



UNITED  
NATIONS

EP

UNEP/MED WG.500/9.1



UNITED NATIONS  
ENVIRONMENT PROGRAMME  
MEDITERRANEAN ACTION PLAN

10 May 2021  
Original: English

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

Videoconference, 10-11 June 2021

**Agenda item 6: Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals, Marine Turtles and Sea Birds**

**Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals**



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**Acknowledgment**

This report was prepared with the participation and voluntary contribution of the Permanent Secretariat of ACCOBAMS and will be submitted to its Scientific Committee and the thematic informal Online Working Group (OWG) on Marine mammals for inputs and integration in parallel to its submission to the actual Meeting of the Ecosystem Approach Correspondence Groups on Monitoring (CORMON) Biodiversity and Fisheries (10-11 June 2021).

## **Note by the Secretariat**

In the framework of the UNEP/MAP Programme of Work and Budget for 2020–2021 (COP 21, Decision IG.24/14), INFO/RAC, leads the work on the development and completion of the “*Info/MAP platform and platform for the implementation of IMAP fully operative and further developed, connected to MAP components' information systems and other relevant regional knowledge platforms, to facilitate access to knowledge for managers and decision-makers, as well as stakeholders and the general public*”.

The **EU funded EcAp-MED II Project (2017-2019)** has supported this output with the development of a Pilot IMAP Compatible Data and Information System (IMAP (Pilot) Info System), that has enabled the Contracting Parties to start reporting data as of mid-2020 for selected **11 IMAP Common Indicators**. The IMAP (Pilot) Info System laid down the basis for building a fully operational IMAP Info System as provided for by Decision IG.22/7.

At present, the system supports the reporting data for 11 of the 27 IMAP Common Indicators, namely Common Indicators **1, 2, 6, 13, 14, 15, 16, 17, 21, 22, 23**. The criteria used for selecting the 11 Common Indicators as part of the IMAP (Pilot) Info System have been: a) maturity of Common Indicators as of 2017, in terms of monitoring experiences and best practices; b) existing data collection and availability representing all IMAP clusters; c) availability of Common Indicators Guidance Factsheets and/or metadata templates.

The draft **IMAP (Pilot) Info System** has been developed by INFO/RAC under the coordination of the Secretariat and in close consultation with all relevant MAP Components. The IMAP (Pilot) Info System is now evolving towards the complete IMAP Info System and is able to receive and process data according to the proposed Data Standards and Data Dictionaries (DSs and DDs) that set the basic information on data reporting within IMAP.

It should be noted that proposed DSs and DDs also build on the respective relevant experience of INFO/RAC, as well as the experience gained in building other relevant databases such as EMODnet Chemistry platform, SeaDataNet and WISE Data Dictionary maintained by EEA and available in EIONET. In such a way the IMAP Info System is interrelated with other regional marine databases (e.g. SeaDataNet, SeaDataCloud, EMODNET, etc.), essential to avoid duplication of data transmissions for the Contracting Parties.

The ongoing process of evolution from the pilot to the final IMAP Info System will be also supported by the EU funded project EcAp MED III project and will include the whole set of modules for the IMAP Common Indicators (excluding the candidate C.I.s at the moment).

## **Introduction**

**Data Standards (DSs)** are prepared in the form of Excel spreadsheets in which every column indicates a field to be filled by the data providers. **Data Dictionaries (DDs)** are prepared in the form of Excel spreadsheets in which every row provides information to guide the data provider. DSs & DDs are spreadsheets included in the **same Excel file**, downloadable from the IMAP (Pilot) info system. The data uploaded using the Data Standards will be suitable for the inclusion in the database.

The proposal of DSs and DDs provides broader data sets and associated dictionaries than requested as mandatory by the related IMAP Guidance Factsheets and Metadata Templates. In the Data Standards

the mandatory data are represented in black and the **non-mandatory** ones in red. The possibility to fill in also **non-mandatory** fields is given to allow the Contracting Parties that already have monitoring systems collecting a wider set of data also to report them as the additional data. Although it is at the discretion of the Contracting Parties to decide, reporting on non-mandatory data sets is **strongly encouraged** to avoid knowledge gaps between IMAP and other national data flows.

Following the outcome of CORMONs, the finalized DSs and DDs related to the 11 Common Indicators have been uploaded in the IMAP (Pilot) Info System and the consequent changes to the data base structure have been provided. Therefore, once all the parameters and measurement units have been defined, the correspondent data flow have been activated. Following a testing phase of the IMAP (Pilot) Info System realized with the voluntary participation of interested countries, the **phase I** of the system implementation is officially concluded in June 2020.

Starting from the middle of 2019, after the conclusion of the EcAp MED II Project, discussion about further modules has been started with the thematic MAP Components for each already selected Common Indicator and for the remaining ones in view of the completion of the IMAP Common Indicator set, according to the available resources specifically allocated.

The aim of the current document is to present the “draft” DSs & DDs related to **Common Indicators 3,4&5**. By reviewing this document, the present meeting is expected to provide **guidance, inputs and further reflections** on the proposed “draft” DSs & DDs for the selected Common Indicators. On this basis, a continuous process of harmonization with IMAP guidance factsheets and common indicators monitoring protocols will be assured during **phase II**. Consequently, also the structure of the Data Standards and Data Dictionaries could be revised and harmonized based on the final result of the IMAP developing process. Interactive work will be needed to refine these Data Standards and Data Dictionaries gradually.

As stated by the **CORMON Biodiversity and Fisheries (Marseille 12-13 February 2019)** monitoring protocols should guide data standards development that is carried out in parallel with discussions on the agreed common methodologies. Information systems are a major tool to collect and transfer data. Given that the development of indicators, monitoring methods and data standards are progressing in parallel, close and continuous dialogue and collaboration are needed among the bodies responsible for these developments to ensure their proper alignment and coherence.

The appointment and the activation of on-line network of Mediterranean designate qualified experts of the Biodiversity OWG, supporting INFO/RAC on finalization of DSs and DDs for the cluster Biodiversity and Fisheries, as requested during the CORMON of Marseille (12-13 February 2019) and Rome (21 May 2019), will usefully ensure this coherence.



## Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals

1. Among five common indicators related to biodiversity (EO1) fixed by IMAP, three are about marine mammals:
  - **Common indicator 3:** Species distributional range;
  - **Common indicator 4:** Population abundance of selected species;
  - **Common indicator 5:** Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates)
2. The present document aims to present DSs & DDs related to a part of the available methods for monitoring marine mammals species as expressly reported in the IMAP guidance factsheets.
3. This document reflects comments received during the Integrated Meetings of the Ecosystem Approach Correspondence Groups on IMAP Implementation (CORMONs) Videoconference, December 2020, in the sessions and after the sessions, as appropriate. The documents take into account also discussion held during the following bilateral meetings with SPA/RAC and the Permanent Secretariat of ACCOBAMS.
4. As expressly reported in the IMAP guidance factsheets, several methodologies for monitoring and monitoring protocols are available, using different monitoring platforms and approaches. Countries should select the most appropriate one based on available resources and conservation needs. Some methods could be combined to provide more robust information, such as visual and acoustic census, for example.
5. The present document aims to present DSs & DDs related to the available methods for monitoring marine mammals, basing on the following reference documents:
6. The reference documents for the species to be monitored are:
  - IMAP Guidelines for monitoring Cetaceans in the Mediterranean Sea (WG.461/21) IMAP Guidelines for monitoring Mediterranean monk seal (WG.461/21)
  - Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals, Marine Turtles and Sea Birds (Draft) (WG.482/22)
  - [Guidelines for the Development of National Networks of Cetacean Strandings Monitoring \(SPA/RAC-ACCOBAMS, 2004\)](#)
  - ‘Monitoring guidelines to assess Cetacean’s distributional range, population abundance and population demographic characteristics (adopted by ACCOBAMS Parties in Resolution 6.13)’ has been produced by ACCOBAMS and should be considered as guidance when establishing monitoring programmes.

### Cetaceans

1. There are several methods for the study of cetaceans; the choice of methodologies is made in relation to the parameters to be studied as well as the logistical needs and characteristics of the study areas.
2. IMAP fixes a reference list of cetacean species to be monitored. All cetacean species occurring in the Mediterranean Sea are considered in the IMAP.
3. Eleven species of cetaceans are considered to regularly occur in the Mediterranean area but particular attention is given to the eight resident cetacean species, divided into three different functional groups:
  - Baleen whales: fin whale (*Balaenoptera physalus*)

- Deep-diving cetaceans: sperm whale (*Physeter macrocephalus*), Cuvier's beaked whale (*Ziphius cavirostris*), long-finned pilot whale (*Globicephala melas*) and Risso's dolphin (*Grampus griseus*).
- Other toothed species: short-beaked common dolphin (*Delphinus delphis*), striped dolphin (*Stenella coeruleoalba*), common bottlenose dolphin (*Tursiops truncatus*).

However, three other rare species of cetaceans occur also in the Mediterranean Sea: harbour porpoise (*Phocoena phocoena*), rough-toothed dolphin (*Steno bredanensis*), and killer whale (*Orcinus orca*). Two of these species have very limited ranges: the harbour porpoise, possibly representing a small remnant population in the Aegean Sea, and the killer whale, present only as a small population of a few individuals in the Strait of Gibraltar. The monitoring of these species is proposed as not mandatory.

### **Cetaceans: Species distributional range (Common indicator 3) & Population abundance of selected species (Common indicator 4)**

1. Current knowledge of spatial distributional range of marine mammals in the Mediterranean Sea is largely affected by available data, due to the uneven distribution of research effort during the last decades. In particular, the south-eastern portion of the basin, the coasts of North Africa and the central offshore waters are amongst the areas with the most limited knowledge on cetacean presence, occurrence and distribution even if the ACCOBAMS Survey Initiative project contributed to fill this gap in knowledge thanks to the basin-wide surveys (aerial and boat-based surveys) conducted in 2018 and 2019. Priority should be given to the less known areas, using online data sources and published data and reports as sources of information.

2. Distribution and abundance can be calculated through different methods. The present document provides DSs and DDs for the two monitoring methods as proposed in the related IMAP documents:

#### **Module BA1 - Line transect distance sampling – (C.I.s 3&4)**

1. Estimation of the abundance and distribution of cetaceans can be provided through the line transect distance sampling method. The method consists in covering routes, by air or even by ship (specially designed by specific software in a defined study area).

2. **Line transect distance sampling** is one of the methods of the distance sampling family that allows to define the abundance estimation and distribution of specimens in a given space and in a given period of time.

3. **In line transect sampling**, a survey area is defined and surveyed along a sampling design of pre-determined transects ensuring equal coverage of the area.

4. **Abundance** can be calculated by extrapolating estimated density in the sampled strips to the entire survey area. The calculated number is therefore an estimate of abundance in a defined area at a particular time with its uncertainty.

5. This method, either **boat- or aerial-based**, can provide estimates of abundance, distribution and density of large-scale species for all Mediterranean Sea. At the regional and local level, it appears useful to integrate aerial/boat surveys, to obtain local indications of the conservation status and quality of the habitats.

6. The choice of the monitoring approach will be made by the country on the basis of its national monitoring plan and nature of the monitored area.

7. The present method is applicable not only to cetaceans but also to marine reptiles and birds. The Data Standards and Data Dictionaries have been developed to allow the monitoring of **a large number of taxa**. The monitored species are included in the "List of species" present in the DD of Module **BA1**.

8. During a survey applying the distance sampling method is usually carried out a **strip transect** for marine litter. The related sheet proposed in the standard will allow to collect this type of data on a voluntary basis (not mandatory sheet).



9. The proposed module **BA1** is in line with the other standards developed for the IMAP Info System but also **compliant with ACCOBAMS Survey Initiative metadata templates** developed following the regional surveys carried out in 2018 and 2019 and which will serve future regional survey efforts to be planned.
10. ACCOBAMS ensure an important role in the Mediterranean Sea for the monitoring of cetaceans according to a **regionally harmonized approach**, supported by the **ACCOBAMS Survey Initiative**. It represents an essential baseline scenario for the assessment of distribution and abundance of cetaceans at regional/subregional level.
11. As agreed during the last CORMON meeting on Biodiversity held in the December 2020, the module BA1 has been developed by INFO/RAC in close cooperation with ACCOBAMS and is proposed for the monitoring at regional scale and also **for the Contracting Parties surveys carried out with the same** method to ensure standardized information on cetaceans.
12. For the data collected by ACCOBAMS at the regional level INFO/RAC will liaise directly with ACCOBAMS **on the basis of the interoperability principle between the IMAP (Pilot) Info System and ACCOBAMS Databases supporting system**. On the other side **Contracting Parties** will report monitoring data according to the usual data flow in the IMAP Info System individuating the proper subregion including the country data.
13. Mediterranean Sea presents 4 marine subregions, according to EcAp/IMAP and art.4 of Marine Strategy Framework Directive MSFD (2008/56/EC). These include Western Mediterranean Sea, Adriatic Sea, Central and Ionian Seas, Aegean and Levantine Seas.
14. As ACCOBAMS will represent an important source of information for the reporting of C.I.3 & C.I.4 for cetaceans monitored with the distance sampling method, **synchronization of future periodic surveys** with the needs of IMAP requirements should be taken into account. This aspect is particular relevant in the context of the current development of the ACCOBAMS Long Term Monitoring Programme that will be fully in line with EcAp/IMAP requirements.
15. Fine scale distribution of marine mammals may vary on annual, seasonal or monthly basis. Ideally, monitoring programmes should be conducted focusing breeding and feeding seasons. Temporal scale is largely affected by the conservation questions and expected outputs. International regulation suggests a **six-year interval** between large scale monitoring programmes, but smaller intervals are recommended.
16. Moving from the fact that this document proposes a **unique standard** valid for regional/subregional/national surveys, **the scale** to be considered for data reporting deserves further discussion ( ie. should each country provide data collected at national level, and/or should a regional / subregional implementation approach for cetacean surveying campaigns for data collection/reporting be considered). Progress has been done by SPA/RAC to develop assessment elements, monitoring scale and thresholds/baseline values, which must be reflected in the finalisation of the Standards.
17. Another important issue to be discussed is the modality of **elaboration** of the baseline data collected through module BA1. It is pending to agree the analysis processes that will follow, in particular for the preparation of the next regional assessment report (2023 **MEDQSR**), giving special attention to the comparability and interconnectivity of all reported information.
18. The **effort spreadsheets** provide data about research efforts, information about transects and platforms for observation as well as weather, sea state and wave height. Furthermore, data about glare, visibility and condition influencing visual sighting by boat and plane are provided.
19. The **sighting sheets** aim to collect information about species sightings, size of pods (groups of more than 2-3 animals), age and composition of group as well as cue and direction of swimming. Each sighting survey refers to an effort identification code.
20. Through the distance sighting by plane or/and ship-based survey, information about distribution and abundance are provided by trained-observers.

### **Module BC1 - Photo-Identification (or photo-ID) (C.I.s 3&4)**

21. Scientists use the photo-identification to distinguish cetaceans from each other and recognize them. The technique relies on being able to obtain good quality photos of animals' body parts that constitute unique recognizable markings during their whole life.
22. The animals are photographed and catalogued individually based on natural markings criteria (e.g., pigmentation on the body, shape of the dorsal fin) and "life" markings (scores, notches and scars) that identify them.
23. A number of assumptions are made, particularly relating to recognizability, representativeness of sampling and capture probabilities that should be homogeneous. When an already identified individual is re-sighted, or photographically re-captured, this can provide a response to various issues, such as: population size, site fidelity, distribution, movements, social structure, etc. This means that there is a need for sorting, storing pictures and associated data within a catalogue which should be regularly updated.
24. Photo-identification is a good method to estimate population size (Common Indicator 3&4) through mark-recapture models, and for specific areas that populations or part of populations occupy during one or more seasons of the year. It is also one of the methods to provide population parameters e.g. survival and calving rate.
25. Photo-identification is a good method to study small populations of cetacean's resident in relatively small areas, close to shore as bottlenose dolphins but it can be used for a large number of species. They have the potential to be exposed to a greater level of human activity due to their proximity to humans and due to the small size of the area they inhabit.
26. The study of the ecology and ethology of populations and information on the short and medium range movements of the specimens as well as a series of demographic elements, are usually obtained by photo-ID, a non-invasive technique that allows the identification of specimens through the distinctive and permanent signs present on the body.
27. Photo-ID allows estimates of numbers of animals in a population (either obtained by mark-recapture or in the case of small populations, by direct census), although in their absence, abundance estimates are derived from line-transect surveys.
28. In particular, for Bottlenose dolphins (*Tursiops truncatus*), are long-lived top predators and are highly susceptible to change in their environment. Changes in abundance and distribution provide important information on the state of the population.
29. The standard is structured to collect information about group composition and ages of elements for each sighting.

