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Agenda item 7: Further IMAP and MED POL Monitoring Programme Implementation

Data Standards and Data Dictionaries for Common Indicators related to Pollution and Marine Litter

Note by the Secretariat

In the framework of the Programme of Work and Budget for 2018–2019 of UN Environment/MAP (Decision IG.23/14), INFO/RAC is leading the work on development of the Info/MAP platform and the platform for implementation of IMAP, fully operative and further developed, and connected to MAP components' information systems and other relevant regional knowledge platforms. The purpose of this platform is to facilitate access to knowledge for managers and decision-makers, as well as stakeholders and the general public (output 1.5.1).

The EU-funded EcAp-MED II Project is supporting this output by the development of a Pilot IMAP Compatible Data and Information System (IMAP (Pilot) Info System), that would enable the Contracting Parties to start reporting data as of mid-2019 for selected 10 IMAP Common Indicators, and by laying down the basis for building a fully operational IMAP Info System by the end of the initial phase of IMAP, as provided for by Decision IG.22/7.

The criteria used for selecting the 10 Common Indicators as part of the IMAP (Pilot) Info System are:

a) Maturity of Common Indicators, 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 proposed data standards (DSs) and data dictionaries (DDs) for IMAP Common Indicators 13, 14 and 17 related to eutrophication (EO5) and contaminants (EO9); as well as for IMAP Common Indicators 22 and 23 related to marine litter (EO 10), were developed considering related IMAP Guidance Factsheets and existing Metadata Reporting Templates, as approved by the Meeting of the MED POL Focal Points, Rome, Italy, 29-31 May 2017 (UNEP(DEPI)/MED WG.439/20). DSs and DDs for Common Indicator 21 related to EO9 were prepared with the support of ENI SEIS II Project.

Data Standards (DSs) and Data Dictionaries (DDs) were developed building on respective relevant experience of INFO/RAC, as well as experience gained in building other relevant databases such as EMODnet Chemistry platform, SeaDataNet and WISE Data Dictionary maintained by EEA and available in EIONET. As such, the IMAP (Pilot) Info System is interrelated with other regional marine databases (e.g. SeaDataNet, SeaDataCloud, EMODNET, etc.), which might contain or require a different number of metadata entries.

Data Standards (DSs) and Data Dictionaries (DDs) are a set of information describing the content, format and structure of a database and relationship between the elements. DSs are prepared in a form of Excel spreadsheets in which every row indicates a field to be filled by the data providers, aligned with the current MED POL Database for the common cases. The DSs are accompanied by DDs provided in a form of a column next to each Data Standard or excel spreadsheet to guide the data provider. It is a crucial component of any relational database, invisible to most database users. Typically, only database administrators interact with the data dictionary.

For ease of reference, the current document presents updated proposal of Excel spreadsheets of DSs and DDs for Common Indicators 13, 14,17, 22 and 23 in a Word File format. This updated 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 data 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 to also report them as the additional data. It is at the discretion of the Contracting Parties to decide on reporting on non-mandatory data sets. The list of CAS Registry Numbers (CAS Number), as the unique numerical identifier assigned by the Chemical Abstract Service (CAS) to every chemical substance described in the open scientific literature, are included as well.

The first drafts of Data Standards and Data Dictionaries for the selected IMAP Common Indicators were reviewed by the Regional Meeting on IMAP Implementation: Best Practices, Gaps and Common Challenges (IMAP Best Practices Meeting), Rome, Italy, 10-12 July 2018. Following its outcome and the bilateral consultations among INFO/RAC and MED POL, the revised version of DSs and DDs for Common Indicators 13, 14, 17, 21, 22 and 23 were presented for the review and feedback of the Ecosystem Approach Correspondence Groups on Pollution Monitoring (2-3 April 2019) and Marine Litter Monitoring (4-5 April 2019), hereinafter referred as CorMon on Pollution and CorMon on Marine Litter, held back-to-back in Podgorica, Montenegro.

The Meeting of CorMon Pollution approved the proposed Data Standards and Data Dictionaries for IMAP Common Indicators 13, 14 and 17, and recommended their submission to the present Meeting of the MED POL Focal Points Meeting.

The Meeting of CorMon Marine Litter acknowledged the development achieved with regards to the preparation of Data Standards and Data Dictionaries for IMAP Common Indicators 22 and 23, and recommended their submission to the present Meeting of the MED POL Focal Points Meeting, after addressing several comments related to the refinement of the "Titles" and "Description" of the fields, as well as avoiding duplication of fields between the different tables[1]. It should be noted that the DSs and DDs for Common Indicator 22 take into consideration the list of beach marine litter items as revised by the Meeting of CorMon Marine Litter.

Compared to the Working Document UNEP/MED WG.464/4, presented during the CorMon Marine Litter Meeting, the DSs and DDs presented under the present document, do not include the tables "Data Standards (stations information) for IMAP Common Indicator 22" (i.e. Table 1 of UNEP/MED WG.464/4) and "Data Standards (Beach Litter Items Introductory Elements) for IMAP Common Indicator 22" (i.e. Table 4 of UNEP/MED WG.464/4), to reflect the comments received after the CorMon Marine Litter Meeting from 2 Contracting Parties, namely Israel and Spain.

In order to ensure finalization of the IMAP (Pilot) Info-System, the Meetings of CorMon Pollution and Marine Litter recommended to the Secretariat and INFO/RAC implementation of the following actions:

a) Upload finalized DSs and DDs to IMAP (Pilot) Info System whilst providing the consequent changes to the data base structure;
b) Ensure IMAP (Pilot) Info-System is enabled to receive in 2020 new datasets related to IMAP Common Indicators 13, 14, 17, 21, 22 and 23;
c) Inform the Meeting of the MED POL Focal Points on the document related to MAP "Data Management Policy" developed by INFO/RAC and submitted for the consideration of the INFO/RAC Focal Points;
d) Prepare by the end of next biennium (2020-2021) DSs and DDs for other IMAP Common Indicators related to Pollution cluster; and
e) Request the Secretariat, in consultations with MED POL Focal Points, to designate national experts that would actively contribute to the finalization of DSs and DDs for other IMAP Common Indicators related to Pollution cluster.

The final version of DSs and DDs, along with the Metadata Templates, will be uploaded in the IMAP (Pilot) Info System, and the consequent changes to the data base structure will be provided. In other words, once all the parameters and measurement units are defined, the correspondent data flow will be activated. This will be followed by a testing phase of the IMAP (Pilot) Info System that will be realized with the voluntary participation of interested countries. They will be invited to start providing data flow for the selected Common Indicators supported by the IMAP (Pilot) Info System. After the

[1]All changes made and revisions introduced are marked in bold for easy of reference.

testing and reflection of its findings, it is expected to have the IMAP (Pilot) Info System fully operational to receive uploaded data for 10 selected IMAP Common Indicators.

It must also be noted that the current reporting through the MED POL Metadata Templates as confirmed by the Meeting of the MED POL Focal Points, Rome, Italy, 29-31 May 2017, will remain operative for reporting up to the 2018 monitoring data. It is aimed that the new IMAP (Pilot) Info System will be enabled to receive the monitoring data for Common Indicators 13, 14, 17 and 21 generated in 2019 onward.

