Joint Cetacean Data Programme

Data Standard

Core data fields and vocabulary guidance

Version 1.3

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For further information please contact:
marinemammals@jncc.gov.uk

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Contributors to the JCDP can be found on the JCDP Information Hub https://jncc.gov.uk/our-work/jcdp-contributors/

From spring 2022 the JCDP is managed by the ICES Working Group for the Joint Cetacean Data Programme (WGJCDP) https://www.ices.dk/community/groups/Pages/WGJCDP.aspx

These data standards have been developed in collaboration with the Marine Environment Data and Information Network (MEDIN) to meet high standards of data management and formatting. The JCDP Data Standard has been adopted and endorsed by MEDIN and Ocean Best Practices.

Joint Cetacean Data Programme

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1. Overview

The Joint Cetacean Data Programme (JCDP) is a platform for collation, storage and access of cetacean data collected at-sea via ship-based or aerial observer/digital methodologies. It is a growing resource, aiming to enable best use of all available data of comparable types from which to carry out analyses at relevant spatial and temporal scales to inform cetacean research, management, policy and conservation.

One of the key objectives of the JCDP is to work with data providers to synthesise the way in which data are collected and stored, to support collation of data into a central JCDP database. The JCDP Steering Group have agreed on a data standard to enable efficient submission of datasets to the JCDP.

This document outlines that standard and data providers will need to work towards achieving the standard in order to result in compatible data with the JCDP.

1.1 The need for a data standard

For datasets to be collated into a single database, there needs to be a commonality at least between core fields within the data and having a defined standard facilitates this. Standardising data offers advantages in four main areas: development of expertise and data quality, suitability of data for analyses, ease of data ingestion, and compatibility. These components also all contribute towards maximising the use of independent datasets.

2. Development of expertise and data quality

The development of a standard for data submission to the JCDP should promote standardisation across field protocols. Where field data collection is standardised, surveyor expertise increases due to familiarity with an agreed, robust protocol. As a result, data quality improves through coordinated use of an appropriate survey methodology, as well as improved ability of observers to carry out accurate and effective surveys. Having an agreed standard will also support the development of new data collection initiatives, with a baseline from which to build a robust, compatible survey effort that can immediately contribute to the JCDP.

2.1. Suitability of data for analyses

Standardisation ensures that the requisite parameters are collated to enable effective use of the data. It also promotes data recording using the correct naming convention, taxonomy, and other associated coding. Recording supporting information (e.g. spatial and environmental data), will also be controlled ensuring these data are suitable for use alongside other datasets.

2.2. Data ingestion process

Standardisation of datasets allows for automated upload and validation of data, saving time for both data owners and those hosting the data. The validation ensures that only those data that meet the standard will be stored, helping to maintain the quality of the data within the database.

2.3. Compatibility of datasets for combined use

Standardised data ease the burden of processing for those using the data. Data may need to be adapted to be used in analytical packages such as ‘R’ or ‘Distance’ but applying these adaptations from collection rather than to individual datasets further along the line, speeds up

the process, eases data processing congestion and reduces opportunity for error. It also removes instances where data are completely incompatible for combined use, due to differences in data collection and storage methods.

The JCDP has appraised relevant existing data standards and vocabularies with the aim of developing the JCDP standard to coordinate with those already established and adopted. As such, the data standard has been developed with input from relevant stakeholders such as ICES and MEDIN to become a recognised and appropriate standard for widescale application.

2.4. Endorsed data standard

The Marine Environmental Data and Information Network (MEDIN) is working towards creating a framework of consistent standards covering the major types of data collection undertaken in the marine environment around the UK.

Ocean Best Practices is a global system and community to enhance management of methods for ocean research, operations and applications.

The JCDP Data Standard is adopted and endorsed by MEDIN and Ocean Best Practices as the standard for data collation and format for effort related cetacean survey data collected from aerial and vessel platforms. Providing survey data compliant with this standard ensures data contains all the information required for future use, adding value and impact.

3. Spatial coverage

The geographic range of JCDP datasets is predominantly the northeast Atlantic area, with the aim of collating data at relevant spatial scales for highly mobile and in many cases, migratory species.

4. Data types

The data stored within the JCDP database include effort-related cetacean survey data collected via:

- Dedicated survey platform: ship or aircraft observer survey
- Opportunistic survey platform: ship-based or aircraft observer survey
- Aerial digital imagery survey data

Although other types of data are not currently part of the JCDP, the JCDP dataset may be used in conjunction with others (e.g. non-effort related observations; strandings or acoustic data) to enable other analyses to be carried out.

5. Definitions

The definition of terms regarding the JCDP:

Survey: The term 'survey' may be applied differently between organisations, depending on how data are collected. In order to reduce the burden of data uploads and associated metadata, the data submitter may combine multiple 'survey trips' that share certain characteristics (year of collection; data custodian and location) into a single 'survey'. In the case where a survey trip spans two calendar years, the start year should be recorded.

Therefore, for this purpose, a 'survey' is:

Data collection within a single calendar year using a single methodology and/or within a pre-defined area or route.

Effort: describes the amount of active searching carried out during a survey. Survey effort is often measured as distance and/or time and the total survey effort generally comprises multiple, shorter segments of effort, the ends of which are defined by waypoints.

