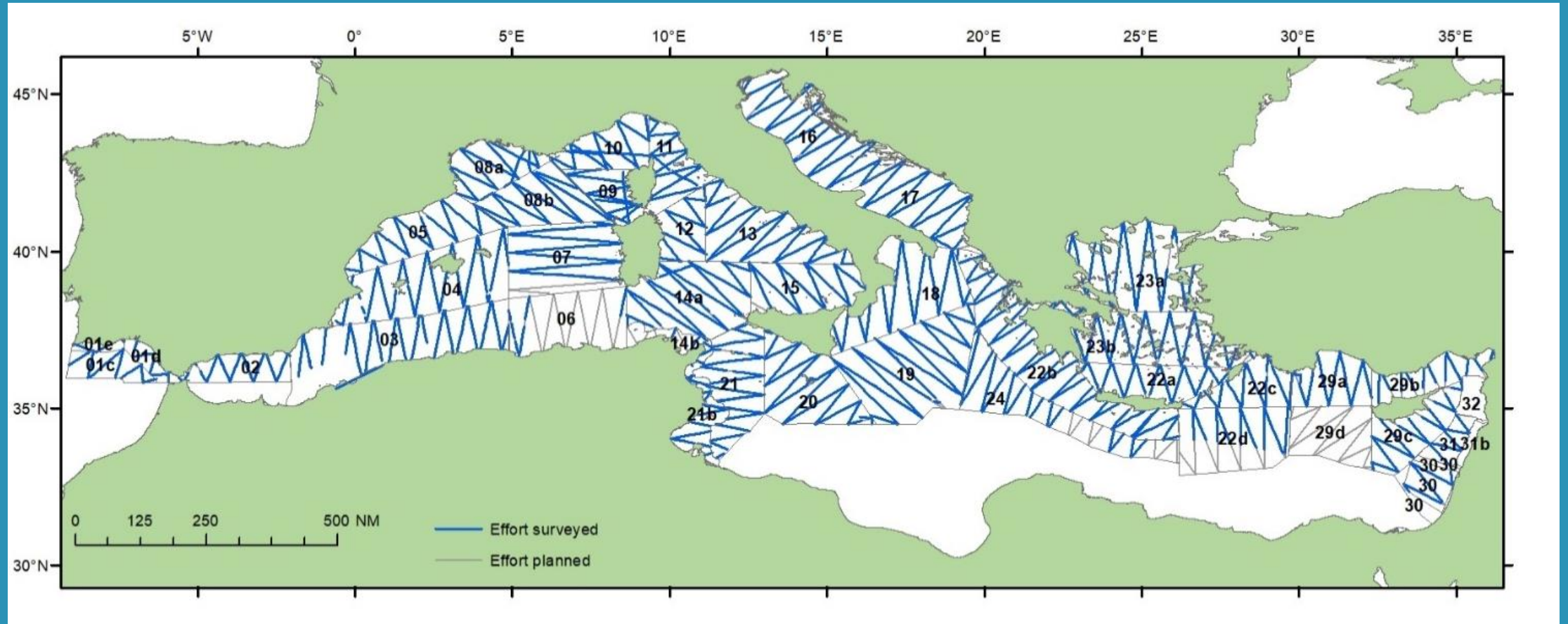


# AERIAL SURVEY BLOCKS



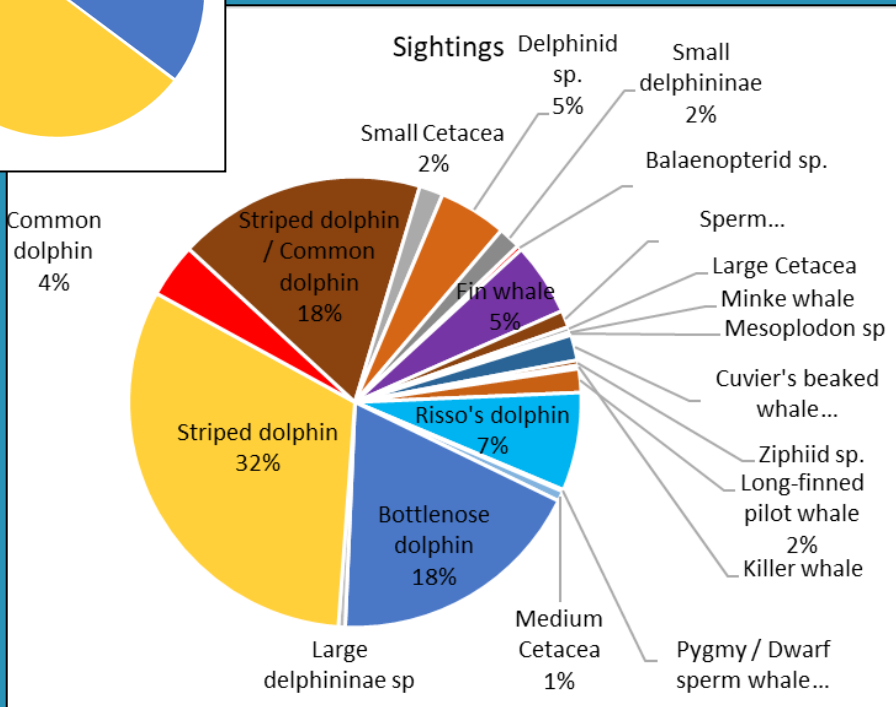
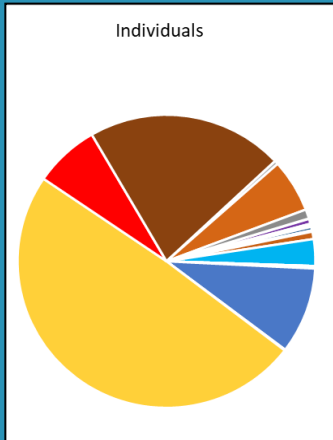


# TOTAL AERIAL EFFORT



The different blocks and sub-blocks with planned transects (in grey) and effort achieved (in blue).

# DATA COLLECTED & ANALYSIS PROCESS



Cetaceans