### **Module BC2 - Acoustic Sampling (C.I.s 3&4)**

30. All cetaceans produce sounds like "clicks" for echolocation or "whistles" (frequency modulated sounds) for intraspecific communication. Acoustic methods allow the near-continuous detection and monitoring of those sounds, allowing the collection of information on spatial and temporal habitat use, as well as estimation of relative density for some species and even abundance for sperm whale.
31. One array with at least two hydrophones are towed by a moving boat. Listening and recording can be continuous or by samples. The array enables to determine angle at perpendicular distance, which is the base of the analysis of the "line transect" method. The trajectory of the boat should be constant in speed and heading, following a predefined design or random transects.
32. The area covered is bounded by the probability of detection by the hydrophone and the frequency and power of the sound made by the animals.
33. This is the most effective method to survey sperm whale, as they are long-deep diving species, and they use "clicks" during the entire duration of their dives. Acoustic data from sperm whales can be

used to assess both relative and absolute abundance and also distribution, provided that the appropriate equipment and survey design is followed. For other species, acoustic results might be complementary to visual ones for Common Indicator 3, but not for indicator 4 as methods to relate sounds to abundance of animals are not efficient yet.

### **Module BC3 - Population demographic characteristics (C.I. 5)**

1. The populations of long-lived and slow reproducing cetaceans are among the most critical conservation units; a demographic approach can be therefore very useful for their management and conservation.
2. The objective of IMAP Common Indicator 5 is to focus on the population demographic characteristics of marine mammals within the Mediterranean waters, with a special emphasis to those species selected by the Contracting Parties.
3. Demographic studies on marine mammals, which are long-living species, require long-term projects, to allow robust indications on trends in population size and demographic parameters over time.
4. Demographic characteristics of a given population may be used to assess its conservation status by analysing demographic parameters as the age, sex ratio and rates of birth (fecundity) and of death (mortality). These data are particularly difficult to obtain for marine mammals, thus relying on demographic models, which imply several assumptions which may be violated. Some demographic characteristics can be obtained counting population individuals grouped by age or by stages in a given time period.
5. This indicator is aimed at providing information about the population demographic characteristics of marine mammals in the Mediterranean Sea. Monitoring effort should be directed to collect long-term data series covering the various life stages of the selected species. This would involve the participation of several teams using standard methodologies and covering sites of particular importance for the key life stages of the target species.
6. The present standard has been developed on the reference IMAP documents and with a different structure. Due to the high amount of possible available methodologies for monitoring and monitoring protocols, the DSs has been focused on the main demographic parameters as body size or age class structure, sex ratio, fecundity rates, survival/mortality rates, without requesting associated monitoring data.
7. The standards, as developed, allow each Contracting Party to report final data related to Common Indicator 5, **independently from the method applied in its sub-region**. Demographic data can be provided by numerous monitoring protocols as photo-identification, stranded animal monitoring, biopsy and by-catch
8. **Photo-identification** (mark-recapture models) is one of the most powerful techniques to investigate marine mammals populations. Information on group composition, area distribution, inter-individual behaviour and short and long-term movement patterns can be obtained by the recognition of individual animals. Long-term datasets on photo-identified individuals can provide information on basic life-history traits, such as age at sexual maturity, calving interval, reproductive and total life span. The mark-recapture technique can also be applied to obtain estimates of population size.
9. **Stranded animal monitoring** can provide sex and length at death. This information may be uneven, since in many cases sex and exact size measurements may be imprecise due animal decomposition. Dealing with stranded data implies several assumptions; the main one being that stranding data represent a faithful description of the real mortality by different life stages. This assumption, however, is true only if the probability of stranding is equal in all life stages. Estimating age and length from free-ranging individuals may be rather difficult and increase the uncertainties in the models. **Long-term data sets** on known individuals through photo-identification may overcome some of the biases.

10. **Biopsy** consists in collecting on living animals at sea fragments of skin and blubber. This can be done by throwing with a crossbow darts with tip, dart gun, riffle or even a pole with biopsy tip or skin swabbing when dealing with bowriding animals for example.

11. Such samples allow to gather information on biodemographic parameters (C.I. 5): To determine the sex of the animal, the genetic specificity of individuals (fragment of DNA) of the same species, information on the reproductive status of individuals (e.g., pregnancy for females) based on the level of hormones. Several parameters included in the indicator 5 can be obtained through the analysis of the skin and blubber collected with the biopsy method: sex ratio, pregnancy rates. Also, the genetic structure of the animals allows to better determine the limit of a “population”, or a sub-population, which helps to know when looking for the distribution or abundance of this population.

12. **By-catch.** Marine mammals are frequently captured in fishing gear. "By-catch" means cetaceans accidentally captured by commercial fishing, sometimes but rarely by recreational fishing. Scientific observers can be embarked on board professional fishing ships, to observe captures and fishing conditions, and to take measures and biological samples. Analysis of the measures and samples collected on carcasses provide a lot of information on demography (C.I. 5) such as size of animals, age at maturity, rate of pregnancy, sex ratio etc.

13. **The module BC3** is structured with three different data standards spreadsheets (for each DD and DS) aiming at collecting data about Survey Area, demographic characteristics related to sighted group of species (Species) and demographic characteristics for each specimen identified within the survey (Individual). The Species spreadsheet collects information about composition group, number of elements, group size, behaviour and mortality rate/fecundity rate. Individual sheet is designed to collect data such as gender, structure size as well as methodology used for survey (Biopsy, Stranding, By-catch, Photo-identification)

#### **Module BM1 - Monk seal (C.I.3,4&5)**

1. The Mediterranean is also the original habitat from a pinniped species, the Mediterranean monk seal (*Monachus monachus*). Although the species occurs only regularly in the eastern basin, mainly along the coasts of Greece and Turkey, some individuals have been sighted during the last decade in the western basin.

2. The Mediterranean monk seals spends most of their time in the water, however, **monitoring them in the aquatic environment is a challenging job** and provide **little information on the population**. On the other hand, they **marine caves** while haul out to rest and breed and this period is the **best option** to collect data on the species.

3. The monk seal cave might may have underwater entrance with very narrow passage and a long corridor, so it is not always easily recognizable from surface. When an entrance is found, a team member should enter the cave with necessary precautions taken in order not to disturb the animals. **Caves with underwater entrances** should always be investigated by **free diving**.

4. Cave surveys aim to identify caves that are suitable for monk seal use. The caves that are actively used by monk seals are monitored by **non-detering camera traps**, the most suitable method in order to minimize disturbance while monitoring the population. Surveys should be conducted in areas not investigated before to explore caves which meet the requirements and descriptions of a Mediterranean monk seal cave (IUCN/UNEP, 1998).

5. The cave inventory includes the coordinates of the cave and various characteristics including number of entrances and dimension, resting platforms, air chambers, its photograph, total length, seal tracks etc.

6. **Land based survey** is conducted by a team of **two observers**. Observers collect information on date, start and end times of observation, name and coordinates of observation point, weather conditions (taken at hourly intervals or when it changes), time of seal sighting, seal morphology and behaviour. Photos/videos are taken when possible.

7. Information on stranded animal is recorded including the ID number, observation date, stranding location, latitude and longitude coordinates, length and weight of the animal (where possible to measure), age class, sex, stranding condition (live or dead), and other observational comments, including evidence of injury or human interaction.

8. Module **BM1** (DS and DD) is structured with 3 different spreadsheets, aiming to define a cave inventory, land base data related to seal sighting and seal morphology and behaviour as well as demography information.

**Table 1: DS&DDs Module BA1 (Line transect distance sampling) Aerial Effort for IMAP C.I.s 3&4 - Cetaceans**

Field	Description (EN)	List of values
<b>Region</b>	Region of the survey. For national survey specify the country code otherwise write MED	
<b>Survey_ID</b>	Survey ID	
<b>SurveyName</b>	Name of the survey	
<b>SubRegion</b>	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>Strate</b>	Label of the strata block. Specify one of the value of Map of Strata	
<b>StrateType</b>	Type of strata	
<b>TransectID</b>	Transect label (strata number/Line number. E.g. 02/101)	
<b>Flight</b>	Flight number incremented by team.	
<b>FlightID</b>	Flight identification code	
<b>ComputerID</b>	Computer ID allocated to a team for a period of time	
<b>RouteType</b>	Only effort (LEG) is selected in this data set (LEG, TRANSIT, CB)	
<b>EffortGrpID</b>	Key index for a transect between beginning and end of the effort. ex :G1-10-A	
<b>EffortID</b>	Key index for a Leg with homogenous environmental condition. ex: L1-10-A	
<b>Status</b>	Status of the effort. Choose one of the values of the list	BEGIN ADD END
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	HourMinutesSecond HH:MM:SS (all in UTC excepted flights 1 to 4 in UTC-1)	
<b>SeaState</b>	Sea state based of Beaufort scale. Specify one of the value of the Beaufort scale sheet	
<b>Swell</b>	Indicate if swell is present. Choose one of the values of the list	0 = no 1 = presence without affecting the detection 2 = presence affecting detection

<b>Turbidity</b>	Indicate the water turbidity level. Choose one of the values of the list	0 = clear water: objects and animals probably visible several meters under the surface 1 = moderately clear water: objects and animals visible under the surface 2 = turbid water (e.g. muddy): objects and animals only visible very close (<50 cm) to the surface 9 = unknown turbidity
<b>SkyGlint</b>	Silvery shine (present or not). Choose one of the value of the list	0 = no or slight 1 = medium or strong affecting the detection by transparency
<b>GlareFrom</b>	Angle of the beginning of the glare measured clockwise (0-360°). Use the 360° system (NB dead ahead is 360 not 0) with glare from xx to xx measured clockwise - e.g. 360° to 180° means the right side of the plane is covered in glare, whereas 180° to 360° means the left side of the plane is covered in glare. Please enter 0,0,0 in all three glare fields if there is no glare.	
<b>GlareTo</b>	Angle of the end of the glare measured clockwise (0-360°). Use the 360° system (NB dead ahead is 360 not 0) with glare from xx to xx measured clockwise - e.g. 360° to 180° means the right side of the plane is covered in glare, whereas 180° to 360° means the left side of the plane is covered in glare. Please enter 0,0,0 in all three glare fields if there is no glare.	
<b>GlareSever</b>	Indicate the glare severity. Choose one of the value of the list	0 = no glare 1 = slight glare – will affect observer’s sightings within that sector very little 2 = moderate glare – may affect observer’s ability to detect sightings within that sector 3 = strong glare – will severely affect observer’s ability to detect sightings within that sector
<b>GlareUnder</b>	Specify glare affect the 200m strip both sides of the plane. Write 1 when the glare affects both sides, with the midday sun for example, or if the glare affects opposite side, passing under the plane and masking the 200 m strip.	0 1
<b>CloudCover</b>	Cloud cover. Use the octaves system (i.e. full coud cover = 8, clear sky = 0), evaluate by the navigator above the plane.	

<b>Subjective</b>	Observer subjective view given all conditions. This represents each observer's subjective view of the likelihood that, given all of the conditions, they would see a small specimen within the primary search area should one be present. Specify one of the values of the list. NOTE 1: You have to fill two letters in this field (no comma or space); e.g. GG or MG (left side right side). NOTE 2: The navigator needs to change the conditions when the observer is back on effort or when the land is gone; i.e. from XG back to GG or from ML to MM or whatever the conditions are at that moment.	E = Excellent - absolutely nothing affects the detection of a small specimen (no glare, no glint, sea state 0 or slight 1) G = Good - observer believes that the likelihood is good. Normally will require at least a sea state of 2 or less, no or slight glare, and a turbidity of less than 2 M = Moderate - Observer believes that the likelihood while not good is not poor P = Poor - when the observer believes that it is unlikely to see a small specimen unless for example it is showing exuberant behavior and/or is very close to the trackline L = Land - when over land (e.g. an island) X = Exceptional - exceptional circumstances, an observer may decide to go off effort even if the conditions are suitable (e.g. illness) – he will also go off effort if there is fog or rain that makes searching impossible
<b>Left</b>	Name of the observer on the left side of the plane. For ACCOBAM write the initial and choose one of the value of the value in the "Observers_List" sheet (column "Initial")	
<b>Right</b>	Name of the observer on the right side of the plane. For ACCOBAM write the initial and choose one of the value of the value in the "Observers_List" sheet (column "Initial")	
<b>Center</b>	Name of the observer on the left side of the plane. For ACCOBAM write the initial and choose one of the value of the value in the "Observers_List" sheet (column "Initial")	
<b>Latitude</b>	Latitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Altitude</b>	Approximate altitude of the plane (from GPS)	
<b>Aircraft_ID</b>	Aircraft registration code	
<b>DATE_TIME1</b>	Date and time of the sighting. Use format YYYY/mm/dd HH:MM:SS. For Month (mm) and Day (dd) use 1-12 format	
<b>DATE_TIME2</b>	Date and time of the sighting. Use format YYYY/mm/dd HH:MM:SS. For Month (mm) and Day (dd) use 1-12 format	
<b>IdLeg</b>	Identification number for each transect leg (from GPS)	

<b>LengthKm</b>	Transect length in km	
<b>Shape_Leng</b>	Area of the shape	
<b>HHMMSS1</b>	HourMinutesSecond HHMMSS (all in UTC excepted flights 1 to 4 in UTC-1) at beginning of the segment	
<b>HHMMSS2</b>	HourMinutesSecond HHMMSS (all in UTC excepted flights 1 to 4 in UTC-1) at the end of the segment	
<b>Xstart</b>	X coordinates at beginning of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Ystart</b>	Y coordinates at beginning of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Xend</b>	X coordinates at the end of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Yend</b>	Y coordinates at the end of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Remarks</b>	Notes	

**Table 2: DSs&DDs Module BA1 (Line transect distance sampling) Boat Effort for IMAP C.I.s 3&4 - Cetaceans**

Field	Description (EN)	List of values
<b>Survey_ID</b>	Unique identifier for each segment of survey effort	
<b>Region</b>	Region of the survey. For national survey specify the country code otherwise write MED	
<b>Survey</b>	Name of the survey	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	HourMinutesSecond HH:MM:SS (all in UTC excepted flights 1 to 4 in UTC-1)	
<b>Latitude</b>	Latitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Stratum</b>	Block number/label. See "Map of Strata" sheet	
<b>Effort</b>	Status of survey effort. Choose one of the value of the list	T = transect; P = passage; A = acoustic; V = visual; WA = with animals; OT = other
<b>Transect_visual_ID</b>	Transect label (stratum/line number) when on visual effort (e.g. B01T01). The monitoring data of this sheet refer to this code	
<b>Transect_acoustic_ID</b>	Transect label (stratum/line number) of acoustic effort (e.g. B01T01) if the acoustic sampling has been made.	
<b>Observers_platform</b>	Number of observers on the elevated observation platform	
<b>Observers_deck</b>	Number of observers on deck	



<b>Sea_state</b>	Sea state based of Beaufort scale. Specify one of the value of the "Beaufort_scale" sheet	
<b>Wave_height</b>	Wave height (m)	
<b>Swell_height</b>	Swell height (m)	
<b>Cloud_cover</b>	Cloud cover. Use a subjective scale between 0=clear sky and 10=full cover	
<b>Visibility</b>	Visibility. Use a subjective scale from 0 to 3	
<b>Pressure</b>	Barometric pressure in millibars	
<b>Glare_intensity</b>	Glare intensity (subjective scale)	
<b>Glare_start</b>	Angle of the start of any glare (° relative to boat) in degrees	
<b>Glare_stop</b>	Angle of the end of any glare (° relative to boat) in degrees	
<b>Sail_start</b>	Angle of the start of any obstructive sails (° relative to boat) in degrees	
<b>Sail_stop</b>	Angle of the end of any obstructive sails (° relative to boat) in degrees	
<b>PerpDist</b>	Perpendicular distance of the sighting (from angle with 600 feet of altitude)	
<b>DATE_TIME1</b>	Date and time of the sighting. Use format YYYY/mm/dd HH:MM:SS. For Month (mm) and Day (dd) use 1-12 format	
<b>DATE_TIME2</b>	Date and time of the sighting. Use format YYYY/mm/dd HH:MM:SS. For Month (mm) and Day (dd) use 1-12 format	
<b>IdLeg</b>	Identification number for each transect	
<b>LengthKm</b>	Transect length in km	
<b>Shape_Leng</b>	Area of the shape	
<b>HHMMSS1</b>	HourMinutesSecond HHMMSS (all in UTC excepted flights 1 to 4 in UTC-1) at beginning of the segment	
<b>HHMMSS2</b>	HourMinutesSecond HHMMSS (all in UTC excepted flights 1 to 4 in UTC-1) at the end of the segment	
<b>Xstart</b>	X coordinates at beginning of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Ystart</b>	Y coordinates at beginning of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Xend</b>	X coordinates at the end of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Yend</b>	Y coordinates at the end of the segment of the transect in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Remarks</b>	Notes	

**Table 3: DSs&DDs Module BA1 (Line transect distance sampling) Sighting Aerial for IMAP C.I.s 3&4 - Cetaceans**

Field	Description (EN)	List of values
<b>Region</b>	Region of the survey. For national survey specify the country code otherwise write MED	

<b>SubRegion</b>	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>Survey_ID</b>	Survey identification code	
<b>SurveyName</b>	Name of the survey	
<b>StrateType</b>	Type of strata	
<b>Strate</b>	Label of the strata block. Specify one of the value of Map of Strata	
<b>TransectID</b>	Transect label (strata number/Line number. E.g. 02/101)	
<b>Flight</b>	Flight number incremented by team.	
<b>ComputerID</b>	Computer ID allocated to a team for a period of time	
<b>RouteType</b>	Only effort (LEG) is selected in this data set (LEG, TRANSIT, CB)	
<b>EffortGrpID</b>	Key index for a transect between beginning and end of the effort. ex :G1-10-A	
<b>EffortID</b>	Key index for a Leg with homogenous environmental condition. ex: L1-10-A	
<b>SightingID</b>	Key index for the sighting (ex S2-10-A)	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	HourMinutesSecond HH:MM:SS (all in UTC excepted flights 1 to 4 in UTC-1)	
<b>Taxon</b>	Taxa of the sighting. Choose one of the values of the list	Other = Other Marine Wildlife Human = Human activity Marine = Marine mammal Seabird = Seabird Landbird = Landbird Coastal = Coastal
<b>Group</b>	Indicate the group or genus of the sighting. Choose one of the values in the "Species_list" sheet, column "GROUPE"	
<b>Family</b>	Indicate the family of the sighting. Choose one of the values in the "Species_list" sheet, column "FAMILLE"	
<b>SpeciesCode</b>	Indicate the species code of the sighting. Choose one of the values in the "Species_list" sheet, column "CODE"	
<b>SpeciesNam</b>	Indicate the species name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_COMM"	
<b>SpeciesLat</b>	Indicate the species latin name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_LAT"	
<b>PodSize</b>	Group size of the sighting. Enter the total school size including calves. If you are unsure of the exact number, enter your best estimate and put the range in the comments field. A group is defined as containing individuals not more than 2-3 animal lengths from each other, and exhibiting the same swimming pattern and/or general behaviour. When animals are distributed in loose aggregations, it is better to identify smaller, homogeneous groups within the aggregation. Note in a comment that the groups belong to the same aggregation.	