Waypoint: a position (latitude, longitude) along the survey trackline/route that demarcates the start/end of a segment of effort within a survey.

Data Rights Holder: the person/organisation with ultimate ownership over the data, for example this may be the individual/organisation who has commissioned or funded the data collection or the individual/organisation coordinating/leading the data collection.

Data Custodian: the Data Custodian will be the person/organisation who understand, upload and manage the data once in the JCDP.

It is expected that if not the Data Rights Holder, the Data Custodian will gain permission form the Data Rights Holder to upload and manage the data in the JCDP.

6. Data Tables: fields and vocabulary

The JCDP provides a data standard containing core and some non-essential fields. Using the standard will enable data to be submitted to the JCDP portal https://www.ices.dk/data/data-portals/Pages/Cetaceans.aspx.

The aim is not to dictate significant changes in how data are collected, particularly for established projects, but the JCDP data standard can be used to guide how data are collected and recorded. The JCDP builds on the protocol established by its predecessor, the Joint Cetacean Protocol (JCP). There are three data tables: Identifiers; Effort and Environment; and Sightings Records. The agreed data fields are outlined below, with associated descriptions, obligations and definitions.

- Conditional fields under “obligation” mean that entry into that field is dependent on entries in another e.g. relevant to a particular platform class and associated methodology and if the condition is applicable, the associated field must be filled out.
- Mandatory fields are compulsory for all and data cannot be uploaded unless these fields are completed.
- Optional fields have no obligation for data submission.

Where fields require further definition, this information is provided in **Section 7**. If further options are required for any field in order for you to be able to submit your data, you can request additions to the existing vocabulary by emailing accessions@ices.dk.This will go through a review process to QA the addition before approval is granted. Please only request additions where it is not possible to use the existing options and consider the proposal against the existing vocabularies.

Feedback and comments on the data standard, vocabularies and metadata can be provided via the JCDP feedback form. This feedback will help inform future developments of the JCDP system.

Table one: Identifiers

Field	**Obligation** (Mandatory; Conditional; Optional; Automated)	**Drop down/ restricted format/ free text**	**Description** **See Section 7 for further detail and definitions**	**Drop down fields**
SurveyID	Mandatory	FT	The unique identifier assigned to the survey by the data owner in support of retaining a reference between the original data and the JCDP dataset. **Format: year organisation location**	N/A
SurveyName	Optional	FT	Free text field noting the given name of the survey (may be the same as SurveyID).	N/A
SurveyType	Mandatory	DD	The nature of the survey (dedicated or opportunistic) i.e. is the survey on a dedicated survey platform, or a platform of opportunity (e.g. ferry).	DS Dedicated survey OS Opportunistic survey http://vocab.ices.dk/?ref=1698
SurveyAbstract	Mandatory	FT	Free text field to provide a high-level overview of the survey parameters (e.g. aim of survey, location, etc). Max 500 characters.	N/A
DataAccess	Mandatory	DD	Drop-down to identify whether data should be held as open access or restricted, as outlined in the data policy.	Public access according to ICES Data Policy Restricted data access to the delivered level of aggregation, not affecting the products http://vocab.ices.dk/?ref=1435

Field	**Obligation** (Mandatory; Conditional; Optional; Automated)	**Drop down/ restricted format/ free text**	**Description** **See Section 7 for further detail and definitions**	**Drop down fields**
DataRightsHolder	Mandatory	FT	A free text field to note the organisation that owns the rights to the data, as this may differ from whoever collected the data (Data custodian). *If data are owned by a consortium, a participating organisation should be nominated.*	N/A
DataCustodian	Mandatory	RF	A restricted format field to capture the full organisation name that is the custodian of the data. The custodian will likely be the data collector/data submitter. This should be an organisation name, not an individual, based on the European Directory of Marine Organisations (EDMO). *If data are managed by a consortium, a participating organisation should be nominated*.	Based on European Directory of Marine Organisations (EDMO)
DataCustodianContact	Mandatory	RF	A restricted format field to record a contact for the data custodian. A generic/organisation email is required due to GDPR, as well as continuity in retaining a current contact following personnel changes, e.g. *info@company.com*. *If data are managed by a consortium, a participating organisation should be nominated, and appropriate email contact provided*.	N/A
TargetTaxa	Mandatory	DD	Describes the focal taxa for the survey to enable filtering of dedicated cetacean survey from multi-taxa or opportunistic survey. Select from the drop down. A description of the fields can be found in Section 7.	Cetacean Multispecies Secondary

Field	**Obligation** (Mandatory; Conditional; Optional; Automated)	**Drop down/** **restricted format/** **free text**	**Description** **See Section 7 for further detail and definitions**	**Drop down fields**
PlatformClass	Mandatory	DD	The class of survey platform from a drop-down menu – vocab from http://vocab.ices.dk/?ref=311 - see Section 7 for platform definitions.	3Z Surface vessel – mobile platform 62 Aeroplane 6D Unmanned aerial vehicle http://vocab.ices.dk/?ref=311
PlatformCode	Conditional	DD	Code identifying the platform. Only required if PlatformClass is "Surface Vessel". Platform code held within ICES vocabulary, for ship-based survey only. If the relevant platform is not listed, please contact accessions@ices.dk to have it added.	https://vocab.ices.dk/?ref=315
PositionFix	Optional	DD	The method and source of the position fix. If the relevant method is not included as an option, contact accessions@ices.dk to request an addition.	HG Handheld GPS MP Mobile phone PS Platform onboard system CR Chart Reading http://vocab.ices.dk/?ref=1701
HorizontalAccuracy	Optional	RF	Accuracy of the spatial positions if known, in metres – max 2 decimal places.	N/A