Table of Contents

List of Abbreviations / Acronyms

CI	Common Indicator
CORMON	Correspondence Group on Monitoring
DDs	Data Dictionaries
DSs	Data Standards
EcAp	Ecosystem Approach
EEA	European Environmental Agency
EO	Ecological Objective
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria
INFO/RAC	Regional Activity Centre for Information and Communication
MAP	Mediterranean Action Plan
MED POL	Programme for the Assessment and Control of Marine Pollution in the Mediterranean Sea
MED QSR	Mediterranean Quality Status Report
MSFD	Marine Strategy Framework Directive
PoW	Programme of Work
QA	Quality Assurance
QC	Quality Control

1. DATA STANDARDS AND DATA DICTIONARIES FOR IMAP COMMON INDICATORS 13, 14, 17, 21, 22 AND 23

1. The Data Standards and Data Dictionaries (DSs and DDs) are presented in tabular forms in the next sections and should guide the data providers into filling the future Metadata Templates, the formats to be developed in accordance with this basic information on data reporting. The Data Standards (DDs for Stations and DDs for characteristic parameters and the List of reference under each Common Indicator) are taken from related Excel files prepared by INFO/RAC, in close consultations with MED POL. Further extended instructions and in-depth details will be provided to facilitate the submission of the datasets by the Contracting Parties when the IMAP (Pilot) Info System will be launched, and related Metadata Templates will be operational.

2. The current MED POL Metadata Templates (excel spreadsheet formats), were designed for a relational database (SQL) containing metadata (e.g. station, year, coordinates, country, dates, QA/QC, etc.) associated to the data (namely, parameter) to be measured and reported (i.e. Chlorophyll-a, nutrients, contaminants, etc.). To this regard, the alignment of new IMAP Metadata Templates for the IMAP (Pilot) Info System with the current MED POL Metadata Template formats, will be provided through Data Standards and Data Dictionaries presented in this document. Even more, new IMAP Metadata Templates will offer enlarged possibilities for the Contracting Parties that are measuring additional parameters to report those to the IMAP (Pilot) Info System, as well.

3. Specifically, regarding Common Indicators 13 and 14, as a variety of methods (e.g. Chlorophyll *a* concentration - spectrophotometer, fluorometer, HPLC, in situ.) used for measurements with different underlying variability exists, an alignment of the initial proposal of Data Dictionaries by INFO/RAC was proposed. A coding list for the used Analytical Methods corresponding to a combination of analyte, matrix and method in the general case is suggested. This list was obtained through a harvesting data tool from the SeaDataNet Project, which reference vocabulary is currently maintained by the BODC (British Oceanographic Data Center). The list is provided in an Excel file (List_P01) presented at the IMAP Best Practices Meeting.

4. The list of reference for the Common Indicator 17 on chemicals is also in use by the European Environmental Agency (EEA, WISE-Marine) and includes either the CAS numbers (Chemical Abstract Service reference number) or the EEA reference number (for particular EEA requirements). The IMAP Guidance Factsheets related to Common Indicator 17 (EO9) contain the agreed chemical compounds and those can be found in the EEA list (with its CAS number). Similarly, for eutrophication (EO 5) there is a list of parameters (as Data Dictionaries) aligned with the parameters for Common Indicators 13 and 14 provided in Guidance Factsheets for respective Common Indicators. The mandatory reporting is foreseen only for the biota and sediment matrices as agreed under IMAP Guidance Factsheets and for specific compounds under each Common Indicator, despite any other substance and matrix can be reported by applying then harmonized CAS number.

5. For Common Indicator 17, a list of biota matrices (e.g. species) is the major difference with the reference list for species from MED POL. However, this MED POL`s list has also been checked against the EEA reference list. Finally, the List _Dictionary P01 (in accordance with EMODNET data policy) is also provided to include, if available, the pertinent code corresponding to a combination of analyte, matrix and method in the general case. This list is created similarly as for Common Indicators 13 and 14. However, this requirement is on a voluntary basis.

6. In line with the Guidance Fact Sheet for IMAP Common Indicator 21, related DDs establish reporting of required data i.e. CFU (Intestinal enterococci per 100 mL) / Number of Colony-formation-unit per analysis.

8. For Common Indicators 22 and 23, the proposed DDs reflect the elements included in the Metadata Reporting Templates to facilitate the population of corresponding data in the IMAP (Pilot) Info System. For beach marine litter (i.e. Common Indicator 22), the DDs are structured based on the

approved Beach ID Form and Beach Survey Form providing information and metadata on the beach profile, link to the potential sources, recorded marine litter items, effect to biota etc. For seafloor marine litter, the DDs include a number of information related to the vessel/trawling characteristics as well as the list of marine litter items. For floating microplastics, the DDs provide information about the methodological approach for monitoring floating microplastics (i.e. manta net), and the list and types of microplastics that may be found in the marine environment.

2. ECOLOGICAL OBJECTIVE 5

9. In close consultations with MED POL, INFO/RAC developed the Data Standards and Data Dictionaries for Common Indicators 13 and 14 for EO5 within the Pollution cluster of the IMAP, as explained above. Below are the characteristics of the proposed Data Dictionaries which will create the basis for new Metadata templates structure for reporting on these Common Indicators.

2.1 Common Indicators 13 and 14

Table 1: Data Dictionaries (stations information) for CI13 and CI14.

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station code	
National Station Name	Station name	
Region	Administrative first level subdivision to which the station belongs to	
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).	
Closest Coast	Station distance from the coast in km	
TCM Matrix	Measure of seawater at the station	W = Sea water column
Sea Depth	Sea depth in meters	
Area Typology	Typology of the monitored area enter one of the values in the list	R = Reference C = Coastal HS = Hot spot O = Other
Pressure Type	If the monitoring station id dedicated to monitor pressure, indicate the typology of pressure monitored, enter one of the values in the list	AP = Aquaculture plant RP = River Plume UWWTP = Urban Waste Water Treatment Plant IP = Industrial Plant O = Others
Remarks		

*non-mandatory

Table 2: Data Dictionaries (physicochemical information) for EO5 Common Indicator 13 and 14.

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station code	
Year	Year of sampling in AAAA format	
Month	Month of sampling in 1-12 format	
Day	Day of sampling in 1-31 format	
Time	Hour-minutes-seconds of sampling in HH:MM:SS format	
Sample ID	Sample Code if multiple replies are made with the same value as Year, Month, Day and Time	
Determin_Nutrients	Name of the physico-chemical parameter or of the nutrient, enter one of the values in the list in the "List_PhysicoChemical"	
Nutrients Seawater_unit	Unit of measurement of the physiochemical parameter or nutrient, enter one of the values in the list	% = Oxygen saturation m = Secchi disks depth pH = pH °C = Temperature µg/L = Chlorophyll *a* µmol/L = Ammonium, Nitrate, Nitrite, Total Nitrogen µmol/L = Dissolved Oxygen µmol/L = Orthophosphate, Total Phosphorus µmol/L= Orthosilicate µS/cm = Conductivity
LOD_LOQ_Flag	Enter the value LOQ in case the concentration value is less than the quantification limit or the value LOD in case the concentration value is less than the detection limit. In the other cases, leave the field empty.	"LOQ = Concentration value below the quantification limit LOD = Concentration value below detection limit
Concentration	Concentration measure	
Sample Depth	Sampling depth in meters	
Analytical Method	Analytical method List of analytical methods, in line with IMAP, will be completed. Suggestion to use code from List_P01 provided in an Excel file	
Remarks		

Table 3: List of physicochemical parameters under IMAP Guidance Factsheets EO5 and provided as mandatory in Data Dictionaries for Common Indicators 13 and 14.

