

REPORT ON THE CONSERVATION STATUS OF CETACEANS AND RELEVANT ACTIVITIES IN WESTERN MEDITERRANEAN AND CONTIGUOUS ATLANTIC AREA

Introduction: *The aim of this report is to give a global vision of what occurred in the Region, regarding cetacean conservation, since the previous report, and what is important to address for the next period/in a near future. So the regional representative will synthesize the main studies (species, topics) led in the region, concerning research, monitoring and conservation, also the main “hot” topics or threats that need to be addressed and what is awaited from the Scientific Committee (and ACCOBAMS) for the next triennium as recommendations.*

Countries of Western Mediterranean and contiguous Atlantic area region:

Algeria,

France,

Italy (western coast),

Monaco,

Morocco,

Portugal,

Spain,

Tunisia (northern coast)

In yellow the missing data

Overview of activities in the Region since the previous report:

- **Algeria**

- ❖ Progress the writing of “National Action Plan along the Algerian coast”.

A document detailing the different actions, validated by the representatives of the national stakeholders, is being finalized.

- ❖ Progress in the implementation of national stranding network. The activities of capacity building and raising awareness are being plan and should be launched before this summer.

- ❖ A New regulatory framework for the protection and the preservation of marine biological resources including cetaceans is being finalized.

- **France**

- **ITALY**

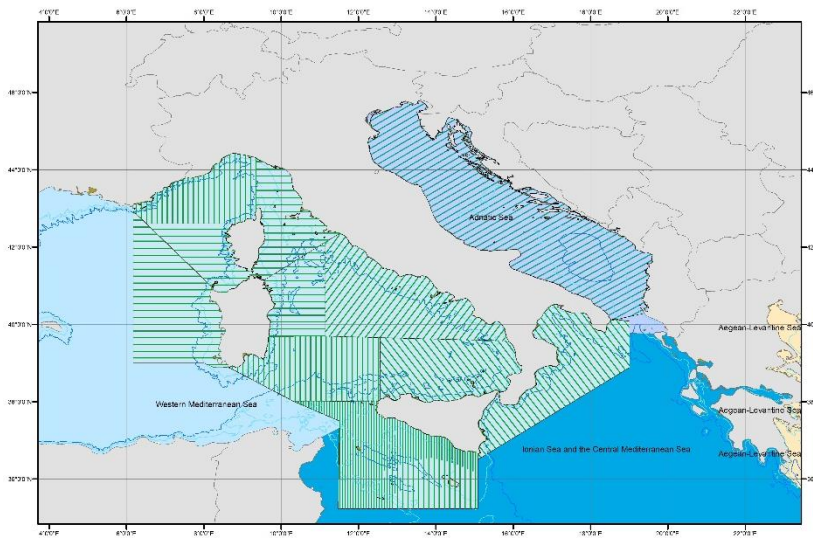
- **Activities related to the EU Marine Strategy Framework Directive**

The Italian Ministry of the Environment (now Ministry of the Environment and of the Energetic Security) committed to the Italian Institute for Environmental Protection and Research (ISPRA) to develop an Operational program for the implementation of the EU Marine Strategy Framework Directive MSFD - 2008/56/CE.

ISPRA - As the Descriptor 1 (Biodiversity) is concerned, ISPRA developed a research program for the 2020 – 2023 period based on the line transect distance sampling methodology implemented by aerial platform in the seas around Italy peninsula and Islands (map in Figure). Survey area cover the three MSFD Mediterranean Subregions – Western, Adriatic, and Central and Ionian Sea.

The activities are aimed to collect data to estimate both the distribution and the abundance of the cetacean's species hence to comply with the criteria D1C1 (mortality rate per species from incidental by-catch is below levels which threaten the species) and D1 C2 (population abundance of the species is not adversely affected due to anthropogenic pressures), of the Directive.

As part of the monitoring activities two aerial surveys have been conducted in the Sicily Channel and the Ionian Sea (summer 2021) and Adriatic (summer 2021-2022).



The MSFD study area for the 2020 – 2023 period

As the MSFD monitoring programme D1C1&D3 ISPRA/CoNISMa are working on: (a) fishery dependent data (2021-2023) on bycatch events/rates on protected species and species of conservation concern; (b) fishermen interviews on bycatch events by areas, seasons, and gears in Italian waters.

Within the western Mediterranean, the Fixed Line Transect Med monitoring Network (coordinated by ISPRA) has continuously collected data on cetaceans, sea turtles, other megafauna, maritime traffic and floating marine macro litter along the transects shown in the following figure. Data were collected following standard protocols, with a frequency of surveys of 3-5 per season during all the four seasons. During 2020, surveys were reduced due to the pandemic of COVID-19.

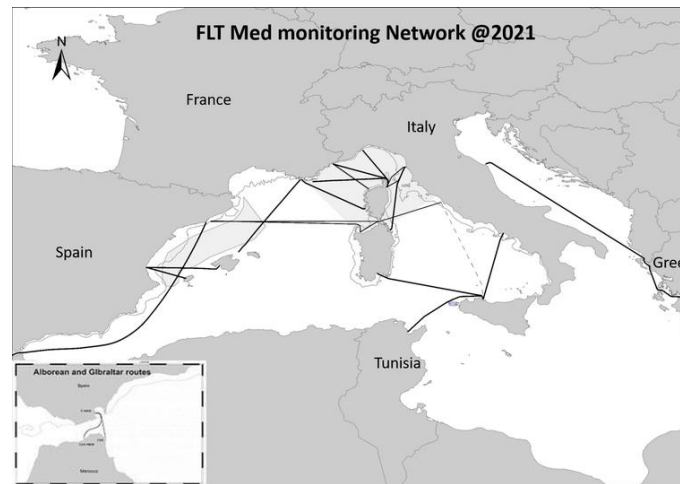


Figure. Surveyed transects monitored by the FLT Med monitoring Network 2020-2021

Scientific partners collaborating in the project: ISPRA, Stazione Zoologica Anton Dohrn, University of Pisa DIBIOL, CIMA Research Foundation, University of Torino, University of Palermo DiSTeM, University of Milano Bicocca, University of Barcelona, University of Tuscia DEB, University of Catania, GAIA Research Institute, EcoOcean Institut, Accademia del Leviatano, Nereide, Marecamp Association. Ferry companies contributing to the project: Corsica-Sardinia Ferry; Grimaldi Lines; Tirrenia CIN; Minoan; CTN; Baleária; Siremar; GNV

- **Research activities**

Tethys - Cetacean Sanctuary Research (**CSR**) project is conducting visual and acoustic boat-based surveys on cetacean species, in the Northwestern portion of the Pelagos Sanctuary (N-W Mediterranean) since 1990, generating the longest time series and one of the most extensive datasets on the Mediterranean marine mammals. The field activity continued from mid-May to early October during the period of interest (2021-2022). The CSR project's data collection is dedicated to the eight different species of cetaceans: fin whales (*Balaenoptera physalus*), sperm whales (*Physeter macrocephalus*), striped dolphins (*Stenella coeruleoalba*), long-finned pilot whales (*Globicephala m. melas*), Risso's dolphins (*Grampus griseus*), common bottlenose dolphins (*Tursiops t. truncatus*), Cuvier's beaked whale (*Ziphius cavirostris*) and common dolphin (*Delphinus d. delphis*). The study area, of about 25,000 km², is located in the western part of the Ligurian Sea, covering approximately a third of the entire Sanctuary area. The project focuses on population dynamics, spatial distribution, habitat preferences, behaviour, bioacoustics, photogrammetry, as well as on the evaluation of health status (by collecting fecal samples). The project also aims to evaluate long-term environmental changes and monitoring of anthropogenic pressures.