<b>Age</b>	Specify if Adult, Immature, Juvenile. Only for Lariids and Boobies. Choose one of the values of the list	J = Juvenile I = Immature A = Adult M = mixed groups U = Unknown
<b>DecAngle</b>	Angle measurement (of the perpendicular distance). This is the declination angle (to the nearest degree – do not round to the nearest 5°) to the animal (or centre of a school) when the sighting is abeam (or estimated to come abeam if it has dived). Use the left hand scale of the inclinometer (the horizon=0 and directly below the plane=90). Keep the inclinometer in your hand so that you are quickly ready to record the angle. Where more than one animal is involved measure the angle to the centre of the pod. Note: At a height of 183 m (600 feet), an angle of 45° corresponds to 183 m. An angle of 20° corresponds to around 500m.	
<b>Cue</b>	Enter the appropriate code for the first visual signal allowing to detect the animal(s). Choose one of the values of the list	U = Body seen under water surface A = Body seen at water surface 2 = Splash 3 = Blow 4 = Breach-jump 5 = Vessel-Gear 6 = Slick, 'footprint' or ring 7 = Birds 8 = Other associated wildlife (e.g. fish) 9 = Other cue, put in comment
<b>Behaviour</b>	Dominant behaviour. Record the code for the most dominant behaviour for a sighting. Choose one of the values of the list	SW = directional swimming MI = Non-directional swimming (milling) BR = Breaching, jumping FE = Feeding, foraging FA = Multi species feeding aggregation LO = Logging, Sleeping, Resting SB = Interaction with vessels (bowriding, following fishing vessels, scavenging) OT = Other, put in comment
<b>SwimDir</b>	Swimming direction. Enter one of the 4 swimming direction of the animal(s) relative to the plane using the 360° system. Choose one of the values of the list	360 90 180 270
<b>Calves</b>	Number of calves in the pod. Record the number of calves in the pod, using the size of the animal and behavior to determine calves. If there is no calve, leave the field blank.	
<b>Photo</b>	Specify if photo(s) were taken. Choose one of the values of the list	Yes No
<b>Observer</b>	Name of the observer. For ACCOBAM write the initial and choose one of the value of the value in the "Observers_List" sheet (column "Initial")	
<b>Side</b>	Side of the sighting. Choose one of the values of the list	Right=RIGHT Left=LEFT
<b>Status</b>	Status of the sighting. Choose one of the values of the list	NEW CB

<b>Latitude</b>	Latitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Speed</b>	Speed from the GPS in km/h	
<b>Altitude</b>	altitude from the GPS in m	
<b>Aircraft_ID</b>	Aircraft registration code	
<b>PerpDist</b>	Perpendicular distance of the sighting (from angle with 600 feet of altitude)	
<b>DateTime</b>	Date and time of the sighting. Use format YYYY/mm/dd HH:MM:SS. For Month (mm) and Day (dd) use 1-12 format	
<b>Remarks</b>	Notes	

**Table 4: DSs&DDs Module BA1 (Line transect distance sampling) Sighting Boat for IMAP C.I.s 3&4 - Cetaceans**

<b>Field</b>	<b>Description (EN)</b>	<b>List of values</b>
<b>Survey_ID</b>	Unique identifier for each sighting	
<b>Region</b>	Region of the survey	
<b>Survey</b>	Name of the survey	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	HourMinutesSecond HH:MM:SS (all in UTC excepted flights 1 to 4 in UTC-1)	
<b>Latitude</b>	Latitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Strate</b>	Label of the strata block. Specify one of the value of Map of Strata	
<b>Transect_ID</b>	Transect label (strata number/Line number. E.g. 02/101)	
<b>Taxon</b>	Taxa of the sighting. Choose one of the values of the list	Other = Other Marine Wildlife Human = Human activity Marine = Marine mammal Seabird = Seabird Landbird = Landbird Coastal = Coastal
<b>Group</b>	Indicate the group or genus of the sighting. Choose one of the values in the "Species_list" sheet, column "GROUPE"	
<b>Family</b>	Indicate the family of the sighting. Choose one of the values in the "Species_list" sheet, column "FAMILLE"	
<b>SpeciesCode</b>	Indicate the species code of the sighting. Choose one of the values in the "Species_list" sheet, column "CODE"	
<b>SpeciesNam</b>	Indicate the species name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_COMM"	

<b>SpeciesLat</b>	Indicate the species Latin name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_LAT"	
<b>SpeciesCode2</b>	Indicate the species code of the sighting. Choose one of the values in the "Species_list" sheet, column "CODE"	
<b>SpeciesNam2</b>	Indicate the species name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_COMM"	
<b>SpeciesLat2</b>	Indicate the species Latin name of the sighting. Choose one of the values in the "Species_list" sheet, column "NOM_LAT"	
<b>Confidence</b>	Confidence level of the species (subjective scale). Choose one of the values of the list	Definite=Definite Possible=Possible Probable=Probable
<b>Cue</b>	Visual cue that alerted the observer to the animals' presence. e.g. blow. Choose one of the values of the list	U = Body seen under water surface A = Body seen at water surface 2 = Splash 4 = Breach-jump 5 = Vessel-Gear 6 = Slick, 'footprint' or ring 7 = Birds 8 = Other associated wildlife (e.g. fish) 9 = Other cue, put in comment
<b>PodSize</b>	Indicate the group size of the sighting (mean number)	
<b>PodSizeMin</b>	Indicate the group size of the sighting (minimum number)	
<b>PodSizeMax</b>	Group size of the sighting (maximum number)	
<b>Adults</b>	Indicate the number of adults in group (if identifiable)	
<b>Juveniles</b>	Indicate the number of juveniles in group (if identifiable)	
<b>Calves</b>	Indicate the number of calves in group (if identifiable)	
<b>Birds</b>	Indication of any birds associated with the sighting. Choose one of the values of the list	Yes No
<b>ObserverEffort</b>	Observer's effort status for sighting. Choose one of the values of the list	Dedicated=Dedicated Incidental=Incidental
<b>Observer</b>	Initial of the observer. Please see table of observers	
<b>Platform</b>	Observation platform from which the sighting was made. e.g. A-frame, deck	
<b>Heading</b>	Direction of travel (if any) of the animals (° relative)	
<b>Orientation</b>	Orientation of the animals when first observed (° relative)	
<b>Behaviour1</b>	Observed behaviour (e.g. bowriding, travelling, breaching)	
<b>Behaviour2</b>	Observed behaviour (e.g. bowriding, travelling, breaching)	
<b>Behaviour3</b>	Observed behaviour (e.g. bowriding, travelling, breaching)	
<b>Remarks</b>	Notes	

**Table 5: DSs&DDs Module BA1 (Line transect distance sampling) Litter for IMAP C.I.s 3&4 - Cetaceans**

Field	Description (EN)	List of values
<b>Survey_ID</b>	Unique identifier for each sighting	
<b>Region</b>	Region of the survey	
<b>Survey</b>	Name of the survey	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	HourMinutesSecond HHMMSS (all in UTC excepted flights 1 to 4 in UTC-1)	
<b>Latitude</b>	Latitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Stratum</b>	Block number/label	
<b>Material</b>	Type of material. Choose one of the values of the list	Glass Metal Plastic Polystyrene Wood Other
<b>Category</b>	Category of litter. Choose one of the values of the list	balloons clothing & shoes fishing gea food packaging packaging sanitary item timber other
<b>Size</b>	Size class. Choose one of the values of the list	1 = 10-50 cm 2 = 50-100 cm 3 = >100 cm
<b>Colour</b>	Colour of litter. Choose one of the values of the list	Black/brown Blue/Green fluorescent metallic multi-coloured red/orange white/yellow
<b>Cluster</b>	Is the litter part of a cluster? Choose one of the values of the list	Yes No
<b>Remarks</b>	Notes	

**Table 6: DSs&DDs Module BA1 (Line transect distance sampling) & Module BC2 (Acoustic Sampling) Species List for IMAP C.I.s 3&4 - Cetaceans**

NOM_COMM	NOM_LATIN	FAMILLE	GROUPE
Minke whale	<i>Balaenoptera acutorostrata</i>	Baleinopteridae	Small Baleinopteridae
Sei whale	<i>Balaenoptera borealis</i>	Baleinopteridae	Large Baleinopteridae
Fin whale	<i>Balaenoptera physalus</i>	Baleinopteridae	Large Baleinopteridae

Balaenopterid sp.	<i>Balaenopteridae sp.</i>	Baleinopteridae	Large Baleinopteridae
Cetacea	<i>Cetacea</i>	Cetacea	Cetacean unidentif.
Common dolphin	<i>Delphinus delphis / capensis</i>	Delphininae	Small Delphininae
Delphinid sp.	<i>Delphinidae sp.</i>	Delphinidae	Delphinid
Pygmy killer whale	<i>Feresa attenuata</i>	Globicephalinae	Small globicephaline
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Globicephalinae	Large globicephaline
Long-finned pilot whale	<i>Globicephala melas</i>	Globicephalinae	Large globicephaline
pilot whale / False killer whale	<i>Globicephala / Pseudorca</i>	Globicephalinae	Large globicephaline
Short / Long finned pilot whale	<i>Globicephala melas / Macrorhynchus</i>	Globicephalinae	Large globicephaline
Risso's dolphin	<i>Grampus griseus</i>	Globicephalinae	Small globicephaline
Pygmy sperm whale	<i>Kogia breviceps</i>	Kogiidae	Sperm whale
Dwarf sperm whale	<i>Kogia sima</i>	Kogiidae	Sperm whale
Pygmy / Dwarf sperm whale	<i>Kogiidae sp.</i>	Kogiidae	Sperm whale
Large Cetacea	<i>Large Cetacea</i>	Cetacea	Cetacean unidentif.
Large delphininae sp	<i>Large delphininae</i>	Delphininae	Large Delphininae
Medium Cetacea	<i>Medium Cetacea</i>	Cetacea	Cetacean unidentif.
Humpback Whale	<i>Megaptera novaeangliae</i>	Baleinopteridae	Large Baleinopteridae
Sowerby's beaked whale	<i>Mesoplodon bidens</i>	Ziphiidae	Mesoplodon
Blainville's beaked whale	<i>Mesoplodon densirostris</i>	Ziphiidae	Mesoplodon
Gervais' beaked whale	<i>Mesoplodon europaeus</i>	Ziphiidae	Mesoplodon
Mesoplodont whales sp	<i>Mesoplodon sp.</i>	Ziphiidae	Mesoplodon
Killer whale	<i>Orcinus orca</i>	Globicephalinae	Large globicephaline
Melon-headed whale	<i>Peponocephala electra</i>	Globicephalinae	Small globicephaline
Melon-headed / Pygmy killer whale	<i>Peponocephala / Feresa</i>	Globicephalinae	Small globicephaline
Seal und.	<i>Phocidae sp</i>	Phocidae	Seal
Harbour porpoise	<i>Phocoena phocoena</i>	Phocoenidae	Phocoenidae
Sperm whale	<i>Physeter macrocephalus</i>	Physeteridae	Sperm whale
False killer whale	<i>Pseudorca crassidens</i>	Globicephalinae	Large globicephaline
Small Cetacea	<i>Small Cetacea</i>	Cetacea	Cetacean unidentif.
Small delphininae	<i>Small delphininae /</i>	Delphininae	Small Delphininae
Humpback dolphin	<i>Sousa chinensis / plumbea</i>	Delphininae	Small Delphininae
Rough-toothed dolphin	<i>Steno bredanensis</i>	Delphininae	Large Delphininae
Striped dolphin	<i>Stenella coeruleoalba</i>	Delphininae	Small Delphininae
Striped dolphin / Common dolphin	<i>Stenella coeruleoalba / Delphinus delphis</i>	Delphininae	Small Delphininae
Bottlenose dolphin	<i>Tursiops truncatus</i>	Delphininae	Large Delphininae
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	Ziphiidae	Other beaked whale
Ziphiid sp. (Beaked whale)	<i>Ziphiidae sp.</i>	Ziphiidae	Other beaked whale

Eleven species of cetaceans considered to regularly occur in the Mediterranean area. See IMAP factsheet on Biodiversity. "Factsheet Bio and Fisheries"

**Table 7: DSs&DDs Module BC1 (Photo Identification) Area for IMAP C.I.s 3&4 - Cetaceans**

Field	Description (EN)	List of values
CountryCode	Enter member country code as ISO two digits, for example "IT" for Italy.	
AreaID	Identification code of the survey area	
Sub_Region	Sub-region according to the Mediterranean Sea subdivision	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
AreaName	Study Area Name	
AreaExtension	Survey Area extension (km <sup>2</sup> )	
Latitude	Latitude of the centroid or a reference point inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of the centroid or a reference point inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
AreaFile	Naming the GIS file that contains the polygon (s) of the survey area. In the attribute table of the GIS file, for each polygon (s) of the survey area, the survey area code in the AreaID field must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleBC1_GISfile_ <Sub-Region> _ <AreaName> _ <gg_mm_aaaa> .zip", eg. ModuleTT1_GISfile_Ionian_GulfofTaranto_05_2016.zip. If Region and / or AreaName contains spaces, replace these spaces with "_".	
DistributionMap	Naming the GIS file that contains the polygon (s) of the survey area including sighting of monitored species. In the attribute table of the GIS file, for each polygon (s) of the survey area, the survey area code in the AreaID field must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleTT1_GISfile_<Sub-Region> _ <AreaName> _ Distribution_<gg_mm_aaaa> .zip", eg. ModuleBC1_GISfile_Ionian_GulfofTaranto_Distribution_05_2016.zip. If Region and / or AreaName contains spaces, replace these spaces with "_".	
Remarks	Notes	