Field	Description	Remarks
Temperature (water)	Water Temperature (°C)	
Salinity	Salinity (psu)	
Conductivity	Conductivity (µS/cm)	
Dissolved oxygen	Dissolved Oxygen (µmol/L)	
Oxygen saturation	Dissolved Oxygen - saturation percentage (%)	
pH	pH	
Chlorophyll *a*	Chlorophyll-*a* (µg/L)	
Secchi disk depth	Secchi disk (m)	
Nitrate	Nitrate (µmol/L)	
Nitrite	Nitrite (µmol/L)	
Ammonium	Ammonium (µmol/L)	
Total phosphorus	Total Phosphorus (µmol/l)	
Orthophosphate	Orthophosphate (µmol/L)	
Total nitrogen	Total Nitrogen (µmol/L)	
Orthosilicate	Reactive silicate (µmol/L)	

3. ECOLOGICAL OBJECTIVE 9

10. The INFO/RAC in close consultations with MED POL has developed the Data Standards and Data Dictionaries for Common Indicator 17 for EO9 within the Pollution cluster of the IMAP, as explained above. Below the characteristics of the proposed Data Dictionaries are shown which will create the basis for new Metadata templates structure for the reporting on this Common Indicator. In addition, Data Dictionaries for Common Indicator 21 are shown.

3.1 Common Indicator 17

Table 4: Data Dictionaries (Stations Information) for Common Indicator 17 within EO9.

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Sation code	
National Station Name	Station name	
*Region	Adminstrative subdivision after country which the station belongs to (according to the country subdivision)	
Latitude	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude	Longiitude 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).	
*Closest Coast	Station distance from the coast in km	
TCM Matrix	Environmental matrix measured in the station, enter one value of the list	B = Biota BS = Biota and sediment BSW = Biota, sediment and sea water column BW = Biota and sea water column S = Sediment SW = Sediment and sea water column W = Sea water column
Sea Depth	Sea depth in meters	
Area Tipology	Indicate the typology of the monitored area, enter one of the values in the list	R = Reference C = Coastal HS = Hot spot O = Others
PressureType	If the monitoring station id dedicated to monitor pressure, indicate the typology of pressure monitored, enter one of the values in the list	IP = Industrial Plants MT = Maritime Traffic

*non-mandatory

Table 5: Data Dictionaries (contaminants information)

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station code	
Year	Year of sampling in YYYY format	
Month	Month of sampling in 1-12 format	
Day	Day of sampling in 1-31 format	
Time	Hours-minutes-seconds of sampling in HH:MM:SS format	
Sample ID	Sample Code if multiple replies are made with the same value as Year, Month, Day and Time	
Matrix	Sample matrix, enter one value of the list	W = Water S = Sediments B = Biota
Determin Haz Subs Name	Name of the contaminant, enter one value of the column 'Label' of the list 'List contaminants'	
Determin Haz Subs ID	ID of the contaminant, enter one value of the column 'ID_Contaminant' of the list 'List_contaminants'	

CAS Number	CAS number of contaminant, enter one value of the column CAS Number of list 'List_contaminants'	
Haz Subs_unit	Unit of measurement for the contaminant, enter one value of the list	µg/l = water matrix µg/kg = sediments and biota matrices
Haz Subs_WD	For sediment or biota, specify dry or wet weight, enter one value of the list	WW = Wet weight DW = Dry weight
LOD_LOQ_Flag	Enter the value '<' in case the concentration value is less than the quantification limit or the value '[' in case the concentration value is less than the detection limit. In the other cases, leave the field empty.	<= Concentration value below the quantification limit [= Concentration value below detection limit
Concentration	Concentration value. In the case of analytes sums in which at least one is not less than the LOQ, use the Concentration field with the sum of solely quantifiable analytes (i.e. not lower than the LOQ). In case the concentration value of the single analyte or all the analytes constituent the sum is less than the LOQ, the LOD_LOQ_Flag field and the Concentration field should be used as follows: in the case of a single analyte enter the value of LOQ/2; in the case of analytical additions, enter the zero value taking into account that the individual substances below the quantification limit do not contribute to the value of the sum.	
Sample Depth	Sampling depth in meters	
Salinity	For water matrix: Salinity (psu)	
Temperature	For water matrix: Temperature (°C)	
Dissolved oxygen	For water matrix: dissolved oxygen (µmol O2/l)	
*Grain Type	For sediment matrix: tipology of sediment, enter one value of the list	CS = Coarse Sand FS = Fine Sand G = Gravel M = Mud MS = Middle Sand
Fraction	Per sediment matrix: maximum size of sediment particles in µm	

Sediment Depth	For the sediment matrix: Depth of the collected sample of sediment, measured as a range, in centimeters, starting at the seafloor surface. The range would start by zero if the top of the sediment sample is the seafloor surface. For ex. insert '0-10' if 10 cm of sediments have been sampled starting from seafloor surface or insert '5-15' if 10 cm of sediments have been sampled starting from 5 cm from the seafloor surface.	
*TC	For sediment matrix: Total carbon content in % unit	
*TOC	For sediment matrix: Total organic carbon in % unit	
*TIC	For sediment matrix: Total inorganic carbon in % unit	
*TN	For sediment matrix: Total nitrogen content in % unit	
*TON	For sediment matrix: Total organic nitrogen in % unit	
*TIN	For sediment matrix: Total inorganic nitrogen in % unit	
Species ID	For the biota matrix: monitored species. Enter one value of the column 'ID_Species' of the list 'List_species'	
Species Name	For the biota matrix: monitored species. Enter one value of the column 'Label' of the list 'List_species'	
Specimen_lenght	For the biota matrix: length of specimen in cm. In case of pooling, indicate mean length	
Specimen_length_sd	For the biota matrix: Standard deviation of average length of specimens in a pool in cm.	
Specimen_weight	For the biota matrix: weight of specimen in g. In case of pooling, indicate mean weight.	
Specimen_weight_sd	For the biota matrix: Standard deviation of average weight of specimens in a pool in g.	
Pooling	In case of pooling, describe the content of pooling as number of specimens and other methodological issues	
Extractable Organic Matter	Extractable Organic Matter in mg/g	

Tissue	For biota matrix: tissue element of the monitored species, enter one of the list values	**BL** = Fluids - Blood. Includes haemolymph, erythrocytes, haemocytes, serum (blood component without cells and clotting factors) and plasma (serum including clotting factors) **EG** = Eggs. Includes bird eggs and fish eggs (roe). Use the remarks field to provide additional information, if necessary. **FA** = Tissues - Fat. Any type of adipose tissue or organ. Includes the form code BB for "Blubber". GO = Organs - Gonads. Includes female gonads (ovaries) and male gonads (testes). Use the remarks field to provide additional information, if necessary. **KI** = Organs - Kidney. Use the remarks field to provide additional information, if necessary. **LI** = Organs - Liver. Includes hepatopancreas. Use the remarks field to provide additional information, if necessary. **MU** = Tissues - Muscle. Any type of muscle tissue or organ. Includes the former code TM for "Tail muscle". **OT** = Other. Use the remarks field to provide additional information, if necessary. **ST** = Tissues - Soft tissue. Includes any body tissue except mineralized tissue (hard tissue)
Fat Content	Fat content as percentage of total wet matter	
Extractable Lipid	Extractable Lipid Percent. Insert as a percentage the extractable lipid content of the material analyzed.	
Lipid Weight	Lipid Weight Percent Insert as a percentage the lipid weight	
Analytical Method	Analytical method	
LOQ	Limit of quantification	
EmodnetCodeP01	Code of the parameter/ EMODNet method according to the dictionary P01,enter one value of the list "List_dictionary_P01"	
Remarks	Notes	

*non-mandatory under IMAP Guidance Factsheets

Table 6: Example of the List of physicochemical parameters under IMAP Guidance Factsheets EO9, that are also available in the EEA reference list of contaminants (Code list), showing compounds provided as mandatory in the Data Dictionaries for Common Indicator 17 (PAHs not shown). The full list is provided with related Excel files presented at the IMAP Best Practices Meeting.

