



## **FINAL REPORT OF THE CENOBS PROJECT**

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# Progress Report 2 - Final

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## Project

Title	Support MSFD implementation in the Black Sea through establishing a regional monitoring system of cetaceans (D1) and noise monitoring (D11) for achieving GES
Reference (grant agreement)	110661/2018/794677/SUB/ENV.C2
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## Abbreviations

12NM	12 Nautical Miles
AB	Advisory Board
ASI	ACCOBAMS Survey Initiative
BS	Black Sea
BSBD	Black Sea Basin Directorate
D	Descriptor
DG	Directorate General
EU	European Union
GES	Good Environmental Status
IO-BAS	Institute of Oceanology – Bulgarian Academy of Science
M	Month
MSFD	Marine Strategy Framework Directive 2008/56/EC
NIMRD	National Institute for Marine Research and Development “Grigore Antipa”
TG	Technical Group
TUDAV	Turkish Marine Research Foundation
UkrSCEC	Ukrainian Scientific Centre for Ecology of the Sea
WP	Work Package

IUU Illegal, unreported and unregulated fishing

## 1 Executive summary

The Black Sea is one of the most vulnerable regional seas and Romania and Bulgaria are the European Member States responsible for the implementation of the Marine Strategy Framework Directive (MSFD). The aim of the Directive is to achieve or maintain the good environmental status (GES) in all European marine regions, including the Black Sea. In order to achieve this there are developed 11 qualitative descriptors of GES. The achievement of MSFD objectives is possible in close collaboration with the other non-EU countries. The CeNoBS project was financed under the Call for proposals: "Marine Strategy Framework Directive - Second Cycle: Implementation of the new GES Decision and Programmes of Measures and lasts from January 2019 until June 2021 with a total budget of 548 309 Euro.

The project was focused on the development of two descriptors, namely Descriptor 1 – “Biological diversity is maintained (marine mammals/cetaceans), the quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions” and Descriptor 11 “Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment” (underwater noise). The results of the project contribute substantially to the implementation of the second cycle of MSFD implementation, by achieving greater consistency and coherence in determining, assessing, and achieving good environmental status. The proposed activities will fill the lack of background data on the distribution/abundance of Black Sea cetacean populations and on bycatch pressure and the lack of national expertise to implement effective noise monitoring.

The main objectives of this project were:

- I. Assessing D1 cetaceans related criteria and establishment of thresholds values,
- II. Assessing and supporting the development of D11 monitoring in the Black Sea,
- III. Enhancing coordination among the Black Sea marine region through the dissemination of the project activities, results and outcomes.

This final report is compiling the progress achieved during the 30 months, all duration of the project implementation.

## 2 Progress achieved during the reporting period

### 2.1 Work Package 1: Project coordination – Mare Nostrum

- **Work completed**

The project covered the following steps in terms of project management, in order to ensure smooth project coordination and progress monitoring:

1. Establishing the premises of management resources
  - a. Use of <https://trello.com/b/kxrTMq2B/cenobs-dg-env> - a collaborative platform that involves all partners in real time in designing, preparing, commenting on documents and tasks. Also, it facilitates tracking of deadlines and progress of the activities. The platform was used to plan

- activities, to circulate the reports, the deliverables and visibility documents. Also, it was used as a communication tool for project templates, integrating the capitalization activities and to track progress reports on on-going activities.
- b. Google Drive – shared working space where all deliverables and working documents were uploaded for easy communication and exchange of large documents. Google sheets were intensively used during the aerial survey to track the progress of the work and communicate in real time with team leaders.
  - c. Skype/Zoom – CeNoBS group was used to speed communication and reduce costs for activities and production of deliverables. Skype meetings were organized for deliverables, aerial survey preparation, data analysis assessment, bycatch pilot design, operational pilot on noise preparation and Advisory Board meeting. During the pandemic, many zoom meetings were organized for management purposes and also for some trainings, like the one on noise monitoring.
2. Organizing a kick-off meeting in Brussels on 12.02.2019, with 22 participants from DG Environment and from all the partners organisations of the project including the representatives of the responsible authorities for MSFD implementation. The meeting served to establish a common baseline in terms of MSFD status implementation in Romania and Bulgaria and a review of the WP included in the project. Representatives from DG Environment made recommendations for a better capitalization of results. All the comments and ideas were included in the Inception Report. Submitting the final version of the Inception Report on 26.03.2019, including comments from partners and DG Environment.
  3. Public procurement procedures for the external services included in the budget. Each partner conducted their own procedures according to EU and national legislation.
  4. Advisory Board meetings were held on 28.10.2019, 16.07.2020, 04.12.2020. The Advisory Board has in its competence 15 members (Black Sea Commission, ACCOBAMS Scientific Committee and Secretariat, GFCM, FAO, St Andrews University, Noise working group, CMS, etc.), that participate randomly depending on the topics addressed. Main topics of discussion were:
    - a. The deliverables produced in the project, namely: D2.2.2\_ Detailed Report on cetacean populations distribution and abundance in the Black Sea, including proposals for threshold values; D2.3 Operational Pilot on by catch monitoring; D3.3\_ Detailed Report of the pilot(s) on continuous noise monitoring, including recommendations to further develop D11C2 criterion.
    - b. Proposals for Baseline conditions and threshold values. The full minutes of the meetings are found in **Annex 1** at the present report.
    - c. Option to better disseminate the results and the results.
  5. Changes of the contract:
    - a. Budget change request was submitted on 13.11.2019 and approved by DG Environment on 12.12.2019. The changes added some tasks under the External assistance budget line. Also, some minor changes were proposed under the staff and travel costs.
    - b. Amendment of the contract signed on 9.11.2020 for the extension of the project period and some adaptation of the budget, especially due to the effects of the pandemic.
  6. The final meeting of the project was integrated in the final workshops dedicated for the capitalization of the project results. Due to travel restrictions and to meeting's reduced audience requirements, three meetings were unified in two days meeting in Sofia, 8-10 June 2021, including the final project event.

- **Achievement of milestones and deliverables**

For this activity there is no deliverable foreseen, but all activities are in line with the other WP in order to ensure the implementation, quality control and reporting.

- **Risks (if any)**

One risk that we did not take in account at the beginning of the project was COVID-19 pandemic. Which altered some of the actions planned within the second part of the project.