**Table 8: DSs&DDs Module BC1 (Photo Identification) Navigation for IMAP C.I.s 3&4 - Cetaceans**



Field	Description (EN)	List of values
<b>AreaID</b>	Identification code of the survey area	
<b>Year</b>	Year of sampling in YYYY format	
<b>Month</b>	Month of sampling in 1-12 format	
<b>Day</b>	Day of sampling in 1-31 format	
<b>Time</b>	Hours-minutes-seconds of sampling in HH:MM:SS: format	
<b>SeaState</b>	Refer to the Beaufort scale of the wind strength that has effect on the sea surface. Enter one of the values from the "Beaufort_scale_List" sheet, column "Force"	
<b>CloudCover</b>	Estimation of cloud covering in octaves (0/8 = clouds absence; 8/8 = total covering)	
<b>GeneralConditions</b>	Subjective indication relative to how the observer feels the general conditions (poor, moderate or good) for the goal of the sighting. The effects of the sea state and the cloud covering together with other factors that could have an effect on the capacity of seeing the individuals (ship velocity, sun reflection on the sea) should be evaluated on the whole.	
<b>Effort</b>	It indicates the research activity (research effort), i.e. if during the navigation the observations have been made. The information occur for defining the frequencies (the number of times a phenomenon occurs in a time interval) of watching. Insert one of the List values	N = No/No Y = Yes/Oui
<b>Sighting</b>	Indicate if at least one sighting has been obtained. Insert one of the list values. In the case the value is 'N' leave empty the fields N_sighting, GroupDimension, N_adults, N_subadults. Insert one of the List values	N = No/No Y = Yes/Oui
<b>SightingID</b>	Indicate the Sighting identificatio code. The ID must be unique	
<b>N_sighting</b>	Number of sighting for each identification code	
<b>SpeciesID</b>	Species reference code, enter one of the list values from "Species_List", column "SpeciesID"	
<b>GroupDimension</b>	Indication of the total number of individuals present (for each sighting).	
<b>N_adults</b>	Indication of the number of adult individuals of the group (average dimensions of a tursiopes are comprised between 2 and 3 meters); distinction between adults and subadults is for confrontation among the dimensions of the individuals of the group.	
<b>N_subadults</b>	Indication of the number of individuals of dimensions smaller than those of the adult individuals of the group.	
<b>Remarks</b>	Every information considered useful to complete the indications on the sighting conditions or the sighting itself (i.e. behaviours, particular signs of the individuals, boundary conditions elements). In the case the text exceeds 255 characters, give indication of the report in which such informations are contained	

**Table 9: DSs&DDs Module BC1 (Photo Identification) Photo Identification** for IMAP C.I.s 3&4 - Cetaceans

Field	Description (EN)	List of values
<b>AreaID</b>	Identification code of the survey area	
<b>Year</b>	Year of sampling in YYYY format	
<b>Month</b>	Month of sampling in 1-12 format	
<b>Day</b>	Day of sampling in 1-31 format	
<b>Time</b>	Hours-minutes-seconds of sampling in HH:MM:SS: format	
<b>Sighting</b>	Indicate if at least one sighting has been obtained. Enter one value of the list values. In the case the value is 'N' leave empty the fields N_sighting, GroupDimension, N_adults, N_subadults. Insert one of the List values	N = No Y = Yes
<b>SightingID</b>	Indicate the Sighting identification code. The ID must be unique	
<b>PhotoSequence</b>	Photo sequence (numeric interval relative to the photos i.e. 138-150) related to the sighted group. Please separate different photo sequences for each sighting ID	
<b>CompositionGroup_N_tot</b>	Total number of individuals for each sighting.	
<b>CompositionGroup_N_adults</b>	Number of adults. The distinction between adults and subadults is made by comparison between individuals into the group	
<b>CompositionGroup_N_subadults</b>	Number of subadults	
<b>Remarks</b>	Any further information on the photo sequence and/or the photographed individuals (indication on particular signs could be also eventually reported on the drawing of the dorsal fins). In the case the text exceeds 255 characters, give the indications of the report in which such information are contained.	

**Table 10: DSs&DDs Module BC2 (Acoustic Sampling) Recording** for IMAP C.I.s 3&4 - Cetaceans

Field Name	Definition_Eng	List of values
<b>Survey_ID</b>	Unique identifier for each segment of survey effort	
<b>Region</b>	Region of the survey. For national survey specify the country code otherwise write MED	
<b>Survey</b>	Name of the survey	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	Hour-minutes-seconds of sampling in HH:MM:SS format	
<b>Size_mb</b>	File size (mb)	
<b>Filename</b>	Name of .wav file (E.g. 192_20120524_015122_844.wav)	
<b>Sample_rate</b>	Sample rate of recordings (kHz). Choose one of the value of the list	048 192

<b>Latitude</b>	Latitude at beginning of the segment of survey effort in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude at beginning of the segment of survey effort in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Stratum</b>	Block number/label. See "Map of Strata"	
<b>Effort</b>	Status of survey effort for the segment of survey effort. Choose one of the value of the list	T = transect; P = passage; A = acoustic; V = visual; WA = with animals; OT = other
<b>Transect_acoustic_ID</b>	Transect label (stratum/line number) when on acoustic effort (e.g. B01T01)	
<b>Sea_state</b>	Sea state based of Beaufort scale. Specify one of the value of the Beaufort scale sheet	
<b>Wave_height</b>	Wave height (m)	
<b>Swell_height</b>	Swell height (m)	
<b>Cloud_cover</b>	Cloud cover. Use a subjective scale between 0=clear sky and 10= full cover	
<b>Visibility</b>	Visibility. Use a subjective scale from 0 to 3	
<b>Pressure</b>	Barometric pressure in millibars	
<b>Glare_intensity</b>	Glare intensity (subjective scale)	
<b>Glare_start</b>	Angle of the start of any glare (° relative to boat) in degrees	
<b>Glare_stop</b>	Angle of the end of any glare (° relative to boat) in degrees	
<b>Sail_start</b>	Angle of the start of any obstructive sails (° relative to boat) in degrees	
<b>Sail_stop</b>	Angle of the end of any obstructive sails (° relative to boat) in degrees	
<b>IdLeg</b>	Identification number for each transect	
<b>LengthKm</b>	Transect length in km	
<b>Remarks</b>	Notes	

**Table 11: DSs&DDs Module BC2 (Acoustic Sampling) Acoustic Detection** for IMAP C.I.s 3&4 - Cetaceans

Field Name	Definition_Eng	List of values
<b>Survey_ID</b>	Unique identifier for each sighting	
<b>Region</b>	Region of the survey. For national survey specify the country code otherwise write MED	
<b>Survey</b>	Name of the survey	
<b>Date</b>	Date and time of the sighting. Use format YYYY/mm/dd. For Month (mm) and Day (dd) use 1-12 format	
<b>Time</b>	Hour-minutes-seconds of sampling in HH:MM:SS format	
<b>Latitude</b>	Latitude at beginning of the segment of survey effort in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	

<b>Longitude</b>	Longitude at beginning of the segment of survey effort in decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
<b>Stratum</b>	Block number/label. See "Map of Strata" sheet	
<b>Transect_acoustic_ID</b>	Transect label (stratum/line number). e.g. B01T01	
<b>Taxon</b>	Taxa of the sighting	
<b>Group</b>	Group or genus of the sighting	
<b>Family</b>	Family of the sighting	
<b>Species</b>	Species code from column value of "Species List"	
<b>SpeciesNam</b>	Species name	
<b>SpeciesLat</b>	Scientific name	
<b>TrainType</b>	Type of acoustic detection (subjective scale). Choose one of the value of the list	Track = Track Event = Event Single click = Single click
<b>Confidence</b>	Confidence level of train type ID (subjective scale). Choose one of the value of the list	Certain = Certain Likely = Likely
<b>PodSize</b>	Group size of the acoustic detection (best estimate). Specify a value from 1 to 40	
<b>PodSizeMin</b>	Group size of the acoustic detection (minimum number). Specify a value from 1 to 40	
<b>PodSizeMax</b>	Group size of the acoustic detection (maximum number). Specify a value from 1 to 60	
<b>Remarks</b>	Notes	

**Table 12: DSs&DDs Module BC3 (Population demographic characteristics) Area for IMAP C.I. 5 - Cetaceans**

Field	Description (EN)	List of values
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
Sub-Region	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
Sub-Division	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
AreaName	Survey Area Name. National part of sub-division.	
AreaID	Survey Area code.	

Latitude	Latitude of the centroid of the survey area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of the centroid of the survey area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
Remarks	Notes	

**Table 13: DSs&DDs Module BC3 (Population demographic characteristics) Species for IMAP C.I. 5 - Ceataceans**

Field	Description (EN)	List of values
CountryCode	Member country code as ISO two digits, for example "IT" for Italy	
AreaID	Survey Area code	
Species	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
Year	Sampling year in YYYY format	
Month	Sampling month in 1-12 format	
Day	Sampling day in 1-12 format	
Time	Hour-minutes-seconds of sampling in HH:MM:SS format	
GroupSize	Group size of the sighting. A group is defined as containing individuals not more than 2-3 animal lengths from each other, and exhibiting the same behaviour	
Behaviour	Code for the most dominant behavior during the sighting. Enter one value in the list	SW = Directional swimming MI = Non-directional swimming (milling) BR = Breaching/jumping FE = Feeding/foraging FA = Multi species feeding aggregation LO = Logging/Sleeping/Resting SB = Interaction with vessels (bowriding, following fishing vessels, scavenging) OT = Other
BehaviourOther	Specify the most dominant during the sighting in case the 'Behaviour' field has been filled with 'OT' ( e.g. dive up or dive down, fast swimming, Fluking/fluke up)	
NumAdults	Number of adults in the pod	
NumJuveniles	Number of juveniles in the pod	
NumCalves	Number of calves in the pod	

Mortality	Mortality rate of individuals in percentage (0-100)	
MortalityCalves	Mortality rate of calves in percentage (0-100)	
Remarks	Notes	

**Table 14: DSs&DDs Module BC3 (Population demographic characteristics) Individual for IMAP C.I. 5 - Cetaceans**

Field	Description (EN)	List of values
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
AreaID	Survey Area code.	
Species	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
Year	Sampling year in YYYY format	
Month	Sampling month in 1-12 format	
Day	Sampling day in 1-12 format	
Time	Hour-minutes-seconds of sampling in HH:MM:SS format	
ID_Specimen	Specimen identification code expressed as follows: CountryCode + Species + '_' + progressive number + year (eg. IT137091_012019 indicates the first Balaenoptera physalus collected in Italy in 2019)	
Method	Survey methodology for gathering information. Enter one value in the list	B = Biopsy S = Stranding BC = By-catch PI = Photo-identification
Gender	Specify the gender of the specimen if male female or Not determined. Insert one of the values of the list	M = Male F = Female ND = not detected or not determined
Length	Measure, expressed in cm, of the total length of the animal	
Width	Measure, expressed in cm, of the total width of the animal	
Height	Measure, expressed in cm, of the total height of the animal	
Photo	Enter the name of the zip file defined as follows ID_Specimen_<year>_<month>_<day>.zip	
Remarks	Notes	

**Table 15: DSs&DDs Module BC1 (Photo Identification) & Module BC3 (Population demographic characteristics) Species List for IMAP C.I.s 3,4 &5 - Cetaceans**

SpeciesID	SpeciesName
137091	Balaenoptera physalus
137119	Physeter macrocephalus
137127	Ziphius cavirostris
137097	Globicephala melas
137098	Grampus griseus
137094	Delphinus delphis
137107	Stenella coeruleoalba
137111	Tursiops truncatus
137117	Phocoena phocoena

137110	<i>Steno bredanensis</i>
137102	<i>Orcinus orca</i>

**Table 16: DSs&DDs Module BM1 (Monk seal) Area for IMAP C.I.s 3,4 & 5– Monk Seal**

Field	Description EN	List of values
<b>CountryCode</b>	Enter member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Study Area Code	
<b>AreaName</b>	Study Area Name	
<b>Sub_Region</b>	Sub-region according to the Mediterranean Sea subdivision	
<b>Survey ID</b>	Survey Identification code	
<b>SurveyType</b>	Typology of the survey	
<b>Year</b>	Year of sampling in YYYY format	
<b>Month</b>	Month of sampling in 1-12 format	
<b>Day</b>	Day of sampling in 1-31 format	
<b>TimeStart</b>	Start time of the survey. Hour-minutes-seconds of sampling in HH:MM:SS format	
<b>TimeStop</b>	Stop time of the survey. Hour-minutes-seconds of sampling in HH:MM:SS format	
<b>Team</b>	Name of the team responsible for the survey	
<b>Latitude</b>	Latitude in the WGS84 decimal degrees reference system of centroid or reference point in sampling area with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude in the reference system WGS84 decimal degrees of centroid or reference point in sampling area with at least 5 digits (xx.xxxxx) Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>Wind speed</b>	Weather conditions: Wind speed class, write one of the value of the list	Calm = Calm Medium = Medium Strong = Strong
<b>Cloudiness</b>	Weather conditions: Cloudiness class. Write one of the value of the list	Bright = Bright Partl = Partially Cloud Cloud= Cloudy Rainy = Rainy
<b>Wave Direction</b>	Weather conditions: Wave direction in degree	
<b>Wave strength</b>	Weather conditions: Wave strength class. Write one of the value of the list	Cal = Calm Mo = Moderate Ro = Rough Sto = Storm Sw = Strong wave
<b>Turbidity</b>	Weather conditions: level of turbidity. Write one of the value of the list	Clear = Clear Blur = Blur Green = Green Brown = Brown
<b>Tide</b>	Weather conditions: Specify tide class. Write one of the value of the list	U = Up tide N = Normal L = Low tide
<b>CaveID</b>	Identification code for the cave discovered	
<b>CaveName</b>	Name of the cave discovered	
<b>CoastalFrom</b>	Name of the location of coastal monitoring start point	
<b>CoastalTo</b>	Name of the location of coastal monitoring end point	

<b>GPSfile</b>	Naming the GIS file that contains information about the coast monitored. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleT1_GISfile_<Sub-Region> _<AreaName> _<gg_mm_aaaa> .zip" eg.ModuleT1_GISfile_Ionian_GulfofTaranto_05_2016.zip. If Region and / or AreaName contains spaces, replace these spaces with "_".	
<b>Remarks</b>	Notes	

**Table 17: DSs&DDs Module BM1 (Monk seal) Cave Inventory for IMAP C.I.s 3,4 & 5– Monk Seal**

Field	Description EN	List of values
<b>SurveyID</b>	Identification code for Survey	
<b>CaveID</b>	Identification code for the Cave	
<b>CaveName</b>	Name of the cave	
<b>DiscoveredBy</b>	Name of the person who discovered the cave	
<b>CaveLatitude</b>	Latitude in the WGS84 decimal degrees reference system of centroid or reference point for the cave with at least 5 digits (xx.xxxxx).	
<b>CaveLongitude</b>	Longitude in the reference system WGS84 decimal degrees of centroid or reference point for the cave with at least 5 digits (xx.xxxxx). with at least 5 digits (xx.xxxxx) Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>PhotoFrame</b>	Name of Photo Frame for the cave discovered. Specify the name as follow SurveyID_<year>_<month>_<day>.zip	
<b>TotLength</b>	Cave information, total length in meters (opening to far end) of the cave in meters	
<b>SightingID</b>	Indicate the identification code if at least one sighting has been obtained.	
<b>NumSeal</b>	Indicate the number of seal(s) present (for each sighting).	
<b>Odor</b>	Indicate the presence of odor. Choose one of the value of the list	Y = Yes N = No
<b>NumChambers</b>	Total number of chambers	
<b>WithAir</b>	Number of chambers with air	
<b>WithoutAir</b>	Number of chambers without air	
<b>EntranceSurface</b>	Cave entrance information: entrance surface in meters	
<b>EntranceUnderw</b>	Cave entrance information: entrance underwater in meters	
<b>EntranceLand</b>	Cave entrance information: entrance land	
<b>EntranceDepth</b>	Cave entrance information: Depth of the entrance in meters	



<b>EntranceHeight</b>	Cave entrance information: Height of the entrance in meters	
<b>EntranceWidth</b>	Cave entrance information: Width of the entrance in meters	
<b>EntranceDirection</b>	Cave entrance information: Direction of the entrance. Choose one of the value of the list	N = North NE = North East E = East NW = North West W = West SW = South West S= South SE = South East
<b>Platform</b>	Indicate if a platform is present. Choose one of the value of the list	Y = Yes N = No
<b>PlatformID</b>	Platform information: Identification code	
<b>PlatformPosition</b>	Position of the platform. Indicate one of the value of the list for each PlatformID. Choose one of the value of the list	N = North NE = North East E = East NW = North West W = West SW = South West S= South SE = South East
<b>PlatformLength</b>	Indicate the length of the platform for each platform ID in meters	
<b>PlatformWidth</b>	Indicate the width of the platform for each platform ID in meters	
<b>PlatformTexture</b>	Indicate the texture of the platform for each platformID	
<b>PlatformSuitabil</b>	Indicate if the platform is suitable for seal(s): Choose one of the value of the list	Y = Yes N = No
<b>SealEvidence</b>	Indicate if some evidences of seal(s) are present. Choose one of the value of the list	Y = Yes N = No
<b>SealDepression</b>	Indicate if some depression of seal(s) are present. Choose one of the value of the list	Y = Yes N = No
<b>SealTrack</b>	Indicate if some evidences or tracks are present on the platform. Choose one of the value of the list	Y = Yes N = No
<b>SealFur</b>	Indicate if fur seal is present. Choose one of the value of the list	Y = Yes N = No
<b>SealFaeces</b>	Indicate if faeces are present. Choose one of the value of the list	Y = Yes N = No
<b>OtherEvidence</b>	Indicate if there are other evidence. Choose one of the value of the list	Y = Yes N = No
<b>Remarks</b>	Notes	

**Table 18: DSs&DDs Module BM1 (Monk seal) Photo Identification** for IMAP C.I.s 3,4 & 5

Field	Description EN	List of values
<b>SurveyID</b>	Identification code for Survey	
<b>CaveID</b>	Identification code for the Cave	
<b>SightingID</b>	Indicate the identification code if at least one sighting has been obtained.	