ID_Contaminant	Label	CAS Number	Matrix	Mandatory	Additional
CAS_309-00-2	Aldrin	309-00-2	Sediments	Y	
CAS_7429-90-5	Aluminium and its compounds	7429-90-5	Sediments	Y	
CAS_7440-43-9	Cadmium and its compounds	7440-43-9	Biota, Sediments	Y	
CAS_60-57-1	Dieldrin	60-57-1	Sediments	Y	
CAS_58-89-9	Gamma-HCH (Lindane)	58-89-9	Biota, Sediments	Y	
CAS_118-74-1	Hexachlorobenzene	118-74-1	Biota, Sediments	Y	
CAS_7439-92-1	Lead and its compounds	7439-92-1	Biota, Sediments	Y	
CAS_7439-97-6	Mercury and its compounds	7439-97-6	Biota, Sediments	Y	
CAS_37680-73-2	PCB 101 2,2’,4,5,5’-pentachlorobiphenyl)	37680-73-2	Biota, Sediments	Y	
CAS_32598-14-4	PCB 105 (2,3,3’,4,4’-pentachlorobiphenyl)	32598-14-4	Biota, Sediments	Y	
CAS_31508-00-6	PCB 118 (2,3’,4,4’,5-pentachlorobiphenyl)	31508-00-6	Biota, Sediments	Y	
CAS_35065-28-2	PCB 138 (2,2’,3,4,4’,5’-hexachlorobiphenyl)	35065-28-2	Biota, Sediments	Y	
CAS_35065-27-1	PCB 153 (2,2’,4,4’,5,5’-hexachlorobiphenyl)	35065-27-1	Biota, Sediments	Y	
CAS_38380-08-4	PCB 156 (2,3,3’,4,4’,5-hexachlorobiphenyl)	38380-08-4	Biota, Sediments	Y	
CAS_35065-29-3	PCB 180 (2,2’,3,4,4’,5,5’-heptachlorobiphenyl)	35065-29-3	Biota, Sediments	Y	
CAS_7012-37-5	PCB 28 (2,4,4’-trichlorobiphenyl)	7012-37-5	Biota, Sediments	Y	
CAS_35693-99-3	PCB 52 (2,2’,5,5’-tetrachlorobiphenyl)	35693-99-3	Biota, Sediments	Y	
EEA_33-38-5	Polychlorinated biphenyls(7 PCB: 28,52,101,118,138,153,180)		Biota, Sediments	Y	
EEA_32-03-1	Total DDT (DDT, p,p' + DDT, o,p' + DDE, p,p' + DDD, p,p')		Biota, Sediments	Y	
CAS_7440-66-6	Zinc and its compounds	7440-66-6	Biota, Sediments		Y

Table 7: Example of the List of available reference species (Code list) for Data Dictionaries and Data Standards of the IMAP (Pilot) Info System for EO9 (CI17 and CI20).

Species code	Species
2279156	Holothuria tubulosa
2357093	Hoplostethus atlanticus
2481126	Larus
2481156	Larus glaucoides
2481127	Larus hyperboreus
2409391	Lepidorhombus whiffiagonis
2419875	Leucoraja naevus
5213960	Limanda limanda
2301117	Littorina littorea
2415070	Lophius budegassa
2415075	Lophius piscatorius
2291262	Lymnaea palustris
2286995	Macoma balthica
5214420	Mallotus villosus
2415822	Melanogrammus aeglefinus
2415788	Merlangius merlangus
2415643	Merluccius merluccius
2415777	Micromesistius poutassou
5214022	Microstomus kitt
5214883	Molva dypterygia
5214880	Molva molva
5220008	Monodon monoceros
4284897	Mullus barbatus
7791733	Mya arenaria
7865139	Mya truncata
2333785	Myoxocephalus scorpius
8288896	Mytilus edulis
2285683	Mytilus galloprovincialis
2303019	Nassarius reticulatus
2226962	Nephrops norvegicus
5193449	Nucella lapillus
2286060	Ostrea edulis

3.2 Common Indicator 21

Table 8: Data Dictionaries (stations information)

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National StationID	Station code	
National Station Name	Station name	
*Region	Administrative subdivision after country which the station belongs to	
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).	
*Closest Coast	Station distance from the coast in km	
Matrix	Environmental matrix measured in the station, enter one value of the list	W = Water column
Beach name	Name of the beach or coastal area	
Sea Depth	Sea depth in meters	
Mixing	Mixing property of the water column at the station point, enter one of the values in the list	FM = Fully mixed PM = Partially mixed VS = Vertically stratified

*non-mandatory

Table 9: Data Dictionaries for Microbiological parameters.

CFU (Intestinal Enterococci per 100 mL)	Number Colony-Formation-Unit per analysis	

4. DATA STANDARDS AND DATA DICTIONARIES FOR IMAP EO10 COMMON INDICATORS 22 AND 23

11. The characteristics of the proposed DSs and DDs are hereunder presented which will create a basis for new Metadata templates structure for the reporting on the two IMAP Common Indicators for Marine Litter.

4.1 IMAP EO10 Common Indicator 22

12. For IMAP EO10 Common Indicator 22, the following Tables 10 to 12 are proposed. Table 10 is aimed to be completed only at the beginning of the program, when the station (i.e. the selected beach) is incorporated and simultaneously with the first survey data. Table 10 should be renewed once every year, or if/when a new development is altering the beach characteristics. In contrast, Tables 11 and 12 should be filled for each individual survey.

Table 10: Data Dictionaries (Beach ID Form) for IMAP Common Indicator 22

Field	Description	List of values
Country Code	Enter country (contracting Party) code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station code	
Beach National ID	Beach Code	
Beach Name	Beach Name	
[Region][2]	**[First level administrative subdivision to which the station belongs to][2]**	
Municipality	Indicate the township which the beach belongs to	
Beach Width	Average beach width (m)	
Beach Width Low Tide	Beach width at mean low spring tide (m)	
Beach Width High Tide	Beach width at mean high spring tide (m)	
Beach Length	Total length of the beach (m)	
Back of Beach	What kind/type exists at the back of the beach? e.g. sand dune	
Latitude Start 100m	Latitude of the beach in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude Start 100m	Longitude of the beach 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°).	
Latitude End 100m	Latitude of the beach in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude End 100m	Longitude of the beach 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°).	
Prevailing Currents	Prevailing currents off the beach	N = North E = East

[2] Change was introduced to accommodate the comments received from Spain after the CorMon Marine Litter Meeting (Podgorica, April 2019).