From 2022, Tethys - CSR project is running a pilot study, entitled "Eye in the Sky", in collaboration with the Italian Coast Guard (ICG), using a medium-sized, long endurance, fixed-wing Remotely Piloted Aircraft System (RPAS), provided by the European Maritime Safety Agency (EMSA). The project is developed within the long-lasting collaboration between Tethys and the General Command of the Harbour Masters Corps - Italian Coast Guard, to test the potential use of this innovative technology for cetacean monitoring. The pilot study will continue in 2023.

CSR - Tethys has participated in the INTERMED project to share the effort, sightings, and photo-identification data. The cumulative effort brought to the publication of two peer-review papers ([Gnone et al. 2022](#); [Gnone et al. 2023](#)). Within the framework of this project, Tethys is also coordinating and validating all Risso's dolphin photo-id data from all data providers. This species has suffered a drastic decline within the Pelagos Sanctuary in recent years.

Acquario di Genova/Fondazione Acquario di Genova: InterMed project was conceived as the continuation of the TursioMed project (2017-2019) in the three-year period 2020-2022 to update the current knowledge on cetacean presence and diversity in the Mediterranean Sea, analyzing in aggregate form the data collected by many different research units over a period of 16 years (2004-2019). The objectives of the project were the following:

- consolidation of the research network connected to the Intercet platform and update of the data loaded on web-based GIS platform;
- analysis of the data in aggregate form to assess the presence and distribution of cetaceans in the study areas covered by the network;
- share on the Intercet platform the photo-identification data of the common bottlenose dolphin (*T. truncatus*), Risso's dolphin (*G. griseus*), Cuvier's beaked whale (*Z. cavirostris*), and sperm whale (*P. macrocephalus*) to investigate the spatial behaviour and movements of these species;
- identification of the geographical units of the common bottlenose dolphin, Risso's dolphin, Cuvier's beaked whale, sperm whale, and related areas of residence and home ranges;
- implementation of a research campaign in the Strait of Sicily to investigate the presence of cetaceans in this important area connecting the west and east basins of the Mediterranean Sea.

A total of 983,186 track kilometers and 25,856 sightings were analyzed in aggregate form, referable to 14 cetacean species, shared by a total of 40 research partners active in 9 countries of the Mediterranean Sea: Spain, France, Italy, Slovenia, Montenegro, Greece, Turkey, Israel, and Tunisia. The results of this collective research effort have been organized in the InterMed Final Scientific Report, which is now being reviewed by the project partners.

University of Siena (UNISI) - Several EU projects have been implemented by University of Siena (UNISI) in the triennium in the ACCOBAMS Area: a) Plastic Busters MPAs Med-Interreg, b) COMMON ENI CBC Med, c) Plastic Busters CAP ENI CBC Med. d) MoRi-Net FEAMP.

Plastic Busters MPAs (PB MPAs) is a 4-year-long InterregMed-project aiming to contribute to maintaining biodiversity and preserving natural ecosystems in pelagic and coastal marine protected areas (MPAs), by defining and implementing a harmonized approach against *marine litter*. The project entails actions that address the whole management cycle of marine litter, from monitoring and assessment to prevention and mitigation, as well as actions to strengthen networking between and among pelagic and coastal MPAs.

The main outcome obtained under the umbrella of the Plastic Busters initiative are presented below. Four main results from the deployed harmonized monitoring approach in biota and in particular on cetacean species, in the basin are:

- I. The comprehensive assessment of the impact of ML, including MPs in a wide range of bioindicator species (46) in the several pilot areas (10 MPAs), with the selection of several candidate bioindicators (ranging from invertebrates to marine mammals);
- II. The validation of the threefold monitoring approach (ML and MPs detection, plastic tracers analysis and biological endpoints) in several bioindicators;
- III. The validation of new methods to detect the impact of ML in endangered species (e.g. omics techniques in cetaceans);
- IV. The development of risk map showing the impact of ML on MS biodiversity with the case study of the Pelagos Sanctuary.

the main cetacean species studied for ecotoxicological investigation in the Pelagos Sanctuary sampled between 2019-2022 (stranded and free-ranging organisms) are reported in detail below.

Cetaceans inhabiting the largest pelagic SPAMI of the Mediterranean Sea, the Pelagos Sanctuary, are facing the exposure to multiple stress represented by chemical pollution and marine litter. A total of 140 samples of superficial microplastics were collected in the SPAMI area, carrying out monitoring of surface macrolitter with simultaneously monitoring of biota, with the goal to identify the possible marine litter hotspot areas, and the potential impact on biodiversity. During the sampling campaign, skin biopsies of 3 free-ranging cetacean species (see Table 1) have been collected in the Pelagos Sanctuary area. Each biopsy has been subdivided into different aliquots according to the different analyses: blubber tissue for contaminants analysis and epidermal, dermal part for ecotoxicological biomarkers including Omics, stable isotopes and sex determination.

Tab. 1. Free-ranging species collected during the sampling campaigns carried out in the Pelagos Sanctuary.

Common name	Scientific name	N. of skin biopsies collected	Analysis performed
Fin whale	<i>Balaenoptera physalus</i>	15	PAEs detection ecotoxicological biomarkers-Exposomics
Sperm whale	<i>Physeter macrocephalus</i>	4	PAEs detection ecotoxicological biomarkers
Striped dolphin	<i>Stenella coeruleoalba</i>	18	PAEs detection ecotoxicological biomarkers

Several cetacean species stranded between 2018 and 2022 along the coasts of Tuscany were examined to assess the potential ingestion of plastic and for determination of PAEs contaminants. The list of specimens is reported in Tab. 2.

Tab. 2. Stranded species collected along the Tuscan coast in the Pelagos Sanctuary. The common and scientific names, number of organisms collected, and analysis performed were shown.

Common name	Scientific name	N. of organisms collected	Analysis performed
Striped dolphin	<i>Stenella coeruleoalba</i>	18	MP ingestion, PAE detection
Bottlenose dolphin	<i>Tursiops truncatus</i>	9	MP ingestion, PAE detection
Cuvier's Beaked whale	<i>Ziphius cavirostris</i>	1	MP ingestion, PAE detection
Long finned pilot whale	<i>Globicephala melas</i>	1	MP ingestion
Fin whale	<i>Balaenoptera physalus</i>	1	MP ingestion, PAE detection

CIMA

[2020,2021] SICOMAR plus project¹ (EU cross-border Interreg Italy-France Maritime 2014-2020). Activities: i) monitoring cetacean presence in the Ligurian Sea during winter season with ferries; ii) mapping hotspots for large whales, marine traffic and risk of collisions along ferry lines; iii) raising awareness with the professional training for ferry crews; iv) summer school to use support decision making platform. **Supporting Activity CA2c & CA1a.**

¹ <http://interreg-maritime.eu/web/sicomarplus>

[2020,2021,2022] GIAS project² (EU cross-border Interreg Italy-France Maritime 2014-2020). Activities: i) developing a tool kit to monitor cetacean carcasses; ii) testing LIMPET tags to assess tag's reliability in particular tagging Cuvier's beaked whales. **Supporting Activity CA1b & CA1d.**

[2020,2021] EcoSTRIM project³ (EU cross-border Interreg Italy-France Maritime 2014-2020). Activities: i) reporting the list of commercial whale-watching activities; ii) implementing the High Quality Whale Watching® in Italy (Liguria, Tuscany, Sardinia); iii) promoting the High Quality Whale Watching® in Italy with Whale Risk and Tourist information panels; iv) developing the smartphone App ILogWhales (google store) to collect cetacean data for whale-watching reporting. **Supporting Activity CA2d.**

[2021] Assessing resilience of beaked whale populations to human impacts: acoustical study project. Office of Naval Research of the Department of the Navy of the United States of America. Activities: (i) deploying D-tags on Cuvier's beaked whales in the Ligurian Sea; (ii) recording acoustic environment of the Cuvier's beaked whale; (iii) assessing the reactions of Cuvier's beaked whale to noise. **Supporting Activity CA1b.**

[2020,2021,2022] Ziphius project. Main objective: evaluation of habitat use, home range analysis, abundance estimate, social structure, interactions with human activity (marine traffic). **Supporting Activity CA1b.**

- **Stranding activities**

Ongoing activities from the “Tavolo spiaggiamenti”, a task force established in the 2015 by coordination between the Ministry of the Environment and of the Health. The aim of the group of the experts is to support the two Ministries in relationship to the elaboration of guidelines, operational protocols and to the functioning of the National stranding network.