<b>SealID</b>	Indicate the identification code for each seal identified, related to the sightingID	
<b>Sex</b>	Sex of the identified individual. Choose one of the value of the list	M=Male/Homme F=Female/Femme
<b>PhotoSequence</b>	Photo sequence (numeric interval relative to the photos i.e. 138-150) related to the sighting. Please separate different photo sequences for each sighting ID	
<b>Identification</b>	Indicate identifying characteristics of the seal	
<b>Remarks</b>	Notes	

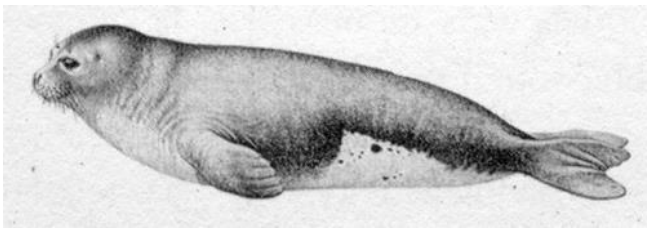
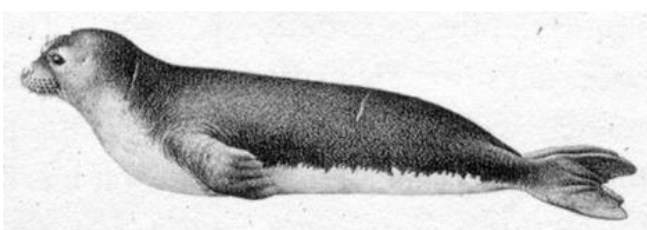
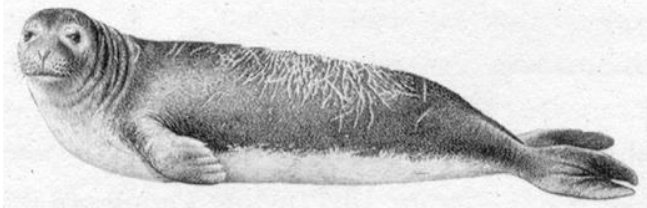
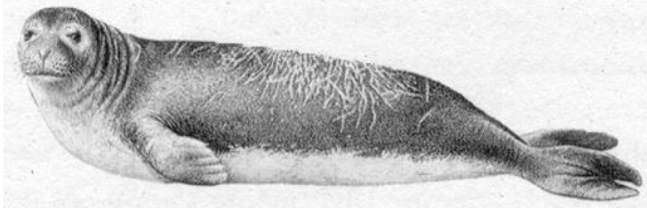
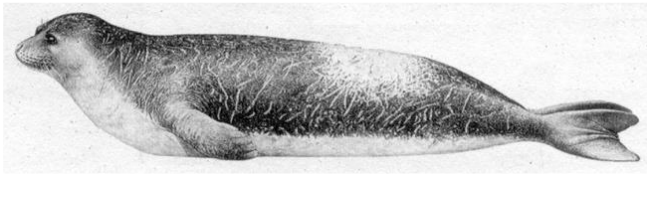
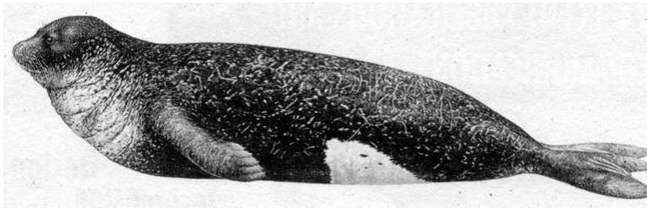
**Table 19: DSs&DDs Module BM1 (Monk seal) Demographic Structure** for IMAP C.I.s 3,4 & 5 – Marine mammals

Field	Description EN	List of values
<b>SurveyID</b>	Identification code for Survey	
<b>CaveID</b>	Identification code for the Cave	
<b>SealID</b>	Identification code for the Seal	
<b>MinAge</b>	<p>Minimum ages of the individuals estimated according to the method given by Gucu et al (2004). Estimated minimum age in years;</p> <p><b>Aest= (P-D)/365+X</b></p> <p>-D: Date of the first sight. -P: Days transpired since the first sighting -X: the age of the individuals at the first sighting.</p> <p>For age (X) of the individuals at the first sighting please refers to table in "MorphologicalCategorieList", column "Period (years)"</p>	
<b>Fecundity</b>	<p>Fecundity of the population is calculated using the formula formed by Akçakaya et al. (1999)</p> <p><b>Ft = Pt+1/At</b></p> <p>- Ft: Fecundity at time t. - Pt+1: Number of pups born at time t+1. - At: Number of parents at time t.</p>	
<b>BirthRate</b>	<p>Annual birth rate of the population is calculated according to Gazo et al. (1999)</p> <p><b>ABRt = Pt/ AFt</b></p> <p>- ABRt = Annual birth rate at time t - Pt = Number of pups born at time t - AFt = Number of sexually mature females (categories starting from 7 in Table 2) at time t</p>	
<b>MortalityRate</b>	<p>Number of individuals and deaths (mainly stranded animals) are recorded for each year and used to calculate the annual mortality rate and subtract from one to obtain overall survival rate to the next year. Following formula of Akçakaya et al. (1999) summarizes the calculation:</p> <p><b>St= 1- (D t+1 / Nt)</b></p> <p>- St: Survival of the individuals at time t. - Nt: Number of individuals at time t. - Dt+1: Number of deaths at time t+1.</p>	

<b>Remarks</b>	Notes	
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**Table 20: DSs&DDs Module BM1 (Monk seal) Morphological categories List for IMAP C.I.s 3,4 & 5 – Marine mammals**

Stage	Characteristics of the category (EN)	Period (years)	Photo/illustration Photos taken from Dendrinis et al. 1999 Illustrations taken from Samaranch and Gonzales, 2000
1	skinny (pup-premolted; pms)	0.00-0.03	
2	fat (pup-premolted; pmf)	0.03-0.08	
3	pwm moulting (pup-preweaned; pwm)	0.08-0.14	
4	pup-preweaned (pw)	0.14-0.33	

5	youngster- weaned (y)	0.33- 2.50	
6	subadult (sa)	2.50- 6.00	
7	adult female young (afy)	6.00- 7.00	
8	adult male young (amy)	7.00- 8.00	
9	adult female elder (afe)	8.00- 20.00	
10	adult male elder (ame)	9.00- 20.00	
11	senesce female (sf)	20.00 >	



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UNITED NATIONS  
ENVIRONMENT PROGRAMME  
MEDITERRANEAN ACTION PLAN

10 May 2021  
Original: English

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

Videoconference, 10-11 June 2021

**Agenda item 6: Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals, Marine Turtles and Sea Birds**

**Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Reptiles**

**Disclaimer:** The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries

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**Acknowledgment**

This report was prepared with the participation and voluntary contribution of Letizia Marsili and the ACCOBAMS Scientific Committee. The document has been submitted to the Biodiversity Online Working Group (OWG) on Marine mammals for inputs and integration in view of the Meeting of the Ecosystem Approach Correspondence Groups on Monitoring (CORMON) Biodiversity and Fisheries.

### Note by the Secretariat

In the framework of the UNEP/MAP Programme of Work and Budget for 2020–2021 (COP 21, Decision IG.24/14), INFO/RAC, leads the work on the development and completion of the “*Info/MAP platform and platform for the implementation of IMAP fully operative and further developed, connected to MAP components' information systems and other relevant regional knowledge platforms, to facilitate access to knowledge for managers and decision-makers, as well as stakeholders and the general public*”.

The **EU funded EcAp-MED II Project (2017-2019)** has supported this output with the development of a Pilot IMAP Compatible Data and Information System (IMAP (Pilot) Info System), that has enabled the Contracting Parties to start reporting data as of mid-2020 for selected **11 IMAP Common Indicators**. The IMAP (Pilot) Info System laid down the basis for building a fully operational IMAP Info System as provided for by Decision IG.22/7.

At present, the system supports the reporting data for 11 of the 27 IMAP Common Indicators, namely Common Indicators **1, 2, 6, 13, 14, 15, 16, 17, 21, 22, 23**. The criteria used for selecting the 11 Common Indicators as part of the IMAP (Pilot) Info System have been: a) maturity of Common Indicators as of 2017, in terms of monitoring experiences and best practices; b) existing data collection and availability representing all IMAP clusters; c) availability of Common Indicators Guidance Factsheets and/or metadata templates.

The draft **IMAP (Pilot) Info System** has been developed by INFO/RAC under the coordination of the Secretariat and in close consultation with all relevant MAP Components. The IMAP (Pilot) Info System is now evolving towards the complete IMAP Info System and is able to receive and process data according to the proposed Data Standards and Data Dictionaries (DSs and DDs) that set the basic information on data reporting within IMAP.

It should be noted that proposed DSs and DDs also build on the respective relevant experience of INFO/RAC, as well as the experience gained in building other relevant databases such as EMODnet Chemistry platform, SeaDataNet and WISE Data Dictionary maintained by EEA and available in EIONET. In such a way the IMAP Info System is interrelated with other regional marine databases (e.g. SeaDataNet, SeaDataCloud, EMODNET, etc.), essential to avoid duplication of data transmissions for the Contracting Parties.

The ongoing process of evolution from the pilot to the final IMAP Info System will be also supported by the EU funded project EcAp MED III project and will include the whole set of modules for the IMAP Common Indicators (excluding the candidate C.I.s at the moment).

### Introduction

**Data Standards (DSs)** are prepared in the form of Excel spreadsheets in which every column indicates a field to be filled by the data providers. **Data Dictionaries (DDs)** are prepared in the form of Excel spreadsheets in which every row provides information to guide the data provider. DSs & DDs are spreadsheets included in the **same Excel file**, downloadable from the IMAP (Pilot) info system. The data uploaded using the Data Standards will be suitable for the inclusion in the database.

The proposal of DSs and DDs provides broader data sets and associated dictionaries than requested as mandatory by the related IMAP Guidance Factsheets and Metadata Templates. In the Data Standards the mandatory data are represented in black and the **non-mandatory** ones in red. The possibility to fill in also **non-mandatory** fields is given to allow the Contracting Parties that already have monitoring systems collecting a wider set of data also to report them as the additional data. Although it is at the

discretion of the Contracting Parties to decide, reporting on non-mandatory data sets is **strongly encouraged** to avoid knowledge gaps between IMAP and other national data flows.

Following the outcome of CORMONs, the finalized DSs and DDs related to the 11 Common Indicators have been uploaded in the IMAP (Pilot) Info System and the consequent changes to the data base structure have been provided. Therefore, once all the parameters and measurement units have been defined, the correspondent data flow have been activated. Following a testing phase of the IMAP (Pilot) Info System realized with the voluntary participation of interested countries, the **phase I** of the system implementation is officially concluded in June 2020.

Starting from the middle of 2019, after the conclusion of the EcAp MED II Project, discussion about further modules has been started with the thematic MAP Components for each already selected Common Indicator and for the remaining ones in view of the completion of the IMAP Common Indicator set, according to the available resources specifically allocated.

The aim of the current document is to present the “draft” DSs & DDs related to **Common Indicators 3,4&5**. By reviewing this document, the present meeting is expected to provide **guidance, inputs and further reflections** on the proposed “draft” DSs & DDs for the selected Common Indicators. On this basis, a continuous process of harmonization with IMAP guidance factsheets and common indicators monitoring protocols will be assured during **phase II**. Consequently, also the structure of the Data Standards and Data Dictionaries could be revised and harmonized based on the final result of the IMAP developing process. Interactive work will be needed to refine these Data Standards and Data Dictionaries gradually.

As stated by the **CORMON Biodiversity and Fisheries (Marseille 12-13 February 2019)** monitoring protocols should guide data standards development that is carried out in parallel with discussions on the agreed common methodologies. Information systems are a major tool to collect and transfer data. Given that the development of indicators, monitoring methods and data standards are progressing in parallel, close and continuous dialogue and collaboration are needed among the bodies responsible for these developments to ensure their proper alignment and coherence.

The appointment and the activation of on-line network of Mediterranean designate qualified experts of the Biodiversity OWG, supporting INFO/RAC on finalization of DSs and DDs for the cluster Biodiversity and Fisheries, as requested during the CORMON of Marseille (12-13 February 2019) and Rome (21 May 2019), will usefully ensure this coherence.



## Data Standards and Data Dictionaries for IMAP Biodiversity (EO1): Common Indicators 3,4&5 for Marine Turtles

1. Among five common indicators related to biodiversity (EO1) fixed by IMAP, three are about marine reptiles:
  - **Common indicator 3:** Species distributional range;
  - **Common indicator 4:** Population abundance of selected species;
  - **Common indicator 5:** Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates)
2. The present document aims to present DSs & DDs related to a part of the available methods for monitoring turtle species as expressly reported in the IMAP guidance factsheets.
3. This document reflects comments received during the Integrated Meetings of the Ecosystem Approach Correspondence Groups on IMAP Implementation (CORMONs) Videoconference, December 2020, in the sessions and after the sessions, as appropriate. The documents take into account also discussion held during the following OWG meetings.
4. The reference documents for the species to be monitored are:
  - IMAP Guidelines for monitoring marine turtles in the Mediterranean Sea (WG.461/21)
  - Scales of monitoring & assessments, assessment criteria and baseline & threshold values for IMAP Common Indicators relating to Marine Turtles (Draft) and related comments – OWG sea turtles.
  - Sea turtles in the Mediterranean: Distribution, threats and conservation priorities RAC/SPA.

### Marine turtles

1. Two species of sea turtles – the loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*) – regularly occur and breed in the Mediterranean Sea. The breeding activities of both species are regularly monitored in the main nesting areas of ten countries; namely, Cyprus, Egypt, Greece, Israel, Italy, Lebanon, the Libyan Arab Jamahiriya, the Syrian Arab Republic, Turkey and Tunisia. Leatherback and loggerhead turtles coming from the Atlantic deserve to be taken into account. In particular, the presence of the Atlantic loggerhead population is particularly important to consider in the Western Mediterranean.
2. The monitoring of sea turtles can be performed using the following techniques: (i) **counting the number of nests** during nesting period, (ii) **collecting stranded and by-caught turtles**, (iii) **in-water capture-mark-recapture** studies, (iv) **telemetry studies**, (v) **boat and aerial surveys**.
3. It must be noted that the techniques listed above include methods on what Contracting Parties drew attention, **but not all the methods are specified and proposed in the IMAP protocols and about the preferential use of them, the discussion in the related On-line Working Group (OWG) is yet open.**

### Module BA1 Line transect distance sampling - (C.I.s 3&4)

1. Estimation of the abundance and distribution of marine reptiles can be provided through the line transect distance sampling method. The method consists in covering routes, by air specially designed by specific software in a defined study area. Distance sampling is **useful for turtles when applied by air** to estimate the abundance and distribution of aggregation areas at sea.
2. **Line transect distance sampling** is one of the methods of the distance sampling family that allows to define the abundance estimation and distribution of specimens in a given space and in a given period of time.

3. **In line transect sampling**, a survey area is defined and surveyed along a sampling design of pre-determined transects ensuring equal coverage of the area.
4. **Abundance** can be calculated by extrapolating estimated density in the sampled strips to the entire survey area. The calculated number is therefore an estimate of abundance in a defined area at a particular time with its uncertainty.
5. This method, **aerial-based**, can provide estimates of abundance, distribution and density of large-scale marine reptile species for all Mediterranean Sea. At the regional and local level, it appears useful to integrate aerial surveys, to obtain local indications of the conservation status and quality of the habitats through different methods. The choice of the monitoring approach will be made by the country on the basis of its national monitoring plan and nature of the monitored area.
6. The data reporting of distribution and abundance for marine reptiles will be carried out using the Data Standards and Data Dictionaries - Module **BA1** developed for **a large number of taxa** and already discussed in the document “**Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals**”
7. The proposed module **BA1** is in line with the other standards developed for the IMAP Info System but also **compliant with ACCOBAMS metadata templates** currently used for the regional survey carried out in 2018 and the future ones to be planned, include the possibility to monitor also marine reptiles.
8. As agreed during the last Cormon on Biodiversity held in the December 2020, the module BA1 has been developed by INFO/RAC in close cooperation with ACCOBAMS and is proposed for the monitoring at regional scale and also **for the Contracting Parties survey carried out at national level**.
9. The Module BA1 is reported in the document “Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals” as mainly used for cetaceans monitoring but also referring to a large number of taxa, including marine turtles.
10. Here are reported the other modules developed according to the *IMAP Guidelines for monitoring marine turtles in the Mediterranean Sea (WG.461/21)* and to the assessment criteria for the IMAP CIs 3,4 and 5 related to marine turtles, described in the document “*Scales of monitoring & assessments, assessment criteria and baseline & threshold values for IMAP Common Indicators relating to Marine Turtles (Draft)*” – OWG sea turtles.

