REPORT OF THE SCIENTIFIC COMMITTEE AND ITS WORKING GROUPS

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I. EXECUTIVE SUMMARY (by the SC Chair & the SC Vice-Chair)

The 'ACCOBAMS Survey Initiative' - ASI - a basin-wide survey to estimate cetacean density and abundance has been now completed. A final technical online workshop was organized by the ACCOBAMS Secretariat, where participants had the opportunity to discuss and present a list of conservation recommendations stemming from ASI results. A detailed document has been prepared, with the final goal to establish a Long-Term Monitoring Program (LTMP) to facilitate regular and systematic basin-wide survey with shared research and logistic protocols. Effort has also been devoted to planning an ASI Special Issue to be published in Frontiers of Marine Science. Ideally, most of the scientists involved in ASI would access the dedicated online platform and consider submitting a manuscript, considering how this Special Issue will be important to disseminate results, proposed conservation actions and recommendations of the ASI and CeNoBS projects. The deadline for receiving manuscripts has been set to the end of 2022 and a few contributions have been submitted, covering different aspects of the ASI.
The ASI results have also allowed further effort to elucidate cetacean population structure within the ACCOBAMS area, facilitating the reassessment, under the **IUCN Red List** criteria, of all species occurring in the ACCOBAMS region, including those which were listed as Data Deficient and those which had not been previously assessed. The final results of this effort, carried out in cooperation with the IUCN Office in Malaga and the Red List Authority are 3 subspecies assessed in the Black Sea, all three belonging to a threatened status. 13 subpopulations of 9 species have been assessed for the Mediterranean Sea: 10 are threatened, 1 is Near Threatened and 2 are Least Concern. The new Red List assessments have been published on the IUCN Red List portal in December 2021.

Chemical pollution, as well as the presence of **plastic debris** throughout the Basin, still represents a substantial source of concern for cetaceans in the Agreement area, with macro, micro and nano-plastics very high on the international agenda. Proposals from the SC to evaluate ways to remove plastics from the sea, together with a significant reduction of plastics coming from land have been discussed. Rather than collecting new data, the SC as well the ASI recommendation workshop stressed there is an urgent need to take concrete actions so to reduce the impact on cetacean populations.

In regard to **Cetacean captivity issues**, a reference document on Potential Semi-Enclosed Facilities in the ACCOBAMS Area has recently been produced. Concern for the welfare of cetaceans in captivity has increased, especially over the last decades, in line with concern for other animals in captive settings. Some dolphinaria are closing either because their facilities became obsolete and did not comply with legal requirements relating to the keeping of wild animals, or because of a decline in business and a shift in public opinion. Consequently, there is a lack of appropriate destinations for their dolphins. This document aims at contributing to the development of international standards for cetacean holding facilities related to the creation of marine semi-enclosed facilities for cetaceans, referred to as REFUGES (not "sanctuaries", to prevent any confusion with the "Pelagos Sanctuary", which has a completely different nature and goal) in the ACCOBAMS area. A Dolphin Refuge may be a valid option not only for dolphins currently in dolphinaria but also for stranded dolphins in need of prolonged rehabilitation. Moreover, the document proposes the creation for future consultancy of an Advisory Committee composed of experts in a variety of fields including ecology and behaviour of odontocetes, odontocete husbandry, veterinary medicine focused on marine mammals, strandings, rescue, captive rehabilitation and release techniques, public education and awareness.

Place-based and threat-based approach also played an important role over the last triennium, with reference to the ongoing process carried out by the IUCN Marine Mammal Protected Areas Task Force to identify Important Marine Mammal Areas (IMMAs) within the Mediterranean and Black Seas, and the ACCOBAMS effort to overlap existing maps of reference for the ACCOBAMS region of densities of cetaceans (from Mannocci et al., 2018 and ASI), taking into account IMMAs, with maps of human pressures to delineate **Cetaceans Critical Habitats**.

Eleven new **IMMAs** (Important Marine Mammal Area) are part of 14 new IMMAs for the marine mammals of the Black Sea, Turkish Straits System, and Caspian Sea, which were elaborated at the IMMA online regional workshop organized in February 2021 by the IUCN SSC-WCPA Marine Mammal Protected Areas Task Force. The workshop resulted in the identification of 23 new candidate Important Marine Mammal Areas (cIMMAs). Following an independent review, 14 IMMAs, one candidate IMMA (cIMMA) and 11 areas of interest (AoI) were approved.

II. REPORTS OF SC REGIONAL REPRESENTATIVES

1. Report on the conservation status of cetaceans and relevant activities in Western Mediterranean and contiguous Atlantic area

- Countries of the region: Algeria, France, Italy (Western coast), Monaco, Morocco, Portugal, Spain.

- Overview of activities in the Region in 2020-2022

Algeria: CNRDPA research officer attended several meetings and technical workshops;
Signature of a new operational network for monitoring cetacean strandings on the Algerian coast;
Adoption of the Draft National Monitoring Plan for Cetaceans along the Algerian coast.

France: Implementation of several projects aimed at 1) protection and sustainable management of bottlenose dolphins, 2) assessing the pressure of whale watching activities, 3) reducing ship strikes.

Italy: Project EcoSTRIM (establishment of guidelines for the labelling of tourist activities tourism and Implementation of the High Quality Whale-Watching® label in Italy)

Morocco: Implementation of several projects aimed at 1) developing a sustainable and well managed whale watching activity, 2) testing different measures aimed at reducing the interactions between cetaceans and fisheries; 3) reinforcement of the national stranding network;

Portugal: Implementation of several projects aimed at 1) monitoring of cetaceans, 2) monitoring and assessment of the potential impacts of whale watching in cetaceans; 3) evaluating the level of interactions of coastal artisanal fisheries and cetaceans and testing the use of acoustic alarms; 4) reinforcement of the national stranding network; 5) monitoring of the interactions between killer whales and sailing boats (together with Spain).

Spain: Implementation of several projects aimed at: 1) assessing the main threats to cetaceans in the Mediterranean Cetacean Migration Corridor; 2) reinforcement of the marine animal strandings network of the Valencian community; 3) MEDACES.

- Major issue(s) or main threats or "hot" topics that have emerged during the said period for the Region:

France: Awareness raising, and training of professionals has been made very complicated with COVID-19.

- Recommendations / suggestions for conservation Improvement

France: 1) Encourage and improve regional and cross-border cooperation on the issue of collisions and whale-watching in order to adopt a global and common strategy on the development of mitigation measures; 2) Encourage the sharing of experience and the capitalization of existing tools at regional level.

2. Report on the conservation status of cetaceans and relevant activities in Central Mediterranean

- Countries of the region: Albania, Croatia, Italy (Adriatic coast), Libya, Malta, Montenegro, Slovenia, Tunisia.

- Overview of activities in the Region in 2020-2022

Research in the region has been carried out via a number of approaches, including local boat-based photo-identification studies, land-based surveys, dedicated line-transect aerial surveys, surveys from passenger ferries, passive acoustic monitoring, biopsy sampling, strandings and post-mortem investigations, and the use of unmanned aircraft ("drones"), focusing on several regular species in this region. While some parts of the region are well studied, with good understanding of cetacean conservation status, large portions of the region remain poorly covered, with limited information on cetacean presence, abundance, status or threats. The northern part of the region is much better studied, with substantial information gaps from the southern portion of the region, where additional focused research and capacity building effort is needed. There is evidence that southern Mediterranean waters may contain important habitats for several species, including beaked whales.

New IUCN Red List assessments were published for cetacean species inhabiting the Mediterranean and Black Seas in 2021. All but two species in the region were listed into one of the threatened categories.

- Major issue(s) or main threats or "hot" topics that have emerged during the said period for the Region:

Main issues in the region are ongoing and well-known threats, including bycatch in fishing gear and other interactions between cetaceans and fisheries, disturbance from recreational boating, shipping and other sources of underwater noise, chemical pollutants and marine litter. Bycatch is a known issue for cetaceans in the region, but much needed robust estimates of bycatch are lacking. A noteworthy emerging issue of concern pertains to the increased incidence of marine litter originating from the personal protective equipment (PPE) and single-use plastics, both related to the COVID-19 pandemic. Finally, while the policy on paper largely appears adequate, a substantial lack of enforcement of ACCOBAMS provisions has been noted in several parts of the region and in relation to several types of threats.

- Recommendations / suggestions for conservation Improvement

- Capacity building is needed in some areas, to improve data collection and data analysis capabilities, in order to better inform conservation.
- Robust estimates of bycatch are needed, both regionally and across the Mediterranean basin.
- Better compliance and enforcement of ACCOBAMS provisions are needed in relation to several types of threats.

3. Report on the conservation status of cetaceans and relevant activities in Eastern Mediterranean

- Countries of the region: Cyprus, Egypt, Greece, Lebanon, Syria, Türkiye (Mediterranean coast).

- Overview of activities in the Region in 2020-2022

Cyprus: In 2019, submission of the Oceanid Marine area in the Natura 2000 sites under the Habitats Directive 92/43/EEC (SCI). The proposed area was adopted in the Natura 2000 areas in 2021 and it protects 12 species of the Nature Directives including bottlenose dolphin (*Tursiops truncates*). Moreover, the Department of Fisheries and Marine Research (DFMR) has implemented a Citizens science scheme to gather information on cetaceans. DFMR has created a mobile app called CY-FIS for the recording of Fishing Activities by professional and recreational fishermen, as well as other related activities for the purpose of managing fishery resources by the DFMR. Moreover, sightings of protected species can also be provided to the DFMR through the app. Cyprus also participated to the QUIETMED 2 project and the Quiet seas project.

Egypt: Participation to the 5th Conference on the Conservation of Cetaceans in the South Mediterranean Countries (CSMC5) that was held online from 13 to 15 April 2021.

Greece: Through a survey on the national cetaceans stranding networks in 2017/2018, data were provided to the ACCOBAMS permanent Secretariat. The data bank and tissue bank are available through the Pelagos Cetacean Research Institute. The country is working on the death origin, dynamic mapping, just spotted specimens, marine debris in necropsies and necropsies.

Lebanon: The country is trying to implement a tissue bank by collecting organs and tissues of stranded cetaceans. Every time a stranded animal is reported, a team from the National Centre for Marine Sciences intervene in order to perform the dissection, and therefore collecting organs and tissues. In addition, the National Centre for Marine Sciences (CNRS-L) hosted the 5th Conference on the Conservation of Cetaceans in the South Mediterranean Countries (CSMC5) that was held online from 13 to 15 April 2021. Experts, researchers and students from Lebanon participated to the conference.

Syria: Experts, researchers and students from Syria participated to the CSMC5.

Türkiye (Mediterranean coast): Organization of two scientific expeditions in Finike (Anaximander) Seamounts Special Environment Protected Area (SEPA)in May and September 2021, within the scope of protection and monitoring activities for Cetacea diversity. In addition, DMAD (Marine Mammals Research Association) has conducted research traditional visual surveys combined with passive acoustic monitoring between Marmaris and Anamur in the Levantine Sea since 2018 with ongoing survey effort, under the name of the project “Giant Guardians of The Deep Seas II”. Moreover, the project “Understanding Mediterranean multi-taxa 'bycatch' of vulnerable species and testing mitigation- a collaborative approach “(Bycatch project) took place in Türkiye which aims to support UNEP/MAP Barcelona Convention, and specifically the southern and eastern Mediterranean Contracting Parties (Morocco, Tunisia and Türkiye), to identify and test measures to reduce impact of fisheries on marine mammals, birds, turtles and elasmobranchs.