1,672 sightings  
22,652 animals  
in total

Other  
Vertebrates

1,245 sightings  
11,431 animals  
in total

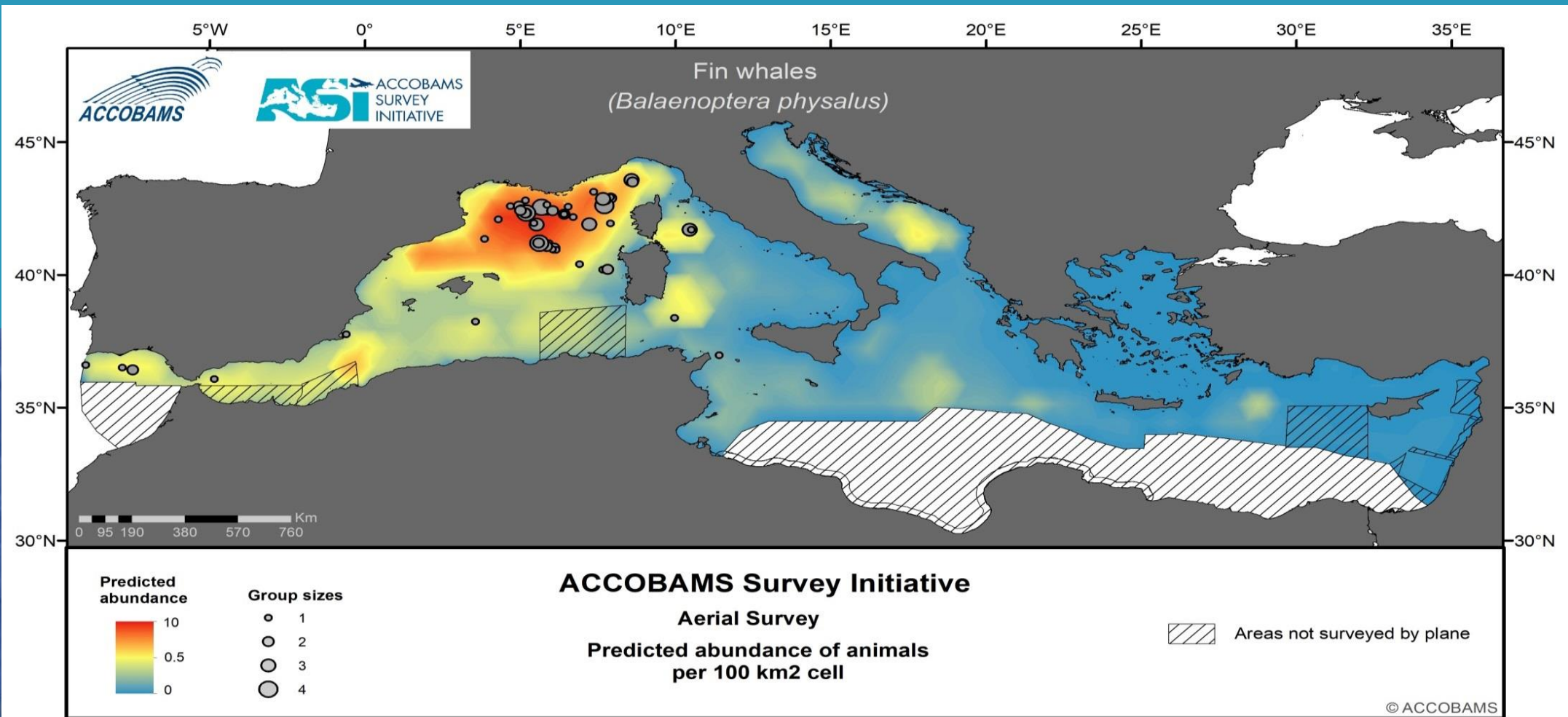
Species composition of sightings of cetaceans collected on effort during the aerial survey, in percentage of sightings and of individuals (L).