BANCA DATI SPIAGGIAMENTI (<http://mammiferimarini.unipv.it>) is monitoring stranding along the Italian coastline; an annual report on the stranding events is published once a year. Activities are related to the agreement (DPN/2008/28401) with the Italian Ministry of the Environment.

- **Conservation/Management activities**

Ministry of the Environment

PSSA - Submission to the International Maritime Organization (IMO) of a proposal for a Particularly Sensitive Sea Area PSSA . France, Italy, Monaco and Spain proposed at the 79th MEPC Committee to establish a Particularly Sensitive Sea Area (PSSA) in the North-Western Mediterranean Sea in order to reduce the risk of collisions between cetaceans. The TG agreed that the submission met the conditions and requirements of the revised PSSA guidelines (Resolution A.982 (24)). The TG agreed that there are factors relating to vessel traffic characteristics and natural conditions that result in the recognized attributes of the proposed area being vulnerable to damage from international shipping activities.

The associate measure submitted will be discussed in July 2023.

ISPRA – Tethys – CoNISMa ABIOMMED - SUPPORT COHERENT AND COORDINATED ASSESSMENT OF BIODIVERSITY AND MEASURES ACROSS MEDITERRANEAN FOR THE NEXT 6-YEAR CYCLE OF MSFD IMPLEMENTATION - Grant Agreement No 110661/2020/839620/SUB/ENV.C2. Call for proposals “DG ENV/MSFD2020”, MARINE STRATEGY FRAMEWORK DIRECTIVE: SUPPORT TO THE PREPARATION OF THE NEXT 6-YEAR CYCLE OF IMPLEMENTATION

² <http://interreg-maritime.eu/web/gias>

³ <http://interreg-maritime.eu/web/ecostrim>

The main purpose is to support the competent authorities of the Mediterranean, UNEP/MAP for a (sub) regional cooperation for the preparation of the next 6-year cycle of MSFD implementation through the marine strategies, by setting up working arrangements, meetings, workshops, experts platforms and synergies with other projects and initiatives and to ensure feedback from EU or UNEP/MAP relevant working and technical groups.

Activity 4 - Streamlining Descriptor's D1 selected criteria regarding **mammals species groups** (small toothed cetaceans, deep diving toothed cetaceans and baleen whales) towards coordinated monitoring and assessment in the Mediterranean (Lead: **ACCOBAMS**);

ISPRA - LIFE20 NAT/IT/001371 "CONservation of CEtaceans and Pelagic sea TUrtles in Med: Managing Actions for their Recovery In Sustainability". Monitoring activities from ferries in the southern Tyrrhenian Sea and replicated in the Adriatic and Eastern Ionian Sea aimed to study species distribution, citizen science. Several Partners are involved and these are: ISPRA, Area Marina Protetta "Capo Carbonara", CIMA Research Foundation, CMCC Climate, ÉcoOcéan Institut, Stazione Zoologica Anton Dohrn, Triton Research, Università degli Studi di Milano-Bicocca, Università degli Studi di Palermo, Universitat de València – UV, Università degli Studi di Torino. <https://www.lifeconceptu.eu/il-progetto/>

SICOMAR plus – P.C. Interreg Italia-Francia "Marittimo" started in 2018 ended on May 2021 was aimed to reinforce the security of the navigation by means of a new instrument and a surveillance network based on the integration of data from radar and satellite. Project is focused on the Pelagos Sanctuary area and is coordinated by several partners from **Toscana, Sardegna, Liguria, Corsica e PACA**.

- **Capacity building activities**

CIMA

Professional qualification course "*High Quality Whale-watching course*" in the framework of the EcoSTRIM project and in collaboration with ACCOBAMS. [2020: 16 participants]. **Supporting Activity CA2d.**

Professional qualification courses for WWF Skippers of *vele del panda* "*Buone pratiche per l'osservazione dei cetacei in mare*". **Supporting Activity CA2d.**

Professional qualification course "*Accompagnatore di Turismo Marino*"⁴ funded by Regione Liguria & EU FSE 2014-2020 organized and hold by the CIMA staff. [2021: 15 students]. **Supporting Activity CA2d.**

Professional qualification course "*SICOMAR plus - Web GIS Platforms for marine monitoring*" in the framework of the SICOMARplus. [2021: 33 participants].

Professional qualification course "*Navigazione commerciale e cetacei nel Santuario Pelagos*" in the framework of the SICOMARplus. [2021: 120 participants]. **Supporting Activity CA2c.**

Master's degree course – University of Genoa "*Cetologia e metodologie di monitoraggio dei cetacei – 107010*"⁵ organized and hold by the CIMA staff. [2021: 18 students]. **Supporting Activity CA4a.**

⁴ <https://www.cimafoundation.org/news/fondazioni/corso-di-formazione-per-accompagnatore-di-turismo-marino>

⁵ <https://corsi.unige.it/off.f/2021/ins/51834>

Master's degree course – University of Genoa “*Tecnologie innovative per il biomonitoraggio in ambiente marino – 107010*”⁶ organized and hold partially by the CIMA staff. [2022: 13 students]. **Supporting Activity CA4a.**

CETASMUS program⁷, a training experience of 2-6 months on methodologies for cetacean monitoring offered by CIMA. [2020-22: 22 partecipants from 7 countries]. **Supporting Activity CA4a.**

Capacity Buiding of the INRH staff in the framework of the Projet MAVA Déprédation “*Vers des solutions aux interactions entre communautés de pêcheurs et cétacés Pêcherie sardinière à la senne en Méditerranée marocaine*”. [2021: 10 participants]. **Supporting Activity CA2a**

○ **Public awareness activities**

CIMA

Italian TV show promoting the HQWW⁸

3000 copies of “whale risk”⁹ distributed to whale-watching operators, municipalities, tourist offices, schools, protected areas in the framework of the EcoSTRIM project.

13 totems for touristic information about the HQWW¹⁰ distributed in 10 municipalities in the framework of the EcoSTRIM project.

20 posters and video pill¹¹ to raise public awareness displayed on ferries and 10 posters for the crew displayed on the command deck in the framework of the SICOMARplus project.

The photographic exhibition with multimedia technology “Pinne in pillole: i cetacei si raccontano” during the Festival dell'acquasola. [2 days in May 2020].

Quiz and video pills “Chi Vuol Essere Marinaio”¹² during the Festival della Scienza organized by CIMA and ARPAL in the framework of the SICOMARplus project. [10 days in October 2021].

CIMA was invited by 10 classes of secondary and primary schools, kindergarten, Province of Savona and Genoa to introduce marine environmental issues and present the cetacean populations. [2020, 2022].