- Major issue(s) or main threats or “hot” topics that have emerged during the said period for the Region:

There are difficulties in implementing the Agreement in some regions for the following reasons:

- Lack of highly qualified personnel
- Lack of equipment
- Lack of adequate funding

- Difficulties in convincing public opinion of the interest of the agreement and conservation of cetaceans
- Episodically tense security situation not making it possible to carry out research and awareness-raising missions on a continuous basis

Moreover, Continuous oil and gas related activities (seismic surveys, drilling) in the region have been observed with no concrete mitigation and legislation in place (obligation to hire an MMO during their activities) at a national level in order to assure the monitoring and conservation of cetaceans.

- Recommendations / suggestions for conservation Improvement

Capacity building is needed in the region in order to improve the implementation of the agreement.

4. Report on the conservation status of cetaceans and relevant activities in Black Sea

- Countries of the region: Bulgaria, Georgia, Romania, Türkiye, Ukraine.

- Overview of activities in the Region in 2020-2022

The activities have undertaken for continuous data acquisition in link with comprehensive cetacean population estimate and distribution, habitat use, passive acoustic monitoring, bycatch monitoring and mitigation trial with pingers, establish tissue bank, microplastics, stranding networks and events for the three species inhabiting the Black Sea (*Delphinus delphis ponticus, Tursiops truncatus ponticus* and *Phocoena phocoena relicta*). The 11 new IMMAs (Important Marine Mammal Areas) are part of 14 new IMMAs for the marine mammals of the Black Sea, Turkish Straits System, and Caspian Sea, which were elaborated at the online regional workshop organized in 2021. The assessment of the status of the three Black Sea subspecies in the IUCN Red List has been updated and now in the review process.

- Major issue(s) or main threats or “hot” topics that have emerged during the said period for the Region:

The result of CeNoBS bycatch assessment (2021) showed that the bycatch of the harbor porpoise in the Black Sea exceeds the threshold for the sustainability of the population and poses a significant threat for this subspecies. The main tasks for the future activities are updating fleet and effort assessments, enhancing the bycatch reporting and observation coverage, mortality analysis, validation of data, elaborating background for time-space closure measures, and, most importantly, developing techniques for bycatch mitigation, with consideration of local specific features.

In spring-summer 2022, unusual increase of cetacean strandings and bycatches (mostly common dolphins and harbor porpoises) were observed on the coast of the Black Sea. In total, more than 600 deaths have been observed since the beginning of 2022 on the coasts of Bulgaria, Romania, Türkiye and Ukraine. The Russia’s war against Ukraine escalated in February 2022 puts the entire Black Sea basin under a huge threat. Military activities in the marine and coastal areas may affect the marine biota in the region, including cetaceans. All the experts in the Black Sea are trying to collect data and samples to find out the cause of these deaths in the Black Sea. Besides, in some areas, boat surveys have been difficult due to the potential danger posed by drifting mines.

- Recommendations / suggestions for conservation Improvement

The bycatch in turbot fishery and the high seasonal mortality of harbor porpoises, threatening the viability of the subspecies, it is of an urgent matter to refine and monitor estimates of porpoise abundance, population dynamics and bycatch level, as well as to develop measures to reduce bycatch.

III. REPORTS OF SC TASKS MANAGERS

In accordance with the core priorities of the 2020-2022 Working Programme, the Scientific Committee decided to designate the following Task Managers:

1. Species Conservation Management Plans

- Composition
  - Task Manager: Greg DONOVAN
  - Vice-Task Manager: Simone PANIGADA
  - Support Group: Ayaka Amaha OZTÜRK, Joan GONZALVO, Aurélie MOULINS and CMP coordinators.

- Overview of relevant activities on this topic during the 2020/2022 triennium

ACCOBAMS-MOP6/2016/Res.6.21 consolidated earlier work on specific conservation plans and endorsed the guidelines and process for developing Conservation Management Plans (CMPs) with an initial focus on Mediterranean fin whales and bottlenose dolphins. This approach was in accord with one developed by the IWC and the value of consistency of approach and jointly endorsed CMPs where appropriate was recognized. Subsequently, the Scientific Committee was asked to add Risso's dolphins and common dolphins in the Mediterranean to the development process.

CMPs aim to ensure the good long-term conservation status of a species in an area in light of human activities. They are living documents consolidating the best available scientific, conservation and management expertise to guide and co-ordinate effective management efforts amongst all stakeholders at the international, national level and local level. Work, although delayed by the Covid-situation has continued on all four species culminating recently (March 2022) in a workshop on CMPs for bottlenose dolphins and common dolphins. Considerable work was achieved, and special effort was and is being made to focus on ensuring consistency amongst species where appropriate especially when linking actions that may require similar expertise, personnel and resources. These four drafts are being revised and the next step is to hold a series of stakeholder workshops within the next two years using the drafts as the basis in order to finalize the first six-year iteration of each CMP and present the CMPs to the MOP in 2025 for endorsement and implementation. The CMPs will then be reviewed and revised regularly (about every 6 years) in the light of progress made.

The Scientific Committee has also recommended that work begins on CMPs for sperm and Cuvier's beaked whales in the Mediterranean Sea.

2. Interactions with Fisheries and aquaculture

- Composition
  - Task Manager: Joan GONZALVO
  - Vice-Task Manager: Souad LAMOUTI
  - Support Group: Members of the JBWG (Marina SEQUEIRA and Fiona READ have be added in the list of JBWG Members)

- Overview of relevant activities on this topic during the 2020/2022 triennium

The Task Manager (TM) reports the following activities:

1 – Participation at the Fourteenth Meeting of the Scientific Committee in Monaco (22-26 November 2021). A cetacean carcass, can provide valuable information, including evidence that could be used as reliable indicators of bycatch such as net marks, amputations, nets found in the stomach. However, no evaluation of the data collected by the stranding networks had been made in the ACCOBAMS area in order to assess bycatch levels. In 2021, a review of available data

on cetacean bycatch in national stranding databases and MEDACES was produced by Mr. Joan Gonzalvo and Mrs. Souad Lamouti, Task and Vice-Task Managers on Interactions with Fisheries of the ACCOBAMS Scientific Committee, respectively. This review aimed at collecting the available information on stranded cetaceans whose causes of death had been related to interactions with fishing gears, assess the methods used to determine the causes of death, and to identify the gaps to be covered in order to improve the future data collection. The resulting document was presented during the SC14.

2 – Depredation by cetaceans – when they partially or completely remove catches from fishing gear – is a growing cause for concern in several Mediterranean fisheries. The socio-economic impacts of damaged fishing gears and lost catches create conflicts between fishers and dolphins, undermining the conservation and sustainability efforts promoted by regional organizations such ACCOBAMS and the GFCM (General Fisheries Commission for the Mediterranean). The project 'Mitigating dolphin depredation in Mediterranean fisheries – Joining efforts for strengthening cetacean conservation and sustainable fisheries' (Depredation Project 2) is coordinated by ACCOBAMS and the GFCM, in collaboration with SPA/RAC and the LIFE platform. In the context of the project a standardized monitoring methodology of depredation impact has been developed, with a view to providing a harmonized framework to increase knowledge on depredation in the Mediterranean and the Black Sea. In this same context a Review of Available Information on Depredation by Cetaceans in Fishing Gears in the Mediterranean Sea, Black Sea, and Contiguous Atlantic Area has taken place also. At the moment of producing this report, these two resulting documents are going through the editing process and should be available shortly.

- <u>Recommendations / suggestions for conservation improvement</u>

Cetaceans Stranding Networks (CSNs) are an important source of data to determine cetacean causes of death, including bycatch events. Results of the review of available data on cetacean bycatch in stranding databases from the ACCOBAMS Area are to be shared with Parties and relevant organizations. The current situation of cetacean stranding monitoring varies greatly among countries. Some of them have well-established official national CSNs and keep databases encompassing either all or part of their coast, while others are highly depending on the enthusiasm of few individuals working largely independently with quite limited resources. CSNs vary widely based on the scientific requirements, political drivers, resources, infrastructure and personnel experience. A tiered approach to carcass triage allows investigations to be conducted at a number of levels, depending on the resources, facilities or experience of the stranding network. Whilst an ideal 'gold standard' around a thorough and detailed post-mortem investigation conducted by well-resourced and experienced veterinary pathologists is desirable, it is not often the case. The tiered approach offers a framework for data collection and interpretation appropriate and optimized to the resources available. Making sure that all CSNs are able to conduct their examinations up to Tier 3 level (postmortem examination with diagnostic aims, which can allow to determine the role of the fishery interaction in the death of the animal) should be considered a high priority.

The protocol "Dolphin depredation in Mediterranean and Black Sea fisheries: Methodology for data collection" aims to support regional monitoring programmes and provide a framework for the development and implementation of an efficient, standardized data collection and monitoring system for depredation events. The collection of these data should offer a harmonized basis of knowledge, information and evidence for following decision-making.

3. Marine litter & chemical and biological pollution

- Composition
  - Task Manager: Cristina FOSSI
  - Vice-Task Manager: Céline MAHFOUZ
  - Support Group: Tilen GENOV, Pine PIERANTONIO