# ABUNDANCE ESTIMATES

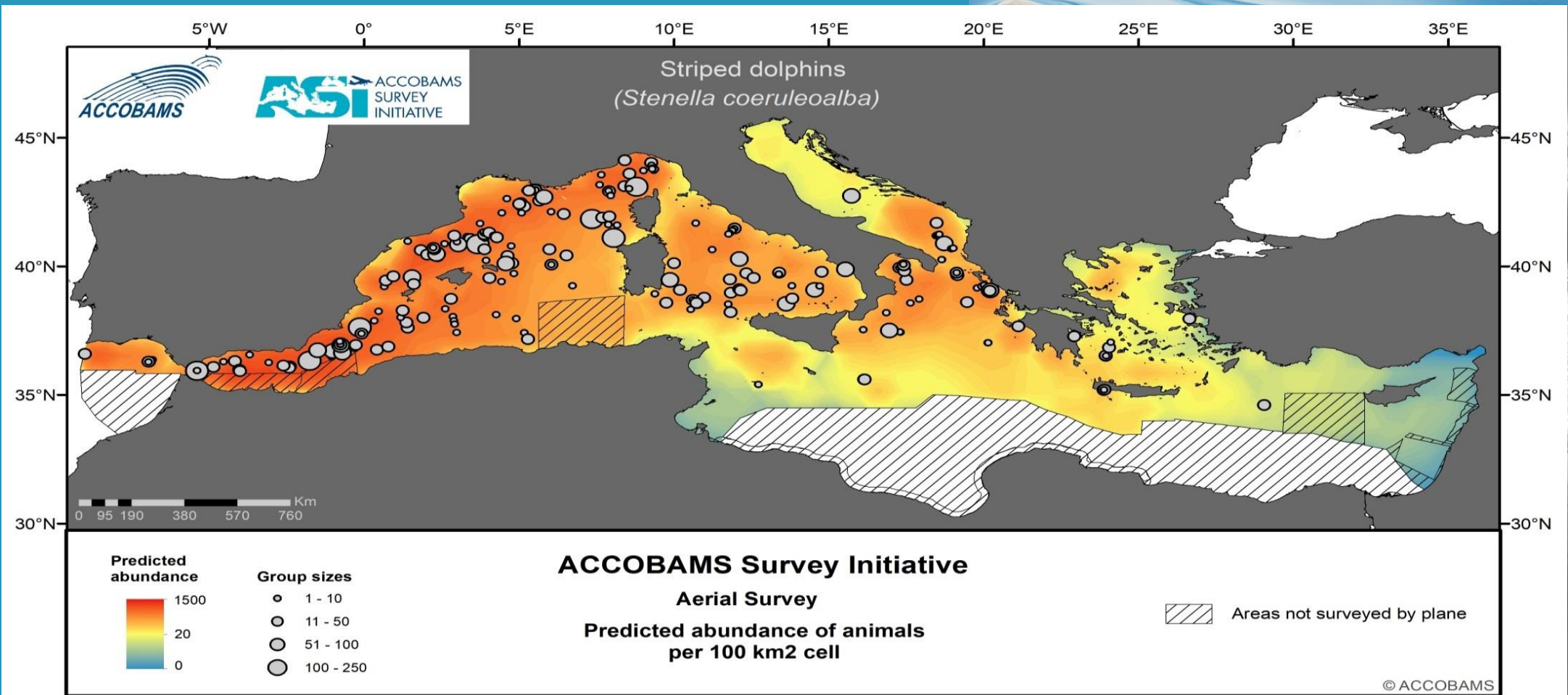
- 1,500 sperm whales (CV 51%)
- 26,700 Risso's dolphins (CV 29%)
- 6,000 long-finned pilot whales (CV 40%)
- 66,000 common dolphins (CV 40%)
- 3,700 beaked whales (CV 36%)