Field	Description	List of values
		S = South W = West
Prevailing Winds	Prevailing winds	N = North E = East S = South W = West
Beach Orientation	When you look from the beach to the sea, what direction is the beach facing?	N = North E = East S = South W = West
Sand	Percentage of beach coverage with sand (0-100)	
Pebbles	Percentage of beach coverage with pebbles (0-100)	
Rocky Coast	Percentage of beach coverage with rocky coastline (0-100)	
Slope	Slope of the beach in percentage (0-100)	
Currents Influencer	Are there any objects in the sea (e.g. a pier) that influence the currents ?	Y =Yes N = No
Currents Influencer Spec	In case Currents Influence = Y, specify which currents influencer	
Local People Use	Is it used by local people?	Y =Yes N = No
Local People Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Sun Bathing Use	Is it used by [~~**local**~~]**[3]** people[**? e.g. beach goers, tourists etc.]**[3]	Y =Yes N = No
Sun Bathing Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Fishing Use	Is [~~**it**~~ **the beach]**[3] used for [**recreational]**[3] fishing?	Y =Yes N = No
Fishing Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Surfing Use	Is it used for surfing?	Y =Yes N = No
Surfing Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Sailing Use	Is it used for sailing?	Y =Yes N = No
Sailing Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Other Use	Specify which other use	
Other Use Season	In case of Yes, enter one value of the list	S = Seasonal WY= Whole Year Round
Pedestrian Access	Beach accessible to pedestrians (Yes / No), enter one of the values in the list	Y = Yes N = No

[3] Changes were introduced to accommodate the comments received from Italy after the CorMon Marine Litter Meeting (Podgorica, April 2019).

Field	Description	List of values
Boat Access	Beach accessible by boat (Yes / No), enter one of the values in the list	Y =Yes N = No
Vehicle Access	Beach accessible by vehicle (Yes / No), enter one of the values in the list	Y =Yes N = No
Nearest Town	Beach adjacent **[(< 5 km)]**[4] to urban areas (Yes / No), enter one of the values in the list	Y = Yes N = No
Nearest Town Name	Enter the name of the nearest town or village	
Nearest Town Distance	Distance of the nearest town from the beach (km)	
Nearest Town Population	Population of the nearest urbanized area	
Developments Behind Beach	Is there any development behind the beach?	Y =Yes N = No
Developments Behind Beach Spec		
Outlets Beach	Are there food and/or drink outlets on the beach?	Y = Yes N = No
Outlets Distance	Distance of the outlets from the survey area (m)	
Outlets Year Presence	Number of months during food and drink outlets are on the beach	
Outlets Position	Position of food and drink outlets in relation to the survey area	N = North E = East S = South W = West
Shipping Lane Distance	Distance of the beach to the nearest shipping lane in km	
Shipping Lane Position	Position of the shipping line in relation to survey area	N = North E = East S = South W = West
Traffic Density	What is the estimated traffic density: number of ships/year [**passing from the area of interest]**[4]	
Traffic Type	Is it mainly used from which type of vessels?	Merchant ships Fishing vessels All kinds
Harbour	Is the beach located near a harbour[**, a port or a marina]**[4] (Yes/NO)? Enter one of the values in the list [**and further specify]**[4]	Y = Yes N = No **Specify:** [4]
Harbour Name	Enter the name of the nearest harbour[**, port or marina]**[4]	**Specify: Harbour, Port, Marina**[4]
Harbour Distance	Distance between the sampling area and the harbour in km	
Harbour Entrance	Is the harbour entrance facing the survey area?	Y = Yes N = No

[4] Changes were introduced to accommodate the comments received from Italy after the CorMon Marine Litter Meeting (Podgorica, April 2019).

Field	Description	List of values
Harbour Position	Position of harbour in relation to survey area	N = North E = East S = South W = West
Harbour Type	What is the main type of vessels using the harbour? e.g. passenger ships, merchant/cargo ships, fishing vessels?	
Harbour Size	Number of ships/**[vessels using the harbour every day]**[5]	
River Mouth	Beach adjacent to river mouths or drains of water (Yes / No), enter one of the values in the list	Y = Yes N = No
River Mouth Name	Enter the name of the nearest rivers / drains	
River Mouth Distance	Distance between the sampling area and nearest river mouths / drains of water in km	
River Mouth Position	What is the position of nearest river mouth in relation to survey area?	N = North E = East S = South W = West
Waste Water Discharge Distance	Distance between sampling area and industrial sites / landfills in km	
Waste Water Discharge Position	Position of discharge points in relation to survey area	N = North E = East S = South W = West
~~**Last Cleaning Date**~~[6]	~~**Last beach cleaning date in DD / MM / YYYY format**~~[6]	-
Clean Up Frequency	Cleaning frequency during all year round	D = Daily W = Weekly M = Monthly O = Other
Clean Up Seasonal	Seasonal Cleaning: please specify in months	
Clean Up Method	Main method that was used for Clean-up	Manual Mechanical
Clean Up Responsible	Who is responsible for the cleaning	
Amendment	Is this an amendment of an existing Beach ID form already submitted in the system?	Y = Yes N = No
~~**Year**~~[7]	~~**Year of sampling in YYYY format (Indicate the year that the present Beach ID is formed is submitted)**~~[7]	

[5] Change was introduced to accommodate the comments received from Italy after the CorMon Marine Litter Meeting (Podgorica, April 2019).
[6] Change was introduced to accommodate the comments received from Spain after the CorMon Marine Litter Meeting (Podgorica, April 2019). The field "Last Cleaning Date" is proposed to be put under Table 11 of the present document, as more relevant.
[7] Changes were introduced to accommodate the comments received from Spain after the CorMon Marine Litter Meeting (Podgorica, April 2019) to avoid duplication, as these fields are included under Table 11 of the present document.

Field	Description	List of values
~~**Month**~~[7]	~~**Month of sampling in 1-12 format (Indicate the month that the present Beach ID is formed is submitted**~~[7]	
~~**Day**~~[7]	~~**Day of sampling in 1-31 format (Indicate the day that the present Beach ID is formed is submitted)**~~ [7]	
~~**Survey of Contact Info**~~[7]	~~**Please indicate the name and contact details of the surveyor**~~[7]	
Additional Comments	Please include any additional comments that you find important and of relevance	
Beach Map ID	Naming the shapefile associated with the map, e.g. "12202005.shp". Specify the following information in the map: Nearest town Nearest harbour Nearest river mouth Nearest shipping lane Food/drink outlets Discharge or waste water Discharges	
Regional Map ID	Naming the shapefile associated with the map, e.g. "12202005.shp"	

Table 11: Data Dictionaries (Beach Survey Form) for IMAP Common Indicator 22

Field	Description	List of values
Country Code	Enter country (contracting Party) code as ISO two digits, for example "IT" for Italy.	
Beach National ID	Beach Code	
Beach Name	Beach Name	
ID Survey	Survey code	
Latitude Start 100m[8]	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx). Put new value if you diverted from the predetermined 100 m.	
Longitude Start 100m[1]	Longitude of the station 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°).	
Latitude End 100m[1]	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude End 100m[1]	Longitude of the station 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°).	
Year	Year of sampling in YYYY format	
Month	Month of sampling in 1-12 format	
Day	Day of sampling in 1-31 format	
Time	Time of sampling in HH:MM:SS format	
Surveyors Num	Number of surveyors	