The Task Manager (TM) reports a series of strategic activities that involved the participants of the TM and the Support Group, on the specific issue of Marine litter & chemical and biological pollution in the 2020/2022 triennium:
1 – Participation to the last SC (SC14, 2021). During the meeting several discussions were undertaken among the participants and among the members of the support Group on the topic of impact of Marine Litter and Chemical Pollution. In detail the task Manager, Cristina Fossi, presented documents she had jointly developed, in this specific topic, with Cristina Panti. The TM summarize the ongoing study on interaction hotspots between cetaceans and marine litter in the ACCOBAMS Area as in ACCOBAMS-SC14/2021/Doc30. The document describes interactions between cetaceans and marine litter (ML) in the ACCOBAMS area, identifying hotspots and risk areas. The document reviews the global dimension of marine litter, and then it focuses on the Mediterranean Sea and contiguous areas, as well as the sources and driving forces of ML distribution in the ACCOBAMS area. Regarding the bibliographical research on ML interaction with cetaceans (including both ingestion and entanglement), from the 10 peer-reviewed papers available for the ACCOBAMS area, sperm whale appears to be both the most studied and the most affected species.
The Task Manager also described a bibliographic review on the impact of chemical pollution on cetaceans, including the identification of *ad hoc* research projects aimed at assessing chemical pollution on cetaceans in the ACCOBAMS Area, as reflected in ACCOBAMS-SC14/2021/Doc31. Globally, as apex predators with long life spans, cetaceans are particularly sensitive to contaminants, in particular heavy metals, PCBs, PBDEs, DDTs, and emerging pollutants such as Plastic Additives. About 60 papers were identified as analyzing the contaminants load and interaction with cetacean species in the Mediterranean area revealed that the striped dolphin is the most investigated species, and that PCBs are the most measured contaminants so far. Identification of *ad hoc* research projects aimed at assessing chemical pollution on cetaceans in the ACCOBAMS area has also been performed, pointing out the reduced number of *ad hoc* projects on this topic in the area.
During the SC the TM in agreement with Support Group identified a draft of best practices Guidelines to assess chemical pollution impact on cetaceans to measure chemical contamination levels on cetaceans (ACCOBAMS-SC14/2021/Doc32). The document further provides protocols to measure chemical contamination of cetaceans in ACCOBAMS area. Concerning stranded organisms, relevant information has been integrated from the Joint ACCOBAMS and ASCOBANS document “Best practice on cetacean postmortem investigation and tissue sampling” (Lonneke L. IJsseldijk, Andrew C. Brownlow, Sandro Mazzariol, 2019). Standardized protocols for the examination of free-ranging organisms relevant information has been integrated by the “Marine Mammals Ecotoxicology” book edited by Fossi and Panti (2018). A scheme and workflow description will be shared amongst ACCOBAMS Parties in order to provide a useful toolkit both for sampling and the different ecotoxicological analysis.
2- The SPA/RAC Representative, suggested the importance of this topic and that both studies results be shared with MED POL – the UNEP/MAP Programme for the Assessment and Control of Marine Pollution in the Mediterranean - for its consideration, in particular to complement the work carried out in the definition of IMAP Candidate Indicator 24 “Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds, and marine turtles”.
3- The TM underline the synergies between the ASI initiative and the Med-Interreg project Plastic Busters MPAs, and other initiatives. A risk assessment methodology will be used to define the Cetaceans risk assessment, related to hotspot ML areas (in the Pelagos Sanctuary as a key study area) using ASI data in a collaborative endeavor between UNISI, IFREMER and LaMMA Consortium. An inventory of available projects, both finished and ongoing, will also help identifying research needs, as well as current research actions in this field.

4- The IWC Scientific Committee (Greg Donovan communication) has developed two valuable tools related to chemical pollution and cetaceans. The first on the Effects of Pollutants on Cetacean Populations (SPoC) Model3, a web application allowing users to explore those potential effects through simulating the effect of polychlorinated biphenyls (PCBs) on potential population growth through (a) maternal PCBs, and likelihood of calf survival, and (b) on immune function and host resistance. The second tool is a Contaminant Mapping Tool4 that displays published data on concentration of persistent organic pollutants (POPs) and mercury in cetacean tissues, on a global scale. It allows researchers to explore visually concentrations trends of commonly monitored contaminants over time.
5 -The Task Manager and representatives of the Support Group participated at the Intersessional Workshop Pollution 2025 Cumulative Effects and Multiple Stressors (2021) The workshop will review: (i) Relevant studies on new information on cumulative effects and multiple stressors; (ii) Approaches to analyze and identify the causes of these effects, the mechanisms of the stressor's action and the interaction between stressors and the organism. (iii) New methods available for assessing cumulative effects of multiple stressors. (iv) Cumulative effects at the population level. (v) Case studies on specific species and populations and the transferability of the approaches to other species and populations.
The Task Manager participated at several online meetings of the Ad hoc Group of Experts for Marine Litter and chemical pollution at Mediterranean level and at global scale.

- <u>Recommendations / suggestions for conservation improvement</u>

Several recommendations and suggestions on this topic come from the activities of the SC14 and are summarized below:

a) **Marine Litter**

1. Given the particularly high levels of marine litter in all ecological compartments of the ACCOBAMS area and the overlap with distribution and habitat of several cetacean species shown by inter alia the results from the ASI and EU projects, and given the recognized deleterious effects of marine litter ingestion and, the last Scientific Committee strongly urges that all competent organizations on pollution issues (e.g., EU, Barcelona Convention, IMO) urgently improve and enforce their management measures regarding land- and ship-related pollution; there is no need to wait for additional information on cetaceans before taking mitigation action.
2. The Group in agreement with the SC suggest to: (a) work towards a global agreement on plastics, targeting both land- and sea-based sources of plastic pollution and the whole life cycle of plastics; and (b) engage all levels of stakeholders from producers, users to decision-makers to implement actions which can contribute to address plastic litter at source and stop plastics entering the Mediterranean, Black Sea and contiguous areas and to facilitate collaboration among science and policy to tackle marine litter issues.
3. In order to improve our knowledge of marine litter and cetaceans, the Scientific Committee: (a) encourages the undertaking of postmortem investigations according to the best practice guidelines (IJsseldijk, Brownlow, and Mazzariol, 2019, see the Recommendation 14.4 on Cetacean Stranding Networks) and supports • collective scientific efforts on the development of standardized methods to detect the occurrence and effects of marine litter (including microplastics) in cetacean species and • the use of standardized formats to report results across the ACCOBAMS area in synergy with existing frameworks (e.g., MSFD and IMAP indicators, GESAMP) and relevant MEAs (e.g., the Barcelona Convention, CMS, IWC, etc.) that request periodic reporting from postmortem investigations; (b) supports the identification of hot-spot areas for marine litter accumulation and, through modelling of exposure to plastic ingestion and entanglement, identify the threat to cetacean species occurring in those areas to design targeted mitigation measures; and (c) proposes cetacean species as indicators of marine litter in the ACCOBAMS area, in particular focusing the attention on deep-diving species for macro-litter (e.g., sperm whale and Cuvier's beaked whale) and filter feeders for micro-plastic (fin whale).

b) **Chemical pollution** - Given the high occurrence and concentrations of legacy and emerging in the Mediterranean Sea and Black Sea and given that the chemical contamination is detrimental for cetacean health since it can induce

negative effects on the immune, nervous and reproductive systems of cetaceans, the Group in agreement with the SC recommends: (a) the development of a transboundary health monitoring network for stranded and free-swimming cetaceans in the ACCOBAMS area – this could also facilitate the development of a common database of data on diseases and chemical burdens and cooperation among existing tissue banks to share tissues and data and contribute such data for the assessment of the "Favorable Conservation Status" of marine mammals under the EU Habitats Directive and equivalent national/regional legislation; (b) the development of an inventory of the institutions or laboratories within the ACCOBAMS area that are willing to receive and analyze samples for legacy and emerging pollutants from those institutions which do not have appropriate facilities and expertise; (c) that existing measures for the mitigation of toxicological contamination in the ACCOBAMS area should be enforced e.g., through full compliance by member states with the Stockholm Convention; and (d) future attention should focus on the assessment of cumulative effects and multiple stressors (including chemicals, marine litter, climate change, and emerging pathogens) on cetaceans in the ACCOBAMS Areas, including new techniques (such as -omics techniques, epigenetics and lab-on-chip), taking advantage of consideration of recommendations (once available) from the IWC intersessional Workshop on Pollution 2025 cumulative effects and multiple stressors" (November 2021).

4. Protected Areas for Cetaceans

- Composition
  - Task Manager: Léa DAVID
  - Vice-Task Manager: Loriane MENDEZ
  - Support Group: Simone PANIGADA, Joan GONZALVO, Souad LAMOUTI, Tilen GENOV, Aurélie MOULINS, Vasileios PETROPOULOS, Costanza FAVILLI

- Overview of relevant activities on this topic during the triennium 2020/2022

The task manager gathered existing layers of data, followed and improved the technical process to obtain Cetacean Critical Habitats on two case studies (i) large cetacean species *versus* large commercial vessels, on one hand, and (ii) small delphinids *versus* fishery activities, on the other.

Those results were presented and limits, questions, gaps were discussed with scientists and experts during several workshops:

1) Before and during the ASI technical workshop (online, June 2021), maps of pressure, obtained with the data on human activities collected during the ASI aerial survey and other sources, were compared. Discussion followed on how to obtain representative maps of human activities at sea that are not automatically registered geographically, as sailing vessel or small fisher boats.
2) The CCH process and first results were presented during the MedPan forum and discussion about linking EBSAS and other identification processes of important areas at the Mediterranean scale were discussed (November 2021, Monaco)
3) The case study on large cetacean species *versus* large commercial vessels, helping to identify risk areas for ship strikes, were presented during two workshops on the possible designation of a PSSA in the north-western Mediterranean Sea (Paris, October 2021 and Rome, December 2021)
4) A dedicated workshop was realized in March 2022 in Monaco, after the Terms of Reference were agreed by the 14th Scientific Committee meeting. For three days, members of the SC, experts in Geographic Information System, Conservation and colleagues from GFCM and MedPan discussed about how to fill gaps of knowledge, the best choices to frame the use of such maps and their interpretation, rules and decision about limits of polygons and buffer among other points.
5) Terms of Reference for the creation of a working group on data and maps for the CCH process was one of the outputs of the workshop

6) The CCH process and case studies were presented in a workshop on Marine Spatial Planning in the Mediterranean Sea (May 2022, Barcelona)

The task manager participated at several online meetings of the Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM) in the frame of the SPA/RAC.

- Recommendations / suggestions for improvement of the conservation

The Scientific Committee encouraged the continuation of the process towards developing representative maps of favorable habitat by species, taking into account information provided by IMMAs and anthropogenic pressure maps, as well as the information provided by ongoing projects in ACCOBAMS area, in order to define new CCHs, since it facilitates the development of adequate conservation and management measures in the region.

It encourages also the task manager to update document ACCOBAMS-MOP6/2016/**Doc35** (Evaluation of the effectiveness of place-based conservation for cetaceans in the ACCOBAMS Area a handbook).

IV. REPORTS BY THE CHAIRS OF THE WORKING GROUPS

1. Joint By-Catch Working Group

ACCOBAMS is also very active in assessing bycatch and depredation issues and has been joining efforts with SPA-RAC and GFCM within the framework of MAVA Bycatch Project. The ACCOBAMS-ASCOBANS Joint Bycatch Working Group organized the first meeting, which took place online during 10-12 February 2021 to exchange and share the experience between two agreement areas. More than 150 participants from 31 countries produced a series of recommendations on general aspects, monitoring and mitigation of bycatch. The publications of both bodies have been shared and updates on recent development regarding bycatch have been made.

In summer 2021 a review of available data on cetacean bycatch in national stranding databases was conducted. A questionnaire was distributed among 24 countries and a compiled questionnaire was received from 18 of them. The current situation of cetacean stranding monitoring varies significantly among countries. Some have well-established official national Cetacean Stranding Networks (CSNs) and maintain databases encompassing either all or part of their coast, while others are less structured and operate with limited resources. This review showed that in many strandings the cause of death is not identified, which indicates that there is still substantial room for improvement. Training and funding were the most frequently claimed needs by those contributing to the review.

2. Joint Noise Working Group

The issue of **noise** has been high among the SC priority actions, in order to make sure that adequate attention is used when planning, *inter alia*, seismic or military activities, stressing the importance of conducting dedicated and rigorous Environmental Impact Assessments. The newly developed on-line **platform NETCCOBAMS** has been thoroughly revised, with online tools to map cetacean habitats and potential threats, such as noise hotspots and traffic data, through AIS signal processing.