Field	**Obligation** (Mandatory; Conditional; Optional; Automated)	**Drop down/** **restricted format/** **free text**	**Description** **See Section 7 for further detail and definitions**	**Drop down fields**
NominalAngleOf Search	Mandatory	DD	The planned search angle of survey team in degrees. If the existing options do not cover your needs, request additional options via accessions@ices.dk.	FW 180° angle (forward) FV 360° angle BP10 100° angle (beam-port to 10°) BS 350 100° angle (beam-starboard to 350°) BPO 90° angle (beam-port to 0°) BSO 90° angle (beam-starboard to 0°) BL The angle of search is below http://vocab.ices.dk/?ref=1711

Field	**Obligation** (Mandatory; Conditional; Optional; Automated)	**Drop down/ restricted format/ free text**	**Description** **See Section 7 for further detail and definitions**	**Drop down fields**
Methodology	Mandatory	DD	The methodology used (detail to be linked in organisational methodology metadata). If an additional option is required, send a request to accessions@ices.dk. See Section 7 for methodology definitions.	11 Digital aerial – video 12 Digital aerial – stills 13 Digital aerial - stills and video 14 Aerial observer - distance sampling 15 Aerial observer - non distance sampling 16 Single platform line-transect, distance sampling method 17 Single platform line-transect 18 Double platform line-transect, distance sampling method 19 Double platform line-transect http://vocab.ices.dk/?ref=1440
NominlNumberOf Observers	Mandatory	RF	Restricted format to record how many observers are planned to be recording simultaneously during a period of effort (whole numbers). If double platform, include the number of observers for both platforms. Aerial digital will be 0.	N/A
Comments	Optional	FT	Free text comments field for extra information as required. Keep concise where possible.	

Table two: Effort and environment

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
EffortID	Mandatory	FT	The code or ID assigned to the section of effort within the survey. Needs to be unique within the survey but can be the same across surveys.	N/A
SurveyID	Mandatory	FT	The unique identifier assigned to the survey by the data owner in support of retaining a reference between the original data and the JCDP dataset. **Format: year organisation location** **This field should be identical across all three tables.**	N/A
PlatformInstance	Conditional	DD	This field is conditional based on selection of a double platform methodology. Drop down options to identify whether the data are from the primary (1) or secondary (2) observer team.	1 Primary 2 Secondary
StartDate	Mandatory	RF	ISO format: yyyy:mm:dd start date of the effort segment waypoint.	N/A
EndDate	Conditional	RF	ISO format: yyyy:mm:dd end date of the effort segment waypoint. This field is optional for aerial surveys.	N/A
StartTime	Mandatory	RF	hh:mm start time of survey effort (UTC) waypoint.	N/A
EndTime	Conditional	RF	hh:mm end time of survey effort (UTC) waypoint. This field is optional for aerial surveys.	N/A
StartLatitude	Mandatory	RF	DDD.DDDDº start latitude of effort type in decimal degrees. Standard is WGS84.	N/A

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
StartLongitude	Mandatory	RF	DDD.DDDDº start longitude of effort type in decimal degrees. Standard is WGS84.	N/A
EndLatitude	Conditional	RF	DDD.DDDDº end latitude of effort type in decimal degrees. Standard is WGS84. This field is optional for aerial surveys.	N/A
EndLongitude	Conditional	RF	DDD.DDDDº end longitude of effort type in decimal degrees. Standard is WGS84. This field is optional for aerial surveys.	N/A
SurveyArea	Conditional	RF	DD.DDDDD Digital survey only – the total area of the survey area within which the data were collected, in km^2 (5 decimal places max).	N/A
ImageArea	Conditional	RF	DD.DDDDD Total area captured by digital images or video footage within the SurveyArea, recorded in km^2 (5 decimal places max).	N/A
PlatformHeight	Mandatory	RF	DD.DDDDD The height above sea level/altitude, of the observation platform for the section of effort, measured in metres to a max of 5 decimal places.	N/A
PlatformSpeed	Mandatory	RF	DD.DD Speed over ground in km/h, taken from the platform's instrument where possible (2 decimal places max).	N/A
NumberOfObservers	Mandatory	RF	Restricted format to record how many observers are recording simultaneously during period of effort (whole numbers). If double platform, include the number of observers for both platforms. Aerial digital will be 0.	N/A

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
AngleOfSearch	Mandatory	DD	The actual search angle of survey team for this period of effort in degrees. If the existing options do not cover your needs, request additional options via accessions@ices.dk.	FW 180° angle (forward) FV 360° angle BP10 100° angle (beam-port to 10°) BS350 100° angle (beam-starboard to 350°) BPO 90° angle (beam-port to 0°) BSO 90° angle (beam-starboard to 0°) BL The angle of search is below http://vocab.ices.dk/?ref=1711