Another potential risk was the lack of availability of the AB members, due to many members in the AB, but this was overcome by integrating every member in defining the date for the meeting. Sometimes, depending on the deliverable under discussion, targeting the presence of those with suitable expertise. Also, keeping them informed on a regular basis can create a close connection with the project team and activities. Maintaining a low number of meetings and involving them on very clearly defined topics will not create a heavy load of work for them.

## 2.2 Work Package 2: Further developing D1 cetaceans related criteria and establishment of thresholds value

### 2.2.1 State of the art on D1 cetaceans related criteria in Bulgaria and Romania and proposals for further developing regional indicators (Leader NIMRD)

- **Work completed**

NIMRD has accomplished the 2.2.1 report State of the art on D1 cetaceans related criteria in Bulgaria and Romania and proposals for further developing regional indicators based on his own information and provided by the other partners.

The aim of this activity was to identify the present state of the art of D1-cetaceans implementation according to MSFD in Bulgaria and Romania, identify and assess suitable methodologies and criteria and recommend the most suitable ones to the partner. The assessment was based on Bulgarian and Romanian MSFD documents and on recommendations from previous regional projects implemented in the Black Sea:

- Analysis of "Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania – Phase 1, 2 and 3;
- First (2012) and second report (2018) on the state of the Black Sea marine ecosystem according to art. 8 - Evaluation, art.9 - Determination of good ecological status and art.10 - Establishment of environmental objectives elaborated by the National Institute for Marine Research and Development "Grigore Antipa" and Institute of Oceanology at the Bulgarian Academy of Sciences (IO-BAS);
- Review of recommendations from Programme of Measures (art.13, art.14) under Marine Strategy Framework Directive, Technical guidance on monitoring for the Marine Strategy Framework Directive;
- Increase the regional capacity for developing cetacean distribution and abundance studies and ANEMONE project.

In February 2019 the 5th Meeting of the Black Sea Working Group took place in the framework of the Agreement between the Ministry of Waters and Forests Romania and the Ministry of

Environment and Water Bulgaria. During this meeting, Romanian and Bulgarian experts exchanged information in a dedicated group for D1 Biodiversity (Mammals) in order to develop a common agreed GES and thresholds based on the 11 Descriptors according to the Decision 2017/848/EU regarding descriptor in the frame of MSFD.

NIMRD and Mare Nostrum experts participated this year (February 20 and April 24) at two working groups organized by the Ministry of Environment in order to update the "Action Plan for Cetaceans Conservation from Romanian Black Sea waters".

Information regarding the Habitats Directive 92/43/EEC for Romania was provided by NIMRD, which was responsible (subcontractor 2012-2015 and partner 2019-2023) for the monitoring of the conservation status of marine habitats and species of community interest and national report based on art. 17 (Habitats Directive) for marine habitats and species (including marine mammals) in the frame of national projects under the coordination of Romanian Environmental Ministry:

- 2012-2015 – "Monitoring the conservation status of species and habitats in Romania based on article 17 of the Habitats Directive"
- 2019-2023 - "Completing the level of knowledge of biodiversity by implementing the system for monitoring the conservation status of species and habitats of community interest in Romania and reporting under Article 17 of the Habitats Directive 92/43 / EEC"

Green Balkans NGO experts have provided information for compilation of the report on state of the art in Bulgaria. Complementary parts were mainly on surveys conducted by Green Balkans NGO in the period 2017-2019 as well as NATURA 2000 related EU Habitats Directive 92/43/EEC, art. 17 national reporting and assessment of conservation status of cetaceans, monitoring programs.

UkrSCES experts provided comparative information on the state of the art in Ukraine, including the work programme in place.

Mare Nostrum has provided information related to its own monitoring efforts in Romania for D1 – Biodiversity – Marine mammals. Efforts which included capacity building in cetacean monitoring methodologies and cooperative networking for the scientists within the Black Sea basin and data collection on stranded cetaceans (Monitoring Network Coordination), D1C2 (cetaceans populations abundance), D1C4 (cetaceans distributional range), mainly within the 12NM area.

- **Achievement of milestones and deliverables**

The deliverable for this activity: Deliverable 2.1: Detailed report on the assessment of D1 cetacean related criteria in the Black Sea is finalized and can be consulted as **Annex 2** of this report.

## 2.2.2 Assessment of cetacean populations distribution and abundance at the regional scale (Leader ACCOBAMS)

- **Work completed**

### **CETACEAN SURVEY**

Cetacean population distribution and abundance were estimated through a regional aerial survey conducted in June and July 2019, aimed at collecting visual observations of cetaceans following specific and shared protocols in order to assess their abundance and distribution. The aerial survey has covered the waters of Romania, Bulgaria, Türkiye Ukraine and Georgia

(territorial waters and exclusive economic zones) following predefined transect lines within different blocks. While targeting cetaceans was the highest priority during the aerial survey, other relevant observations were made in relation with D1 (biodiversity: birds and fishes) and human activities (marine traffic, fisheries). In relation with the GES descriptors, the aerial survey did also collect information on D10 Marine Litter.

The data collection protocols and the survey design have been prepared by a Scientific Coordinator contracted by ACCOBAMS, in close collaboration and consultation with scientists from Mare Nostrum and Green Balkans and the other project partners.

Meanwhile, the logistical and administrative preparation was conducted under the coordination of Mare Nostrum and ACCOBAMS. This included the preparation of requests for Permits and authorizations and follow-up with national relevant authorities, the preparation and implementation of meetings and training workshops during the preparation phase, the selection and contracting of the aerial company and the organisation of daily life logistics of the teams. In order to obtain the research permits and to organize logistics at the local level, national partners involved in the aerial survey were also supporting the whole process.

The aerial survey was conducted using small planes equipped in accordance with the scientific work requirements. The survey work was performed by 2 teams, one per plane, composed of one Team Leader and two observers each. In addition to the observation work, the Team leader fulfilled the specific task of coordinating the flight planning with the pilot and organizing the logistics of the team. The research teams were mixed, involving observers with experience in aerial surveys and observers that have been trained for their first aerial survey, thus implementing the capacity building component of the project, in light of future cycles of implementation of MSFD. The teams also had mixed representation in terms of participating countries, involving scientists from Romania, Bulgaria, Türkiye and Ukraine.