3. Working Group on Ship Strikes

Ship strikes have also been addressed and mitigation measures suggested. The existing collaboration with the International Whaling Commission and the effort to gather information on ship strikes globally has facilitated the identification of high-risk areas within the Mediterranean Sea. ACCOBAMS is joining international effort to further develop and support the process for the designation of a PSSA at a scale that includes the North-West Mediterranean Sea, Slope and Canyon IMMA, plus the Eastern portion of the Pelagos Sanctuary and the Spanish corridor, to take into account whale population movements and distribution. Zoning within the area with ship strike mitigation tools (e.g., speed reduction and routing measures) could be proposed as part of Associated Protective Measures within the PSSA.

4. Working Group on MMO

The Working Group on ACCOBAMS HQMMO/PAM includes scientists, MMO/PAM professional and representants of Oil&Gas industries. Members met online, built a program of work in order to update and improve the training and associated tools in March 2021. Since then, revisions were made considering the format, the content, the definition, the evaluation, the forms. No training could be implemented, due to the COVID-crisis. A meeting with several members was realized in May 2022 to set up an online training course for professional MMO/PAM that are not certified by ACCOBAMS yet. Technical and financial aspects are still under discussion, limiting the deployment of such tool on the ACCOBAMS website until now. Work is ongoing in order to finalize the updates of the training tools, launch the online platform and link with other certification organism outside the Mediterranean Sea (e.g. JNCC).

5. Working Group on NETCCOBAMS

Terms of Reference were adopted during the 14th Scientific Committee meeting for the creation of a Working Group on NETCCOBAMS including scientists, managers, stakeholders and Parties. This group should be helpful for the definition of rules on how to use the online platform, in terms of data to upload until advice for conservation and uses of the outputs.

6. Working Group on semi-captivity "centers" in the ACCOBAMS Area

Mr. Joan Gonzalvo, the Chair of this WG, created during the Thirteen Meeting of ACCOBAMS the Scientific Committee (February 2020, Cap d'Ail, France), produced the reference document *"Potential Marine Semi-Enclosed Facilities" in the Accobams Area*, together with the updated overview of specimens held in captivity in the ACCOBAMS area, which was presented during the 14th Meeting of the ACCOBAMS Scientific Committee. This document aims solely at contributing to the development of international standards for cetacean holding facilities by providing a scientific point of view on the following matters related to the creation of marine semi-enclosed facilities for cetaceans (i.e., *refuges*), in particular for odontocetes, in the ACCOBAMS area:

- Legal issues;
- ecology and behavior of odontocetes; their ecological and ethological requirements, e.g., in terms of space, depth, seasonal temperature range, water quality (salinity, purity), ambient noise, social structure, activity patterns;
- odontocete husbandry (e.g., food, medical care, handling, transportation);
- veterinary medicine focused on cetaceans;
- structural, functional and logistic aspects of the prospective hosting facility;
- ecological impact assessment of affected marine environments;
- economic assessment of the sustainability of the proposed project and the operational costs of the center, once established;
- development of educational, awareness and research potential offered by the facility;
- relationships with the main stakeholders: public administration, enforcement, human health issues, environmental issues, legal issues.

7. Whale Watching Working Group (WWWG)

The WWWG carried several activities in the period 2020-2021 aimed at testing the data collection system and at assessing the impacts of whale watching activities in the ACCOBAMS area. The group discussed and updated the proposal for data collection from commercial whale watching vessels that was submitted to the SC in 2014, as well as the list of species that was reviewed according to the geographical area considered. Tests were carried out in France and Italy and showed that trained and dedicated crew members can be a good choice for regular data collection by whale watching companies. In Italy, data collection was performed by using IlogWhales app developed within the framework of EcoSTRIM project.

An expert was recruited by the Secretariat to develop a study aimed at identifying hotspots of WW activities in the ACCOBAMS area, and to revise Guidelines for monitoring programs aimed at maximizing the chance of detecting potential adverse impacts of whale watching activities posed to individual cetaceans and populations.
The study aims at mapping potential pressures on cetacean populations that are targeted for whale watching activities throughout the ACCOBAMS area, and is being conducted in two phases. During Phase I, volunteer data compilers from each of 26 ACCOBAMS range countries were asked to provide metadata on the estimated number of commercial whale watching operators in their country, alongside with the number of ports or harbors from which commercial whale watching takes place, and whether or not legal frameworks are in place to regulate whale watching activity. During Phase II, countries that had reported some level of commercial whale watching activity were asked to provide detailed information on location, nature, frequency and duration of tours. This data is being compiled, analyzed and mapped to provide visual and quantitative depictions of comparable measures of the potential pressure that cetacean watching may exert on local cetacean populations.
The document 'Draft guidelines for the management of cetacean watching activities in the ACCOBAMS area' was presented (technically the document is an update to ACCOBAMS-COP6/2016/Doc37/Annex12/Res6.20, Annex 3) and the Whale Watching Working Group and ACCOBAMS Secretariat agreed that a more general document also containing management advice was required, and not just research aspects to detect impacts. As such, this new document includes background, strategies and tools, as well as recommendations related to nine broad areas which are relevant to regulate and manage cetacean watching:

- Measures to assess target populations and potential impacts of tourism, including the concept of 'carrying capacity'
- Monitoring and adaptive management
- Development of effective management teams (stakeholder involvement)
- Licensing or certification measures
- Measures to regulate approaches, frequency, length and type of exposure in encounters with cetaceans
- Monitoring and Enforcement
- Time/Area closures to provide additional protection
- Promoting education and awareness raising
- Whale watching as a platform of opportunity for scientific data collection.

The representative of CIMA Foundation informed on the EcoSTRIM project activities in support of the implementation of the High-Quality Whale-Watching® Certificate in Italy, in particular in Liguria, Tuscany and Sardinia. The project's outputs include:

- maps of commercial whale-watching operators in Liguria, Tuscany and Sardinia;
- training of whale-watching operators (face-to-face and online) to disseminate best practices;
- the kit "High Quality Whale-Watching®" with the "whale-risk" flag and a game of cards (https://www.liguria nseatrails.com/whale-risk) intended to raising awareness on cetacean conservation needs among young public;
- promotion of the High-Quality Whale-Watching® Certificate though a dedicated webpage, informative totems distributed to Ligurian coastal cities and a video of certified operators (https://www.liguria nseatrails.com);
- development of smartphone IlogWhales app based on ACCOBAMS form, available on https://play.google.com , in order to support cetacean data collection;
- compliance audit of High Quality Whale-Watching® certified companies;
- a new regional professional qualification for certified guided marine tours.

V. RECOMMENDATIONS ISSUED BY SC14

RECOMMENDATION 14.1 - THE ACCOBAMS LONG-TERM MONITORING PROGRAMME (LTMP)

1. Recognizing the great success of the ASI (and CeNoBS) projects in providing baseline abundance summer estimates for cetaceans in the ACCOBAMS region, the Scientific Committee **recommends** that the Parties endorse and fully commit to facilitating the implementation of the ACCOBAMS Long-Term Monitoring Programme (LTMP – see ACCOBAMS-SC14/2021/**Doc09**), that focuses primarily upon obtaining robust estimates of cetacean abundance and distribution (and identifying changes in these over time), as well as some other megafauna and human activities, in the context of providing advice on achievement of conservation and management objectives.

2. This programme is not only fundamental to the ability of the Parties to meet the stated objectives of ACCOBAMS but will also assist individual Parties to meet relevant national and international commitments. These may include the Barcelona Convention Ecosystem Approach/Integrated Monitoring and Assessment Programme (EcAp/IMAP), the EU Marine Strategy Framework Directive and the EU Habitats Directive. Given this fundamental importance of the LTMP, the Scientific Committee **recommends** that the Parties and the Secretariat begin immediately to establish a funding model/strategy for the LTMP (see discussion in ACCOBAMS-SC14/2021/**Doc10**).

3. The LTMP comprises several components (and see Fig. 1 at end) that will require development and updating over time by the Scientific Committee and/or the Permanent Secretariat. The Scientific Committee **recommends** the LTMP and its components below to the Parties and highlights the need for the Secretariat, in co-operation with the Scientific Committee, to review, consolidate and update the LTMP overview document (ACCOBAMS-SC14/2021/**Doc09**) at regular intervals, as well as each of its components.

COMPONENT 1. Development and implementation of a simulation framework to examine the performance of different future survey strategies (synoptic, regional/national)

4. The Scientific Committee **agrees** that it should work as expeditiously as possible with relevant modelling experts to develop a simulation framework to examine the ability of different survey strategies (including frequency and geographical extent) to obtain robust abundance estimates and detect trends (in abundance and distribution) and determine whether ACCOBAMS conservation objectives are being met. This framework should also be used to examine how and where vessels of opportunity (e.g., ferries – ACCOBAMS-SC14/2021/**Doc12**) and multidisciplinary surveys (see ACCOBAMS-SC14/2021/**Doc11**) can contribute to the LTMP. Ultimately, it will enable both the synoptic and regional/national based components of the LTMP (see Component 4) to be as effective and cost efficient as possible. The results of this work will also be valuable as input to any quantitative ACCOBAMS Risk Assessment framework that might be developed (e.g., by contributing to the simulation of feedback procedures to evaluate mitigation approaches).

COMPONENT 2. Undertaking periodic (preferably every six years, see Component 1) synoptic basin-wide surveys in the Mediterranean and Black Seas (cf the ASI) with a focus on abundance and trends

5. The Scientific Committee **agrees** that it should review, and update as necessary, the field and analytical protocols for basin-wide cetacean surveys (also including selected marine megafauna and human activity data) and to consider new developments of technology, survey design and methods to analyze data. It is recognized that this review is directly relevant to protocols for regional/national data collection and analyses (see Component 4). Especially in light of the experience gained during the ASI, the review will include consideration of:

(a) national and other management needs (e.g., reporting and data organization for other commitments, Risk Assessments, etc.) when designing strata to obtain abundance estimates;

(b) survey design, methods and analytical approaches that may better account for different habitat preferences/availability by species (e.g., coastal habitat for species such as bottlenose dolphins, acoustic methods for deep divers such as sperm and beaked whales);

(c) increased coverage in some regions (e.g., eastern Mediterranean) and consideration of ways to try to account for areas that might not be able to be covered for political/safety reasons (including consideration of use of vessels of opportunity and multidisciplinary surveys - ACCOBAMS-SC14/2021/**Doc11** and ACCOBAMS-SC14/2021/**Doc12**);

(d) field and analytical approaches that correct for availability and perception bias;

(e) improved training protocols/methods *inter alia* on species identification/school size (e.g., use of high speed/resolution cameras), general survey procedures and protocols, including the collection of selected data on other megafauna and selected human activities;

(f) appropriate incorporation of ship-based surveys, including acoustic and biopsy sampling components, that take into account *inter alia* identified needs in CMPs; and

(g) regular review of the use of new technology/AI data processing (e.g., unmanned vehicles such as drones - see ACCOBAMS-SC14/2021/**Doc13**) in the context of the LTMP whilst ensuring that long-term comparability of datasets is maintained.