8 events to share the know-how on cetaceans:

- online, organized by a whale watching company of Genoa [2020]¹³
- online, organized by WWF Italia “Aperipelagos” [2020]¹⁴
- online, for the book presentation: “Scoglio storia di un capodoglio” di Davide Siri [2020]
- online, for the presentation of the documentary “Giganti del Mediterraneo” [2020]¹⁵

⁶ <https://corsi.unige.it/off.f/2021/ins/51835>

⁷ <https://www.cimafoundation.org/cetasmus-programme/cetasmus.html>

⁸ https://www.striscialanotizia.mediaset.it/video/whale-watching-cos-e-e-come-si-pratica_77151.shtml

⁹ <https://www.ligurianseatrails.com/whale-risk/>

¹⁰ www.ligurianseatrails.com/whale-watching-genova

¹¹ www.corsocetacei.it

¹² <http://interreg-maritime.eu/web/sicomarplus/-/pronti-per-salpare->

¹³ <https://www.facebook.com/GolfoParadisoWhaleWhatching/videos/337498907220393>

¹⁴ <https://sub.wwf.it/eventi/aperipelagos-20-luglio-il-whale-watching-e-limportanza-dellecoturismo>

¹⁵ <https://vimeo.com/497939246>

- in-presence, organized by Spotorno municipality [2020,2021]
- in-presence, organized by the Propeller Club Port of Savona [2022]¹⁶
- in-presence, organized by Marina di Loano [2022]

- **MONACO**

- **MOROCCO**

Projects already registered in NETCCOBAMS are: Bycatch project, Stranding network, Interaction program (negro project, Photo-ID & acoustic) and Whale Whatching-Pescatourisme project.

❖ **Bycatch project:**

- Achievement of the first and the second phase of the project Med Bycatch (2021 - 2022): *Understanding Mediterranean multi-taxa bycatch of vulnerable species and testing mitigation: a collaborative approach*. Indeed, monitoring was carried out, using an observation system on board commercial fishing vessels in the Mediterranean.
Our research was covered four important ports in the Moroccan Mediterranean coast, Tangier, M'diq, Nador and Al Hoceima and the diagnostic of data obtained shows that the occurrence of bycatch differs between species and fisheries.
 - The cetaceans are mostly caught as single individuals per fleet.
 - The elasmobranch taxa have the highest bycatch rate among the other kind of taxa and exceeds 0.29%.
 - The bycatch of sea turtles caught purse-seiners amounted to 0.006% of the catches.
- Participation of INRH researcher in training course on the identification and handling of vulnerable species bycaught in the Med & Black Sea, via zoom, 1-11 February 2022.

❖ **Stranding network:**

The monitoring of stranding is structured within INRH (National Institute of Fisheries Research) in a Stranding Monitoring Network (SMN) with representatives in all regional centers of the Institute, covering both Mediterranean and Atlantic coast of Morocco. The teams regularly work in close collaboration with representatives of public authorities, law enforcement agencies and civil society, whenever information is transmitted to them.

During 2021: a total of 175 individuals were recorded, of which 148 belonging to 16 species and 27 unidentified specimens (12 baleen whales and 25 dolphins).

During 2022: a total of 106 individuals were recorded and belonging to 8 species.

- Participation in national experts in the training on necropsies: The first phase of the training took place on line during the months of June, September, and October 2021 and following an evaluation, the practical phase of the training was conducted in Liège on March 22nd, 23rd, and 24th, 2022., 2022.
- Organization of the national workshop on methods of intervention on strandings and necropsy training, Tangier organization of the national workshop on methods of intervention on strandings and necropsy training Tangier, October 11- 12, 2022.

❖ **ASI :**

¹⁶ <https://marinadivarazze.it/santuario-pelagos-sinergie-e-collaborazione-per-la-tutela-dei-cetacei/>

- Participation in the workshop for the analysis of cetacean observation data collected during the ASI campaign, held from February 13th to 18th, 2022 in Monaco/Cap d'Ail. The objectives of this workshop were to jointly analyze the data collected during the ASI campaigns conducted in 2018, and to discuss local and sub-regional issues related to cetacean conservation.
- ❖ **5th Conference of Parties of ACCOBAMS**
 - Participation online in the 5th Conference of Parties of ACCOBAMS on Cetacean Conservation in the Mediterranean Southern Countries (CSM5): Presentation and submission of two scientific articles.
- ❖ **5th Meeting of ACCOBAMS National Representatives**
 - Participation online in the 5th Meeting of ACCOBAMS National Representatives. The objective of this meeting was to help prepare the work program for the upcoming triennium by identifying the priorities of each sub-region based on national priorities, and thereby improve the current conservation status of cetaceans and their habitats in the area covered by the Agreement. Following this meeting, questionnaires were completed in collaboration with the National focal point.
- ❖ **Interaction program**
 - The program encompasses two main axes which is part of the Negro project, the first is the continuous monitoring of the phenomenon of the interaction of bottlenose dolphins with the purse seiners, the second is the study of the abundance of bottlenose dolphins and other marine mammals through photo-identification.
 - Acquisition of acoustic equipment in 2022, for studying the behavior of bottlenose dolphins via Passive Acoustic Monitoring, as well as to test of dolphin's anti-depredation pingers.
 - Participation in training courses in photo-ID to the benefit of scientific team of INRH and which was coordinated by the ACCOBAMS in cooperation with the Secretariat of the GFCM (Morocco: January 2021, March 2022, May 2022, June and November 2022).
- ❖ **Whale Whatching-Pescatourisme project:**
 - A national committee has been set up for the implementation of this program
 - A legal text is currently in the process of consultation and validation between the various concerned departments.
- **PORTUGAL**

Projects coordinated by the University of Algarve and Center of Marine Sciences (CCMAR):

Project CetAMBICion (2021-2023): implementation of pilot trials in bottom set nets and purse seining fisheries to mitigate cetacean bycatch. This work falls within the Marine Strategy Framework Directive (MSFD) and the practical work finished in 2022.

Main objectives:

- 1) to propose coordinated measures to address cetacean bycatch and depredation through several pilot projects along the Algarve coast to assess the efficacy of bycatch reduction devices and procedures, including the use of pingers in purse seining (PS) and bottom set nets (GNS+GTR);
- 2) to collect information and share experience from previous pilot projects and relevant projects and propose common measures including space-time management measures.

Algarve Regional Stranding Network (RAA|g)

Ongoing work since 2020 on collecting samples and information from stranded cetaceans. This work falls within International Agreement Directives

Projects coordinated by the NGO "Associação para a Investigação do Meio Marinho" (AIMM):

Monitoring of cetaceans and other marine megafauna in the south coast of Portugal (long term study, ongoing since 2010)

Main objectives: constant monitoring survey of cetaceans in the South coast of Portugal. Consistent data on the abundance, distribution, occurrence, habitat use and behavior of several megafauna species (cetaceans, sharks and sea turtles) that inhabit the Algarve region. Data is also used to support the implementation of a regional MPA in the region.

Common dolphin project (long term study, ongoing since 2015)

Main objective: overcome the lack of knowledge regarding the short-beaked common dolphin species (*Delphinus delphis*) by understanding its social behavior and ecology. Acoustic behavior studies will start in the summer of 2023 (expected duration 5 years).

Bottlenose dolphin project (long term study, ongoing since 2015)

Main objective: monitoring population occurrence and size and modelling distribution of bottlenose dolphins (*Tursiops truncatus*) in the South coast of Portugal. Acoustic behavior studies since 2022 (expected duration 5 years).

Risso's dolphin project (long term study, ongoing since 2010)

Main objective: monitoring population occurrence and size and modelling distribution of Risso's dolphins (*Grampus griseus*) in the South coast of Portugal.

Social organization and behavior among large brained mammals: Maternal strategies as an evolution factor (long term study, ongoing since 2015)

Main objective: contribute to better understand the maternal strategies adopted by the different species of dolphins and an ultimate comparison between large brained mammals from different taxa. Additionally, knowledge gained about the nature of social relationships in large-brained, non-human species may yield insights into the evolution of cognitive and social complexity in humans. Target species: *Delphinus delphis* and *Tursiops truncatus*.