Both teams have worked under the supervision of the Scientific Coordinator who was in charge of the different phases before the field work, as well as of the regular monitoring of the implementation of the aerial surveys, to ensure appropriate use of the methodology, providing guidance and advice to the Team Leaders in their flight planning. The survey coordinator was also in charge of training the teams on the line transect methodology and data collection protocols.

An additional expert (from EcoOcean Institute) was contracted by ACCOBAMS to assist with the Scientific Coordination of the survey, specifically to ensure data verification and validation along the survey work, to provide training on the dedicated survey software SAMMOA and to conduct pre-treatment of the data collected during the survey (data verification, data cleaning, and data extracting) in view of the analysis.

A dedicated training workshop was organized in Tulcea, Romania, between 13 and 15 June 2019, where all the teams involved in the aerial monitoring attended both theoretical and practical lessons, for familiarization and preparation for field work activities before starting the survey. With ACCOBAMS financial support one representative from Georgia and one from Russia participated in the training in order to increase the regional capacity.

#### *ADDITIONAL EFFORT*

*A complementary survey was conducted in september 2019 over Russian waters through the EMBLAS-Plus project and with ACCOBAMS support, in collaboration with N.Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, and the Federal State Budgetary Institution N.N. Zubov's State Oceanographic Institute, using the same methodology and protocols to allow statistical comparison of the results and to facilitate merging the data for the analysis.*

## DATA ANALYSIS

Following the completion of the survey, two experts were contracted to conduct the analysis of the data and other related activities such as the capacity-building aspects and the liaison with the CeNoBS partners.

Their work started in October 2019 and a first online workshop for data analysis was conducted at the end of October in order to explain, develop and validate the analysis approach with a group of experts from the project, including the team leaders and observers of the survey (ACCOBAMS, Mare Nostrum, Green Balkans, TUDAV, UkrSCES, NIMRD). The collected data was analysed to estimate abundance, density and assess distribution of the different species. Data analysis was performed using both model-based and design-based frameworks. The CeNoBS Survey results were presented during an ACCOBAMS Survey Initiative Online event in April 2020 which gathered about 200 attendees. The survey results are described in the *Deliverable 2.2: Detailed Report on cetacean populations distribution and abundance in the Black Sea, including proposals for threshold values - Annex 3*.

## WORKSHOP

A workshop with the group of experts involved in the data analysis process was organized, online, in September 2020 (24-25). Providing advanced training on analysis methods and use of softwares, it also guided the analysis approach to validate the results, discuss recommendations for Thresholds value .

Following the suggestion from the kick-off meeting on increasing the visibility of the project, and to optimize the use of the results, the results will be embedded in scientific articles. This will increase the scope of the project results in the scientific community. Although the time was not sufficient to cover this task under the project time, the experts are dedicated scientists that will pursue this on their own time and effort.

The deliverable was also published under the form of a book, in English, being presented in the National Library of Romania.

Within the ACCOBAMS Survey Initiative, the results are published, offering a view over cetaceans within the ACCOBAMS area.

Also, a scientific article will be published in a special edition, dedicated to ASI and ASI/CeNoBS surveys in 2022, in Frontier Journal.

## THRESHOLDS proposals

The experts involved in the project formulated, based on the outcomes of the aerial survey, on previous monitoring efforts and the document "Pragmatic options for setting threshold values (TVs) under the MSFD", baseline conditions for D1C2 and D1C4, for marine mammals in the Black Sea.

Several discussions in the Advisory Board and with the responsible authorities were conducted in 2020 and 2021 in order to get their feedback on these proposals. Two meetings were held online and 2 were conducted live - one in Bucharest and one in Sofia.

Final conclusions and proposals are included in Chapter 5 of the Deliverable 2.2.



- **Achievement of milestones and deliverables**

The successful implementation of the Black Sea survey represents a major step of the CeNoBS project. The technical report of the survey was used as a basis for developing the *Deliverable 2.2: Detailed Report on cetacean populations distribution and abundance in the Black Sea, including proposals for threshold values, in Annex 3*.

Another additional positive outcome of the CeNoBS project, leading to a reinforced regional cooperation is the fact that the CeNoBS Black Sea Survey also created the good conditions for ACCOBAMS to develop a specific partnership with Russian Scientific Organisations that led to completion of survey over Russian waters in September 2019 (with support from EMBLAS Plus project and ACCOBAMS).

The successful implementation of the Black Sea survey is also a crucial element in the development of a long-term cetacean monitoring strategy in the Black Sea and at the ACCOBAMS level.

- **Risks (if any)**

All risks were overcome and the activity was implemented according to the plan. Due to the geopolitical constraints the initial limits of the survey area were changed according to the permits obtained.

### 2.2.3 Operational pilot(s) on bycatch monitoring (Leader UkrSCES)

- **Work completed**

Incidental catch in fishing gears (further referred to as bycatch) is a major threat for populations of small cetaceans in European seas, the greatest mortality factor for some of them (Dolman et al., 2016). It is specifically identified as a criterion D1C1 for the Descriptor 1 in the second cycle of MSFD implementation in determining, assessing and achieving good environmental status (GES) for cetaceans. Bycatch assessment is the necessary precondition for planning and taking bycatch reducing measures. This activity considers the obligations related to the Common Fisheries Policy (in particular Article 25(5) of Regulation (EU) No 1380/2013). The latest regulation for GES assessment for cetacean bycatch is the Commission Decision 2017/848/EU from May 2017 on criteria and methodology standards regarding Good Environmental Status (GES), which replaces Commission Decision 2010/477/EU and Commission Directive 2017/845/EU amending Annex III to the MSFD. Since 2018 it was considered that in order to achieve GES the number of accidental catches should not exceed 1.7% of the abundance (Moffat et al., 2011).

The bycatch monitoring activity in the frame of this project focused on demonstrating the feasibility of developing the bycatch monitoring programme in the Black Sea in the view of filling the gaps on distribution, intensity and effects of bycatch pressure on cetaceans. The operational pilot studies across the Black Sea riparian countries are aimed to identify the general patterns of cetacean interactions with fisheries and finally provide a common

methodology for bycatch assessment at a regional level. As the precondition for reducing bycatch of non-targeted species such as dolphins, porpoises, and, in some sub-areas, sharks and rays, the structure of the fishing fleet and information about the main fishing gears are important to elaborate any management measures. Methodological framework was developed for collecting field data and bycatch assessment, and the field surveys were conducted in Bulgaria, Romania, Türkiye and Ukraine during 2019 and 2020.