COMPONENT 3. Development of an implementation protocol to address logistic, bureaucratic and funding issues surrounding regular basin-wide surveys

6. The logistical and other issues surrounding the implementation of ASI posed as much of a challenge to its success as the scientific issues and this is likely to be the case in the future. To minimise this, the Scientific Committee **recommends** that in cooperation with the Scientific Committee as needed, the Secretariat creates and regularly updates a protocol for administrative/logistic/bureaucratic activities related to undertaking basin-wide synoptic surveys based upon the experience gained from ASI**.** This will include preparing a long-term plan for ultimate approval by the Parties that will include a roadmap (e.g., see ACCOBAMS-SC14/2021/**Doc10**) and agreed procedures for:

(a) designating active and knowledgeable national officers/representatives to ensure that national administrative procedures are followed to facilitate *inter alia* obtaining necessary permits (e.g., research, aviation and ship permits, visas, insurance);

(b) maintaining a current list of information on any restrictions that might affect the survey design and logistics (e.g., areas, equipment and personnel);

(c) sharing the draft survey design (at least one year ahead of the surveys) with pilots and relevant national authorities to discuss possible improvements, difficulties and ways to overcome those difficulties;

(d) identifying appropriate research platforms (e.g., certification, insurance, endurance and visibility, crew with offshore experience and, for pilots, experience with flying at low altitudes, willingness to take part in the survey); and

(e) strategies for obtaining funding (see ACCOBAMS-SC14/2021/**Doc10**).

COMPONENT 4. Facilitating synergies of regional and national programmes with ASI (including methods, timing and frequency)

7. The Scientific Committee will integrate information from Components 1 and 2 to assist in updating advice on methods and protocols for smaller-scale regional and national existing and new programmes for the monitoring of abundance, distribution and trends, in the light of information that will be received from periodic basin-wide summer synoptic surveys.

8. The Scientific Committee **recommends** that Parties ensure that the relevant authorities share plans for their long-term national/sub regional cetacean monitoring programmes (including ongoing activities under the HD, MSFD and EcAp/IMAP) to facilitate synergy where possible and to ensure that that they use consistent methods endorsed by the Scientific Committee, wherever possible. They should ask the national coordinators to provide information on the design of such programmes (the Committee is willing to provide advice) and report their results to the Scientific Committee. The Committee will also assist in identifying synergies and potential collaborations in existing or proposed programmes.

9. In this regard, the Scientific Committee highlights the importance of (and its willingness to assist in) the following:

(a) investigating (in conjunction with Component 1) the use of vessels of opportunity and/or multidisciplinary cruises, as well as dedicated surveys, to provide information on:

- areas that may not be able to be surveyed in basin-wide surveys and for which few data even on presence absence, are available
- non-summer occurrence and
- 'local' trends in abundance/distribution; and
- areas where those platforms are already used for the collection of data on cetaceans and their habitat components;

(b) undertaking pilot studies when new techniques or vessels of opportunity are considered; and

(c) further consideration of the use of passive and active acoustic monitoring for specific areas and species e.g., sperm and Cuvier's beaked whales, in line with the ongoing monitoring plans, such as those under the MSFD and EcAp/IMAP, including the Eastern Basin.

COMPONENT 5. Data archiving, use and sharing

10. The Scientific Committee **stresses** the great long-term value of the ASI dataset and future data collected under the LTMP to ACCOBAMS and wider conservation efforts. Given the importance of properly archiving the data collected under ASI and the LTMP, and making its availability widespread for the benefit of the conservation science community, the Scientific Committee **recommends** that (in conjunction with the Scientific Committee) the Parties and the Secretariat:

(a) work to optimize data archiving and sharing, including ensuring the interoperability of ASI Data Sets with other relevant databases (e.g., NETCCOBAMS, EMODnet, IMAP Info System) and organizations for data exchange;

(b) ensure that the protocol for obtaining access to the ASI (and future) data includes a component that states that the outputs of any analyses using ASI (and future) data are made available to ACCOBAMS (with appropriate publication safeguards) so that

- the outputs can be used by the Scientific Committee to contribute to its ability to give the best scientific advice and
- the Secretariat can monitor the use and influence of the knowledge base to assist in illustrating the broader value of the ASI and to assist in improving the undertaking and data collection on future surveys as part of the ACCOBAMS LTMP;

(c) the Parties and the Secretariat work to identify ways to foster co-operation and partnerships between experts throughout the Agreement's range, including:

- increasing the visibility of ASI (and future) datasets and related results, encourage the widest use possible of existing analyses to contribute towards decision making on conservation matters (e.g., the PSSA proposal in the north-western Mediterranean Sea), as well as to encourage further analyses of ASI (and future) data to meet conservation and management needs at the cetacean and ecosystem level,

- provision of sufficient resources to make best use of ASI data throughout the ACCOBAMS area e.g., through financial support for mentorship schemes, training and joint publications,
- encouraging larger future participation in LTMP research and conservation activities, development of joint actions and working relationships between specialists and Parties' administrations in the context of the broad LTMP programme.

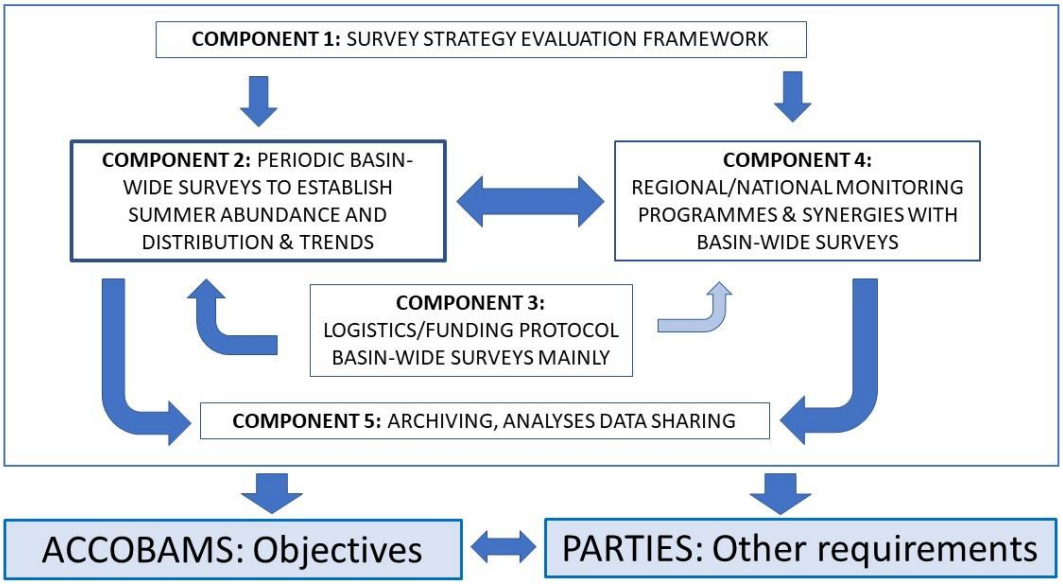

Fig.1 Schematic of the links amongst the five components of the LTMP

RECOMMENDATION 14.2 - IUCN RED LIST

1. The IUCN Red List[1] provides a simple way of classifying the status of species (or in some cases what it terms as 'sub-populations' or occasionally smaller units) into one of nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct.

2. All cetaceans regularly present within the Mediterranean and Black Seas have now been assessed or re-assessed since 2018 – those assessed in 2021 have been published on the Red List website in December 2021. Thus, the Scientific Committee has completed the work assigned to it in Resolution 6.15. This ambitious task was greatly assisted by the data from the ACCOBAMS Survey Initiative, as well as other data collected since the previous assessments in 2008-2011. A summary is provided below and in Table 1.

A. Conservation status improved since the last assessment

3. The status of two species in the Mediterranean Sea (the striped and common bottlenose dolphins) has improved from Vulnerable to Least Concern.

B. Conservation status remained unchanged

4. The status of the three Black Sea species[2] has remained the same (Vulnerable for the Black Sea common dolphin and Endangered for the Black Sea bottlenose dolphin and the Black Sea harbour porpoise), as has the status of Mediterranean sperm whales (Endangered) and Mediterranean common dolphins (Endangered), although for the latter the Alborán Sea is now excluded, and the subpopulation is called the inner Mediterranean.

C. Conservation status worsened

5. The status of the Mediterranean fin whale has worsened from Vulnerable to Endangered.

D. Conservation status assessed for the first time (including those that were originally Data Deficient)

6. Mediterranean rough-toothed dolphins have been assessed as Near Threatened. Mediterranean Cuvier's beaked whales were assessed in 2018 as Vulnerable – in 2006 they had been classified as Data Deficient. Risso's dolphins, assessed as Data Deficient in 2012, have now been assessed as Endangered.

7. In terms of smaller units, Mediterranean long-finned pilot whales are now considered two units - inner Mediterranean long-finned pilot whales are Endangered whilst those in the Strait of Gibraltar are Critically Endangered. Four smaller local units of other species have also been agreed and assessed: Gulf of Corinth common dolphins – Critically Endangered; Gulf of Ambracia common bottlenose dolphins - Critically Endangered; Gulf of Corinth striped dolphins – Endangered (in review); Strait of Gibraltar killer whales – Critically Endangered.

8. The Scientific Committee draws attention to the fact that throughout the Agreement Area, only two 'sub-populations' are considered of Least Concern. Despite the good work undertaken over the last 25 years, this highlights that considerably more work and efforts are needed for ACCOBAMS and its Parties to meet its conservation objectives. The Committee notes that there are four draft CMPs that are close to completion (see Recommendation 14.3 on CMP). It **recommends** that the draft CMP for common dolphins pays special attention to the Gulf of Corinth animals that have been newly designated 'Critically Endangered.

9. The Scientific Committee **reiterates** that numerous conservation measures have been developed and recommended by the Scientific Committee over the years and many of them have been endorsed and adopted by

[1] https://www.iucnredlist.org/

[2] At present these classifications are provisional as the assessments are under review by IUCN

the Parties in different Resolutions. Therefore, the priority objective **remains** for Parties to implement, comply with, and enforce these conservation actions towards a favourable conservation status of the species within the Agreement Area. Furthermore, Non-Party Range States are encouraged to make use of the recommended conservation actions developed within the ACCOBAMS framework.

10. The Committee **strongly urges Parties and Non-Parties** to pay particular attention to those 'sub-populations' that have been assessed as Critically Endangered (all small local units) and Endangered and to take appropriate conservation actions. As well as strongly supporting and implementing conservation actions in the relevant draft CMPs, many of the Critically Endangered and Endangered sub-populations do not yet have CMPs and it is not appropriate to wait until these can be developed before actions are taken.

Table 1- Summary of the 2018-21 assessments of cetaceans in the ACCOBAMS region.

Red List Classification
Critically Endangered
Common dolphins in the Gulf of Corinth
Common dolphins in the Gulf of Ambracia
Killer whales in the Strait of Gibraltar
Long-finned pilot whales in the Strait of Gibraltar
Endangered
Black Sea Bottlenose dolphins
Common dolphins in the inner Mediterranean
Fin whales in the Mediterranean
Black Sea Harbour porpoise
Long-finned pilot whales in the inner Mediterranean
Risso's dolphins in the Mediterranean
Sperm whales in the Mediterranean
Striped dolphins in the Gulf of Corinth
Vulnerable
Black Sea Common dolphin
Cuvier's beaked whales in the Mediterranean
Least concern
Bottlenose dolphins in the Mediterranean
Striped dolphins in the Mediterranean

RECOMMENDATION 14.3 - CONSERVATION MANAGEMENT PLANS (CMPs)

1. In accordance with ACCOBAMS Resolution 6.21, the Scientific Committee has devoted significant effort during the past triennium (2020-2022) to develop draft CMPs for Mediterranean fin whales, Risso's dolphins, common dolphins and bottlenose dolphins. Despite delays due to Covid-19, the drafts will be completed from the perspective of the Scientific Committee at a workshop in March 2022.