Eyes in the Sky Project (long term study, ongoing since 2016)

Main objective: Through the most recent technology, aerial information on cetaceans will be collected using an unmanned aerial vehicle (UAV), commonly known as a drone. These devices will be tested as a potential methodology for cetacean studies, mainly behavioral studies and collection of biological samples. Target species: all cetaceans' species with particular focus on *Delphinus delphis*, *Tursiops truncatus*, *Grampus griseus*, *Orcinus orca*, *Phocoena phocoena*, *Balaenoptera physalus* and *Balaenoptera acutorostrata*.

Whale-Watching Network. A whale-watching network was created since 2010, as a cooperative effort between whale-watching companies and AIMM. Therefore, each company of the network is provided every year with cetaceans' workshop including theoretical and practical components.

Main objective: educate all the skippers and guides on board the whale watching companies as well as the awareness for the good practices on board and at sea. Reinforcement of the whale watching guidelines for the activity. Current partners: 12 whale watching companies in the Algarve region.

Projects coordinated by the dolphin watch company “Mar Ilimitado”:

Cetacean Monitoring Project – Permanent long-term monitoring of cetacean occurrence, since 2005, in southwest Portugal. Boat surveys (opportunistic platforms) departing from Sagres, until c.a. 20km distance from the shore, involving all occurring species, including photo-ID in several species.

Project META (Marine mammal and Ecosystem: anthropogenic Threat Assessment), conducted between January 2020 and December 2022 funded by the Portuguese Republic through Fundo Azul, coordinated by the Madeira Whale Museum, with partners in the Azores (Institute of Marine Research), Lisbon (Instituto Gulbenkian de Ciência) and Sagres (Mar Ilimitado). The geographic area covers both Portuguese archipelagos, Madeira and Azores, and mainland Portugal.

Main objective: to study how human threats affect populations of resident cetaceans, to inform management. Specific objectives will characterize and define the distribution of human threats such as marine traffic, ambient noise and marine litter. Also, the potential changes induced by those threats within the studied resident cetacean population will be estimated through 1) studies on behavioral changes in their general distribution and individual movement and 2) physiological changes using three parameters: genetic health, contaminants and stress hormones. Finally, an evaluation of the socio-economy, evolution and carrying capacity of the whale watching activity was also conducted.

Projects coordinated by “Instituto da Conservação da Natureza e das Florestas” (ICNF):

Establishment of a carrying capacity for the whale watching activity in the Algarve region (started in 2022)

In December 2022 the ICNF published an edict suspending the attribution of new licences for whale-watching on the Algarve coast. This suspension will be in force until studies are conducted to establish a carrying capacity for the region, as well as to implement a system of granting cetacean watching licences by public tender.

Main objective: to regulate the whale-watching activity and minimise its impacts on the cetacean populations.

Coordination of the national stranding network (ongoing work since 1988).

- **SPAIN**

Ship survey monitoring program of Spanish Institute of Oceanography in the framework of the MSFD.

Marine Mammal group of the Oceanographic Center in Vigo (IEO-CSIC), Ministry for Ecological Transition and Demographic Challenge (2021-2022). Systematic collection of data on cetaceans, marine turtles, birds and debris, in the Sud Atlantic marine demarcation (ECOCADIZ and PELACO surveys), strait of Gibraltar and Alboran marine demarcation (MEDIAS survey) and levantino balear marine demarcation (MEDIAS survey). These data are being used to assess the Good Environmental Status assessment of these marine functional group in the framework of the MSFD.

SCANSIV survey. Ministry for Ecological Transition and Demographic Challenge (2022). As part of the SCANSIV survey the Sud Atlantic marine demarcation has been covered with airplane. The results of this survey are being analyzing to get abundance estimates of cetaceans. Additionally, data on marine turtles, birds and debris

has been collected. These data are being used to assess the Good Environmental Status assessment of these marine functional group in the framework of the MSFD.

Aerial survey and capture-mark-recapture monitoring programs in the framework of the MSFD. Ministry for Ecological Transition and Demographic Challenge (2022-2024). The main objective of these monitoring programs is to get information about abundance estimates of different management units in the Spanish Mediterranean Sea. Photo-id surveys have been started in 2022 for bottlenose dolphins, pilot whales, sperm whales, and orcas, and aerial survey will be carried out next July in strait of Gibraltar and Alboran and levantino balear marine demarcations. These data are being used to assess the Good Environmental Status assessment of these marine functional group in the framework of the MSFD.

Support coherent and coordinated assessment of biodiversity and measures across Mediterranean for the next 6-year cycle of MSFD implementation. Marine Mammal group of the Oceanographic Center in Vigo (IEO-CSIC), Ministry for Ecological Transition and Demographic Challenge (2021-2022). The main objective is to support the competent authorities of the Mediterranean region, as well as the UNEP/MAP for a (sub)regional cooperation for the preparation of the next 6-year cycle of MSFD implementation through the marine strategies. Spain has actively participated in the Cetacean expert working group created to work in Activity 4: Streamlining Descriptor's D1 selected criteria regarding mammal's species groups (small toothed cetaceans, deep diving toothed cetaceans and baleen whales) towards coordinated monitoring and assessment in the Mediterranean.

New Molecular and Remote Control Technologies for the Evaluation of Cetacean Populations. Spanish National Research Council (CSIC) and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2022). Main objective: Quantify the abundance of individuals in cetacean populations in the Noratlantic demarcation by measuring DNA in water samples (eDNA) and sighting of individuals using drones.

Assessment and main threats to cetacean populations in the southern Mediterranean Cetacean Migration Corridor. University of Valencia and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2021). Main objective: To evaluate the distribution and the main anthropic threats (marine traffic, interaction with fishing...) of cetacean populations in the southern area of the Marine Protected Area Mediterranean Cetacean Migration Corridor", in order to establish management measures.

Evaluation of the impact of fishing on marine biodiversity: an analysis of the dynamics of their food webs in the Natura 2000 Network in Spain. Autonomous University of Madrid and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2021). Main objective. To evaluate the impact of the different regional, state and European fishing policies on biodiversity and to model their impact on the dynamics of the food webs in the Natura 2000 Network areas.

Assessment of the population status of the pilot whale *Globicephala melas* in the Gulf of Vera and Eastern Alboran. Association of Southeastern Naturalists (ANSE) and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2022). Main objective: To evaluate the density and size of pilot whale (*Globicephala melas*) populations and other basic population parameters, such as survival rate, in the areas of the Alboran Sea and Gulf of Vera. For this purpose, we will carry out navigation campaigns spread over 2 years and we will analyze photographic stocks of ANSE sightings between the years 2010-2019.

Characterization of macro and microplastics in the marine food web of the Mediterranean Sea. University of Almeria and Biodiversity Foundation, Ministry of Ecological Transition and Demographic Challenge (2020-2021). Main objective: Analysis, quantification, and presence of microplastics and macroplastics in coastal areas and marine fauna. Measurements of microplastics and macroplastics concentrations were carried out in several Spanish beaches, as well as in the digestive tract of stranded and discarded fauna in fisheries to model the presence of plastics in the trophic dynamics of each environment. It was reviewed and compared with previous publications and reports.

Acoustic characterization of the Natura 2000 Network of Ibiza and Formentera: presence of bottlenose dolphins (*Tursiops truncatus*), underwater noise and its possible correlation. Tursiops Association and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2021). Main objective: Acoustic characterization of Ibiza and Formentera, to cover the entire area of distribution of the Pitiusas populations of the bottlenose dolphin (*Tursiops truncatus*). With the acoustic analysis of the files the presence of *Tursiops truncatus* will be described, the underwater noise of anthropogenic origin and the possible disturbance that this exerts on the species will be quantified. Through individual identification based on the signature whistles of the dolphins, temporal patterns of presence, movement and connectivity between areas will be determined.

Assessment of collision evidence in sperm whales by remote imaging. Tursiops Association and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2021-2024). Main objective: Detect, analyze and study the nature and ecological implications of collision marks in individual sperm whale (*Physeter macrocephalus*) populations in the Balearic Islands by means of area and underwater remote imaging. The areas with the highest risk of collision will be established, and surveys will be conducted to test the implications and awareness of the nautical sector on the subject.