## Methodology

In order to complement the work on Descriptor 1 cetacean related criteria and to address the D1C1 criteria, pilot activities on cetacean bycatch monitoring were implemented in Romania, Bulgaria, Türkiye and Ukraine. Data were collected from questionnaire surveys and onboard observations following the GFCM bycatch data collection protocols (FAO, 2019). The questionnaires were distributed among main stakeholder groups, and the fishermen were chosen as the pilot target group. Onboard observers particularly focused on turbot fisheries, which are believed to be the main source of cetacean bycatch in the Black Sea. Postmortem examination of cetacean carcasses stranded ashore was conducted as an independent estimation of bycatch rate with special focus on the IUU fishing. Direct and indirect signs of bycatch were checked. Research and civic groups involved in monitoring coastal marine litter were contacted for gathering stranding data based on standardized protocols (Vishnyakova, 2017).

The study involved the following logistic steps:

- 1) Preparation of concept for the pilot study (UkrSCES, ACCOBAMS, Mare Nostrum, TUDAV, KTU, Green Balkans)
- 2) Elaboration of questionnaire (UkrSCES, ACCOBAMS, Mare Nostrum, TUDAV, KTU, Green Balkans)
- 3) Data collection by onboard observers and port questionnaires, stranding records (UkrSCES, Green Balkans, Mare Nostrum, KTU)
- 4) Fleet structure assessment (UkrSCES,KTU, IO-BAS, Green Balkans)
- 5) Data analysis, total bycatch assessment (UkrSCES, Green Balkans, TUDAV, Mare Nostrum, KTU)

A questionnaire was developed based on the worldwide background of existing monitoring schemes, using literature on the issue. The questionnaire was designed with indirect indicators to find bycatch potential of certain fishing practices, net types and operations. The questionnaire developed by Goetz et al. (2013) for the coast of the north-western Spain was used as the basis for design, and additional questions were introduced based on several published studies (Dmitrieva et al., 2013; Jabado et al., 2015), as well as previous experience by the authors. Questions on fleet segment, intensity and duration of operations, net types, target and main discard species, cetacean behaviour near the fishing operations, personal attitude of fishermen, depredation by cetaceans, all kinds of bycatch (including fish and birds), survival of bycaught animals, intensity and dynamics of interactions with fisheries were included into questionnaires. Analysis of interviews followed the qualitative approach by Carruthers and Neiss (2011) and Mustika et al. (2021).

Onboard observers monitored catch and bycatch during fishing operations of gillnet fisheries and trawling. Standard GFCM protocols were adopted for gathering standardized information on fishing operations and bycatch of marine mammals for onboard observers (FAO, 2019). These included general data on the vessel, data on fishing operations for each vessel; general information on fishing trip (number of hauls, location, duration, catch data) and general information on bycatch in general, marine litter and vulnerable species for each onboard observation; biological data on bycaught marine mammals (Annexes B and C).

The fleet structure was analysed using GFCM reports (FAO, 2020; STECF, 2020). Also, the national assessments of the fleet in Bulgaria, Romania, Türkiye and Ukraine were obtained from the competent authorities upon requests or from open access sources.

- **Achievement of milestones and deliverables**

*Questionnaire surveys*

In total, 63 interviews were conducted, 23 in Bulgaria, 15 in Romania, 8 in Türkiye and 17 in Ukraine, covering the main segments of the fleet (Fig.1). Fishermen in Bulgaria were from the following ports: Balchik, Varna, Byala, Nessebar, Pomorie, Sozopol, Primorsko, Tsarevo, Ahtopol, Krapets and Sinemorets and represented shipmasters of fishing vessels with sizes from 6 to 20 m. In Romania, the fishermen were based in Constanta, Mangalia, Agigea and Eforie and represented a beam trawler and small boats 4.5-10 m long. In Türkiye, interviews were conducted in Çarşıbaşı, Akçaabat and Faroz in Trabzon Prefecture, small boats 5-10 m long and purse seiners. In Ukraine, the interviews were conducted with fishermen operating from Vylkove, Lebedivka, Bilhorod-Dnistrovskiy, Chornomorsk, Rybakivka, Ochakiv, Pokrovka, Lazurne and Skadovsk, small boats 4-10 m long and mid-depth trawlers.