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
SeaState	Mandatory	DD	Sea state using the Beaufort Scale 0 to 12. https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale	0 Calm 1 Light air 2 Light breeze 3 Gentle breeze 4 Moderate breeze 5 Fresh breeze 6 Strong breeze 7 High wind, moderate gale, near gale 8 Gale, fresh gale 9 Strong/severe gale 10 Storm, whole gale 11 Violent storm 12 Hurricane force http://vocab.ices.dk/?ref=1705

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
SwellWaveHeight	Mandatory	DD	Swell/wave height in metres. See Section 7 for conversions from other recording conventions (e.g. WMO).	NR Not recorded N None (0 meters) L Low (0 to 1 meters) M Medium (1 to 2 meters) H High (2 to 3 meters) VH Very high (3+ meters) http://vocab.ices.dk/?ref=1702
Glare	Mandatory	DD	Amount of the search area affected by glare, to the extent that it is impacted or cannot be effectively searched. Related to the AngleofSearch field. Descriptive definitions available in Section 7.	NR Not recorded N None Sl Slight M Moderate St Strong http://vocab.ices.dk/?ref=1703

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
Precipitation	Mandatory	DD	Primary precipitation that is affecting ability to search, from a drop-down list. See Section 7 for descriptions.	NR Not recorded N None R Rain S Snow H Hail F Fog St Sleet RF Rain and Fog HF Hail and Fog SF Snow and Fog StF Sleet and Fog http://vocab.ices.dk/?ref=1707
PrecipitationIntensity	Mandatory	DD	Drop-down list based on selection of precipitation present in Precipitation field.	NR Not recorded N None Sl Slight M Moderate St Strong http://vocab.ices.dk/?ref=1703

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
Visibility	Mandatory	DD	Visibility quality from platform to horizon. See Section 7 for definitions.	Not recorded D Excellent/Infinity (>10 km) C Good/very good (5 to 10 km) B Fair/Moderate (1 to 5 km) A2 Poor (1 to 0.5 km) A1 Very poor (<0.5 km) http://vocab.ices.dk/?ref=1708
Sightability	Mandatory	DD	Sightability is a subjective impression of the conditions for spotting small cetaceans taking into account all conditions (sea state, glare, swell, wind direction, etc) – see Section 7 for further detail.	NR Not recorded E Excellent G Good M Moderate P Poor VP Very poor http://vocab.ices.dk/?ref=1704

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
CloudCover	Mandatory	DD	Percent of sky in search area affected by cloud. See Section 7 for details on how to convert other methods of recording cloud cover (e.g. Oktas) into the JCDP convention.	Not recorded N No cloud cover A 1 to 20% cloud cover B 21 to 40% cloud cover C 41 to 60% cloud cover D 61 to 80% cloud cover E 81 to 100% cloud cover http://vocab.ices.dk/?ref=1706
WaterTurbidity	Mandatory	DD	Turbidity – predominantly recorded for aerial survey, noting the level of suspended particles in the water column.	NR Not recorded N None Sl Slight M Moderate St Strong http://vocab.ices.dk/?ref=1703
Comments	Optional	FT	Qualification of entries if required.	N/A

Table three: Sightings Records

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
SightingID	Mandatory	FT	The unique identifier assigned to the sighting by the data owner in support of retaining a reference between the original data and the JCDP dataset.	N/A
SurveyID	Mandatory	FT	The unique identifier assigned to the survey by the data owner in support of retaining a reference between the original data and the JCDP dataset. **Format: year organisation location** **This field should be identical across all three tables.**	N/A
EffortID	Mandatory	FT	The code or ID assigned to the section of effort within the survey. Needs to be unique within the survey but can be the same across surveys.	N/A
DuplicateSighting Status	Conditional	DD	Conditional field to record whether there was a duplicate sighting between platforms in double platform survey.	Y Yes N No P Probable
DuplicateSighting Number	Conditional	RF	Conditional field to record the corresponding sighting code from the primary platform in double platform survey.	N/A
PlatformInstance	Conditional	DD	This field is conditional based on selection of a double platform methodology. Drop down options to identify whether the data are from the primary (1) or secondary (2) observer team.	1 Primary platform 2 Secondary platform

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
Latitude	Mandatory	RF	DDD.DDDDº latitude of the platform at the time of the sighting in decimal degrees. Standard is WGS84.	N/A
Longitude	Mandatory	RF	DDD.DDDDº longitude of the platform at the time of the sighting in decimal degrees. Standard is WGS84.	N/A
AphiaID	Mandatory	DD	Species Aphia ID should be recorded here, as described in WoRMS. https://www.marinespecies.org/.	See Section 7 https://vocab.ices.dk/?ref=365
Identification Confidence	Mandatory	DD	Confidence in species id from a drop-down list. Species must be recorded to the highest taxonomic level possible - see Section 7. There is a Not Recorded option purely to cover eventualities where this information is missing in error.	NR Not recorded D Definite Pr Probable Ps Possible http://vocab.ices.dk/?ref=1700

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
Cue	Mandatory	DD	Drop-down list of cues to indicate what first alerted the sighting observer to the presence of the sighting – see section 7 for definitions. If a required option is not available, send a request for an addition to accessions@ices.dk.	NR Not recorded S Splash BP Body part (back, whole or part of the body, or fin) BU Body underwater Bl Blow Br Breach N Sound or noise caused by the animal BF Birds or fish boil G Glint SFR Surface slick/footprint/ring TP Third party alert https://vocab.ices.dk/?ref=1699