Some of the key components of CMPs include:

(a) support of national authorities;
(b) involvement of stakeholders;
(c) recognition that conservation management plans complement existing measures without replacing them;
(d) overview of present status of species;
(e) clear and achievable objectives;
(f) practical and prioritized mitigation and other actions;
(g) regular monitoring and reporting;
(h) clear governance structures to co-ordinate the engagement of key stakeholders.

2. The Committee **highlights** the importance of full-time CMP coordinators acting under the guidance of CMP Steering Groups that represent key stakeholders. The need for stakeholder workshops to finalise each CMP is an essential part of the process since reaching agreement amongst the primary stakeholders is key to the effectiveness of CMPs and the successful implementation of the actions.

3. The Scientific Committee **recommends** that Parties support the holding of such workshops, if possible before the 2022 MOP or soon after that. Participation should include relevant IGOs, especially the IWC who developed the CMP approach, local and national authorities, industry and NGOs.

4. The Scientific Committee recognises that whilst ideally there would be CMPs for all species and coherent units of the ACCOBAMS regions, priorities must be set. The Committee draws attention to recent IUCN Red List assessments in this context (Recommendation 14.2 on IUCN Red List). Based upon this, the Committee **recommends** that the Parties consider the following as species/populations that would benefit from CMPs for the coming triennium and **recommends** that the relevant range states consider proposing them through ACCOBAMS for the CMP process:

(a) *Mediterranean sperm whales*

These are considered as 'Endangered' in the Red List and the IWC Scientific Committee has recommended in 2020 and 2021 that these be treated as a 'priority population' for the purpose of the CMP development process. In addition to ship strikes, anthropogenic noise, and bycatch, it has been noted that sperm whales may be also particularly vulnerable to marine litter. The range states include Albania, Algeria, Cyprus, Egypt, France, Greece, Italy, Libya, Malta, Monaco, Morocco, Spain, Tunisia, Turkey.

(b) *Mediterranean Cuvier's beaked whales*

These are considered as 'Vulnerable' in the Red List and threats include anthropogenic noise, habitat degradation, chemical pollution, bycatch and ingestion of marine litter. Range states include Albania, Algeria, Croatia, Cyprus, France, Greec, Israel, Italy, Monaco, Montenegro, Morocco, Spain, and Turkey.

(c) *Black Sea cetaceans*

Harbour porpoises and bottlenose dolphins in the Black Sea are listed as 'Endangered' in the IUCN Red List, and common dolphins are considered as 'Vulnerable'. The Black Sea Commission (Sub-Regional Coordination Unit) recommended in 2021 to develop the updated Conservation Plan for Black Sea Cetaceans, as separate Conservation Plans for each of the three species. The threats include bycatch (particularly for the harbour porpoise), habitat degradation (including prey depletion), illegal takes of bottlenose dolphin from the wild to captivity and consequences of bio-invasions by alien species. Range states include Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine.

5. The Committee noted that the 2020-2022 ACCOBAMS Programme of Work (Resolution 7.6) also emphasised the need for improved data collection related to cetacean population genetics in the ACCOBAMS Area (and see discussion under Item 3.2.3). Where needed, draft CMPs can incorporate actions involving such data collection (including areas and methods), as well as incorporating the actions considered by the health monitoring network proposed under item 3.3.5.

RECOMMENDATION 14.4 - CETACEAN STRANDING NETWORKS (CSNS)

1. Cetacean Stranding Networks (CSNs) are recognized as an important source of complementing data on cetacean mortality, including bycatch events. CSNs vary widely based on the scientific requirements, political drivers, resources, infrastructure and personnel experience. A tiered approach to carcass triage allows investigations to be conducted at different levels, depending on the resources, facilities or experience of the stranding network and offers a framework for data collection and interpretation appropriate and optimized to the resources available. In a large number of cases analysed by the existing CSNs the cause of death could not be identified, which indicates that there is still room for expertise improvement.

2. The need for appropriate training and adequate funding are frequently reported as one of the main causes preventing the optimal functioning of a CSN. The use of new technologies increases the possibility of remote training, support and advice in case of cetacean strandings by using virtual reality and tele-necropsy. The Scientific Committee **recommends** that these approaches and technologies are tested in order to implement a continuous training programme, connecting experts with local scientists dealing with cetacean strandings, to ensure a standardized approach to post-mortem investigations, data collection, tissue sampling, and analyses.

3. The Scientific Committee also **encourages** further study using postmortem investigations on stranded animals by using dedicated diagnostic framework to assess bycatch mortality, such as the use of carcass drifting models.

4. The Scientific Committee **stresses** the need for improvement of data collection on cetacean population genetics and pathology and **recommends** capacity building effort in developing tissue banks and **encourages** further collaboration at a regional level between tissue banks to facilitate the exchanges of tissue samples for joint analyses.

RECOMMENDATION 14.5 - BYCATCH

1. The Scientific Committee **strongly reiterates** that bycatch in fishing gear is a widespread and significant threat to cetaceans across the Agreement Area, although robust estimates are lacking for most areas and the region as a whole. It is essential that an improved understanding of bycatch levels is developed as soon as possible. Together with the results of ASI, this will allow a better determination of bycatch rates and thus help determine the levels of bycatch reduction necessary to allow ACCOBAMS conservation objectives to be met.

2. Despite the need for better estimates, the Scientific Committee **urges** that mitigation efforts are intensified immediately throughout the region and especially in areas/populations identified as Critically Endangered or Endangered in the IUCN Red List (See Recommendation 14.2 on IUCN Red List).

3. The Scientific Committee **recognizes** that Cetaceans Stranding Networks (CSNs) are an important source of data to determine cetacean causes of death, including bycatch events. It **takes note** of the results of the review of available data on cetacean bycatch in stranding databases from the ACCOBAMS Area and **invites** the Secretariat to share these results with Parties and relevant organizations. It also **encourages** further studies investigating the use of stranding data to assess bycatch mortality, such as the use of carcass drifting models, whilst recognising that analyses of strandings data almost always underestimate bycatch to an unknown degree.

4. Mortality caused by ingestion of fishing gear related to depredation is also a cause of concern and studies on behaviour of animals during interactions with fisheries are important in the development of effective mitigation measures.

5. The Scientific Committee **endorses** the recommendations (https://accobams.org/wp-content/uploads/2021/09/SC14.Inf10_JBWG1-Recommendations.pdf) on monitoring and mitigation from the first Meeting of the ACCOBAMS-ASCOBANS Joint Bycatch Working Group organized in February 2021 and **urges** Parties to implement them as soon as possible.

The Black Sea

6. The Scientific Committee **expresses great concern** over the bycatch problem in the Black Sea. The results of the CeNoBS project (https://www.cenobs.eu/content/deliverables), including the aerial survey and the pilot study on bycatch in turbot nets, as well as those of other recent local surveys have, even under conservative assumptions, highlighted the significant link between turbot fishery bycatch and high seasonal mortality of harbour porpoises in the Black Sea, which threatens the viability of this subspecies. The Committee, therefore, **strongly recommends** that the relevant authorities implement as a matter of urgency continuous actions to develop and apply measures to reduce bycatch levels, improve mandatory monitoring schemes (e.g., those run under the EU Data Collection Framework) and make available official fishing effort data of turbot fishery.

7. In addition, the mandatory monitoring schemes and availability of reliable fishing effort referred to above will allow robust estimates of the fleet size and the total length of nets involved, enabling the refinement of estimates of total bycatch in the Black Sea. Cooperation with fishers and fisheries controlling authorities for enhancing the bycatch reporting will be crucial in this effort, as well as the overall bycatch monitoring by on-board observers, questionnaires to fishers and/or by other available technical means, such as Remote Electronic Monitoring (REM).

8. The Committee **stresses** that strong enforcement of existing laws and regulations is needed in the region to minimize IUU fishing.

9. Retrieval of bycaught animals from vessels should be encouraged by the relevant authorities in order to obtain biological data, including tissue samples, for a wide range of analyses to understand the status and demographic characteristics of the affected populations.

10. The Committee **encourages** further testing and development of bycatch mitigation measures in the Black Sea, accounting for specific local features (e.g., assessment of effectiveness of pingers specifically for the Black Sea porpoises). Without delaying the implementation of immediate mitigation actions (including the use of pingers which have been proven to be effective elsewhere for harbour porpoises), the potential long term negative effects of pingers, such as habituation and habitat exclusion, should be carefully considered, and an ecological and economical cost/benefit analysis should be carried out. Other potential mitigation measures should also be identified and tested in collaboration with fishers; spatial-temporal closure of fishing should be considered where other mitigation measures are not possible.

11. In conclusion, the Committee **urges** the ACCOBAMS Parties in the Black Sea to facilitate the creation of an Emergency Task Force with the full participation of the European Commission, ACCOBAMS Secretariat and the SC, GFCM and the Secretariat of the Black Sea Commission to identify and implement the best fishery management measures.

The Mediterranean Sea

12. The situation in the Mediterranean Sea also remains a cause for concern. The Scientific Committee **reiterates its concern** that the use of illegal driftnets for large pelagic species continue to cause mortality of several species of cetacean (in particular the Endangered sperm whale) and **recommends** that existing legislation related to the ban of such fishing gear be fully enforced by the Parties in the Mediterranean Sea.

13. The Scientific Committee **highlights** the need for urgent consideration of the upcoming (expected by mid-2022) results from the MedBycatch project that has been implemented in 5 Mediterranean countries since 2017 and includes more than 2 years multi-taxa (including cetacean) bycatch data collection and science-based bycatch mitigation trials. The MedBycatch has shown the value of onboard and questionnaire observer programmes to widely collect bycatch data, define the main bycatch interactions sources and help decision makers and scientists to design science-based multi-taxa bycatch mitigation measures including gear modification, spatial-temporal measures, and legal instruments.

14. The Scientific Committee also noted that to date, few models of pingers have been tested in Tunisia in the context of the MAVA Depredation project and **stresses** that more research is needed on the effectiveness of this mitigation tool in both the short- and the long-term basis.

15. Overall, the Scientific Committee **recommends** the continuation of such studies in the Mediterranean to monitor and assess bycatch and depredation to ensure that mitigation measures are working.

RECOMMENDATION 14.6 - NOISE

The Scientific Committee **reiterates** that anthropogenic noise pollution remains of significant concern within the ACCOBAMS region and **highlights** that the Black Sea has been poorly investigated in terms of underwater noise monitoring despite an increasing number of activities that produce underwater noise and the presence of acoustically sensitive resident species.