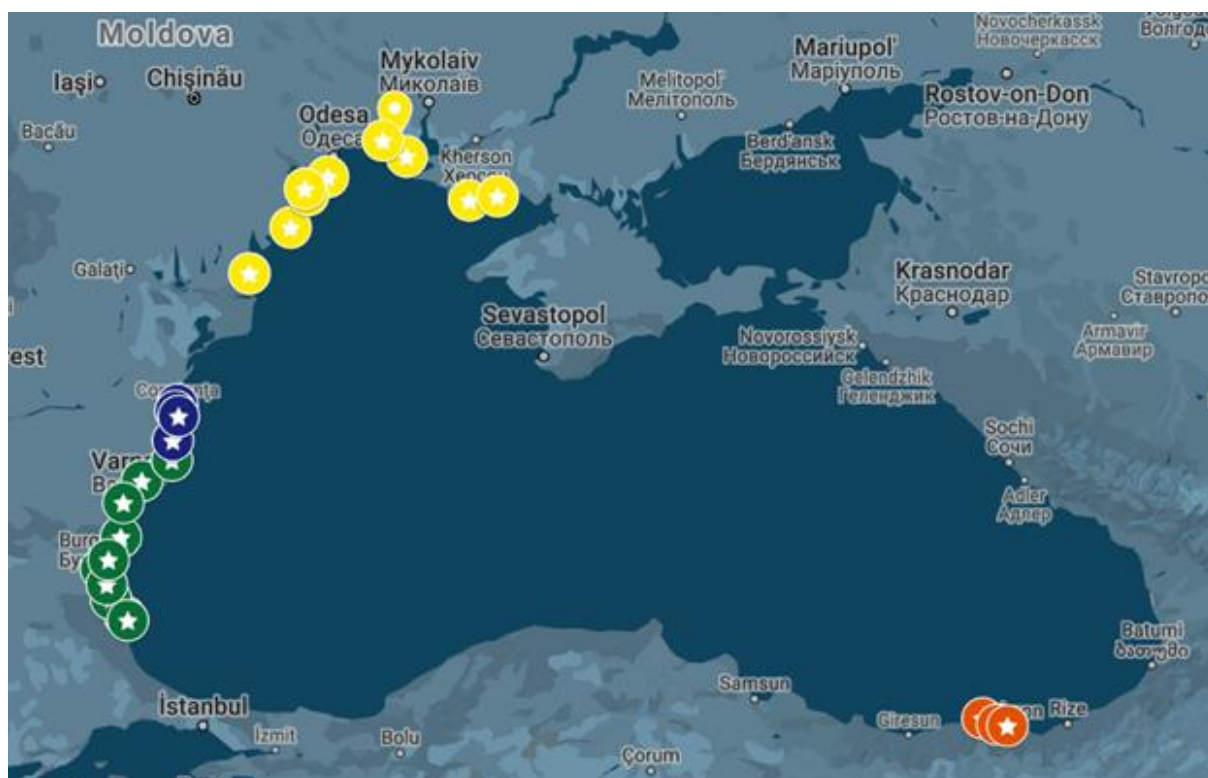


Fig. 1 Map of the Black Sea ports covered by the questionnaire surveys.

Individual fishermen, captains / captain assistants, representatives of professional associations and directors of fisheries businesses were interviewed, all directly involved in fisheries activities.

#### *Onboard observations.*

Bycatch monitoring aboard fishing vessels licensed for turbot fishing was made in Bulgaria and Romania in 2019 and 2020 (Fig. 2). In total 43 monitoring missions were made covering 10 different vessels (7 for Bulgaria and 3 for Romania) during two major turbot fishing campaigns: spring and summer. The overall seasonal activity covered the period between March 5 and November 4, the range of 9 months. Besides, in Romania there were two missions on board vessels with other types of gears, the beam trawl. No significant differences were found between the countries and years of study.

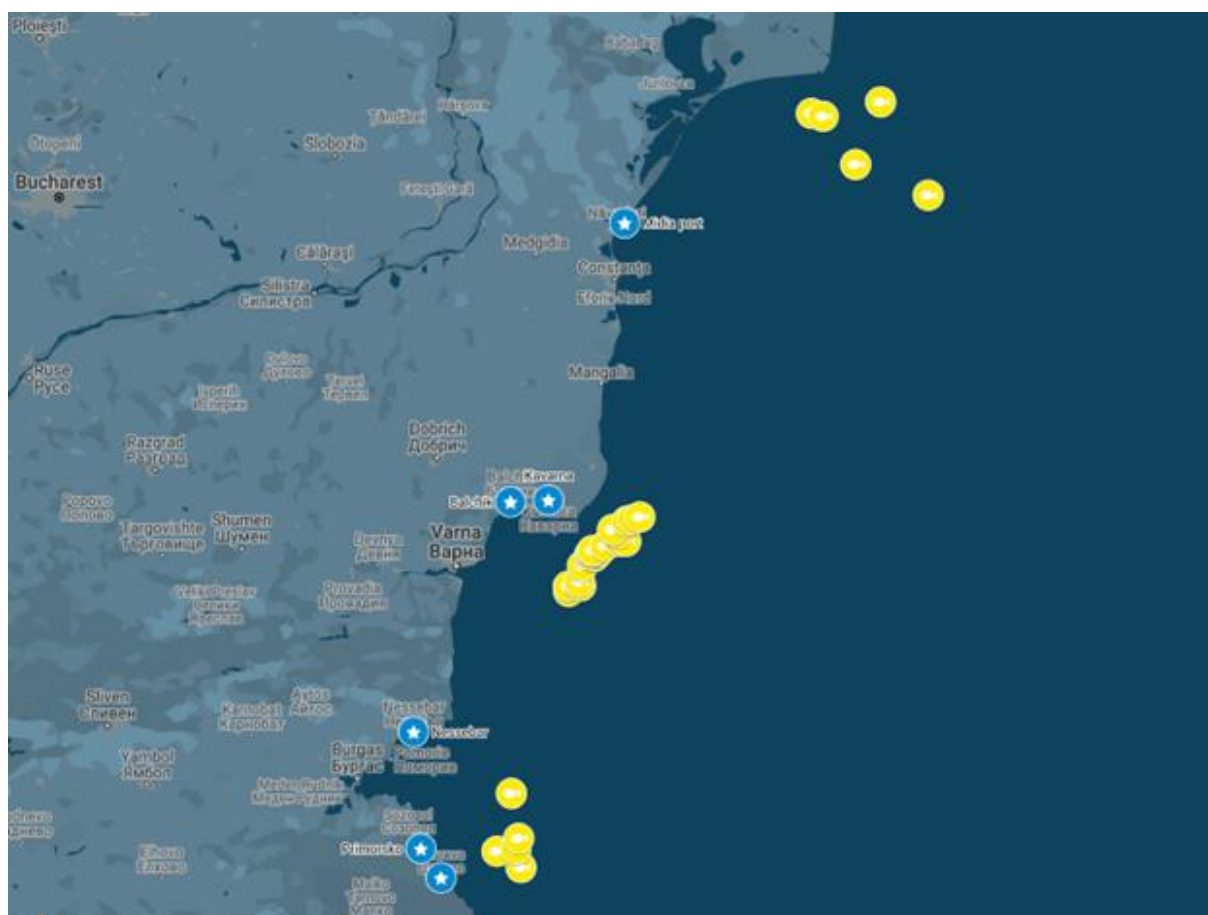


Fig. 2 Geographic distribution of onboard bycatch observations in the western Black Sea. Ports are marked as stars, and starting points of observations as points. Only trips with bycatch records are shown on the map.

#### *Stranding surveys*

In addition to regular stranding surveys conducted in all the countries involved in the project, special monitoring routes, 4 km each, located near the fisheries facilities (Kurortne, Sasyk, Shagany, Lebedivka-Burnas, Chornomorsk, Odesa), were checked for presence of cetaceans

with bycatch signs in Ukraine. No bycatch was discovered during these expeditions that concurred with the data from interviews, as well as with the low density of cetaceans at sea during the season of the survey. Similar, in Romania the area between Corbu and Vama Veche was under surveillance both 2019 and 2020. Additionally, an emergency call line was in place to collect information on cetacean stranding cases. From the 35 cases (2019) and 68 cases (2020), only 14 cases indicated possible cetacean-fisheries interaction.