Monitoring of the blue whale within the Natura 2000 network. Bottlenose Dolphin Research Institute (BDRI) Association and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2021). Main objective: The project aimed to monitor the migratory patterns, distribution and behavior of blue whale and fin whale species within the continental shelf and, in particular, within the Natura 2000 network. An area of 2,500 km² was covered along the continental shelf of the northwestern coast of the Iberian Peninsula. The results of this project have provided distribution maps for each of the different species observed in the study area that could be of great use for future coastal management plans and the creation of special areas for cetacean conservation.

SCARS: expanding the knowledge of the Risso's pilot whale in waters of the Levantine-Balearic demarcation. SUBMON (Conservation, study and awareness of the marine environment) and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2021). Main objective: To expand the knowledge about the individuals of Risso's dolphins (*Grampus griseus*) that inhabit the Levantine-Balearic demarcation in order to determine the distribution, abundance and seasonality, as well as to establish if there is connectivity between different areas of the Western Mediterranean. In this way, the results of the project will provide new data and help to determine and evaluate the conservation status of this species at national and international level. Additionally, data will be collected on all cetacean species detected, contributing knowledge and data to the Cetacean Migration Corridor that will help in the future management of the area.

Contribution to the development of tools for the Conservation of the Mediterranean Sperm Whale (CODA 3+1). Tursiops Association and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2020-2022). Main objective: Development of effective and consensual tools for the management

of the sperm whale and other deep diving species in the Mediterranean, assessing the possibility of raising the degree of protection of the Mediterranean sperm whale and developing a conservation plan for "deep diving cetaceans" specific to the Spanish Mediterranean.

Implementation of new techniques for monitoring habitats, species, presence of *T. truncatus* and anthropogenic noise in NR 2000: implications for management (Our Dolphins II). Tursiops Association and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2021-2022). Main objective: To study the correlation between the presence of dolphins and their mobility between RN2000 areas in relation to anthropogenic noise. Likewise, it is intended to determine the critical noise values that condition the presence of dolphins in order to base an effective management, taking into account in an additive way another parameter also affected by noise, the presence of prey.

The cape of fin whales: Study of the presence and origin of the fin whale on the shelf and slope of Cabo de Nao and Ibiza channel (Cabo Rorcual). Cabo Rorcual project led by prof Eduardo Belda (with the support of Underwater Acoustic group of the IEO) and funded by "Fundación Biodiversidad". The project was focused on the Fin Whale migration monitoring using land based visual sampling method, together with underwater acoustic monitoring. Several Passive acoustic recorders were deployed at different location across Spanish mediterranean coast (e.g Garraf coast, Seco de los Olivos and Denia's coast among others). In addition a satellital tagging activities were also carried out, achieving the tracking of Fin Whale individual during almost 7 days.

Assessment of bottlenose dolphin and fisheries interactions in southern and southeastern marine protected areas for an integrated management ANSE and Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2019-2021). Main objective: Determine the interactions between bottlenose dolphins (*Tursiops truncatus*) and fishing activities in marine protected areas and adjacent waters, using different methodologies to obtain data on the same problem. It will take advantage of the network of contacts already established in the Pleamar 2018 CDMAPAMP project between ANSE and the fishermen's associations and the artisanal fishermen themselves.

Campaigns for the declaration of RN2000 areas for the presence of species included in the Directiva Habitats (turtles, cetaceans and birds). LIFE INTEMARES Project, Ministry for Ecological Transition and Demographic Challenge (2021). Main objective: to carry out campaigns for the declaration of areas in the RN2000 due to the presence of species included in the Habitats Directive (turtles, cetaceans and birds) and the design of two proposals for areas to be declared in the study area, as well as the proposal of measures for the future preparation of their management plans.

Elaboration of conservation plans for mysticete, deep-diving cetaceans and small dolphins in Spain. LIFE INTEMARES Project, Ministry for Ecological Transition and Demographic Challenge (2022). Main objective: Assessment of the conservation plan for deep-diving cetaceans present in Spanish waters, mysticetes and the conservation plan for small cetaceans present in Spanish waters. The following points are addressed; ecology of the species, diagnosis of their current situation, threatening or limiting factors, legal status, priority and secondary conservation actions, proposals for critical areas.

Actions aimed at proposing measures to promote the reduction of sperm whale collisions with boats in the Balearic archipelago. LIFE INTEMARES Project, Ministry for Ecological Transition and Demographic Challenge (2021-2024). Main objective: To elaborate a proposal of measures to facilitate the minimization of sperm whale collision episodes with boats and a pilot project will be carried out to test those measures that are considered most effective, in order to determine their degree of success, also using photo-identification of sperm whales in the study area, taking samples for genetic analysis for sexing and identification of

subpopulations of origin and satellite tagging of at least 10 individuals to study their distribution patterns. A passive acoustic monitoring campaign in the Mallorca channel, Ibiza channel and other sensitive areas for the species in order to define the seasonal pattern of sperm whale presence and thus be able to establish the spatial-temporal coincidence of boats and cetaceans. Elaborate a proposal of measures to facilitate the minimization of sperm whale collision episodes with vessels and a pilot project will be carried out to test those measures that are considered most effective, in order to determine their degree of success.

Reinforcement actions for the establishment of the variation network. identification of the causes of mortality of protected species and sample analysis. Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2021-present). Main objective: Collection of biometric data, sampling and other actions in accordance with the protocols to be established, and transfer to a recovery center for care and treatment in the case of strandings. Sending or transfer of samples to reference laboratories identified by the DGBBD for analysis and determination of the causes of mortality.

Recreational whale watching activity (AROC) Biodiversity Foundation, Ministry for Ecological Transition and Demographic Challenge (2021-present). Main objective: Compilation of companies engaged in the recreational activity of whale watching (AROC), verification of the administrative authorization to carry out the activity, information on the regulation of the activity and the measures for the protection of cetaceans.

"Life PortSounds Project; its main objective is to reduce the impact of underwater noise on the marine environment of the Port of Cartagena. To achieve this aim, the project has the following specific objectives:

Identification and characterisation of underwater noise sources; Mapping and assessment of the impact of underwater noise on biodiversity, by monitoring the abundance, distribution and physiological state of three cetacean species, bottlenose dolphin (*Tursiops truncatus*), striped dolphin (*Stenella coeruleoalba*) and long-finned pilot whale (*Globicephala melas*), catalogued as species of Community interest in the annexes of the EU Habitats Directive; Development and implementation of noise mitigation measures; Creation of governance mechanisms (technical working group) to agree and assess the mitigation measures needed to prevent the impact of underwater noise in marine ecosystems; and Assessment of the feasibility and transfer potential of applying the project's mitigation measures and the noise management tool to other Port Authorities.

This a consortium composed by: CTN (Asociación Centro Tecnológico Naval y del Mar), UPCT (Universidad Politécnica de Cartagena), UPV (Univesitat politécnica de Valencia) and port Authority of Cartagena.

- **TUNISIA**

Major issue(s) or main threats or "hot" topics that have emerged during the said period for the Region:
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- **ALGERIA**
 - The lack of data and scientific works on cetacean

- **FRANCE**

- **ITALY**
 - **Noise pollution**

Tethys – CSR - By performing boat-based visual-acoustic surveys, Tethys – CSR project provided evidence of loud underwater sounds emissions, recorded in the Italian waters, to the Pelagos Secretariat and the coordinator of the Pelagos IMPACT Working Group, Caterina Fortuna. The information provided was integrated

into a report produced in 2022 by IMPACT WG on MEDITERRANEAN CUVIER'S BEAKED WHALES AND IMPULSIVE UNDERWATER NOISE.