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
SurveyTeam	Mandatory	DD	Record the sightings team/observer that made the observation. See Section 7 for detail.	NR Not recorded O1 Observer 1 O2 Observer 2 O3 Observer 3 O4 Observer 4 O5 Observer 5 http://vocab.ices.dk/?ref=1710
MinGroupSize	Conditional	RF	Estimate of the minimum total number of individuals of a single species in each sighting including adults, juveniles and calves. This will be the same as the BestGroupSize and MaxGroupSize for aerial survey.	N/A
BestGroupSize	Mandatory	RF	Best estimate of the total number of individuals of a single species in each sighting including adults, juveniles and calves. This will be the same as the MinGroupSize and MaxGroupSize for aerial survey.	N/A
MaxGroupSize	Conditional	RF	Estimate of the maximum total number of individuals of a single species in each sighting including adults, juveniles and calves. This will be the same as the MinGroupSize and BestGroupSize for aerial survey.	N/A
NumberOfCalves	Optional	RF	Number of calves within the group size total (BestGroupSize).	N/A

Field	Obligation (Mandatory; Conditional; Optional)	Drop down/ restricted format/ free text	Description (See Section 7 for further detail and definition)	Drop down fields
SightingStatus	Optional	DD	Optional field to record information on whether the sighting is dead or alive. If mixed is selected, further detail is required in the SightingDemographics field.	A Alive D Dead M Mixed group with living and dead animals http://vocab.ices.dk/?ref=64
SightingDemographics	Optional	FT	Optional free text field to include further detail on the individual or group demographics (e.g. dead animal in group; known Orca pod; maternal sperm whale pod with calves, etc).	
SightingDirection	Conditional	DD	Drop down list for non-distance sampling methods or aerial, where the direction of sighting is recorded in place of an angle. Directions are roughly converted to angles to standardise use of this information if incorporated into analyses.	P Port (285º degrees) S Starboard (75º degrees) A Ahead (0º degrees) SA Starboard-ahead (330º degrees) PA Port-ahead (30º degrees) http://vocab.ices.dk/?ref=1712
SightingAngle	Conditional	RF	Radial angle of sighting from the ship, where 0° is directly ahead on the platform track recorded with use of an angleboard. Sighting angle from aircraft measured with an inclinometer.	N/A

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
RadialDistance	Conditional	RF	Distance to the centre of group/to the animal(s) in metres from the observer. This might be recorded by eye with or without a rangefinder or converted from a reticule binocular measurement recorded in the field. Not required for aerial survey methodologies.	N/A
Perpendicular Distance	Optional	RF	Optional field to include perpendicular distance if calculated prior to data submission. Recorded in Km to a max of 5 decimal places.	N/A

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
Behaviour1	Mandatory	DD	Primary behavioural information of note from a drop-down list. Further information can be recorded in the comments field if required - see section 7 for definitions.	124 Not recorded 125 Surfacing 126 Submerged 127 Travelling 121 Milling/non-directional behaviour 73 Breaching 33 Feeding/foraging 129 Cooperative foraging 130 Logging/Resting 131 Vessel avoidance 80 Spy-hopping 83 Approaching ship 132 Bowriding 87 Sexual behaviour http://vocab.ices.dk/?ref=1709

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
Behaviour2	Mandatory	DD	Secondary behavioural information of note from a drop-down list. Further information can be recorded in the comments field if required.	124 Not recorded 125 Surfacing 126 Submerged 127 Travelling 121 Milling/non-directional behaviour 73 Breaching 33 Feeding/foraging 129 Cooperative foraging 130 Logging/Resting 131 Vessel avoidance 80 Spy-hopping 83 Approaching ship 132 Bowriding 87 Sexual behaviour http://vocab.ices.dk/?ref=1709

Field	**Obligation** (Mandatory; Conditional; Optional)	**Drop down/ restricted format/ free text**	**Description** (See Section 7 for further detail and definition)	**Drop down fields**
Behaviour3	Mandatory	DD	Tertiary behavioural information of note from a drop-down list. Further information can be recorded in the comments field if required.	124 Not recorded 125 Surfacing 126 Submerged 127 Travelling 121 Milling/non-directional behaviour 73 Breaching 33 Feeding/foraging 129 Cooperative foraging 130 Logging/Resting 131 Vessel avoidance 80 Spy-hopping 83 Approaching ship 132 Bowriding 87 Sexual behaviour http://vocab.ices.dk/?ref=1709
Comments	Optional	FT	Free text field to quantify entries in the sightings record table.	

7. Supplementary guide to recording data

Below is supplementary information where relevant, on how fields should be recorded:

7.1. Identifiers – detailed description

SurveyID:

This is a unique identifier for the dataset, linking together the three data tables and retaining a link to the original data held by the data owner. If it is not unique in the ICES system, it will be flagged and rejected. The format should follow: year (calendar year within which the survey was conducted, or started) organisation (as noted in EDMO) location (e.g. Southern North Sea).

This field cannot contain any special characters and so should only contact letters (a to z) or numbers (0 to 9).

***SurveyType*:**

The nature of the survey from a specified drop-down menu. This is to enable filtering of results for cetacean survey on a dedicated survey platform, from other survey types.