[8] Put new value if you diverted from the predetermined 100 m

Field	Description	List of values
Surveyor Contact Info[9]	**Please indicate the ~~name and~~ contact details of the surveyor (e.g. institute, mail, telephone)[9]**	
Weather Conditions	Did any of the following weather conditions affect the data of the survey?	Wind Rain Sand storm Fog Snow Exceptionally high tide **Exceptionally low tide** **Storm surge**
Animals	Did you find stranded or dead animals?	Y = Yes N = No
Animals Species	If Animal = Yes, describe the animals, or note the species name if known	
Animals Number	If Animals is = Yes put the number of animals for each species	
Animals State	If Animal = Yes, Describe the stranded animal state, enter a value of the list	Dead Alive
Entangled Animals	Is the animal entangled in litter?	Y = Yes N = No
Entangled Animals Litter	If Yes enter one value of the List_Beach_Litter_Categories	
Special Circumstances	Were there any circumstances that influenced the survey? For example, tracks on the beach, recent replenishment of the beach or other	Y = Yes N = No
Special Circumstances Type	If no, enter a value of the list	tracks on the beach, recent replenishment of the beach description of the new circumstance
Unusual Items	Were there any unusual marine litter items and/or marine litter loads?	Y = Yes N = No
Unusual Items Description	If Yes enter description of the unusual item	
Last Cleaning Date[9]	**Last beach cleaning date in DD / MM / YYYY format[9]**	
Photo ID	Naming the file associated with the photo, e.g. "12202005.jpg"	

[9] Changes were introduced to accommodate the comments received from Spain after the CorMon Marine Litter Meeting (Podgorica, April 2019). This fields were moved from Table 10 of the present document.

Table 12: Data Dictionaries (Beach Litter Items) for IMAP Common Indicator 22[10]

Value	Description	MacroCategory
G1	4/6-pack yokes, six-pack rings	Plastic/Polystyrene
G3	Shopping bags incl. pieces	Plastic/Polystyrene
G4	Small plastic bags, e.g. freezer bags incl. pieces	Plastic/Polystyrene
G5	**~~[Plastic bags collective role;~~ The part that]** remains from rip-off plastic bags	Plastic/Polystyrene
G7/G8	Drink bottles	Plastic/Polystyrene
G9	Cleaner bottles & containers	Plastic/Polystyrene
G10	Food containers incl. fast food containers	Plastic/Polystyrene
G11	Beach use related cosmetic bottles and containers, e.g. Sunblocks	Plastic/Polystyrene
G13	Other bottles[**, drums]** and containers	Plastic/Polystyrene
G14	Engine oil bottles & containers <50 cm	Plastic/Polystyrene
G15	Engine oil bottles & containers >50 cm	Plastic/Polystyrene
G16	Jerry cans (square plastic containers with handle)	Plastic/Polystyrene
G17	Injection gun containers (including nozzles)	Plastic/Polystyrene
G18	Crates and containers / baskets [**(excluding fish boxes)]**	Plastic/Polystyrene
G19	**[Vehicle ~~Car]~~** parts [**(made of artificial polymer or fibre glass)]**	Plastic/Polystyrene
G21/24	Plastic caps and lids (including rings from bottle caps/lids)	Plastic/Polystyrene
G26	Cigarette lighters	Plastic/Polystyrene
G27	**Cigarette butts and filters**	**Plastic/Polystyrene**
G28	Pens and pen lids	Plastic/Polystyrene
G29	Combs/hair brushes/sunglasses	Plastic/Polystyrene
G30/31	Crisps packets/sweets wrappers/ Lolly sticks	Plastic/Polystyrene
G32	Toys and party poppers	Plastic/Polystyrene
G33	Cups and cup lids	Plastic/Polystyrene
G34[~~/35]~~	Cutlery[**, plates]** and trays[~~/Straws and stirrers]~~	Plastic/Polystyrene
[G35]	**[Straws and stirrers]**	Plastic/Polystyrene
G36	**[Heavy duty sacks (e.g.]** fertiliser [**or]** animal feed ~~bags~~sacks)	Plastic/Polystyrene
G37	**[Mesh ~~vegetable~~ bags (e.g. vegetables, fruits and other products) excluding aquaculture mesh bags]**	Plastic/Polystyrene
G40	Gloves (washing up)	Plastic/Polystyrene
G41	Gloves (industrial/professional rubber gloves)	Plastic/Polystyrene
G42	Crab/lobster pots and tops	Plastic/Polystyrene
G43	Tags (fishing and industry)	Plastic/Polystyrene
G44	Octopus pots	Plastic/Polystyrene
G45	**[Mesh bags (e.g.]** mussels nets[**, net sacks,]** oyster nets including **[~~plastic stoppers~~ pieces) and plastic stoppers from mussel lines]**	Plastic/Polystyrene
G46	Oyster trays (round from oyster cultures)	Plastic/Polystyrene
G47	Plastic sheeting from mussel culture (Tahitians)	Plastic/Polystyrene
G49	Rope (diameter more than 1cm)	Plastic/Polystyrene
G50	String and cord (diameter less than 1 cm)	Plastic/Polystyrene
G53	Nets and pieces of net < 50 cm	Plastic/Polystyrene
G54	Nets and pieces of net > 50 cm	Plastic/Polystyrene

[10] The change related to item G27 was agreed during the CorMon Marine Litter Meeting (Podgorica, Montenegro, 4-5 April 2019); whilst the rest of the changes were introduced to reflect the comments received from Croatia, Italy, Israel, Spain, as well as from MIO-ECSDE, after the CorMon Marine Litter Meeting.

Value	Description	MacroCategory
G56	Tangled nets/cord	Plastic/Polystyrene
G57/G58	Fish boxes **[(e.g].** plastic or polystyrene**)**	Plastic/Polystyrene
G59	Fishing line/[**~~monofilament~~ (~~angling~~ tangled and not tangled)]**	Plastic/Polystyrene
G60	Light sticks (tubes with fluid) incl. Packaging	Plastic/Polystyrene
G62/G63	**~~[Floats for fishing nets/]~~** Buoys [**(e.g. marking fishing gear, shipping routes, mooring boats etc.)]**	Plastic/Polystyrene
G65	Buckets	Plastic/Polystyrene
G66	Strapping bands	Plastic/Polystyrene
G67	Sheets, industrial packaging, plastic sheeting [**(i.e. non-food packaging/transport packaging) excluding agriculture and greenhouse sheeting]**	Plastic/Polystyrene
G68	Fibre glass **items and** fragments	Plastic/Polystyrene
G69	Hard hats/Helmets	Plastic/Polystyrene
G70	Shotgun cartridges	Plastic/Polystyrene
G71	Shoes [**and~~/~~]** sandals **[made of artificial polymeric material]**	Plastic/Polystyrene
G73	Foam sponge [**items (i.e. matrices, sponge, etc.)]**	Plastic/Polystyrene
~~G75~~	~~Plastic/polystyrene pieces 0 – 2.5 cm~~	~~Plastic/Polystyrene~~
G76	Plastic/polystyrene pieces 2.5 cm > < 50 cm	Plastic/Polystyrene
G77	Plastic/polystyrene pieces > 50 cm	Plastic/Polystyrene
G91	Biomass holder from sewage treatment plants **[and aquaculture]**	Plastic/Polystyrene
G124	Other plastic/polystyrene items (identifiable) including fragments	Plastic/Polystyrene
	Please specify the items included in G124	Plastic/Polystyrene
G125	Balloons[**, balloon ribbons, strings, plastic valves]** and balloon sticks	Rubber
G127	Rubber boots	Rubber
G128	Tyres and belts	Rubber
G134	Other rubber pieces	Rubber
	Please specify the items included in G134	Rubber
G137	Clothing / rags (clothing, hats, towels)	Cloth
G138	Shoes and sandals (e.g. Leather, cloth)	Cloth
G141	Carpet & Furnishing	Cloth
G140	Sacking (hessian)	Cloth
G145	Other textiles (including [**pieces of cloths,]** rags[**, etc.**)]	Cloth
	Please specify the items included in G145	Cloth
G147	Paper bags	Paper/Cardboard
G148	Cardboard (boxes & fragments)	Paper/Cardboard
G150	Cartons/Tetrapack Milk	Paper/Cardboard
G151	Cartons/Tetrapack [(**non-milk**)]	Paper/Cardboard
G152	Cigarette packets [**(including transparent covering of the the cigarette packet)]**	Paper/Cardboard
G27	Cups, food trays, food wrappers, drink containers	Paper/Cardboard
G153	Newspapers & magazines	Paper/Cardboard
G154	Other paper items ([**including non-recognizable]** fragments)	Paper/Cardboard
G158	Cartons/Tetrapack ([**non-milk]**)	Paper/Cardboard
	Please specify the items included in G158	Paper/Cardboard
G159	Corks	Paper/Cardboard