# FIN WHALES – 1,700 (CV 28%)

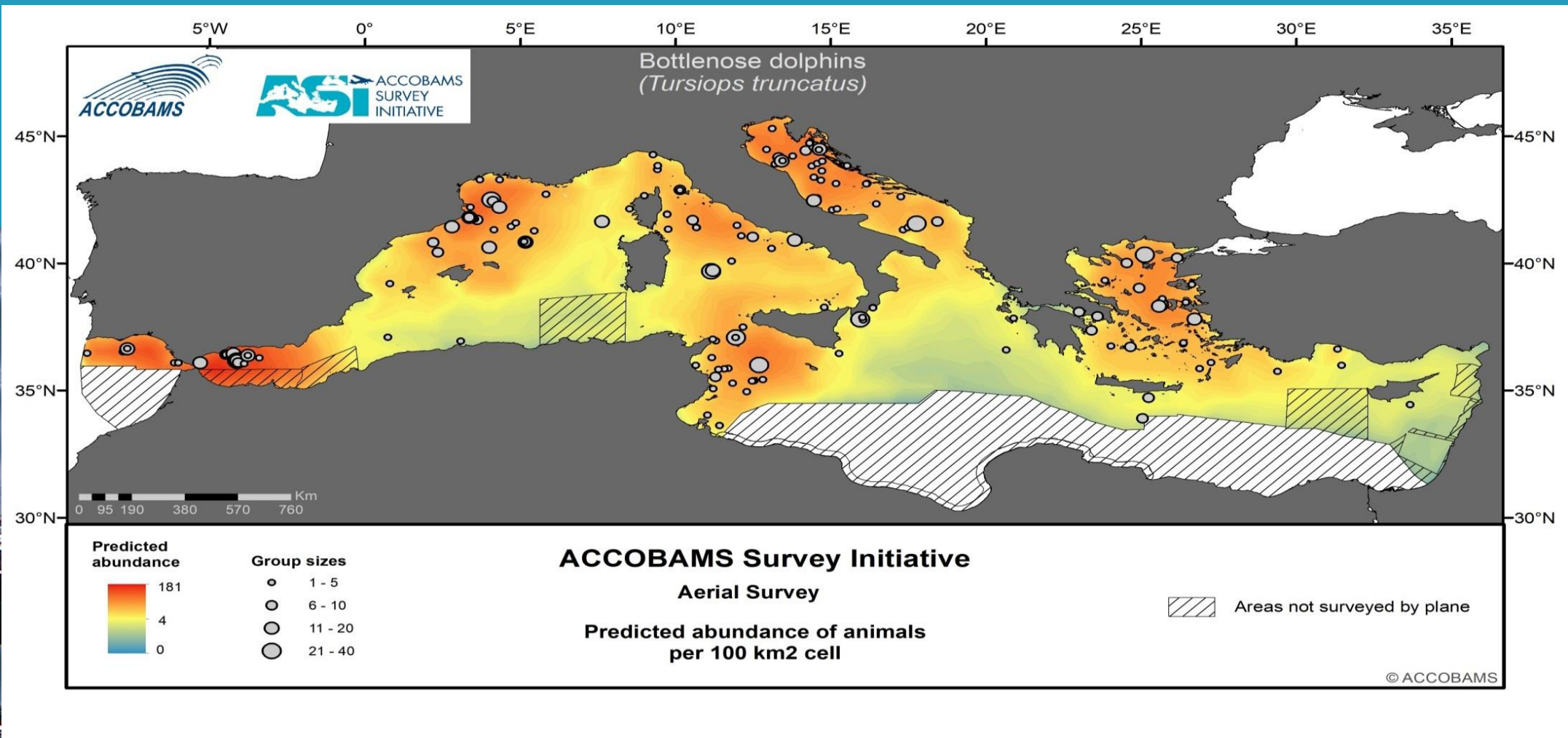


# STRIPED DOLPHINS - 425,000 (CV 14%)





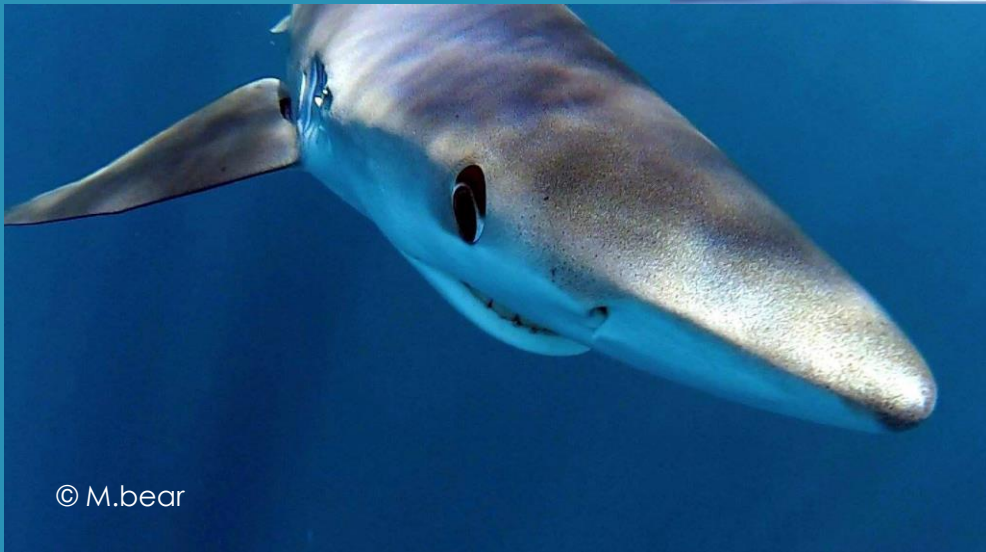
# BOTTLENOSE DOLPHINS - 76,000 (CV 21%)