Category	Drop down code	Definition
Dedicated	Dedicated survey	A survey event on a platform dedicated to the planned survey.
Opportunistic	Opportunistic survey	A survey event that takes opportunity of a survey/platform with other objectives (e.g. ferry survey; survey where the route is defined for a different purpose).

SurveyAbstract:

Free text field to provide a high-level overview of the survey parameters (e.g. aim of survey, location, etc). Max 500 words. This will also be included in the metadata entry, along with any additional information as required. This should be the same for both submissions under double platform.

DataAccess:

There is currently an option to submit data under a restricted licence, whereby users would need to submit a request to the data owner for access to download. However, the aim of the JCDP is to increase accessibility, use and value of data. Therefore, the use of the restriction option **should only be applied where deemed absolutely necessary.**

DataRightsHolder:

This is a field to identify who owns the rights to the data (i.e. the data owner). This is free text field, so data owners do **not** need to be registered in the European Directory of Marine Organisations (EDMO).

DataCustodian:

This is a mandatory field to identify who is the primary contact for the data. This should be an organisation name, not an individual, based on the European Directory of Marine Organisations (EDMO). If data are managed by a consortium, a participating organisation should be nominated.

***DataCustodianContact*:**

A generic/organisation email is required due to GDPR, as well as continuity in retaining a current contact following personnel changes (e.g. *info@company.com*). If data are managed by a consortium, a participating organisation should be nominated as per the DataCustodian field, and appropriate email contact provided.

***TargetTaxa*:**

Describes the focal taxa for the survey from a specified drop-down list. This captures whether observers were solely searching for/recording cetaceans, or if it was a combined survey or cetaceans were not a specific focus, which may impact the detection function of analyses.

Drop-down selection:

Cetacean	Cetaceans (whales, dolphins, and porpoises) are the primary focus of the survey and observers/equipment are dedicating time on effort to detecting them.
Multispecies	Cetaceans (whales, dolphins, and porpoises) and other species (e.g. birds; turtles, sharks) are the primary focus of the survey. Although observers/equipment are searching for cetaceans at all times; search is also being carried out for other species which may impact the capacity to detect cetaceans.
Secondary	Cetaceans (whales, dolphins and porpoises) are not the target taxa for the survey but may be recorded on an opportunistic basis. Search for cetaceans is not dedicated and may not be constant within a period of effort.

***PlatformClass*:**

The class of survey platform from a specified drop-down menu, based on the ICES vocabulary https://vocab.ices.dk/?ref=311:

Category	**Definition**
Surface vessel – mobile platform	Any platform that surveys from the ocean's surface including self-propelled and manpowered vessels.
Aeroplane	Manned aerial platforms.
Unmanned aerial vehicle	Unmanned planes/drones.

PlatformCode:

Conditional based on *PlatformClass* selection of 'surface vessel – mobile platform'. https://vocab.ices.dk/?ref=315. If the relevant platform is not listed, please contact accessions@ices.dk to have it added.

PositionFix:

The method or instrument used for the position fixing from the drop-down list in order to record level of accuracy. If the method is not listed, contact accessions@ices.dk to get it added.

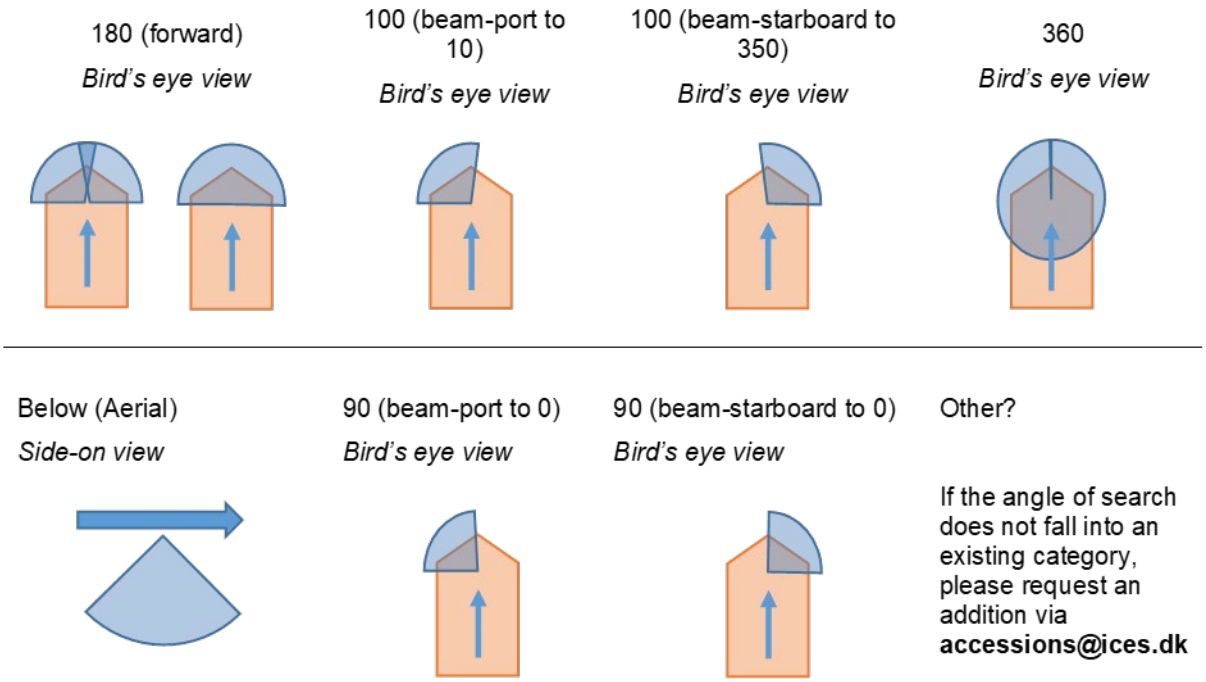
Category	Definition
Handheld GPS	Recorded in latitude/longitude WGS84.
Mobile phone positioning	Location taken from the mobile phone positioning system.
Platform onboard system	The ship or aircraft digital positioning system.
Chart Reading	The position is determined manually (e.g. three point fix).