Collected data on stranded cetaceans in Bulgaria for 2019 though has shown the total number of cetaceans washed ashore to be 58 while at the same time onboard bycatch data has reported 104 bycaught cetaceans from only 6 vessels. This result clearly shows that the portion of bycaught animals reaching the coast is very small.

Full report, at the date, is included in **Annex 4, Deliverable 2.3** Operational Pilot on by catch monitoring of this report.

- **Risks (if any)**

One main risk of this activity was the lack of transparency and interest from the fishermen community to accept observers on board. This risk was in part overcome by the allocated budget, but no additional fishermen were interested. In future a greater involvement and cooperation with National Fishery Agencies and fishermen association will probably overcome this. . At the same time two of the partners, the research institutes, are coordinating research in the fishing domain which can support the project action implementation.

## 2.3 Work Package 3: Assessing and supporting the development of D11 monitoring in the Black Sea

### 2.3.1 State of the art on D11 criteria in Bulgaria and Romania and proposals for developing regional indicators (Leader NIMRD)

- **Work completed**

The aim of this activity was to assess the GES status of D11 for the Black Sea during the first MSFD cycle and to identify the priorities and proposals for further effective monitoring. The document includes the present state of art of underwater noise monitoring methodologies worldwide and in the Black Sea, assessment of suitable methods and recommending most appropriate ones to the partners. Based on this recommendation pilot activities on noise monitoring will be implemented in Romania, Bulgaria, Türkiye and Ukraine in order to address to D11 criteria.

NIMRD achieved the report based on current progress of TG Noise work, Bulgarian and Romanian MSFD documents and on recommendations from previous regional projects implemented as QUIETMED, COLUMBUS.

The report was prepared through direct exchanges of information between partners, document and other report consultations, skype meetings (February and May 2019) and was revised by TG-noise experts.

- **Achievement of milestones and deliverables**

The deliverable for this activity: Deliverable 3.1: Detailed report on the assessment of D11 monitoring in the Black Sea is finalized and can be consulted as **Annex 5** of this report.

### 2.3.2 Regional training workshop on D11 monitoring (Leader IO-BAS)

- **Work completed**

The aim of the Regional training workshop on D11 monitoring was to train scientists and advisors and to strengthen capacities on D11 monitoring, addressing both D11C1 (anthropogenic impulsive sound in water) and D11C2 (anthropogenic continuous low-frequency sound in water) criteria. The workshop used the results and outcomes of the QUIETMED project implemented in the Mediterranean, as well as pilot studies under this project.

The course focused on building capacity for monitoring D11 and sharing data and knowledge between scientists and decision-makers.

Regional training workshop on D11 monitoring took place between 14 – 16 September 2020 as a virtual workshop using Microsoft Teams as an online webinar platform. The program was organized in 3 consecutive working days. The lecturers for the workshop –Dr. Alessio Maglio and Dr. Achraf Drira were appointed by ACCOBAMS.

The Regional training workshop on D11 monitoring was attended by representatives of all organizations, partners in the project and one external participant from Nikola Vaptsarov Naval Academy in Varna, Bulgaria. Project partners MWWF and BSBD from Bulgaria and Romania also represent the stakeholders, as national authorities responsible for implementation of MSDF in respective member States. The total number of participants in the workshop was 22 experts.

The Deliverable 3.2: Detailed Report of the Regional training workshop on D11 monitoring was completed after the training - **Annex 6**.

### 2.3.3 Operational pilot(s) on noise monitoring (Leader IO-BAS)

- **Work completed**

The aim of this activity was to implement several pilot noise projects to support the development of D11 monitoring in the Black Sea. A demonstration project to monitor ambient noise in four partner countries from the Black Sea region (Romania, Bulgaria, Türkiye and Ukraine) was planned in several directions: biological and anthropogenic sounds.

A pilot study was carried out by the Institute of Oceanology of the Bulgarian Academy of Sciences (IO-BAS) at one location on the Bulgarian coast between 28.09.2019 - 26.10.2019. An autonomous underwater sound recorder (Wildlife Acoustics SM3M) was used for noise monitoring.

The National Institute of Marine Research and Development "Grigore Antipa" (NIMRD) carried out several measurements in Vama Veche in three days (23-25.06.2021). The experiment was done with a Bruel & Kjaer LAN XI data acquisition system + type 8105 hydrophone.

In connection to Descriptor 1 – cetacean and Descriptor 11 - noise in the Black Sea, a pilot study using an F-POD was carried out by Turkish Marine Research Foundation (TUDAV) in the Turkish coast in order to assess the effect of marine traffic over the cetacean distribution and movement. Cetaceans were monitored from 4 May to 24 July 2020.

The Deliverable 3.3: Detailed report of the pilots on continuous noise monitoring was completed after the accomplishment of all pilot studies - **Annex 7**. The report summarizes the results of pilot noise monitoring in Romania, Bulgaria and Türkiye.

An extra task under this activity was the elaboration of the document "Set up of Noise Monitoring for MSFD-D11 in Romanian and Bulgarian waters" - **Annex 8**, by Alessio Maglio - advisor on underwater noise pollution. The document represents a basis for the development of a monitoring program on underwater noise in European Union waters in the Black Sea relative to the implementation of Descriptor 11 (D11) of the Marine Strategy Framework Directive (2008/56/EC).

It is intended to develop guidance and instructions, as clear as possible, to enable the setting up of long-term monitoring programmes for criterion 1 (impulsive sound in water, D11C1) and criterion 2 (continuous low frequency sound in water, D11C2). It also suggests a first assessment framework and draws the way forward based on recent progress on the underwater noise issue in European waters.

Recommendations found in this document are intended as the minimum required to comply with the MSFD with regards to D11C1 and D11C2. They are developed to keep the work as simple and fast to implement as possible.

## 2.4 Work Package 4: Capitalization, communication and dissemination of the project activities and results

### 2.4.1 Communication and dissemination of the project activities/results at the regional scale (Leader TUDAV)

- **Work completed**

Communication and dissemination activities were conducted both nationally and internationally in various languages through multiple channels. Dissemination activities took the form of press releases, introductory leaflets, presentations at meetings and conferences, social media posts and a dedicated website. In-person activities were replaced with online events due to the COVID-19 pandemic in 2020-2021.