#### **Module BT1 - Nesting Beach (C.I.s 3&4)**

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1. Estimation of the abundance and distribution of marine reptiles in **nesting sites** is necessary to check that the turtles remain present in all parts of the environments monitored annually and in all the sites established during the periodic surveys. From the surveys on the count of the nests it is possible to determine the spatial distribution of the nesting per year. Existing and potential nesting beaches should be monitored during the nesting season.
2. The abundance of adult females on the beach can be calculated from nest counts, clutch frequency (the number of clutches laid by a female in a nesting season), remigration intervals (the number of years between two consecutive nesting seasons) and adult sex ratio.
3. The data reporting of distribution and abundance turtle nests will be carried out using the Data Standards and Data Dictionaries - Module BT1 developed on the basis of the *IMAP Guidelines for monitoring marine turtles in the Mediterranean Sea* and the document *Scales of monitoring & assessments, assessment criteria and baseline & threshold values for IMAP Common Indicators relating to Marine Turtles* discussed during the OWG meeting on sea turtles on 29 March 2021.
4. The structure of this module allows to collect the same data regardless of the monitoring methodology adopted (Foot patrols, UAV, Plane surveys).

### **Module BT2 - MarineHabitat (Bycatch/Strandings) -(C.I.s 3&4)**

1. Three modules have been developed for monitoring the abundance and distribution of marine reptiles in **marine habitat**, depending on the survey method the Contracting Parties will adopt. In particular, the Module BT2 has been structured for **Bycatch** and **Stranding record** methods in which the information is recorded in reference to a monitoring area.
2. Population monitoring in water with the Bycatch methodology can be used to estimate the abundance and distribution of a population in a particular area. Sea turtles are a migratory species, so study timing is important and should be carefully selected and a standardized methodology followed.
3. Two common methods are used for in-water surveys. First, a capture net is set in the sampling area. Second, the turtles are captured using the rodeo technique. In the case of a large study area with low visibility and deeper water, a capture net is preferable. The rodeo technique requires smaller team and can be used in small areas and in shallow waters with high visibility.
4. Stranded turtles are a good source of data for collecting various data related to the space-time distribution of turtles.

### **Module BT3 - MarineHabitat (Plane/Boat/UAV) (C.I.s 3&4)**

1. Abundance estimates at sea, where juveniles represent the majority of the population, can be conducted through different method of surveys. Nevertheless, aerial surveys are the best method for determining the abundance of turtles at sea and detecting changes in population, before they translate into changes in nest counts. Drones, for monitoring nesting activities and making individual counts of sea turtles swimming on the surface, are becoming popular in recent years.
2. BT3 Module has been structured for aerial, boat and UAV surveys. In these cases the information is recorded along transects, each of which is identified with a unique code. The polylines representative of these transects must be reported in a GIS file with reference to each identification code. Although aerial surveys, albeit more expensive, allow for a more in-depth detection of emerging turtles for the benefit of better estimates of abundance compared to surveys with boats, it has been left to each CP to adopt either method or both. Drones (UAV) can be deployed from boats and determine presence/abundance of offshore habitats. They are not an alternative to planes but a complement to this type of surveys.

### **Module BT4 - MarineHabitat (Telemetry) - (C.I.s 3&4)**

1. **Satellite tracking** (telemetry) is useful to characterize the movements of, and identify the habitats used (based on residency time) by tagged animals. Scientists generally attach **satellite transmitters** to the carapace of female sea turtles at nesting sites or animals caught at sea (during dedicated campaigns or incidentally caught by fishermen).
2. The sex and size of tagged animals is generally recorded prior to their release, providing valuable information on their developmental stage.
3. **Telemetry** is a good method to characterize the distributional range of the species (Common Indicator 3) considering different life stages and populations.
4. Depending on the type of transmitter, it can also provide information on the environmental conditions of the habitats used by the species. Therefore, this method can lead to a better understanding of drivers of species distribution.
5. Telemetry is also applied for abundance evaluation (Common Indicator 4) and a feasible method for demographic data collection in breeding areas.

6. Satellite tracking is a good method to characterize the movements of, and identify the habitats used (based on residency time) by tagged animals.

7. A satellite telemetry of adult sea turtles is required for identifying the foraging grounds used by the adults of each population. This technique can also be used to assess the surface time of turtles at foraging grounds. A parameter is necessary to derive absolute population estimates for aerial surveys.

### Module BT5 - Nesting and Demography (C.I.s 5)

1. Population demographic parameters need to be collected from nests and nest environments, as well as from in-water observations.

2. Understanding the demographics of sea turtle metapopulations helps identify which pressures may have the greatest impact on population stability and which conservation measures may have the greatest effect in stabilizing or recovering population levels.

3. The various elements that allow to reconstruct the demographic characteristics of sea turtles have been considered. This module provides three Data Standards sheets, one dedicated to data collection in **nesting sites** (number of eggs per clutch, hatchling emergence success, etc.), the second to monitoring data in **marine habitat** referable to a specific time interval within the identified monitoring area (number of males/females adults per session, mortality rate of individuals etc.) and a third developed for the collection of demographic characteristics related to each **individual** identified (gender, age, etc.).

**Table 1: DSs&DDs Module BT1 (Nesting Beach) Nest for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
Sub-Region	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
Sub-Division	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
Nest_ID	Nest identification code.	
Latitude	Latitude of the sampling nest in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of the sampling nest in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-'	

	for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>Remarks</b>	Notes	

**Table 2: DSs&DDs Module BT1 (Nesting Beach) Nesting Beach** for IMAP C. I.s 3&4 - **Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NestID</b>	Nest identification code.	
<b>Year</b>	Sampling year in YYYY format	
<b>Month</b>	Sampling month in 1-12 format	
<b>Day</b>	Sampling day in 1-12 format	
<b>Time</b>	Hours-minutes-seconds of sampling in HH:MM:SS format	
<b>Species</b>	Species name, enter one value in the list	CC = <i>Caretta caretta</i> CM = <i>Chelonia mydas</i>
<b>Method</b>	Method for evaluating nesting distribution. Enter one of the values from the list	FP = Foot patrols UAV = UAV surveys PS = Plane surveys
<b>NestSiteIndicator</b>	Indicate whether the identified cell ('Cell_ID') represents an active nesting site or is a potential nesting site. Enter one of the values from the list	A = active nesting site P = potential nesting site
<b>ActiveNestSiteExtent</b>	Extent, in square km, of active nesting site. If 'NestSiteIndicator' field has been compiled with 'P' enter '0' (zero) in this field	
<b>PotentialNestSiteExtent</b>	Extent, in square km, of potential nesting site. If 'NestSiteIndicator' field has been compiled with 'A' enter '0' (zero) in this field	
<b>NestNumber</b>	Number of nests. If 'NestSiteIndicator' field has been compiled with 'P' enter '0' (zero) in this field	
<b>TracksNumber</b>	Number of tracks. If no track has been found, enter '0' (zero) in this field	
<b>NumHatchedEggs</b>	Number of eggs hatched. If no hatched eggs have been found, enter '0' (zero) in this field	
<b>NumUnopenedEggs</b>	Number of integer eggs (unopened). If no integer eggs have been found, enter '0' (zero) in this field	
<b>NumDeadEmbryosEggs</b>	Number of dead embryos that have only pierced the egg	
<b>NumDeadEmbryosNest</b>	Number of embryos completely hatched from the egg but found dead in the nest	
<b>HatchlingNumber</b>	Number of hatchlings. If no hatchling has been found, enter '0' (zero) in this field	
<b>SurfaceTemperature</b>	Surface sand temperature in °C degrees	
<b>UndersurfaceTemperature</b>	Sand temperature at a depth of 30-40 cm, in °C degrees	
<b>Remarks</b>	Notes	

**Table 3: DSs&DDs Module BT2 (MarineHabitat: Bycatch/Strandings) Area** for IMAP C. I.s 3&4 - **Marine Turtles**

Field	Description	List of value
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<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>Sub-Region</b>	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>Sub-Division</b>	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
<b>AreaName</b>	Survey Area Name. National part of sub-division.	
<b>AreaID</b>	Survey Area code.	
<b>Latitude</b>	Latitude of the centroid of the distribution area of the species in the reference system in decimal degrees WGS84 with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid of the distribution area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>ExtensionArea</b>	Total monitored area in square kilometers	
<b>GISfile</b>	Naming the GIS file that contains the polygon (s) of the survey area. In the attribute table of the GIS file, for each polygon (s) of the survey area, the survey area code in the AreaID field must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleBT2_GISfile_<Sub-Region> _<AreaName>.zip", eg. ModuleBT2_GISfile_MAD_GulfofTaranto.zip	
<b>Remarks</b>	Notes	

**Table 4: DSs&DDs Module BT2 (MarineHabitat: Bycatch/Strandings) MarineHabitat for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Survey Area code.	
<b>Species</b>	Species name, enter one value in the list	CC = Caretta caretta CM = Chelonia mydas
<b>Year_start</b>	Sampling start year in YYYY format	

<b>Month_start</b>	Sampling start month in 1-12 format	
<b>Year_end</b>	Sampling end year in YYYY format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>ForagingArea</b>	Foraging area, enter one value in the list	O = Oceanic foraging area N = Neritic foraging area MP = Migratory pathways
<b>Method</b>	Survey methodology for gathering information. Enter one value in the list. This field can be filled in with 'S' only if the 'ForagingArea' field has been filled in with 'N'	B = Bycatch S = Strandings
<b>Seastate</b>	Intensity of the wind according to Beaufort scale (from 0 to 12 degrees)	
<b>NumberTurtles</b>	Number of turtles sighted	
<b>DensityTurtles</b>	Number of turtles sighted per square kilometer, calculated as the ratio between the 'NumberTurtles' and 'ExtensionArea' fields	
<b>Remarks</b>	Notes	

**Table 5: DSs&DDs Module BT3 (MarineHabitat: Plane/Boat/UAV) Area for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>Sub-Region</b>	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>Sub-Division</b>	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
<b>AreaName</b>	Survey Area Name. National part of sub-division.	
<b>AreaID</b>	Survey Area code.	
<b>Latitude</b>	Latitude of the centroid of the distribution area of the species in the reference system in decimal degrees WGS84 with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid of the distribution area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	

<b>ExtensionArea</b>	Total monitored area in square kilometers	
<b>GISfile</b>	Naming the GIS file that contains the polygon (s) of the survey area. In the attribute table of the GIS file, for each polygon (s) of the survey area, the survey area code in the AreaID field must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleBT3_GISfile_<Sub-Region>_<AreaName>_<yyyy_mm_dd>.zip", eg.: ModuleBT3_GISfile_MAD_GulfofTaranto_2020_05_16.zip.	
<b>Remarks</b>	Notes	

**Table 6: DSs&DDs Module BT3 (MarineHabitat: Plane/Boat/UAV) Site for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Survey Area code.	
<b>SiteID</b>	Study Site Code	
<b>SiteName</b>	Study Site Name	
<b>Latitude</b>	Latitude of the centroid of the distribution area of the species in the reference system in decimal degrees WGS84 with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid of the distribution area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>Remarks</b>	Notes	

**Table 7: DSs&DDs Module BT3 (MarineHabitat: Plane/Boat/UAV) Transect for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Enter member country code as ISO two digits, for example "IT" for Italy.	
<b>SiteID</b>	Study Site Code	
<b>TransectID</b>	Code of the transect	
<b>TransectName</b>	Transect name	
<b>Year</b>	Year of sampling in YYYY format	
<b>Month</b>	Month of sampling in 1-12 format	
<b>Day</b>	Day of sampling in 1-31 format	
<b>Time</b>	Hour-minutes-seconds of sampling in HH:MM:SS format	
<b>LatitudeSTART</b>	Latitude starting point of the transect in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>LongitudeSTART</b>	Longitude starting point of the transect in the WGS84 decimal degrees reference system with at least 5 digits	



	(xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>LatitudeEND</b>	Latitude ending point of the transept in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>LongitudeEND</b>	Longitude ending point of the transept in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>GISfile</b>	Name of the GIS file that contains the polyline related to each TransectID identifier. In the attributes table of the GIS file, for each polyline, the transept code must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The name of the file must be conform to the following composition rule: "ModuleBT3_GISfile_<TranseptName> _<yyyy_mm_dd>.zip", eg. ModuloBT3_GISfile_TranseptTaranto1_2020_05_16.zip	
<b>Remarks</b>	Notes	

**Table 8: DSs&DDs Module BT3 (MarineHabitat: Plane/Boat/UAV) Marine habitat for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>TransectID</b>	Code of the transept	
<b>ForagingArea</b>	Foraging area, enter one value in the list	O = Oceanic foraging area N = Neritic foraging area IA = Interesting areas
<b>Species</b>	Species name, enter one value in the list	CC = Caretta caretta CM = Chelonia mydas
<b>Method</b>	Survey methodology for gathering information. Enter one value in the list	PS = Plane survey BS = Boat survey UAV = UAV survey
<b>Seastate</b>	Intensity of the wind according to Beaufort scale (from 0 to 12 degrees)	
<b>NumberTurtles</b>	Number of turtles sighted	
<b>Remarks</b>	Notes	

**Table 9: DSs&DDs Module BT4 (MarineHabitat: Telemetry) Area for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Enter member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Identification code of the survey area	
<b>SubRegion</b>	Sub-region according to the Mediterranean Sea subdivision	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas

<b>Sub-Division</b>	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
<b>AreaName</b>	Study Area Name	
<b>AreaExtension</b>	Survey Area extension (km2)	
<b>Latitude</b>	Latitude of the centroid or the reference point of the animal location inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid or a reference point of the animal location inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>Remarks</b>	Notes	

**Table 10: DSs&DDs Module BT4 (MarineHabitat: Telemetry) Telemetry for IMAP C. I.s 3&4 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Enter member country code as ISO two digits, for example "IT" for Italy.	
<b>SubRegion</b>	Sub-region according to the Mediterranean Sea subdivision. Choose one of the value of the list	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>AreaID</b>	Identification code of the survey area	
<b>Year</b>	Year of sampling in YYYY format	
<b>Month</b>	Month of sampling in 1-12 format	
<b>Day</b>	Day of sampling in 1-31 format	
<b>Time</b>	Hours-minutes-seconds of sampling in HH:MM:SS: format	
<b>Tag</b>	Provide information about the type of tag used.	
<b>ArgosID</b>	Argos identification number (pt) associated with the tag used.	
<b>Latitude</b>	Latitude of the centroid or the reference point of the animal location inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid or a reference point of the animal location inside the study area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
<b>Depth</b>	Depth (m) of the animal.	
<b>L.C.</b>	Argos location class attributed to the animal location. Choose one of the value of the list	G A

		B Z 1 2 3 0
<b>Sensor</b>	Other data recorded by the tag (e.g. temperature, salinity...)	
<b>Species</b>	Species name, enter one value in the list	CC = Caretta caretta CM = Chelonia mydas
<b>Size</b>	Size (curved carapace length in m) of the tagged individual.	
<b>Sex</b>	Sex of the tagged individual. Choose one of the value of the list	
<b>Positions</b>	Naming the GIS file that contains the positions of the monitored species. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "ModuleT1_GISfile_<Sub-Region>_<AreaName>_Telemetry_<gg_mm_aaaa>.zip", eg. ModuleT1_GISfile_Ionian_GulfofTaranto_Telemetry_05_2016.zip. If Region and / or AreaName contains spaces, replace these spaces with "_".	
<b>Remarks</b>	Any notes or comments	