○ **SHIP STRIKES**

The CSR summer monitoring activity conducted in 2021 and 2022 allowed to collect of further photographic images to assess collision marks on fin and sperm whales' live individuals. All the material collected until 2019 is reported in the [Proposal to develop and evaluate mitigation strategies to reduce the risk of ship strikes to Fin and Sperm Whales in the Pelagos Sanctuary](#).

SPERM WHALE SOCIAL UNIT: Changes in sperm whale group size composition have been observed in the period of interest. Particularly, four sightings of sperm whale social units of females with calves and juveniles were collected in the CSR study area during the 2021 and 2022 summer field seasons. In addition, one sighting of a sperm whale social unit was recorded by the RPAS in 2022. Sightings were made over an average depth of 2,000 meters in an area affected by intense maritime traffic (A poster on this topic was presented at the last European Cetacean Society Conference: Lanfredi, C., De Santis, V. Raineri, R. Jahoda, M., and Airoidi, S. New insights into sperm whale social units presence in the western Ligurian Sea (NW Mediterranean Sea) 34th European Cetacean Society, O Grove, Galiza Aprile 2023).

PATHOGENS: The occurrence of the protozoan parasite, bacterial communities, organic pollutants, and heavy metals was investigated by the Department of the Sciences of Agriculture, Food, Natural Resources, and Engineering (DAFNE), University of Foggia in fecal samples collected within the CSR project. Out of four fecal samples investigated, two from fin whales and one from sperm whales were found positive for *Blastocystis* sp. A higher number of sequences related to *Synergistetes* and *Spirochaetes* were found in sperm whales if compared with fin whales. Moreover, As, Co and Hg were found exclusively in sperm whale fecal samples, while Pb was found only in fin whale fecal samples. The concentration of both PAH and PCB was always below the limit of detection. This is the first report in which these opportunistic pathogens, bacteria, and chemical pollutants have been investigated in fecal samples of free-ranging whale species and the first record of *Blastocystis* in fin and sperm whales (see [Marangi et al., 2021](#)).

The TursioMed + InterMed data shared on the Intercet platform were used to map the diversity of species in the Med Sea. The results show that cetacean diversity, in the context of the Mediterranean basin, is generally quite low when compared with the eastern Atlantic, as few species (striped dolphin, bottlenose dolphin, fin whale, sperm whale) dominate over all the others. However, some areas, such as the Alboran Sea or the north-western Mediterranean Sea, which includes the Pelagos Sanctuary, show higher levels of diversity and should be considered hotspots to be preserved. Primary production and seabed profile seem to be the two main drivers influencing the presence and distribution of cetaceans. However, climate changes could lead to a decrease of primary production, especially in the northern portion of the basin, causing a downward trend in the Mediterranean cetacean diversity over time.

As the MSFD lack of synergy with EU Countries

○ **MARINE LITTER (ML) AND MICROPLASTICS (MPs)**

The Mediterranean Sea is home to an exceptional diversity of habitats and species. The IUCN has designated the region as a biodiversity hotspot, because of its rich biodiversity and its threatened status, including multiple anthropogenic stressors such as marine litter (ML) and microplastics (MPs). Due to the multiple sources of pollution and different environmental compartments to be monitored, it is essential to develop a harmonized methodology approach to detect the impact of ML and MPs at basin scale to preserve Mediterranean cetacean

species. Together, exposomics and molecular endpoint analysis can provide insights on the toxicological effects on the pathways modulated by xenobiotics exposure, and applied as a powerful tool for discriminating the impact of cumulative stressors, including emerging chemicals and microplastics, on cetaceans inhabiting this fragile and highly anthropized ecosystem.

- **MONACO**

- **MOROCCO**

- **PORTUGAL**

- **Bycatch**

Off the Portuguese southern coast (Algarve), the gears of most concern for interactions with cetaceans are gillnets and purse seine nets. Gillnets have a problem dealing with depredation from bottlenose dolphins that may lead to substantial gear damage and catch loss. Also, gillnets have a bycatch impact not directly observed with onboard observers but shown through strandings. Fishing effort of bottom set nets is difficult to access has this type of gears are included in a multi-gear fishery hampering the calculation of real bycatch rates.

On the other hand, the common dolphin is the cetacean species interacting the most with the Portuguese purse seine fishery, with annual incidental bycatch casualties mostly when the fishery targets sardine, *Sardina pilchardus*, found to be the favorite prey of the dolphins.

Concerning cetacean strandings, bycatch is the main cause of death of the stranded animals. About 50-60 % of the animals die from interaction with fisheries in the southern Portuguese region. Species of concern are the common dolphin, bottlenose dolphin and minke whale. The most problematic fisheries are most likely bottom set nets and purse seine nets.

- **Whale watching**

The continuous increase in the number of applications for whale watching licenses has led to a considerable increase in the disturbance to which the most coastal species are subjected, particularly during the summer months. The establishment of a carrying capacity, together with an awareness campaign specially directed towards recreational boating is therefore urgent.

- **SPAIN**

Ship strikes by Fast Ferry. Consideration is being given to reducing the speed at which ferries enter the ports, or at critical areas, or extending the port areas where a reduced speed is already in place.

Interactions between killer whales and sailing boats. Several individuals of an endangered subpopulation of killer whales in the Iberian Peninsula started to show disturbing behaviour in 2020: the animals engaged in interactions with boats. Most of the interactions occurred with sailing boats, but interactions with fishing boats, semi-rigid boats and motorboats were also recorded. The animals bumped, pushed and turned the boats. In some cases, these interactions caused damage to the stern of the vessel, mainly to its fragile parts. A total of 239 interactions have been recorded up to October 2021, mainly between the waters of the Strait of Gibraltar and Galicia, including the coast of Portugal. Some interactions have also been recorded in Morocco

and France. A total of 14 individuals have been identified as being involved in interactions, the vast majority of which are juveniles and distributed in up to 4 interaction groups.

Most of the target vessels are medium-sized sailing vessels (<15m), with a paddle rudder, sailing at an average speed of 6 knots, both under sail and motor. Interactions occur throughout the year, with a higher concentration in the spring and summer months and at all times of the day and night (higher concentration of interactions in the midday hours).

The behaviour of killer whales when interacting with boats has not been identified as aggressive. One of their main motivations has been identified as competition with boats for speed. The origin of these interactions is unknown, but it is suspected that it could be a curious and playful behaviour, which could be self-induced or, on the other hand, it could be a behaviour triggered by an incident and therefore a precautionary behaviour. Some mitigation measures, such as a temporary ban on sailing vessels, were implemented when interactions intensified in certain areas of Galicia and in the Strait of Gibraltar.

Prevention work is being carried out by providing guidelines to users and interviews when an interaction occurs. Different projects are focused on gathering information and minimising these interactions. The monitoring of interactions will continue in 2022.

Interactions between recreational tuna fishing (popping fishing). In Bay of Algeciras (Strait of Gibraltar), interactions have been detected that produce alterations and damages in the common dolphin population with this recreational fishing modality. We are working with the Secretariat of Fisheries to apply measures to avoid affecting this population.

- **TUNISIA**

Recommendations / suggestions for Improvement of the conservation:

- **ALGERIA**

- Building capacity for scientist thanks to dedicated training.
- Organizing regional technical workshops concerning the methodology of protection and management of cetacean and their habitats.
- Developing more projects to improve the knowledge on cetacean biodiversity, distribution, threats and interaction with fisheries and other human activities.
- Encourage the regional cooperation specially between experts (the more experimented can advise the others)
- Increase awareness and information actions.
- Working on incentive measures to motivate the different stakeholders of cetacean's conservation and protection.
- Identifying the possible financial supports to implement the actions for the improvement of the conservation.