HorizontialAccuracy:

This is an optional field for the accuracy of the spatial positions, where known. This field should be entered as meters to a maximum of 2 decimal places.

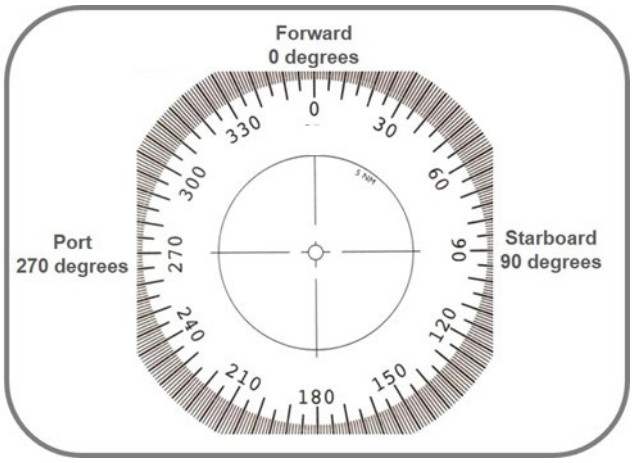
***NominalAngleOfSearch*:**

Total search angle covered by the observers on a survey in degrees, from a specified drop-down list.



All angles should be taken relative to the direction of travel, where 10 would indicate 10 degrees to the right and 350 would indicate 10 degrees to the left.

Compass orientation



Methodology:

The methodology used to collect the data from a specified drop-down list. Individual organisational metadata within each survey methodology should be made available, containing specific details on how the methodology is applied.

Category	Definition
Single platform line-transect, distance sampling method	A line transect survey where the observer (team) operates from one platform on the ship and distance sampling methodology is applied.
Single platform line-transect	A line transect survey where the observer (team) operates from one platform on the ship, but distance sampling methodology is ***not*** applied.
Double platform line-transect, distance sampling method	A line transect survey where there are two observer teams operating from two independent locations with the same outlook, on a single platform, and distance sampling methodology is applied.
Double platform line-transect	A line transect survey where there are two observer teams operating from two independent locations with the same outlook, on a single platform.
Digital aerial – stills	A survey taking place by aircraft using digital imagery (stills) to record sightings and sampling effort.
Digital aerial – video	A survey taking place by aircraft using digital imagery (video) to record sightings and sampling effort.
Digital aerial - stills and video	A survey taking place by aircraft using digital imagery (stills) and video to record sightings and sampling effort.
Aerial observer - distance sampling	A distance sampling survey taking place by aircraft using onboard observers to record sightings and sampling effort.
Aerial observer - non distance sampling	A non-distance sampling survey taking place by aircraft using onboard observers to record sightings and sampling effort.

NominalNumberOfObservers:

This field is to capture the planned number of observers recording simultaneously during a period of effort. Digital survey will be 0. Where a number more than 4 is entered, the system will flag a warning to confirm this is accurate.

Comments:

Optional field to enable qualification of data entries where required. To note, information essential to analysis of the data entries should not be included here but should be transparent within the data and/or the metadata.

7.2. Effort & Environment – detailed description

EffortID:

The code or ID assigned to the section of effort within the survey. Needs to be unique within the survey but can be the same across surveys. This field is also replicated in the sightings table to link effort with sightings data.

SurveyID:

This should be the same as the entry in the identifiers table and the sightings table.

PlatformInstance:

This field is conditional based on selection of a double platform methodology. Drop down options to identify whether the data are from the primary (1) or secondary (2) observer team where two teams are recording simultaneously from a single survey vessel.

1 Primary

2 Secondary

StartDate:

The date of the start of the Effort interval should be entered in a ddmmyyyy format, without any special characters. The same applies for ***EndDate.***

StartLatitude:

Surveyors can record in whatever coordinate system they chose, but the JCDP will hold data in WGS84 therefore a conversion would be required. The same applies for ***StartLongitude; EndLatitude and EndLongitude.***

SurveyArea:

Conditional field based on entry to Methodology. If a digital methodology is selected, this field must be completed.

ImageArea:

Conditional field based on entry to Methodology. If a digital methodology is selected, this field must be completed.

PlatformHeight:

Mandatory field for the height of the observation platform or flight height above sea level/altitude in metres with a maximum of two decimal places.

PlatformSpeed:

Speed over ground, taken from the platform's instrument where possible with a maximum of two decimal places.