**Table 11: DSs&DDs Module BT5 (Nesting and Demography) Area for IMAP C. I. 5 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>Sub-Region</b>	Subregion according to the MSFD Article 4 on Marine regions or subregions (acronym).	MWE = Western Mediterranean Sea MAD = Adriatic Sea MIC = Central and Ionian Seas MAL = Aegean and Levantine Seas
<b>Sub-Division</b>	Subdivision of the subregions (Workshop for the delineation of subdivisions relevant for MSFD assessments/reporting in the Mediterranean Sea)	NWMS = North Western Mediterranean Sea ALBS = Alboran Sea TYRS = Tyrrhenian Sea SWMS = South Western Mediterranean Sea ADRS = Adriatic Sea CENT = Central Mediterranean Sea IONS = Ionian Sea AEGS = Aegean Sea LEVS = Levantine Sea
<b>AreaName</b>	Survey Area Name. National part of sub-division.	
<b>AreaID</b>	Survey Area code.	
<b>Latitude</b>	Latitude of the centroid of the survey area of the species in the reference system in decimal degrees WGS84 with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the centroid of the survey area of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for	

	coordinates west of the Greenwich Meridian (0°) (for ex. - 2.6893).	
<b>Remarks</b>	Notes	

**Table 12: DSs&DDs Module BT5 (Nesting and Demography) Breeding areas for IMAP C. I. 5 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Survey Area code.	
<b>Year</b>	Sampling year in YYYY format	
<b>Month_start</b>	Sampling start month in 1-12 format	
<b>Day_start</b>	Sampling start day in 1-12 format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>Day_end</b>	Sampling end day in 1-12 format	
<b>Species</b>	Species name, enter one value in the list	CC = <i>Caretta caretta</i> CM = <i>Chelonia mydas</i>
<b>ClutchSize</b>	Number of eggs per clutch	
<b>LayingDates</b>	Laying dates in YYYY/MM/DD HH:MM format	
<b>HatchingDates</b>	Hatching dates in YYYY/MM/DD HH:MM format	
<b>IncubationDuration</b>	Elapsed time between LayingDates and HatchingDates	
<b>IncubationTemperature</b>	Nest temperature in °C degrees. Insert the value without the unit of measure (ex. if the nest temperature is 24°C, insert 24)	
<b>HES</b>	Hatchling Emergence Success (HES). Percentage (0-100) of eggs that produced a hatchling that escaped the nest (considering predation and inundation etc.). The evaluation of this index must be carried out considering all the nests of a beach as a single clutch	
<b>NestCondition1</b>	Specify whether the nest has been relocated or not. Enter one of the values from the list	IS = In situ RN = Relocated nests
<b>NestCondition2</b>	Specify whether the nest has been inundated or not. Enter one of the values from the list	I = Inundated NI = Non-inundated
<b>NestCondition3</b>	Specify whether the nest has been depredated or not. Enter one of the values from the list	D = Depredated ND = Non-depredated
<b>InterestingInterval</b>	Elapsed time in days between clutch deposition and the next time the turtle emerges onto the beach to nest-whether successfully or not	
<b>RemigrationInterval</b>	Number of years between successive breeding seasons	
<b>ClutchFrequency</b>	Average number of clutches deposited by a turtle during a single breeding period	
<b>InterestIntervalMethod</b>	Method for evaluating InterestingInterval, RemigrationInterval and ClutchFrequency. Identification from movements (Telemetry), by observation of turtle (Night patrols), by individual-specific DNA analysis (Genetics). Enter one of the values from the list	T = Telemetry NP = Night patrols G = Genetics
<b>SR-H</b>	Sex ratio of hatchlings	
<b>SR-HMethod</b>	Method for evaluating SR-H: derived from laying and hatching dates (ID), from nest/beach temperatures (T) or assessed from from blood sampling/hormone assay (BH). Enter one of the values from the list	ID = Incubation Duration T = Nest/beach temperatures BH = Blood sampling/Hormone assay

<b>SR-BA</b>	Sex Ratio of Breeding Adults. Ratio between the number of adult male and female turtles observed during during the pre-nesting season gathering at sea near the nest site	
<b>SR-BAMethod</b>	Method for evaluating SR-BA. Enter one of the values from the list. Enter "G", in case SR-BA has been determined by identification of males from genetic characteristics and inferred from multi-paternity in clutches	UAV = UAV survey PS = Plane survey BS = Boat survey G = (Genetics - hatchlings)
<b>Longevity</b>	Reproductive longevity expressed in years	
<b>LongevityMethod</b>	Method for evaluating Longevity. Enter one of the values from the list.	FP = Foot patrols CMR = Capture-Mark-Recapture
<b>Remarks</b>	Notes	

**Table 13: DSs&DDs Module BT5 (Nesting and Demography) Marine habitat for IMAP C. I. 5 - Marine Turtles**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>AreaID</b>	Survey Area code.	
<b>ForagingArea</b>	Foraging area, enter one value in the list	O = Oceanic foraging area N = Neritic foraging area
<b>Species</b>	Species name, enter one value in the list	CC = Caretta caretta CM = Chelonia mydas
<b>Year_start</b>	Sampling start year in YYYY format	
<b>Month_start</b>	Sampling start month in 1-12 format	
<b>Day_start</b>	Sampling start day in 1-12 format	
<b>Year_end</b>	Sampling end year in YYYY format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>Day_end</b>	Sampling end day in 1-12 format	
<b>Method</b>	Survey methodology for gathering information. Enter one value in the list	BS = Boat survey UAV = UAV/Plane survey BCS = Bycatch/Strandings
<b>NumAdultMales</b>	Number of males adults per session	
<b>NumAdultFemales</b>	Number of females adults per session	
<b>NumAdultUndefined</b>	Number of adults with undefined gender per session	
<b>NumSubAdultMales</b>	Number of subadults turtles males per session	
<b>NumSubAdultFemales</b>	Number of subadults turtles females per session	
<b>NumSubAdultUndefined</b>	Number of subadults turtles with undefined gender per session	
<b>NumYoung</b>	Number of young turtles	
<b>BycatchIncidence</b>	Number of turtles captured bycatch	
<b>MortalityBycatch</b>	Mortality rate of individuals, resulting from the bycatch event, in percentage (0-100)	
<b>MortalityTelemetry</b>	Mortality rate of individuals identifiable by telemetry in percentage (0-100)	
<b>MortalityCMR</b>	Mortality rate of individuals identifiable by CMR (capture-mark-recapture) in percentage (0-100)	
<b>MortalityStrandings</b>	If ForagingArea = N enter the number of stranded turtles	
<b>Remarks</b>	Notes	

**Table 14: DSs&DDs Module BT5 (Nesting and Demography) Individual for IMAP C. I. 5 - Marine Turtles**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy	
AreaID	Survey Area code.	
Species	Species name, enter one value in the list	CC = Caretta caretta CM = Chelonia mydas
Year	Year of finding of the specimen in YYYY format	
Month	Month of finding of the specimen in 1-12 format	
Day	Day of finding of the specimen in 1-12 format	
ID_Specimen	Specimen identification code expressed as follows: CountryCode + Species + progressive number + year (eg. ITCC012019 indicates the first turtle of the Caretta caretta species collected in Italy in 2019)	
Latitude	Latitude of finding of the specimen in the decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of finding of the specimen in the decimal degrees WGS84 reference system with at least 5 digits (xx.xxxxx). Use negative values for coordinates west of the Greenwich Meridian (0°).	
Survey_type	Surveys typology to assess and sample sea turtles for health assessments	B = Bycatch C = CMR S = Strandings
CCLs	Standard Curved Carapace Length (CCL). Measure in cm of the standard CURVED length of the carapace.	
Weigth	Weight in kg of the specimen (2 decimal places)	
Gender	Specify the gender of the specimen if male female or Not determined. Insert one of the values of the list	M = Male F = Female ND = not detected or not determined
Maturation_stage	Maturation stage Insert one of the values of the list	A = Adult S = Subadult Y = Young
Injuries	Major injuries. Specify "None" if there are no injuries or are not visible. Enter one of the values from the list	None Fracture Amputation Abrasion Disease Other
Age	Age of loggerhead turtles found dead, estimated by skeletochronology methodology	
Photo	Enter the name of the zip file defined as follows ID_Specimen_<year>_<month>_<day>.zip	
Remarks	Notes	



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UNITED NATIONS  
ENVIRONMENT PROGRAMME  
MEDITERRANEAN ACTION PLAN

20 May 2021  
Original: English

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

Videoconference, 10-11 June 2021

**Agenda item 6: Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Mammals, Marine Turtles and Sea Birds**

**Data Dictionaries and Data Standards for the Common Indicators 3, 4 and 5 related to Marine Birds**

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**Acknowledgment**

This report has been submitted to the Biodiversity Online Working Group (OWG) on Marine mammals for inputs and integration in view of the Meeting of the Ecosystem Approach Correspondence Groups on Monitoring (CORMON) Biodiversity and Fisheries.



## Note by the Secretariat

In the framework of the UNEP/MAP Programme of Work and Budget for 2020–2021 (COP 21, Decision IG.24/14), INFO/RAC, leads the work on the development and completion of the “*Info/MAP platform and platform for the implementation of IMAP fully operative and further developed, connected to MAP components' information systems and other relevant regional knowledge platforms, to facilitate access to knowledge for managers and decision-makers, as well as stakeholders and the general public*”.

The **EU funded EcAp-MED II Project (2017-2019)** has supported this output with the development of a Pilot IMAP Compatible Data and Information System (IMAP (Pilot) Info System), that has enabled the Contracting Parties to start reporting data as of mid-2020 for selected **11 IMAP Common Indicators**. The IMAP (Pilot) Info System laid down the basis for building a fully operational IMAP Info System as provided for by Decision IG.22/7.

At present, the system supports the reporting data for 11 of the 27 IMAP Common Indicators, namely Common Indicators **1, 2, 6, 13, 14, 15, 16, 17, 21, 22, 23**. The criteria used for selecting the 11 Common Indicators as part of the IMAP (Pilot) Info System have been: a) maturity of Common Indicators as of 2017, in terms of monitoring experiences and best practices; b) existing data collection and availability representing all IMAP clusters; c) availability of Common Indicators Guidance Factsheets and/or metadata templates.

The draft **IMAP (Pilot) Info System** has been developed by INFO/RAC under the coordination of the Secretariat and in close consultation with all relevant MAP Components. The IMAP (Pilot) Info System is now evolving towards the complete IMAP Info System and is able to receive and process data according to the proposed Data Standards and Data Dictionaries (DSs and DDs) that set the basic information on data reporting within IMAP.

It should be noted that proposed DSs and DDs also build on the respective relevant experience of INFO/RAC, as well as the experience gained in building other relevant databases such as EMODnet Chemistry platform, SeaDataNet and WISE Data Dictionary maintained by EEA and available in EIONET. In such a way the IMAP Info System is interrelated with other regional marine databases (e.g. SeaDataNet, SeaDataCloud, EMODNET, etc.), essential to avoid duplication of data transmissions for the Contracting Parties.

The ongoing process of evolution from the pilot to the final IMAP Info System will be also supported by the EU funded project EcAp MED III project and will include the whole set of modules for the IMAP Common Indicators (excluding the candidate C.I.s at the moment).

### Introduction

**Data Standards (DSs)** are prepared in the form of Excel spreadsheets in which every column indicates a field to be filled by the data providers. **Data Dictionaries (DDs)** are prepared in the form of Excel spreadsheets in which every row provides information to guide the data provider. DSs & DDs are spreadsheets included in the **same Excel file**, downloadable from the IMAP (Pilot) info system. The data uploaded using the Data Standards will be suitable for the inclusion in the database.

The proposal of DSs and DDs provides broader data sets and associated dictionaries than requested as mandatory by the related IMAP Guidance Factsheets and Metadata Templates. In the Data Standards the mandatory data are represented in black and the **non-mandatory** ones in red. The possibility to fill in also **non-mandatory** fields is given to allow the Contracting Parties that already have monitoring systems collecting a wider set of data also to report them as the additional data. Although it is at the discretion of the Contracting Parties to decide, reporting on non-mandatory data sets is **strongly encouraged** to avoid knowledge gaps between IMAP and other national data flows.

Following the outcome of CORMONs, the finalized DSs and DDs related to the 11 Common Indicators have been uploaded in the IMAP (Pilot) Info System and the consequent changes to the data base structure have been provided. Therefore, once all the parameters and measurement units have been defined, the correspondent data flow have been activated. Following a testing phase of the IMAP (Pilot) Info System realized with the voluntary participation of interested countries, the **phase I** of the system implementation is officially concluded in June 2020.

Starting from the middle of 2019, after the conclusion of the EcAp MED II Project, discussion about further modules has been started with the thematic MAP Components for each already selected Common Indicator and for the remaining ones in view of the completion of the IMAP Common Indicator set, according to the available resources specifically allocated.

The aim of the current document is to present the “draft” DSs & DDs related to **Common Indicators 3,4&5**. By reviewing this document, the present meeting is expected to provide **guidance, inputs and further reflections** on the proposed “draft” DSs & DDs for the selected Common Indicators. On this basis, a continuous process of harmonization with IMAP guidance factsheets and common indicators monitoring protocols will be assured during **phase II**. Consequently, also the structure of the Data Standards and Data Dictionaries could be revised and harmonized based on the final result of the IMAP developing process. Interactive work will be needed to refine these Data Standards and Data Dictionaries gradually.

As stated by the **CORMON Biodiversity and Fisheries (Marseille 12-13 February 2019)** monitoring protocols should guide data standards development that is carried out in parallel with discussions on the agreed common methodologies. Information systems are a major tool to collect and transfer data. Given that the development of indicators, monitoring methods and data standards are progressing in parallel, close and continuous dialogue and collaboration are needed among the bodies responsible for these developments to ensure their proper alignment and coherence.

The appointment and the activation of on-line network of Mediterranean designate qualified experts of the Biodiversity OWG, supporting INFO/RAC on finalization of DSs and DDs for the cluster Biodiversity and Fisheries, as requested during the CORMON of Marseille (12-13 February 2019) and Rome (21 May 2019), will usefully ensure this coherence.

## Data Standards and Data Dictionaries for IMAP Biodiversity (EO1): Common Indicators 3,4&5 for Sea Birds

1. Among five common indicators related to biodiversity (EO1) fixed by IMAP, three are about marine reptiles:
  - Common indicator 3: Species distributional range;
  - Common indicator 4: Population abundance of selected species;
  - Common indicator 5: Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates)
2. The present document aims to present DSs & DDs related to a part of the available methods for monitoring sea birds species as expressly reported in the IMAP guidance factsheets.
3. The reference documents for the species to be monitored are:
  - IMAP Guidelines for monitoring sea birds in the Mediterranean Sea (WG.461/21)
  - Guidelines for management and monitoring threatened population of marine and coastal bird species and their important areas in the Mediterranean - SPA/RAC

### Sea Birds

1. The table below shows the representative seabird species against which these common indicators will be assessed. These species have been identified as potentially indicative of the relationship between environmental pressures and their main impacts on the marine environment. Functional groups aim to combine information on different species in order to illustrate the effect of common factors.

**Table 1:** Representative seabird species

FUNCTIONAL	GROUP SPECIES	
Coastal top predators	<i>Falco eleonora</i> <i>Pandion haliaetus</i>	Eleonora's Falcon Osprey
Inshore benthic feeders	<i>Phalacrocorax aristotelis</i>	(Mediterranean) Shag
Offshore surface-feeders	<i>Larus audouinii</i>	
Inshore surface feeders	<i>Larus genei</i> <i>Thalasseus (= Sterna) bengalensis</i> <i>Thalasseus (= Sterna) sandvicensis</i>	Slender-billed Gull Lesser Crested Tern Sandwich Tern
Offshore (surface or pelagic) feeders	<i>Hydrobates pelagicus</i> <i>Calonectris diomedea</i> <i>Puffinus yelkouan</i> <i>Puffinus mauretanicus</i>	European Storm-petrel Scopoli's Shearwater Yelkouan Shearwater Balearic Shearwater

2. The representative species of each functional group should be monitored on a regular basis, if present in the country. Functional groups aim to combine information on different species in order to illustrate the effect of common factors. The rationale for this classification is that natural and anthropogenic factors are likely expected to act similarly on species that share the same food types and display similar feeding behaviours and subject to the same constraints on food availability.
3. Precisely to take into account the different behaviors of the species belonging to the different functional groups, 3 modules have been developed for C.I.s 3 & 4. Specifically, each module has been structured for a specific species with the idea that it can also be used for other species belonging to the same functional groups. In each module, for the moment, all the species present in Table 1 have been listed, reserving the indication of the correct location for CPs (**Table 13**).
4. The nature of the data to be collected varies with the specific Common Indicator as illustrated in the DDs at the end of this document. A monitoring strategy should consider possible data in the form of numerical values of distribution (total area occupied, maps), abundance (number of birds present, number of apparently occupied nests, etc.), breeding productivity (number of nests, number of nests with dead chick(s)) and general demography (annual survival rate, sex ratio, age class ratio).
5. The Data Standards for the collection of monitoring data have been developed with reference to the method that allows to obtain more effectively numerical information on their abundance (Common Indicator 4), and therefore on the trend of their population over time: the "Census of colonies" monitoring method.