- **FRANCE**

- **ITALY**

- Marine Strategy Framework Directive is a binding Directive for the European Countries; the work of the Directive is based on a six year period in which Countries need to monitor the status of the environment and define associate measures to reach the Good environmental status (GES). As is well indicated by the decision [\(UE\) 2017/848](#) "Member States are required to cooperate at regional or subregional level". This aspect needs clearly to be strengthened as it has been recently suggested by a communication from the EU to all the

Member States. In the communication “*Bruxelles, 4.4.2023 C (2023) 2203 final*” a series of recommendations are provided based on the Joint Research Center (JRC) analysis which take into consideration the data from the MSFD second cycle report. Taking into account the above-mentioned suggestion and considering the others Directive and international agreements it is crucial to increase the cooperation among Countries.

- Enhance a strong synergy between the national official research and monitoring activities carried out in respect to the International Agreements and Directives the ACCOBAMS LTMP and ASI 2.

The monitoring activity and data analyses carried out by FLT-Med Network show the importance of seasonal monitoring, to encompass potential seasonal habitat shifts and animal movements across areas and basins. Moreover, yearly differences in species presence and distribution suggest that data collected in a single year may not be representative of the species’ occurrence. This is even more true in a fast changing environment such as the Mediterranean Sea under the pressure of climate change. Thus, it is suggested to enhance monitoring programmes with adequate spatial and temporal resolution, and cost-effective approaches able to give continuous year-round data and that can endure over time.

Support international coordination for the harmonization of all the phases of the information chain, from data collection, data management and data analysis; enhance studies using metrics able to deal with uncertainty (e.g., integrated heterogeneous data).

Enhance coordination and networking with other international initiatives. Among these, the Life CONCEPTU MARIS specifically aims at supporting the art. 11 and 17 of the Habitat Directive to improve knowledge of cetaceans especially in high sea areas, identify important areas for the species, risk areas/season for the impact of maritime traffic and marine litter, and support the identification of appropriate and effective mitigation strategies.

The last PAM Workshop held at ECS (17th of April, 2023) highlighted the need of an harmonization of guidelines for Impact Assessment on cetaceans of wind farm construction/operation among EU Members States and ACCOBAMS Countries.

- **NOISE** - following the recommendation reported in the IMPACT WG: establishing a higher level of protection for species vulnerable to underwater sounds emissions, about the use of adverse types of impulsive noise within and outside the Sanctuary, in line with the suggested ACCOBAMS approach of a 90 km buffer zone around the Cuvier’s beaked whale habitat; and engaging with relevant NATO bodies and national military representatives in discussing this issue and adopting strategies to minimize risks for this highly sensitive species.
- **SHIP STRIKES** – following the ACCOBAMS (2022) Draft Resolution 8.18 “Ship Strikes”: encouraging researchers, scientific institutions, and partner organizations engaged in the development of real-time cetacean localization projects, which are designed to be used as complementary tools in avoiding ship strikes, to share and report their findings.
- **SPERM WHALE SOCIAL UNIT** - Concerns are rising about the threats (such as the risk of collision with vessels) the sperm whale social units are subjected to. Therefore, further effort is needed to verify the persistence of the social units with females and immatures in the area and to confirm if a shift in sperm whale social unit distribution and habitat use is occurring. However, the vulnerability of these fragile individuals should be taken into consideration within the ACCOBAMS (2022) Draft Resolution 8.18 “Ship Strikes” https://accobams.org/wp-content/uploads/2022/09/MOP8_DraftRes8.18_Ship-strikes.pdf

PATHOGENS: Mediterranean fin and sperm whale subpopulations are exposed to anthropogenic pressure. The relevance of these findings and the need for constant surveillance of marine mammals to prevent transmission of pathogens to humans and vice versa, and exposure to chemical pollutants must be emphasized.

- **Climate change** - Further research efforts are needed to predict the effect of upcoming climate change on cetacean populations in the Mediterranean context.

- **MARINE LITTER (ML) AND MICROPLASTICS (MPs)** - The proposed harmonized methodology could be proposed for supporting the further development of MSFD TGML and the Barcelona Convention IMAP related protocols. The following recommendation are proposed:

- (1) Harmonize/standardized protocols for the analysis of microplastics in stranded organisms and share knowledge, facilities and samples for a multidisciplinary analysis (e.g. diet and pathogens);

- (2) Define the actual threat to organisms and to identify the most threatened species and hot spot areas according to specific season, habitat use and species in ACCOBAMS waters;

- (3) To define new methods to evaluate the exposure to plastics and plastic additives in free-ranging organisms, which includes plastic-associated contaminants and biological responses (including omics techniques);

- (4) To evaluate the presence and effects of micro and nanoscale plastics, including sub-lethal effects which can affect population in critical areas, and integrate data to understand the cumulative stress to cetaceans (ranging from contaminants of emerging concern to climate change);

- (5) To enhance awareness raising communicating to other scientists, young people and other citizens, stakeholders and policy makers.

- **MONACO**

- **MOROCCO**

- ❖ Concerning Bycatch, additional researches will be required to accurate knowledge of Bycatch quantities, fully understand of fisheries practices and achieves target for bycatch-reduction. Our study highlights, also, the importance of collaborating with fishermen, fisheries authorities and stakeholders.

- ❖ Morocco has expressed its interest in training sessions for scientists on the intervention of strandings (carcass examination and necropsies), observation and monitoring of cetaceans (acoustic and visual methods), as well as supporting projects related to the evaluation of underwater noise.

- **PORTUGAL**

Bycatch / Depredation

Trials with dolphin acoustic deterrent devices (DDD and DiD, STM products, Italy) have been carried under the framework of projects iNOVPESCA (2018-2021) and the ongoing CetAMBICion (2021-2023) to reduce the conflicts for bottom set nets and purse seining. Mitigation has been successful in both fisheries. Conflicts in the bottom set fishery occur mostly in gears targeting hake and mullets. Depredation by bottlenose dolphins was significantly reduced in tested gill-nets in about 50 % and bycatch rates also reduced. In the purse seine fishery, the bycatch of common dolphins was 100 % reduced.

The use of deterrent devices in the bottom set net fishery is questionable as the size of the fleet is large which could bring ecological and environmental concerns related to under water noise and habitat exclusion. As such, the use of the devices should occur under defined circumstances (e.g. specific areas, gears with specific target

species and at a seasonal basis), moreover, they are an economical challenge to the sector which is very artisanal.

In the purse seine fishery, using DDDs seems to be a promising mitigation measure to reduce cetacean bycatch and also economically viable as only 1 alarm is used in the scheme.

- **SPAIN**

- **Implement specific training on cetaceans in marine training courses.** A module on cetacean interaction information should be included in the training so that professionals are more aware and apply the measures established in the legislation.
- **Conduct awareness campaigns for ferry personnel.**
- **Increase surveillance to ensure compliance with current legislation.** In addition to increasing the surveillance carried out from the sea, we are going to study the possibility of also carrying out surveillance from land at those points where it is possible and necessary.
- **Underwater noise reduction.** It is proposed that newly built vessels be fitted with a noise reduction and propeller protection system.
- **Interaction of killer whales with sailboats.** Proposed that sailboats be fitted with a small motor to be operated in areas of killer whale interaction to deter killer whales. No interactions with motorized boats have been seen, so this possibility is being studied.
- **Creation of cetacean rescue groups in case of stranding or entanglement.** Specialized professionals to solve this type of problem quickly and efficiently.
- **Creation of a collision working group.** This group could develop a protocol for alerting boaters who are at risk of collision and record all the data.
- **Advance in the studies of the effects of offshore wind on cetaceans.** Experiences in other countries and studies in pilot installations and on our coasts.
- **Design of APP for navigators with information on the presence of cetaceans to avoid interactions.**
- **Strengthen enforcement of the International Convention for the Prevention of Pollution from Ships (MARPOL) to minimise damage to cetaceans from marine litter**

- **TUNISIA**