# ABUNDANCE ESTIMATES

## OTHER VERTEBRATES



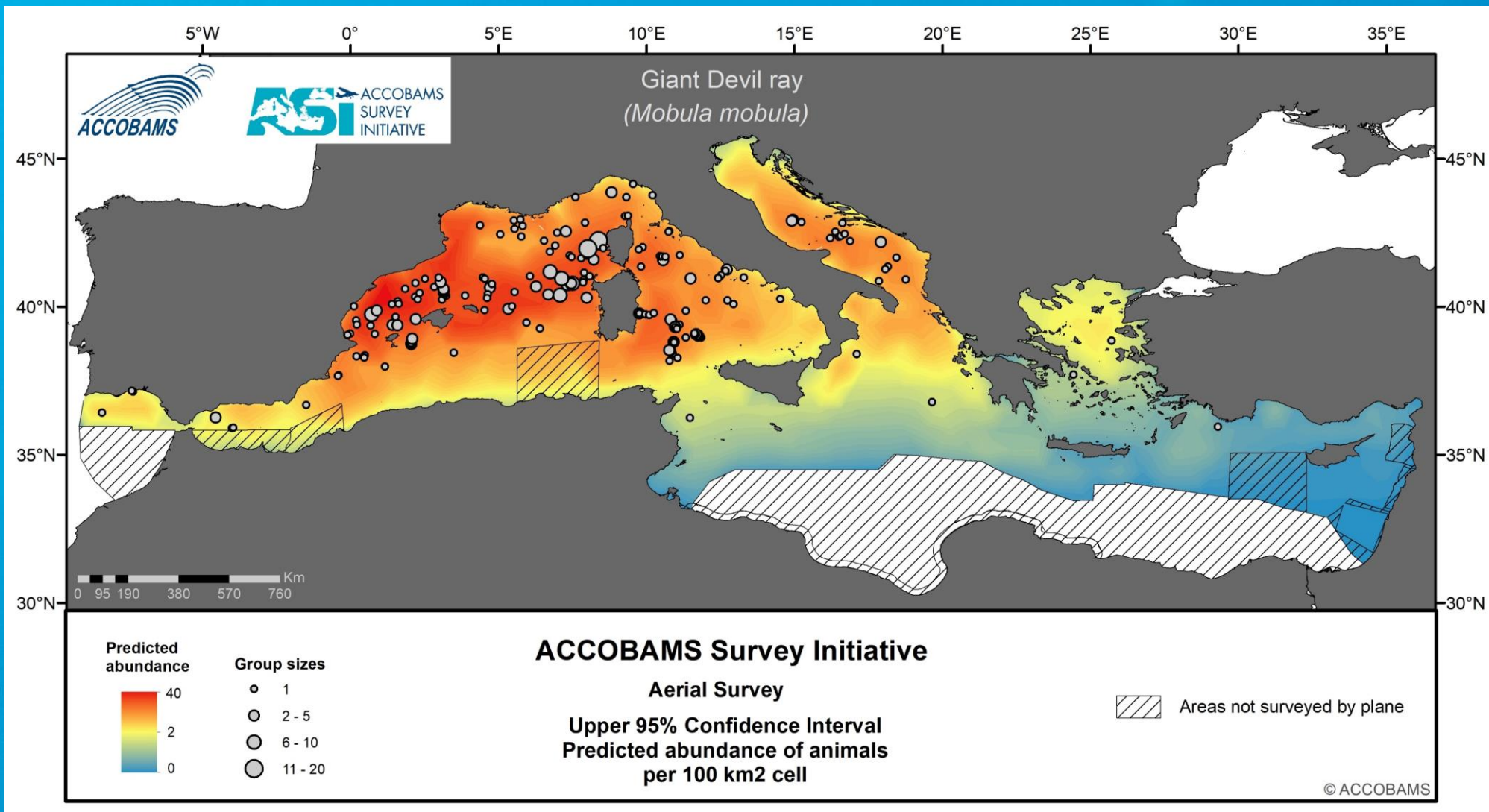