#### **Modules BB1- BB2- BB3 - Protocol A,B&C (C.I.s 4&5)**

1. Abundance (C.I.4) is a parameter of population demographics, and is critical for determining the growth or decline of a population.
2. The objective of this indicator is to determine the population status of selected species by medium-long term monitoring to obtain population trends for these species. This objective requires a census to be conducted in breeding, migratory, wintering, developmental and feeding areas.
3. The data collected with the Module BB1 could be used to calculate an index of population abundance. It could be useful for this purpose the standard software used across Europe by the European Bird Census Council (EBCC), the Species Trends Analysis Tool for birds (BirdSTATs).
4. Demographics (C.I.5) may include any statistical factors with a potential to influence population growth or decline, with several parameters being particularly important: population size, age, fecundity (birth rates), mortality (death rates), and sex ratios. When applied in population viability models, demographic parameters allow estimating the extinction risk of any given population.
5. This module has been developed for *Phalacrocorax aristotelis desmarestii*, belonging to the "Inshore benthic feeders" functional group.
6. The considerations above also apply to the module **Module BB2 - Protocol B** (C.I.s 4&5) specifically developed for *Ichthyaetus (Larus) audouinii*, belonging to the "Offshore surface-feeders" functional group and to the module **Module BB3 - Protocol C** (C.I.s 4&5) specifically developed for *Puffinus yelkouan*, belonging to the "Offshore (surface or pelagic) feeders" functional group.

#### **Module BB4 - Distribution - (C.I. 3)**

1. The objective of C.I. 3 (Species distributional range) is to determine the species range of the seabirds that are present in Mediterranean waters; especially the priorities species showed in Table 1.
2. Change of breeding/wintering distribution of population reflects the habitat changes, availability of food resources, and pressures related to human activity and climate change. This indicator could be based in a set of single species indicators that reflects distribution pattern of breeding/wintering populations of the selected species.

3. The presence of the selected species should be monitored all along the Mediterranean coast and in the known breeding colonies or wintering or feeding areas.

4. The distribution map showing the occurrence (presence/absence) of breeding colonies must be plotted on the selected ETRS grid, with suggestion in using the scale of “National part of subdivision” as the basis working scale, by using a grid of 10x10 km square cells in the multipurpose Pan-European mapping standard (ETRS89 Lambert Azimuthal Equal-Area 52-10 projection coordinate reference system). For the reporting of small contracting parties such as Malta or Cyprus, maps of 5x5 km or 1x1 km grids could be preferred because these will then be aggregated to 10x10 km for visualization at the Regional or subregional level.

**Table 2: DSs & DDs Module BB1 (Protocol A) Station for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
NationalStationName	Station name	
Region	Administrative subdivision of first level which the station belongs to (according to the country subdivision)	
AreaName	Survey Area Name	
SiteName	Survey Site Name	
SPAName	Name of the Specially Protected Areas (SPAs) or Specially Protected Areas of Mediterranean Importance (SPAMIs) near the survey site.	
Latitude	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
Remarks	Notes	

**Table 3: DSs & DDs Module BB1 (Protocol A) Protocol1 for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
Year_start	Sampling start year in YYYY format	
Month_start	Sampling start month in 1-12 format	
Day_start	Sampling start day in 1-12 format	
Time_start	Hour-minutes-seconds of sampling start in HH:MM:SS format	
Year_end	Sampling end year in YYYY format	
Month_end	Sampling end month in 1-12 format	
Day_end	Sampling end day in 1-12 format	
Time_end	Hour-minutes-seconds of sampling end in HH:MM:SS format	

<b>SpeciesID</b>	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
<b>SpeciesName</b>	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
<b>BirdWatcherName</b>	Main bird watchers. Enter the name and surname or code identification of each bird watcher separated by ";"	
<b>IDSession</b>	Session ID code	
<b>Group</b>	Type of sighting. Enter one of the values from the list	C = Colony IN = Isolated nest G = Group of individuals
<b>NumNestHatch</b>	Number of nests with hatching adults	
<b>NumNestChicks</b>	Number of nests with chicks	
<b>NumNestExcr</b>	Number of apparently empty nests but with excrement	
<b>NumNestUC</b>	Number of nests with unknown content	
<b>NumAdults</b>	Number of flying adults outside the colony	
<b>NumJuvs</b>	Number of juveniles out of the colony	
<b>NumAdultsSea</b>	Number of adults grouped in the sea	
<b>Remarks</b>	Notes	

**Table 4: DSs & DDs Module BB2 (Protocol B) Station for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NationalStationID</b>	Station code	
<b>NationalStationName</b>	Station name	
<b>Region</b>	Administrative subdivision of first level which the station belongs to (according to the country subdivision)	
<b>AreaName</b>	Survey Area Name	
<b>SiteName</b>	Survey Site Name	
<b>SPAName</b>	Name of the Specially Protected Areas (SPAs) or Specially Protected Areas of Mediterranean Importance (SPAMIs) near the survey site.	
<b>Latitude</b>	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>Remarks</b>	Notes	

**Table 5: DSs & DDs Module BB2 (Protocol B) Protocol1 for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NationalStationID</b>	Station code	
<b>Year_start</b>	Sampling start year in YYYY format	
<b>Month_start</b>	Sampling start month in 1-12 format	

<b>Day_start</b>	Sampling start day in 1-12 format	
<b>Time_start</b>	Hour-minutes-seconds of sampling start in HH:MM:SS format	
<b>Year_end</b>	Sampling end year in YYYY format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>Day_end</b>	Sampling end day in 1-12 format	
<b>Time_end</b>	Hour-minutes-seconds of sampling end in HH:MM:SS format	
<b>SpeciesID</b>	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
<b>SpeciesName</b>	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
<b>BirdWatcherName</b>	Main bird watchers. Enter the name and surname or code identification of each bird watcher separated by ";"	
<b>HatchingAdults</b>	Number of hatching adults and sub-adults	
<b>ColonyAdults</b>	Number of adults and sub-adults in the colony	
<b>OutsideColonyAdults</b>	Number of adults and sub-adults outside the colony	
<b>AdultsTOT</b>	Total number of adults	
<b>MaxAdultsAlarm</b>	Maximum number of adults in alarm (if different from Adults TOT)	
<b>ASCodesRingsRead</b>	Enter the codes of the rings read for adults and sub-adults accompanied by a sense of reading (up, down), separated by ";"	
<b>ChicksVisibleAD</b>	Number of chicks visible from afar	
<b>Juvs</b>	Number of juveniles in the vicinity	
<b>ChicksJuvsTOT</b>	Total number of chicks and juveniles	
<b>PGCodesRingsRead</b>	Enter the codes of the read rings of the chicks visible from afar or of the juveniles	
<b>Remarks</b>	Notes	

**Table 6: DSs & DDs Module BB2 (Protocol B) Protocol2 for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NationalStationID</b>	Station code	
<b>Year_start</b>	Sampling start year in YYYY format	
<b>Month_start</b>	Sampling start month in 1-12 format	
<b>Day_start</b>	Sampling start day in 1-12 format	
<b>Time_start</b>	Hour-minutes-seconds of sampling start in HH:MM:SS format	
<b>Year_end</b>	Sampling end year in YYYY format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>Day_end</b>	Sampling end day in 1-12 format	
<b>Time_end</b>	Hour-minutes-seconds of sampling end in HH:MM:SS format	
<b>SpeciesID</b>	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
<b>SpeciesName</b>	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	

<b>BirdWatcherName</b>	Main bird watchers. Enter the name and surname or code identification of each bird watcher separated by ";"	
<b>NumNest_1e</b>	Number of nests with 1 egg (not hatched)	
<b>NumNest_2e</b>	Number of nests with 2 eggs (not hatched)	
<b>NumNest_3e</b>	Number of nests with 3 eggs (not hatched)	
<b>NumNest_4e</b>	Number of nests with 4 eggs (not hatched)	
<b>NumNest_1c</b>	Number of nests with 1 chick (dead)	
<b>NumNest_2c</b>	Number of nests with 2 chicks (dead)	
<b>NumNest_3c</b>	Number of nests with 3 chicks (dead)	
<b>NumNest_1e1c</b>	Number of nests with 1 egg and 1 chick (dead)	
<b>NumNest_1e2c</b>	Number of nests with 1 egg and 2 chicks (dead)	
<b>NumNest_2e1c</b>	Number of nests with 2 eggs and 1 chick (dead)	
<b>NumNest_other</b>	Number of nests with with content to specify	
<b>ContNest_other</b>	Specify the contents of NumNest_other	
<b>TotalNestEgg</b>	Total nests with eggs (sum)	
<b>TotalNestChicks</b>	Total nests with chicks (sum)	
<b>TotalNestEggChicks</b>	Total nests with eggs and chicks (sum)	
<b>TotalNestEmpty</b>	Total empty nests (sum)	
<b>NumScatEgg</b>	Number of scattered eggs	
<b>NumWanderingChicks</b>	Number of chicks found dead away from the nest, if applicable	
<b>NumPreiedNest</b>	Number of preied nests	
<b>AgePC</b>	Age of dead/preied chicks, if applicable	
<b>AdultsCarcasses</b>	Number of adult carcasses	
<b>RingsFound</b>	Number of rings found	
<b>CodeRingsFound</b>	Enter the codes of the rings found	
<b>Remarks</b>	Notes	

**Table 7: DSs & DDs Module BB3 (Protocol C) Station for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NationalStationID</b>	Station code	
<b>NationalStationName</b>	Station name	
<b>Region</b>	Administrative subdivision of first level which the station belongs to (according to the country subdivision)	
<b>AreaName</b>	Survey Area Name	
<b>SiteName</b>	Survey Site Name	
<b>SPAName</b>	Name of the Specially Protected Areas (SPAs) or Specially Protected Areas of Mediterranean Importance (SPAMIs) near the survey site.	
<b>Latitude</b>	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>Longitude</b>	Longitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>Remarks</b>	Notes	



**Table 8: DSs & DDs Module BB3 (Protocol C) Protocol1 for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
Year_start	Sampling start year in YYYY format	
Month_start	Sampling start month in 1-12 format	
Day_start	Sampling start day in 1-12 format	
Time_start	Hour-minutes-seconds of sampling start in HH:MM:SS format	
Year_end	Sampling end year in YYYY format	
Month_end	Sampling end month in 1-12 format	
Day_end	Sampling end day in 1-12 format	
Time_end	Hour-minutes-seconds of sampling end in HH:MM:SS format	
SpeciesID	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
SpeciesName	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
Rats	Presence of rats. Enter one of the values from the list	Y = Presence N = Absence
BirdWatcherName	Main bird watchers. Enter the name and surname or code identification of each bird watcher separated by ";"	
IDSession	Session ID code	
Num_males	Number of males per session	
Num_females	Number of females per session	
Num_undefined	Number of animals with undefined gender per session	
Remarks	Notes	

**Table 9: DSs & DDs Module BB3 (Protocol C) Protocol2 for IMAP C. I.s 4&5 - Sea Birds**

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
Year_start	Sampling start year in YYYY format	
Month_start	Sampling start month in 1-12 format	
Day_start	Sampling start day in 1-12 format	
Time_start	Hour-minutes-seconds of sampling start in HH:MM:SS format	
Year_end	Sampling end year in YYYY format	
Month_end	Sampling end month in 1-12 format	
Day_end	Sampling end day in 1-12 format	
Time_end	Hour-minutes-seconds of sampling end in HH:MM:SS format	
SpeciesID	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
SpeciesName	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
NumSession	Number of session	

<b>IDScan</b>	Identification code of the scan	
<b>NumberIndividualsScan</b>	Number of individuals for each scan (total flock sum)	
<b>Remarks</b>	Notes	

**Table 10: DSs & DDs Module BB3 (Protocol C) Protocol3 for IMAP C. I.s 4&5 - Sea Birds**

<b>Field</b>	<b>Description</b>	<b>List of value</b>
<b>CountryCode</b>	Member country code as ISO two digits, for example "IT" for Italy.	
<b>NationalStationID</b>	Station code	
<b>Year_start</b>	Sampling start year in YYYY format	
<b>Month_start</b>	Sampling start month in 1-12 format	
<b>Day_start</b>	Sampling start day in 1-12 format	
<b>Time_start</b>	Hour-minutes-seconds of sampling start in HH:MM:SS format	
<b>Year_end</b>	Sampling end year in YYYY format	
<b>Month_end</b>	Sampling end month in 1-12 format	
<b>Day_end</b>	Sampling end day in 1-12 format	
<b>Time_end</b>	Hour-minutes-seconds of sampling end in HH:MM:SS format	
<b>SpeciesID</b>	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
<b>SpeciesName</b>	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
<b>Rats</b>	Presence of rats. Enter one of the values from the list	Y = Presence N = Absence
<b>BirdWatcherName</b>	Main bird watchers. Enter the name and surname or code identification of each bird watcher separated by ";"	
<b>Habitat</b>	Prevailing habitat	
<b>LatitudeSector</b>	Latitude of the starting point of the sector in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
<b>LongitudeSector</b>	Latitude of the starting point of the sector in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
<b>NumOC_A</b>	Number of occupied cavities with the presence of an adult	
<b>NumOC_J</b>	Number of occupied cavities with the presence of a juvenile	
<b>NumOC_E</b>	Number of occupied cavities with only egg present	
<b>NumeroNIC_TR</b>	Number of non-inspectable cavities with traces present	
<b>NumNIC_NT</b>	Number of non-inspectable cavities without traces present	
<b>NumSEC_TR</b>	Number of suitable empty cavities with traces present	
<b>NumSEC_NO</b>	Number of suitable empty cavities without traces present	
<b>NumSEC_ON</b>	Number of suitable empty cavities with old nest	
<b>NumSEC_PN</b>	Number of suitable empty cavities with preyed nest	
<b>TotalOC</b>	Total cavities occupied (sum)	
<b>TotalNIC</b>	Total number of cavities that cannot be inspected (sum)	
<b>TotalSEC</b>	Total suitable empty cavities (sum)	

Remarks	Notes	
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**Table 11: DSs & DDs Module BB4 (Distribution) Station** for IMAP C. I. 3 - Sea Birds

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
NationalStationName	Station name	
Region	Administrative subdivision of first level which the station belongs to (according to the country subdivision)	
AreaName	Survey Area Name	
SPAName	Name of the Specially Protected Areas (SPAs) or Specially Protected Areas of Mediterranean Importance (SPAMIs) near the survey site.	
Latitude	Latitude of the of the station representing the breeding colonies of the species in the reference system in decimal degrees WGS84 with at least 5 digits (xx.xxxxx).	
Longitude	Longitude of the of the station representing the breeding colonies of the species of the species in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Use positive values without '+' before numbers (for ex. 13.98078) for coordinates east of the of the Greenwich Meridian (0°) and negative values with '-' for coordinates west of the Greenwich Meridian (0°) (for ex. -2.6893).	
Remarks	Notes	

**Table 12: DSs & DDs Module BB4 (Distribution) Protocol1** for IMAP C. I. 3 - Sea Birds

Field	Description	List of value
CountryCode	Member country code as ISO two digits, for example "IT" for Italy.	
NationalStationID	Station code	
Year	Sampling year in YYYY format	
SpeciesID	Monitored species. Enter one value of the column 'SpeciesID' of the list 'List_species'	
SpeciesName	Monitored species. Enter one value of the column 'SpeciesName' of the list 'List_species'	
GISfile	Naming the GIS file that contains distribution map showing the occurrence (presence/absence) of breeding colonies must be plotted on the selected ETRS grid. In the attribute table of the GIS file, for each breeding colony, the NationalStationID field must be reported. The file must be returned in a georeferenced shapefile format (WGS84) and compressed in a single .zip file that includes .zip, .prj, .dbf, etc ... files. The filename must conform to the following Rule of composition: "Seabirds_GISfile_ <AreaName> _ <gg_mm_aaaa> .zip", eg. Seabirds_GISfile_Portofino_12_05_2016.zip. If Region and/or AreaName contains spaces, replace these spaces with "_".	
ExtensionArea	Total area occupied in square kilometers	
Remarks	Notes	

**Table 13: Species List** for IMAP C.I.s 3,4 & 5- **Sea Birds**

<b>SpeciesID</b>	<b>SpeciesName</b>
212680	<i>Falco eleonora</i>
159377	<i>Pandion haliaetus</i>
137178	<i>Phalacrocorax aristotelis desmarestii</i>
137139	<i>Ichthyaetus (Larus) audouinii</i>
137143	<i>Larus genei</i>
137158	<i>Thalasseus bengalensis</i>
137166	<i>Thalasseus sandvicensis</i>
137189	<i>Hydrobates pelagicus</i>
137194	<i>Calonectris diomedea</i>
137204	<i>Puffinus yelkouan</i>
445503	<i>Puffinus mauretanicus</i>