Value	Description	MacroCategory
G160/161	Pallets / Processed timber	Processed/Worked Wood
G162	Crates **[and containers / baskets (not fish boxes)]**	Processed/Worked Wood
G163	Crab/lobster pots	Processed/Worked Wood
G164	Fish boxes	Processed/Worked Wood
G165	Ice-cream sticks, chip forks, chopsticks, toothpicks	Processed/Worked Wood
G166	Paint brushes	Processed/Worked Wood
G171	Other wood < 50 cm	Processed/Worked Wood
	Please specify the items included in G171	Processed/Worked Wood
G172	Other wood > 50 cm	Processed/Worked Wood
	Please specify the items included in G172	Processed/Worked Wood
G174	Aerosol/Spray cans industry	Metal
G175	Cans (beverage)	Metal
G176	Cans (food)	Metal
G177	Foil wrappers, aluminium foil	Metal
G178	Bottle caps, lids & pull tabs	Metal
G179	Disposable BBQ's	Metal
G180	Appliances (refrigerators, washers, etc.)	Metal
G182	Fishing related (weights, sinkers, lures, hooks)	Metal
G184	Lobster/crab pots	Metal
G186	Industrial scrap	Metal
G187	Drums [**and barrels]** (e.g. oil, [**chemicals]**)	Metal
G190	Paint tins	Metal
G191	Wire, wire mesh, barbed wire	Metal
G198	Other metal pieces < 50 cm	Metal
	Please specify the items included in G198	Metal
G199	Other metal pieces > 50 cm	Metal
	Please specify the items included in G199	Metal
G200	Bottles [**(including identifiable fragments)]**	Glass
G202	Light bulbs	Glass
G208**a**	Glass fragments >2.5cm	Glass
G210a	Other glass items	Glass
	Please specify the items included in G210a	Glass
G204	Construction material (brick, cement, pipes)	Ceramics
G207	Octopus pots	Ceramics
G208**b**	Ceramic fragments >2.5cm	Ceramics
G210b	Other ceramic/**[pottery]** items	Ceramics
	Please specify the items included in G210b	Ceramics
G95	Cotton bud sticks	Sanitary Waste
G96	Sanitary towels/panty liners/backing strips	Sanitary Waste
G97	Toilet fresheners	Sanitary Waste
G98	Diapers/nappies	Sanitary Waste
G133	Condoms (incl. packaging)	Sanitary Waste
G144	Tampons and tampon applicators	Sanitary Waste
G--	Other sanitary waste	Sanitary Waste
	Please specify the other sanitary items	Sanitary Waste
G99	Syringes/needles	Medical Waste
G100	Medical/Pharmaceuticals containers/tubes	Medical Waste
G211	Other medical items (swabs, bandaging, adhesive plaster etc.)	Medical Waste
	Please specify the items included in G211	Medical Waste
G101	Dog faeces bag	Faeces

Value	Description	MacroCategory
G213	Paraffin/Wax	Paraffin/Wax
Presence of pellets	Please say Y or N	
Presence of oil tars	Please say Y or N	
[Number Items][11]	**[Number of items in the category expressed as number of objects / 100m]**	

11 Change was introduced to accommodate the comments received from Israel after the CorMon Marine Litter Meeting (Podgorica, April 2019).

4.2 IMAP EO10 Common Indicator 23

4.2.1 Seafloor Marine Litter

Table 13: Data Dictionaries (Station Information) for IMAP Common Indicator 23 (Seafloor Marine Litter)

Field	Description	List of values
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station Code	
National Station Name	Station Name	
Area	Administrative subdivision/sea compartment where the sampling station is located and also reference to EcAp Subdivision Code"	
Closest Coast	Distance station from the coast in km	
Additional Comments	Please include any additional comments that you find important and of relevance	

Table 14: Data Dictionaries (Sampled Seafloor) for IMAP Common Indicator 23 (Seafloor Marine Litter)

Field	**Description**	**List of values**
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.	
National Station ID	Station code	
Year	Year of sampling in YYYY format	
Month	Month of sampling in 1-12 format	
Day	Day of sampling in 1-31 format	
Time	Hours-minutes-seconds of sampling in HH:MM:SS format	
Haul Number ID	Sample Code if multiple replies are made with the same value as Year, Month, Day and Time	
Sampled Surface	Sampled surface of seafloor (km2)	
Latitude Start	Latitude of the Seafloor area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude Start	Longiitude of the Seafloor 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°).	
Latitude End	Latitude of the Seafloor area in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).	
Longitude End	Longiitude of the Seafloor 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°).	
Depth Start	Depth in metres (m)	
Depth End	Depth in metres (m)	

Field	Description	List of values
Haul Duration	Indicate the total duration of the haul (start till end) in minutes	
Covered Distance	Indicate the total length of the haul in km	
Objects Number	Indicate the number of objects per square ~~**meter**~~ **kilometers** of seafloor **(items/km^2)**. See Seafloor_ML_List	
Object Weight	Indicate the weight for each object per square ~~**meter**~~ **kilometers** of seafloor **(weight/km^2)**. See Seafloor_ML_List	
Gear	Type of gear (e.g. bottom trawl, etc.9	
Speed	Indicate the constant speed of the vessel during the haul duration in knots	
Net Opening	Opening of the net in metres or use the figure obtained from the trawl sensors (e.g. SCANMAR, SIMRAD) if available	
Cod-end mesh size	Cod-end mesh size (mm) **measured as stretched mesh (diamond shap)**[12]	
Surveyor Contact Info	Add surveyor's name and contact details (name, e-mail, etc.)	Non-Mandatory
Campaign Name	Add the name of the mission/cruise/project with which the survey is linked to	Non-Mandatory
Vessel Name	Add the name of the vessel	Non-Mandatory
Vessel Length[13]	**Add the length of the Vessel (m)**[13]	**Non-Mandatory**
Vessel Engine Power[13]	**Add the engine power of the Vessels (KW of HP)** [13]	**Non-Mandatory**
IMO Number[13]	**Add the International Maritime Organization (IMO) number of the Vessel**[13]	**Non-Mandatory**
Additional Comments	Please include any additional comments that you find important and of relevance	

Table 15: Data Dictionaries (Sampled Seafloor) for IMAP Common Indicator 23 (Seafloor Marine Litter)

Value	Description	Macro Category
L0	**No Litter**	Yes, no litter found No, go to other items)
L1a	Plastic bags	Plastic
L1b	Plastic bottles	Plastic
L1c	Plastic food wrappers	Plastic
L1d	Plastic sheets	Plastic
L1e	Hard plastic objects	Plastic
L1f	Fishing nets (polymers)	Plastic
L1g	Fishing lines (polymers)	Plastic

[12] Minor comments related to the refinement of the description of the field proposed after the CorMon Marine Litter (Podgorica, April 2019).
[13] Proposal was received after the CorMon Marine Litter (Podgorica, April 2019) to include additional Non-Mandatory Fields.