In the reporting period, 176 dissemination activities from all four countries (Bulgaria, Romania, Türkiye, and Ukraine) were reported through the customized Google report forms. Some of the dissemination activities were made in Greece, France, Monaco, UK, Portugal and Spain. The most frequent type of dissemination was the websites, followed by social media and press releases. Activities in 2019 were mainly aimed at the general public, while 2020 and 2021 saw a shift towards policy makers and scientific communities as the project was presented mainly in several scientific meetings.

Two leaflets were produced. The first leaflet, created at the start of the project, served to introduce the project purpose, actions, etc. at various meetings and events as well as during the aerial survey campaign. The second one was prepared to disseminate the results of the aerial survey.

A total of three press releases were issued. They have been translated to all the consortium languages by each partner and distributed to the local media.

As a social media, a Twitter account has been opened since June 2019. Since then, over 130 tweets and retweets have been recorded with #CeNoBS. Facebook and Instagram together have nearly 100 posts with the hashtag. A fully dedicated website was established in order to introduce the project. The website introduces the consortium members, as well as individual activities.

For the purpose of deliverables and result dissemination a webpage was established by Mare Nostrum NGO, [www.cenobs.eu](http://www.cenobs.eu). Also, promotional materials were produced and distributed: coasters, waterproof phone cases, folders, pen drives and notebooks.

All activities are presented in detail in the Deliverable 4.1 Report on the communication and dissemination activities - **Annex 9**.

## 2.4.2 Capitalization of the project results (Leader Green Balkans)

- **Work completed**

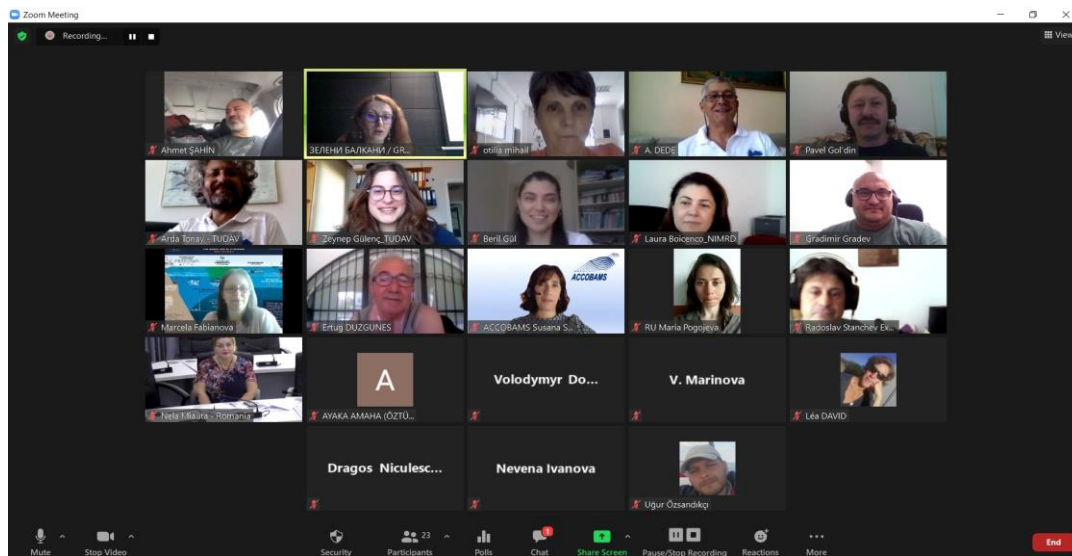
This activity was aimed at supporting achieving greater consistency and coherence in determining, assessing and achieving good environmental status (GES). Main challenge was the ongoing COVID-19 pandemic in Europe and the world. Since planned workshops were contributing to increase regional synergies between member states (Bulgaria and Romania) and coordination with third countries, workshop in person was considered as the best form for that. Merging two workshops into one two-day event separated into two one-day sessions dedicated to D1 Biodiversity, Marine mammals and D11 Marine noise was identified as the optimal solution given the restrictions for travel. It was decided to organize the event at the beginning of June in Sofia, Bulgaria that as a capital city has good transport connections and venues to offer. Invitations have been circulated to national and international participants from different stakeholders - national authorities, scientific institutions, NGOs, international organizations, etc. During the second part of May and in June COVID-19 situation in Bulgaria has significantly improved giving us hope for wider participation in a live event. Though, the number of registered participants for the event in person was not very high with most participants choosing to join online via Zoom platform. Total number of participants that joined sessions of the two days was 48 with 16 and 18 of these respectively being in person on 9 and 10 June. All project partners attended the event as well as representatives of following organizations: Ministry of Environment and Water of Bulgaria; Executive Environmental Agency of Bulgaria; Ministry of Environmental Protection and Natural Resources of Ukraine; Sinop University, Türkiye; GeoEcoMar of Romania; IBER-BAS, Trakia University Naval Academy - Varna of Bulgaria; WWF Bulgaria; EcoOcean, France; EMBLAS Project, etc. Introductory speeches on day 1 were provided by Susana Salvador - Executive Secretary of ACCOBAMS and Irina Makarenko of Black Sea Commission. Project results on conducted aerial survey of the Black Sea cetaceans and bycatch monitoring and assessment were presented by relevant experts of the consortium. Proposals for monitoring program of cetaceans in the Black Sea and Threshold values for different criteria of D1 were made. Valuable discussions were made after each presented topic by both live and online participants. After the end of day 1's program a meeting was held with representatives of



Bulgarian competent authorities on MSFD to discuss the proposed threshold values for D1 Biodiversity, Marine mammals. Those proposed values were fully accepted by experts of authorities.

Introductory speeches on day 2 were provided by Fabrizio Borsani of EU TG on Underwater Noise and Nicolas Entrup of OceanCare giving a valuable outlook on both theoretical description of underwater noise and practical implications of that on marine organisms. Results from conducted pilot monitoring activities of ambient noise in the Black Sea and organized training workshop with a proposed noise register were presented by different experts from project partners.