The Scientific Committee therefore:

1. **recognises** that the NETCCOBAMS online platform provides new information about the propagation of shipping noise in context to cetacean habitats - it uses the best available science on cetacean distribution and continuous anthropogenic noise propagation to determine areas of risk of adverse effects caused by such anthropogenic pressure;

2. **recognises** that the risk areas generated by ship noise are widely spread in respect to cetacean habitats and that this represents a major concern for cetacean conservation - these risk areas should be taken into account also in designing mitigation measures for ship strikes with large cetaceans to ensure that such measures do not increase noise on areas already at risk for deep divers;

3. **reiterates** the importance of stakeholder engagement in developing and implementing mitigation measures;

4. **expresses** concern over findings by the European Environment Agency (EEA) and the European Maritime Safety Agency (EMSA) in their 2021 European Maritime Transport Environmental Report (EMTER) that underwater noise levels have doubled within EU waters between 2014 and 2019;

5. **takes note** of the Draft Noise Hotspots Report II (ACCOBAMS-SC14/2021/**Doc21**) and recognises the need for additional data on impulsive noise generating activities to generate a more complete dataset;

6. **acknowledges** the work done to develop the methodology for computing the draft acoustic risk maps (ACCOBAMS-SC14/2021/**Doc23**) presented during the meeting which will provide, when completed, new insight on the extent of disturbance to cetaceans, and that such methodology is relevant for the CCH process;

7. **urges** Parties to avoid the introduction of potentially harmful impulsive noise, such as those produced by airguns, sparkers, active sonars within areas of importance for cetaceans such as the Pelagos Sanctuary, marine protected areas and IMMAs;

8. **asks** the Secretariat in conjunction with the Scientific Committee to:
   - **(a)** disseminate, when completed, the information on the NETCCOBAMS online platform on acoustic risk areas (see Recommendation 14.10 on NETCCOBAMS),
   - **(b)** remind the relevant stakeholders to implement Annex 1 “Action Plan resulting from the ACCOBAMS Workshop on sonars and cetacean interactions” of Resolution 7.13 on Anthropogenic Underwater Noise and approach the ASCOBANS Secretariat to explore the potential for joint outreach efforts to national navies and NATO to mitigate noise from military activities,
   - **(c)** develop joint projects/initiatives for simulating mitigation measures, such as speed reductions, and related benefits, with the aim of reducing the impact of noise on cetacean habitats.

9. **encourages** Parties to

(a) improve enhanced training of regulators on the appropriate application of the CMS Environmental Impact Assessments (EIAs) and ACCOBAMS Noise Guidelines prior to the approval of projects, including informing them of the willingness of the CMS and ACCOBAMS Secretariats to provide advice;

(b) engage in the ongoing process of "review of the 2014 IMO Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life (circular MEPC.1/Circ.833) (2014 Guidelines) and identification of next steps" and promote the evolution of the Guidelines status to foster improvement of their uptake by IMO Parties;

(c) promote the application of vessel speed reductions (e.g., slow steaming) as an operational measure that results in multi-environmental benefits, including the reduction of underwater noise and GHG emissions, as well as the risk of ships strikes, and to promote such measures in the context of the proposal of PSSA in the North-western Mediterranean;

(d) take note that the issue of underwater noise pollution from ships can only effectively be addressed through IMO measures and international cooperation, and that applying mandatory measures keeps a level playing field for the private sector;

(e) invite Port authorities to develop incentive programmes to encourage the monitoring of and reduction in underwater noise emissions, and to report regularly all activities generating noise to improve the mapping for Noise Hotspots Report (SC14.Doc21);

(f) engage in trials measuring the impact of speed reduction and other operational measures reducing underwater noise in their waters;

(g) mandate national responsible institutions to feed data on impulsive noise generating sources from the entire ACCOBAMS Area into the existing International Noise Registry managed by ACCOBAMS;

(h) mandate national responsible institutions to provide the necessary data to update risk maps and generate maps for the Black Sea by considering relevant target species, especially recalling Resolution 7.13 which foresees that noise hotspot maps shall be developed for the Black Sea, reflecting impulsive and continuous noise generating activities.

10. asks the JNWG:

(a) to provide final comments and inputs on the CMS document on Best Available Technology (BAT) and Best Environmental Practice (BET) for three noise sources: shipping, seismic airgun surveys, and pile driving[3];

(b) to produce a study on the effects of underwater noise generated by the foreseeable increase of wind farms in the ACCOBAMS area, addressing all the phases of wind farm from siting surveys to decommissioning

(c) to review the Draft Noise Hotspots Report II (ACCOBAMS-SC14/2021/**Doc21**) and to provide much needed additional information, including information about military exercises using active sonars and in particular to ask the Industrial Advisory Group to provide any relevant information about impulsive noise-generating activities in the Agreement Area since 2016;

(d) to examine the noise models available in NETCCOBAMS (see Recommendation 14.10 on NETCCOBAMS), also considering recent developments from EU MSFD-D11C2, in order to compare such noise model with available *in situ* anthropogenic noise recordings made in different points throughout the ACCOBAMS area and taking account the different sensitivities of different cetacean species.

[3] https://www.cms.int/sites/default/files/document/cms_cop13_inf.9_noise-bat-bep_e.pdf

RECOMMENDATION 14.7 - SHIP STRIKES

1. ACCOBAMS and the International Whaling Commission (IWC) have long recognized the problem of ship strikes, particularly of large whales such as fin and sperm whales and have been working together to develop a better understanding of the issue and to develop effective mitigation measures, *inter alia*, within the ACCOBAMS area. These concerns span the issues of conservation, animal welfare and human safety.

2. The Scientific Committee **recommends** that the ACCOBAMS Ship Strikes WG liaise with riparian nations and others to keep obtaining information concerning both cetaceans and vessel traffic, that will enable it to better identify areas for cetaceans (especially fin and sperm whales) where they are (or are potentially) susceptible to ship strikes (based upon models of risk that incorporate information on whale and vessel distribution and predictions of collision rates).

This shall be achieved by:

(a) reporting and mapping of vessel movements and shipping density at appropriate geographical scales, including estimates from vessels not required to transmit AIS signals;

(b) collaboration with maritime companies and vessel operators, involving both bottom-up (i.e. awareness, involvement) and top-down (i.e., regulatory) approaches;

(c) mapping the temporal and geographic distribution and abundance of cetaceans in relation to similar information on vessel traffic to identify potential higher risk areas;

(d) estimation of numbers of ship strikes including data:

- from stranding networks (including detailed necropsies);
- from photo-identification studies (photographs may contain evidence of non-lethal encounters with vessels);
- collected by the IWC ship strike database;
- obtained during campaigns at sea

(e) modelling exercises to assess the level of risk and potential conservation implications.

3. The work carried out by the SC and WG shall lead to the creation of a Mediterranean network, including ACCOBAMS Range States, ACCOBAMS Partners, the IWC, different research institutes, and concerned shipping companies to contribute to the central database on ship strikes developed by the IWC (https://iwc.int/ship-strikes), to facilitate information exchange and data sharing.

4. Key components of the work of the IWC and ACCOBAMS involve better communication with stakeholders (e.g., shipping companies), direct involvement of shipping in mitigation initiatives, and increased reporting of collision incidents via regional initiatives and especially the global ship strikes database. This will lead to an increased effort in this regard within the ACCOBAMS area.

Such efforts shall include:

(a) promotion of the issue and the importance of reporting via a number of *fora*, including specialist marine press;

(b) further evaluation and dissemination of information on mitigation approaches;

(c) foster the development of incentive systems to shipping companies adopting suggested mitigation measures;

(d) additional co-operation with the International Maritime Organization (IMO) (and its MEPC) both via IWC and CMS agreements, but also through initiatives with member states (the most appropriate mechanism for IMO action);

(e) improve the cooperation with the Pelagos Agreement in regard to the organisation and implementation of any initiative carried within the Pelagos Agreement Area;

(f) improved protocols for the identification of ship strikes via necropsies;

(g) investigation of incidences with regard to the nature of ship strike injuries within photo-identification studies (e.g., ship strikes project funded by the Pelagos Agreement);

(h) encourage studies that improve access to the temporal and spatial distribution of shipping, particularly vessels that do not transmit AIS information;

(i) encourage studies that improve our understanding of the temporal and spatial distribution of cetaceans within the region, including telemetry studies;

(j) encourage studies to develop and evaluate mitigation measures, incorporating inter alia results from (g) and (h) above, recognizing that appropriate measures will need to be specific to an area but that changes to shipping may also impact on other areas;

(k) capitalize results from ongoing and further projects addressing ship strikes (e.g., Sicomar plus and Life *conceptu maris*, with maps, collision risk assessment, webGIS implemented with AIS data and collaboration with shipping companies).

5. The SC **recognizes** the following High-Risk Areas, where ship strikes are common in the ACCOBAMS Region, and **recommends** that mitigation measures are implemented as a matter of urgency:

1. *Strait of Gibraltar - fin and sperm whales*
2. *Balearic Islands - fin and sperm whales*
3. *Balearic Basin and Catalan Coast – fin and sperm whales*
4. *Eastern Alborán Sea - fin and sperm whales*
5. *Pelagos Sanctuary - fin and sperm whales*
6. *Hellenic Trench, Greece - sperm whales*

6. Mitigation measures for ship strikes with fin whales have been discussed during dedicated IWC-ACCOBAMS workshops (Beaulieu sur Mer, 2010; Panama, 2014; Messinia, 2019), during which different recommendations were discussed and suggested. Measures that separate whales from vessels (or at least minimise co-occurrence) in space and time to the extent possible are the most effective, where this is possible (e.g., routing schemes). **Where routing to keep whales and vessels apart is not possible, the only demonstrated measure to reduce fatal collisions with most large whales is to reduce speed.**

7. The SC encourages researchers, scientific institutions and partner organizations, engaged in the development of real time cetacean localization projects, which are designed to be complementary tools in avoiding ship strikes, to share and report their findings. The SC encourages that the developed real-time systems are integrated to strengthen their efficiency.

8. Emphasis should also be placed on the collection and reporting of data to the IWC Global Ship Strikes Database which will both: (i) facilitate the proper evaluation, prioritisation and monitoring of ship strikes as a threat to various populations and regions; and (ii) assist in the development of mitigation measures.

9. The latest IWC-IUCN-ACCOBAMS workshop (Messinia, 2019) **recommends** that the following steps are undertaken as part of a process to identify High Risk Areas for Ship Strikes based on IMMAs:

(a) Traffic information (e.g., types of vessels, size, speed, flag, etc.): plotting major ship routes to see if they cross IMMAs which host significant or high-density populations of species that are threatened and/or vulnerable to ship strikes.

(b) Species information (e.g., relative abundance, status, animal behaviour/seasonality/key lifecycle use in and within IMMAs).

(c) Management and mitigation.

10. The SC **recommends** that the Parties further develop and support the process for the designation of a Particularly Sensitive Sea Area (PSSA) by IMO at a scale that includes the North-West Mediterranean Sea, Slope and Canyon

IMMA, plus the Eastern portion off the eastern border of the Pelagos Sanctuary and the Spanish corridor, to take into account whale population movements and distribution. Zoning within the area with ship strike mitigation tools (e.g., speed reduction and routing measures) could be proposed as part of Associated Protective Measures within the PSSA. The proposal should take into account the model on acoustic noise (based on AIS data) and risks for sperm whales and Cuvier's beaked whales in order to avoid designation of measures increasing the Cuvier's beaked whale's acoustic risk.