Value	Description	Macro Category
L1h	Other synthetic fishing related	Plastic
L1i	Synthetic ropes/strapping bands	Plastic
L1j	Other plastic	Plastic
L1	**Total Plastic**	Plastic
L2a	Tyres	Rubber
L2b	Other Rubber (gloves, floats, etc.)	Rubber
L2	**Total Rubber**	Rubber
L3a	Beverage cans (metal)	Metal
L3b	Other food cans/wrappers	Metal
L3c	Middle size containers (paint, etc.)	Metal
L3d	Large metallic objects	Metal
L3e	Cables	Metal
L3f	Fishing related (hooks, spears, etc.)	Metal
L3g	Remnants from war	Metal
L3	**Total metal**	Metal
L4a	Glass/ceramic bottles	Glass/Ceramic
L4b	Piece of glass	Glass/Ceramic
L4c	Ceramic jars	Glass/Ceramic
L4d	Large objects	Glass/Ceramic
L4	**Total Glass/Ceramic**	Glass/Ceramic
L5a	Clothing (other than polymers)	Textils / Natural fibers
L5b	Large pieces (carpets, etc.)	Textils / Natural fibers
L5c	Natural fishing ropes	Textils / Natural fibers
L5d	Sanitaries (non-polymers)	Textils / Natural fibers
L5	**Total textils / Natural fibers**	Textils / Natural fibers
L6	**Total processed wood**	Processed wood
L7	**Total paper and cardboard**	Paper and cardboard
L8	**Total other**	Other
L9	**Total unspecified**	Unspecified
	Total litter	Total litter
	Total fishing gears (sum of L1f to L1i, L3f, L5c)	Fishing gears

4.2.2 Floating Microplastics

1. All tables and relevant information which are presented hereunder are presented to the Contracting Parties to the Barcelona Convention for first time and thus should be considered as totally new.

Table 16: Data Dictionaries (Station Information) for IMAP Common Indicator 23 (Floating Microplastics) (Fields in red are not mandatory).

Field	Description	List of values	Remarks
Country Code	Enter member country code as ISO two digits, for example "IT" for Italy.		
National Station ID	Station Code		
National Station Name	Station Name		
Region	Administrative subdivision after country which the station belongs to		
Data Owner	Name of Institution carrying out the monitoring surveys		
Latitude	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).		Latitude of the station is essential for the GIS representation and joined to the monitoring network. It is independent from the sampling point.
Longitude	Longitude of the station 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°).		Longitude of the station is essential for the GIS representation and joined to the monitoring network. It is independent from the sampling point.
Closest Coast	Distance station from the coast in km		
TCM Matrix	Floating microplastics with the use of Manta Net are only referred to water column (**W**). If other measures of other environmental matrix are performed in the same station enter one of the values in the list (information not related to floating microplastic monitoring but useful to characterize the station)	B = Biota BS = Biota and sediment BSW = Biota, sediment and water column BW = Biota and water column S = Sediment SW = Sediment and water column W = Water column	Values in the list in red are not mandatory
Sea Depth	Sea depth of the station in meters (information not related to floating microplastic monitoring but useful to characterize the station)		Not mandatory

Field	Description	List of values	Remarks
Mixing	Mixing property of the water column at the station point, enter one of the values in the list	FM = Fully mixed PM = Partially mixed VS = Vertically stratified	Not mandatory Reference method to be added
Area Typology	Typology of the monitored area enter one of the values in the list	RP = River Plume PF = Port Facility US = Urban Settlement IS = Industrial Settlement	RP = Turbid freshwater flowing from land and generally in the distal part of a river (mouth) outside the bounds of an estuary or river channel.
Remarks	Notes		

Table 17: Data Dictionaries (Microplastic Mesh) for IMAP Common Indicator 23 (Floating Microplastics) (Fields in red are not mandatory).

Field	Description	List of values	Remarks
National Station ID	Station code		
Year	Year of sampling in YYYY format		
Month	Month of sampling in 1-12 format		
Day	Day of sampling in 1-31 format		
Time	Hours-minutes-seconds of sampling in HH:MM:SS format		Start time of sampling (duration not less than 20 minutes)
Sample ID	Sample Code if multiple replies are made with the same value as Year, Month, Day and Time		
Latitude START	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).		
Longitude START	Longitude of the station 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°).		
Latitude END	Latitude of the station in the WGS84 decimal degrees reference system with at least 5 digits (xx.xxxxx).		
Longitude END	Longiitude of the station 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°).		
Sea Depth	Sea depth of the station in meters		
Temp	Temperature (°C)		Not Mandatory
Salinity	Salinity (psu)		Not Mandatory

Field	Description	List of values	Remarks
Transparency	Indicate the depth of shallows in meters (m)		Not Mandatory
DO	Dissolved oxygen - percentage of saturation (%)		Not Mandatory
pH	pH		Not Mandatory
Sea State	State of the sea according to Douglas scale (from 0 to 9 degrees)		
Wind Intensity	Intensity of the wind according to Beaufort scale (from 0 to 12 degrees)		
Wind Direction	Wind direction measured in degrees (angle unit) regard to the magnetic north, as reported on the compass		
Boat Speed	Average speed held by the boat during the sampling operations expressed in nodes		
Length Way	Length of the sampled linear way (m)		
Width Manta Trawl	Width of manta trawl (m)		
Surface Sampled	Surface sampled of seawater (m2)		
Remarks	Note		

Table 18: Data Dictionaries (Sampled Microplastics) for IMAP Common Indicator 23 (Floating Microplastics) (Fields in red are not mandatory).

Field	Description	List of values
National Station ID	Station code	
Year	Year of sampling in YYYY format	
Month	Month of sampling in 1-12 format	
Day	Day of sampling in 1-31 format	
Time	Hours-minutes-seconds of sampling in HH:MM:SS format	
Sample ID	Sample Code if multiple replies are made with the same value as Year, Month, Day and Time	
Microplastic Morph Type	Indicate the type of morphology of the microplastics, enter one of the values in the list	Foam Filament Fragment Granule Pellet Sheet

Field	Description	List of values
Color	Indicate the color of microplastics, enter one value of the list	White Black Red Blue Green Other colors
Transparency	Indicate if the object is transparent or opaque, enter one value of the list	T = Transparent O = Opaque
Number of objects	Indicate the number of objects (sampled according to color and form indicated) per square meter of seawater	
Remarks	Notes	