For full account of the Final Capitalization Workshop see **Annex 10** (Deliverable 4.2 Capitalization workshop report)



- **Achievement of milestones and deliverables**

The capitalization workshop was held in the period 8-10 June in Sofia, Bulgaria. Deliverable 4.2. Capitalization workshop report is produced.

- **Risks (if any)**

The main potential risk was related to the COVID-19 situation and limitations for travel. That was overcome by applying a hybrid type of workshop combining online with in person participation that resulted in a high number of participants - 48 in total for the two sessions.

### 3 Project implementation

- Updated list of project meetings (past and future)

Date	Location	Topic
12.02.2019	Brussels	Kick off meeting
25.02.2019	Skype	Pilot monitoring on noise
7.03.2019	Skype	Preparation of pilot on bycatch monitoring (UkrSCES, ACCOBAMS, Mare Nostrum, TUDAV, KTU, Green Balkans, GFCM)
20.03.2019	Skype	Preparation of pilot on bycatch monitoring (UkrSCES, ACCOBAMS, Mare Nostrum, TUDAV, KTU, Green Balkans, GFCM)
21.05.2019	Skype	WP 3
28.10.2019	Skype	Advisory Board meeting
29.04.2020	Skype	WP 3
16.07.2020,	Skype	Advisory Board meeting
14-16.09.2020	Online	Regional training on D11
24.08.2020	Online	Workshop with the group of experts involved in the data analysis process
04.12.2020	Online	Advisory Board meeting
17.03.2021	Online	Workshop on Set up of Noise

		Monitoring for MSFD-D11
26.04.2021	Online	Meetings for establishing threshold value for D1
22.06.2021	Bucharest, Romania	Meeting with Romanian authorities for establishing threshold value for D1
10.06.2021	Sofia, Bulgaria	Meeting with Bulgarian authorities for establishing threshold value for D1
8 -10.06.2021	Sofia, Bulgaria	Final project meeting, including final seminars for D1 and D11

- Updated list of dissemination activities (including interaction with stakeholders) and publications

A full list of dissemination activities is included in Deliverable 4.1 Report on the communication and dissemination activities - Annex 9.

- Updated Gantt chart (timetable with all activities, results and meetings)

2 PLANNED DURATION OF THE ACTION (in months):																																
Starting date: January 2019																											Status					
	Semester 1						Semester 2						Semester 1						Semester 2						Semester 1							
Activity	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6		
<b>Activity 1.1:</b>																																
<b>Project coordination,</b>																																
Coordination of the project activities																																C
Kick-off meeting in Brussels																																C
Preparation of the Inception report – Deliverable 1.1																																C
Preparation of the First progress report – Deliverable 1.2																																C
Preparation of the Final report - Deliverable 1.3																																C



















## 4 Final conclusions

- Conducted aerial survey was a historical event in obtaining contemporary baseline information on abundance of cetaceans in the Black Sea
- The successful completion of the Black Sea Survey was a major step for this project, but also for the regional improvement of knowledge on cetaceans, macrofauna and human activities. It represented an excellent model of cooperation, and of leverage effect, not only between the project partners but also more widely: indeed, CeNoBS created a good ground for ACCOBAMS to liaise and successfully collaborate with Russian Organisations and other regional programmes. It resulted in the largest survey ever conducted and significantly enhanced cooperation in the region.
- The activities developed around the survey also allowed to strongly improve the expertise and capacity of national scientists from all countries of the Black Sea. This led to the creation of a regional task force and a regional expert team spirit that can be mobilised again in the future for similar effort.
- The analysis process has been built in such a way that it will be participative and increase analytical capacities of several national experts (through continuous follow up of the expert work and with the Data analysis workshop that was added to the project)
- While CeNoBS is a two year only project, the unprecedented collaborative monitoring effort that it supported lays a solid foundation for the continuation of cooperative cetacean surveys at the regional level. It will now be crucial for partners to build on this momentum to start considering future regional surveys and ensure long term monitoring of the Black Sea cetaceans in order to better assess trends of population, potential shifts in distribution and to adapt conservation measures in the best possible way.
- Provisional results from conducted bycatch monitoring in Bulgaria have raised serious concerns. Despite relatively small sample size (4%) of monitored fishing vessels licensed for turbot fishery, the results are showing large bycatch levels in summer suggesting sustainable levels set for the Harbour porpoise in Western Black Sea are exceeded – 104 porpoises represent 42% of lower and 18% of higher thresholds set on basis of Harbour porpoise abundance estimated by combined aerial and vessel survey in July 2013<sup>1</sup>. This high value is in line with the observed highest density of porpoises in Bulgarian waters during the aerial survey conducted in June and July. Project activities have attracted large interest as witnessed by wide media coverage of the conducted aerial survey and the conducted pilot on bycatch monitoring. Following scientific articles will further strengthen the dissemination of gained new knowledge among the scientific community.
- The pilot activities showed positive results on applying the proposed methodology for bycatch assessment based on combined methods of direct and indirect assessment and validation. The initial reports obtained from the first approbation of the methodology concurred with data obtained from the aerial survey. The main tasks for the ongoing pilot study are geographical and sectoral extending of the effort, updating fleet and effort assessments, developing cooperation with fishermen for enhancing the bycatch reporting and analyzing the stranding record.
- Multi-indicator protocol used in the aerial survey mission allowed for marine litter (D10), birds and human activity data to be collected. This will support the initiatives on these topics now as well in the future.

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<sup>1</sup> Birkun, j. A. (2014). *Studies for carrying out the Common Fisheries Policy: adverse fisheries impacts on cetacean populations in the Black Sea*. Brussels: European Commission.

- D11 – energy including underwater noise actions are aimed to support the development of this indicator in Black Sea area. Now there is a State of Art document which provides an overview of the situation in the Black Sea member states and suggestions for further development.
- The first baseline reference conditions were assessed and proposed for D1C2 and D1C4 and can contribute to the process of setting new baselines for other criteria.
- The results of the by-catch pilot study were used as the background for pan-European Recommendations by the First Meeting of the Joint Bycatch Working Group of ACCOBAMS and ASCOBANS, 10-12 February, 2021.
- Further actions and projects are needed in the field in order to keep developing the criteria and threshold values, to better assess the population's status and to build on the pipeline of experts.
- All management resources will continue to be used by the project partners within the scope of a smooth communication and an active involvement of all partners.