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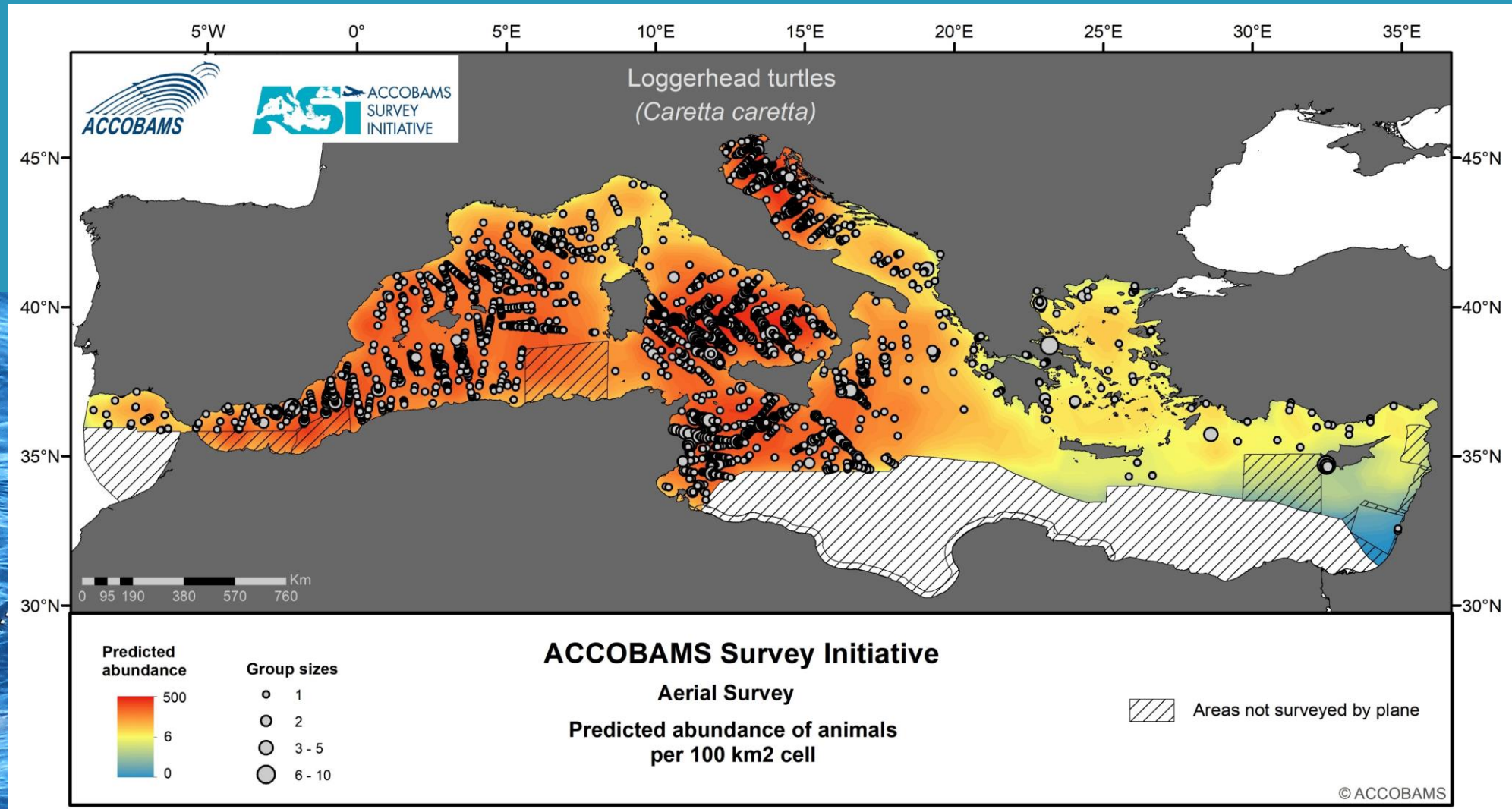