11. Co-operation with IMO, other IGOs, national authorities, the shipping industry, port authorities and the whale watching industry is essential if effective mitigation is to occur. For example, through the CCH process, launched by ACCOBAMS, overlapping ongoing and known human threats and Important Marine Mammal Areas (IMMAs). The Scientific Committee **recommends** that the Parties ask the Secretariat to increase communication with the relevant stakeholders and inform them of the willingness of the ACCOBAMS Scientific Committee and Ship Strikes WG to provide advice.

RECOMMENDATION 14.8 - COMMERCIAL WHALE WATCHING ACTIVITIES[4]

1. Over the past decade, the presence of a great diversity of cetaceans in the ACCOBAMS region has led to the development of high number of commercial whale watching operators.

2. When conducted responsibly, whale watching activities have the potential to generate income and livelihoods for coastal communities, as well as contribute to public awareness and better understanding on the presence and distribution of whales, dolphins and porpoises and, ultimately, their conservation needs. However, when the industry develops too fast, or operators engage in irresponsible practices, whale watching also has the potential to become a serious source of concern for wild cetacean populations that may already be suffering decreased fitness or population declines from bycatch, habitat degradation, climate change, and other threats.

3. Aware that ACCOBAMS Resolution 4.7 sets forth clear guidelines for commercial cetacean watching in the ACCOBAMS area, and Resolution 6.20, Annex 2, expands this advice by providing a detailed description of the standards associated with the High-Quality Whale Watching (HQWW)© Certificate, and the code of conduct operators must follow to obtain that label;

4. The ACCOBAMS Scientific Committee:

(a) In line with previous ACCOBAMS resolutions (Res. 4.7, Res. 6.20 and Res. 7.16) **reiterates** the need for legally enforceable whale watching regulations to be in place and fully implemented by all of the ACCOBAMS Parties.

(b) **Endorses** the new version of the *Guidelines for the Management of Cetacean Watching Activities in the ACCOBAMS area (*ACCOBAMS-SC14/2021/**Doc29)**.

(c) **Agrees** that the proposed data collection form for commercial whale watching vessels included as Annex 4 of Resolution 6.20 needs to be reviewed and updated.

(d) **Recommends** that the Whale Watching Working Group established in 2014 during the ninth meeting of the Scientific Committee continue its work and test the revised common procedure (data collection system) for whale watching activity in the previously identified pilot areas (Ligurian-Provençal Basin, including the Pelagos Sanctuary, Gibraltar Strait, and south Portugal).

(e) **Endorses** the results of the study aimed at identifying hotspots of Whale Watching activities in the ACCOBAMS area (ACCOBAMS-SC14/2021/**Doc28**).

(f) **Encourages** Parties to implement specific legislation (in accordance with ACCOBAMS Guidelines) to mitigate the potential pressure on cetacean populations in the identified whale watching hotspots.

(g) Further **encourages** Parties to promote the objectives of the European Green Deal and in particular the transition to reduce vessels' CO2 emissions and noise, in particular, amongst the whale watching operators.

(h) **Recommends** that the results of the work to be conducted on the hotspots will be used to complement the Cetacean Critical Habitats (CCH) process.

(i) **Recommends** that Parties implement and continue to promote and enhance the status of the **"**High Quality Whale-Watching®" Certificate in collaboration with the Pelagos Agreement and other relevant Intergovernmental Organisations and Multilateral Environmental Agreements within the Agreement Area (e.g., the Barcelona Convention, the Black Sea Commission and the International Whaling Commission).

[4] According to IWC Whale watching is a term that includes all cetaceans – whales, dolphins and porpoises- please refer to Parsons, E.C.M. & Fortuna, Caterina Maria & Ritter, Fabian & Rose, N.A. & Simmonds, Mark & Weinrich, Mason & Williams, R. & Panigada, S. (2006). Glossary of whale watching terms. Journal of Cetacean Research and Management. 8. 249-251

RECOMMENDATION 14.9 - MARINE LITTER AND CHEMICAL POLLUTION

Marine litter

1. Given the particularly high levels of marine litter in all ecological compartments of the ACCOBAMS area (sea-surface, water column, seafloor and coastal shores) and the overlap with distribution and habitat of several cetacean species shown by inter alia the results from the ASI , and given the recognized deleterious effects of marine litter ingestion and entanglement (and toxic effects) on wildlife welfare, biology and ecology, the Scientific Committee **strongly urges** that all competent organizations on pollution issues (e.g., EU, Barcelona Convention, IMO) urgently improve and enforce their management measures regarding land- and ship-related pollution; there is no need to wait for additional information on cetaceans before taking mitigation action

2. In this regard the Scientific Committee also **urges** Parties to:

(a) work towards a global agreement on plastics, targeting both land- and sea-based sources of plastic pollution and the whole life cycle of plastics; and

(b) engage all levels of stakeholders from producers, users to decision-makers to implement actions which can contribute to address plastic litter at source and stop plastics entering the Mediterranean, Black Sea and contiguous areas and to facilitate collaboration among science and policy to tackle marine litter issues.

3. In order to improve our knowledge of marine litter and cetaceans, the Scientific Committee:

(a) **encourages** the undertaking of postmortem investigations according to the best practice guidelines (IJsseldijk, Brownlow, and Mazzariol, 2019, see the Recommendation 14.4 on Cetacean Stranding Networks) and **supports:**

- collective scientific efforts on the development of standardized methods to detect the occurrence and effects of marine litter (including microplastics) in cetacean species and
- the use of standardized formats to report results across the ACCOBAMS area in synergy with existing frameworks (e.g., MSFD and IMAP indicators, GESAMP) and relevant MEAs (e.g., the Barcelona Convention, CMS, IWC, etc.) that request periodic reporting from postmortem investigations;

(b) **supports** the identification of hot-spot areas for marine litter accumulation and, through modelling of exposure to plastic ingestion and entanglement, identify the threat to cetacean species occurring in those areas to design targeted mitigation measures; and

(c) **proposes** cetacean species as indicators of marine litter in the ACCOBAMS area, in particular focusing the attention on deep-diving species for macro-litter (e.g., sperm whale and Cuvier's beaked whale) and filter feeders for micro-plastic (fin whale).[5]

Chemical pollution

4. Given the high occurrence and concentrations of legacy and emerging contaminants (OCs, PAHs, PBDEs, PFAS, Heavy metals, plastic additives, PPCPs, etc.) in the Mediterranean Sea and Black Sea and given that the chemical contamination is detrimental for cetacean health since it can induce negative effects on the immune, nervous and reproductive systems of cetaceans, the Scientific Committee **recommends:**

(a) the development of a transboundary health monitoring network for stranded and free-swimming cetaceans in the ACCOBAMS area – this could also facilitate the development of a common database of data on diseases and chemical burdens and cooperation among existing tissue banks to share tissues and data and contribute such data for the assessment of the "Favorable Conservation Status" of marine mammals under the EU Habitats Directive and equivalent national/regional legislation;

[5] Please refer to the Report of the IWC Workshop on Marine Debris: The Way Forward, 3-5 December 2019, La Garriga, Catalonia, Spain (SC/68B/REP/03)

(b) the development of an inventory of the institutions or laboratories within the ACCOBAMS area that are willing to receive and analyze samples for legacy and emerging pollutants from those institutions which do not have appropriate facilities and expertise;

(c) that existing measures for the mitigation of toxicological contamination in the ACCOBAMS area should be enforced e.g., through full compliance by member states with the Stockholm Convention; and

(d) future attention should focus on the assessment of cumulative effects and multiple stressors (including chemicals, marine litter, climate change, and emerging pathogens) on cetaceans in the ACCOBAMS Areas, including new techniques (such as -omics techniques, epigenetics and lab-on-chip), taking advantage of consideration of recommendations (once available) from the IWC intersessional Workshop on Pollution 2025 cumulative effects and multiple stressors" (1-4 November 2021).

RECOMMENDATION 14.10 - NETCCOBAMS

1. The Scientific Committee **commends** the NETCCOBAMS online Platform (accobams.sinay.fr[6]) to Parties as a source of valuable information on pressures and threats and encourages them to support its further development and improvement. To this end the Scientific Committee **agrees** to establish an expert Working Group including scientists, managers, stakeholders and Parties with the following Terms of Reference for it to guide and provide oversight on:

(a) the selection and incorporation of appropriate validated data and information including conditions of uploading and use[7];

(b) the analytical tools to be used for the various datasets;

(c) appropriate visualisation approaches (including those relevant to CCH) and associated advice to Parties and others on the interpretation of outputs; and

(d) the future development of the NETCCOBAMS online Platform (e.g., to take into account other threats, to facilitate data entry and validation) to assist in the provision of conservation advice on cetaceans and their habitats – some priority should be given to developing a module for AIS data analysis by providing information in a specific selected area using the results of existing projects or online platforms (e.g., type of vessel, density, speed, waiting time, etc.) – Ref to the Recommendation 14.7 on ship strikes.

2. Furthermore, the Scientific Committee **recommends:**

(a) those relevant stakeholders (including ACCOBAMS Partners and industry bodies) should be encouraged by Parties and the Secretariat to submit relevant data and information on cetaceans and anthropogenic activities to NETCCOBAMS (in accord with Working Group advice) to improve the value and application of the online platform in the provision of management advice over time;

(b) that the NETCCOBAMS WG should liaise with the Joint Noise WG regarding (a) the definition of potential quantitative targets in terms of reduction of risk (b) improvements in the robustness of model outputs (incorporating model uncertainty, *in situ* verification at selected sites); and (c) the development of new features including simulated scenarios of noise (and risk) reduction in response to potential mitigation approaches to evaluate their likely effectiveness;

(c) that the NETCCOBAMS WG should liaise with the other WG when the platform will implement other features.

3. Finally, the Scientific Committee requests that the Secretariat disseminates information on the value of the NETCCOBAMS online platform (including its contribution to achieved mitigation measures) to national and international *fora*, managers, stakeholders (*e.g.*, shipping companies, ports and IMO) to increase the visibility of the work done and encourage its use and the submission of data.

[6] To create a NETCCOBAMS account, please contact the ACCOBAMS Secretariat

[7] e.g., validated abundance and/or habitat maps, partner's reports, documentation about the work of ACCOBAMS and its Committees, Parties and Partners

RECOMMENDATION 14.11 - CITIZEN SCIENCE

Citizen science allows people with diverse motivation and abilities to participate in research and conservation initiatives (e.g., Cetacean Stranding Networks or observation/data collection at sea) where scientific effort is limited due to low budget allocation, reduced staff, limited resources, large area to be covered, etc. It is also a valid tool in facilitating public awareness of cetaceans and habitat conservation.

The ACCOBAMS Scientific Committee:

1. **recognises** that the concept of citizen science and specific citizen science projects can complement the collection of scientific data on cetacean sightings and strandings;

2. **highlights** the increasing value of existing and improving digital technology (websites, mobile apps and social media platforms). This has created a breakthrough in terms of data collection and validation and the Committee **commends** effort to promote their widespread use;

3. **stresses** that the validation of the submitted data by experts is a crucial step to allow such data to be incorporated into quantitative assessments of cetacean distribution and occurrence; and

4. **welcomes and encourages** expert effort towards the standardization of the protocols and methodology for data collection via citizen science, with all appropriate animal welfare and human safety precautions.