# Spinetail devil ray - 25,500 (CV 13%)



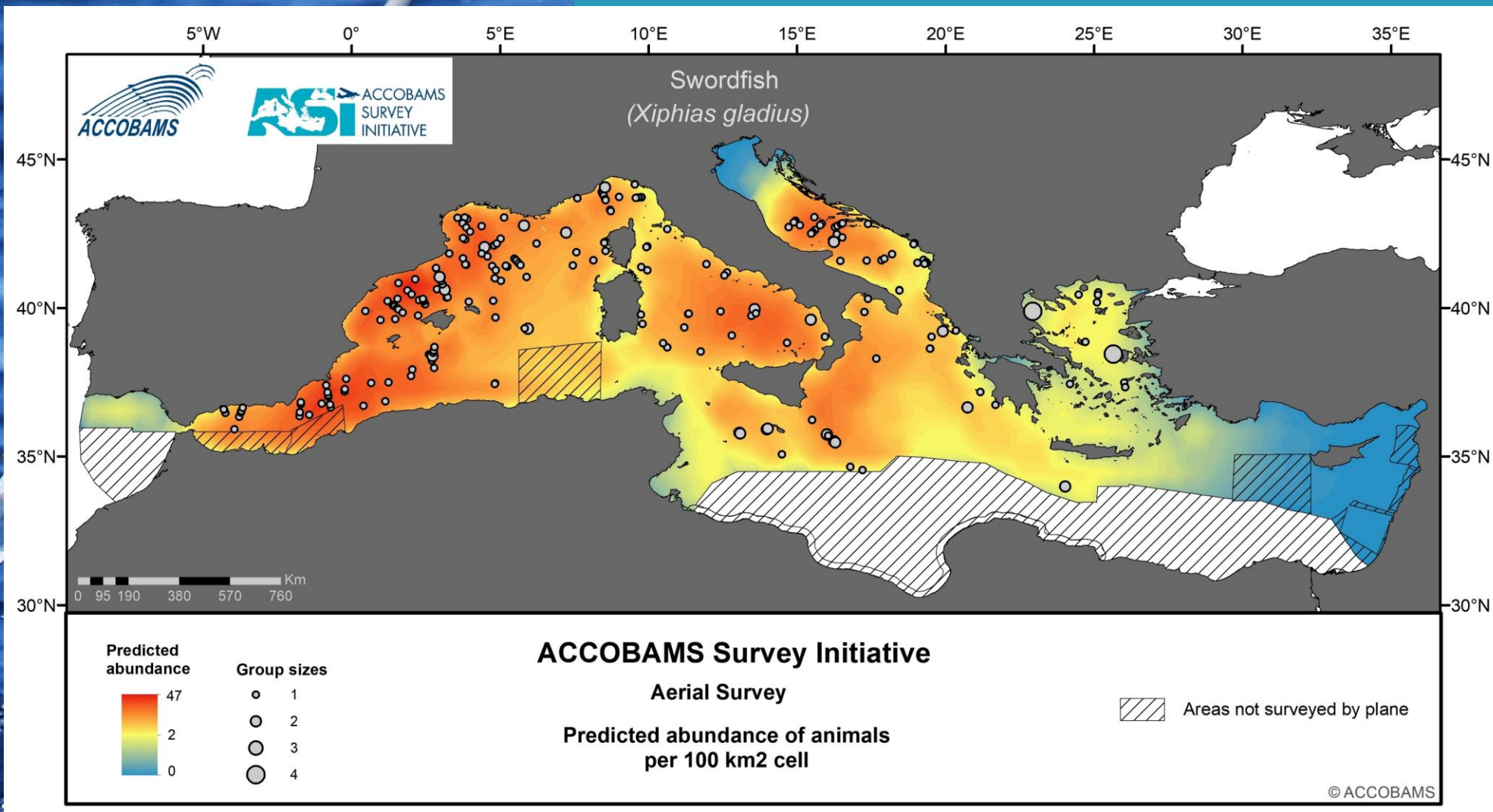


# Loggerhead turtles - 313,500 (CV 5%)





# Swordfish - 20,500 (CV 11%)

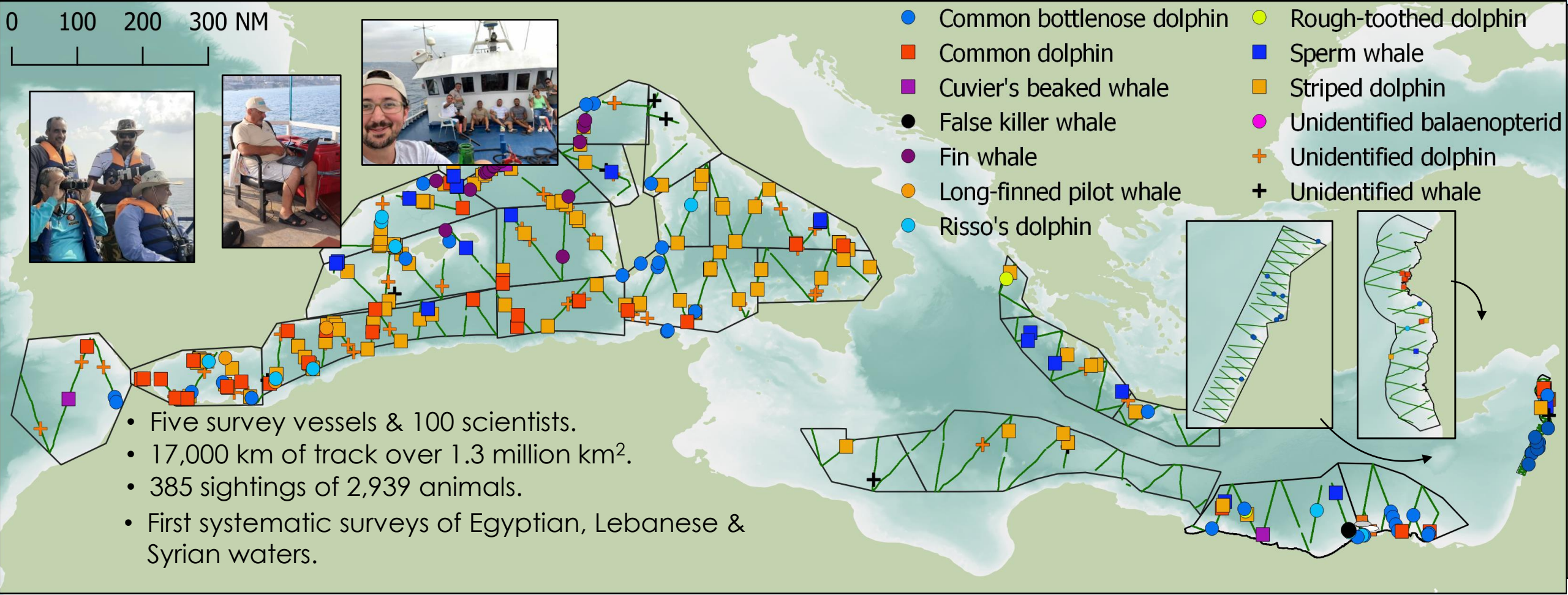




0 100 200 300 NM



- Common bottlenose dolphin
- Common dolphin
- Cuvier's beaked whale
- False killer whale
- Fin whale
- Long-finned pilot whale
- Risso's dolphin
- Rough-toothed dolphin
- Sperm whale
- Striped dolphin
- Unidentified balaenopterid
- + Unidentified dolphin
- + Unidentified whale



- Five survey vessels & 100 scientists.
- 17,000 km of track over 1.3 million km<sup>2</sup>.
- 385 sightings of 2,939 animals.
- First systematic surveys of Egyptian, Lebanese & Syrian waters.

# ASI VESSEL SURVEYS





# ACOUSTIC SURVEYS



0 100 200 300 NM

- On track detection
- Off track detection

- High priority for deep-diving toothed whales.
- Can detect whales >20 km away.
- 249 sperm whales detected (but only 10 sightings).
- Total abundance estimate of 4,600 sperm whales.