NumberOfObservers:

Number of observers who are recording simultaneously during a period of effort (whole numbers). If double platform, include the number of observers for both platforms. In case of aerial surveys, please record "0".

SwellWaveHeight:

Conversions from other conventions are outlined below:

JCDP convention	Corresponding WMO Sea State Codes	WMO Wave height range	Categories
Not recorded	N/A	N/A	N/A
None (0 meters)	0 to 2	0 to 0.5 metres	None.
Low (0 to 1 meters)	3	0.5 to 1.25 metres	Present without affecting detection.
Medium (1 to 2 meters)	4	1.25 to 2.5 metres	Present and affecting detection.
High (2 to 3 meters)	5	2.5 to 4 metres	Present and affecting detection/confused swell (swell converging from more than one direction).
Very high (3+ meters)	6 to 9	4 to > 14 metres	Present and affecting detection.

Glare:

There are multiple conventions for recording the effects of glare on detectability. There is no simple way to capture all systems with complete accuracy therefore if glare is a significant factor in an analysis, users should interrogate the survey metadata for a clearer picture of how glare has been recorded.

The JCDP standard is outlined below, with conventions between alternate recording systems:

JCDP convention	Description	%	Directional
Not recorded	N/A	N/A	N/A
None	No glare present within the search area.	0%	None.
Slight	Some glare present without significant effect on detectability within the search area.	1 to 40%	Partial glare influencing up to one third of the search area (e.g. part of port affected).
Moderate	Glare present with reasonable effect on detectability within part of the search area.	41 to 60%	Glare influencing up to one half of the search area (e.g. all of port affected).
Strong	Strong glare present with significant effect on detectability across most or all of the search area.	61 to 100%	Glare influencing more than half the search area (e.g. port, ahead and starboard affected).

***To note** – need to ensure % is the total area of search, therefore if observers are recording glare as a % for part of the total search area, this needs to be accounted for when converting to the JCDP system (e.g. 50% of port would be 25% of a 180-degree search area).

Precipitation:

Precipitation	Description
Not recorded	N/A
None	No precipitation.
Rain	Precipitation falls as water droplets.
Snow	Precipitation falls as frozen flakes.
Hail	Precipitation falls as frozen droplets.
Fog	Cloud level is low enough to obstruct the search area.
Sleet	Precipitation falls as frozen flakes but partially melts before coming into sight.
Rain and Fog	Combination of the two precipitation types.
Hail and Fog	Combination of the two precipitation types.
Snow and Fog	Combination of the two precipitation types.
Sleet and Fog	Combination of the two precipitation types.

PrecipitationIntensity:

Optional field to be completed (where recorded) if precipitation is recorded in the *Precipitation* field.

Visibility:

Mandatory field with *Not Recorded* option. This field is mandatory for all ship-based methodologies and the *Not Recorded* option should only be used for vessel survey when the information is not recorded in error. Visibility quality from platform to horizon, to the degree it impacts on ability to detect cetaceans.

Not recorded	**Information missing in error**
Excellent/Infinity	Able to see > 10 km
Good/very good	Able to see 5 to 10 km
Fair/Moderate	Able to see 1 to 5 km
Poor	Able to see < 1 km
Very poor	Able to see < 500 m

Sightability:

Sightability is a subjective assessment of the conditions for spotting cetaceans, taking into account all conditions (sea state, glare, swell, light, precipitation, wind direction, etc). The sightability rating should be based on the full search area, therefore where there are multiple observers recording this field, the worst case should be recorded. Worst case should also be applied if different records are made for different species (e.g. harbour porpoise v dolphin species in the same period of effort).

Excellent	Cetacean spotting conditions are optimal: The sea state is very good (Beaufort ~0), with no swell, no precipitation, no glare, and excellent visibility giving excellent conditions for spotting cetaceans.
Good	Cetacean spotting conditions are good, but with environmental factors having minimal impact on detecting cetaceans: The sea is calm (Beaufort ~1 to 2) with no white caps, visibility is good, and glare is not preventing the area from being fully scanned, giving good conditions for spotting cetaceans.
Moderate	Cetacean spotting conditions are moderate, but with conditions having some impact on detecting cetaceans: Whitecaps (Beaufort ~3), swell, glare and/or the prevailing weather conditions are making it more difficult to effectively scan the whole area, giving moderate conditions for spotting cetaceans.
Poor	Cetacean spotting conditions are poor, with conditions having a notable impact on detecting cetaceans: Whitecaps (Beaufort ~4 to 5), waves, swell and/or prevailing weather conditions are making the conditions poor for spotting cetaceans.
Very poor	Cetacean spotting conditions are very poor (Beaufort 6+), with conditions having significant impact on detecting cetaceans.

CloudCover:

There are multiple conventions for recording cloud cover, including Oktas and % cover. The JCDP standard will be in % cover, therefore the below table indicates how oktas relate to the % cover options:

JCDP convention	Okta equivalent https://www.metoffice.gov.uk/weather/guides/observations/how-we-measure-cloud
Not recorded	N/A
No cloud cover	0 Oktas
1 to 20%	1 Okta
21 to 40%	2/3 Oktas
41 to 60%	4/5 Oktas
61 to 80%	6/7 Oktas
81 to 100%	8/9 Oktas

7.3. Sightings Records – detailed description

DuplicateSightingStatus:

Conditional field to record whether there was a duplicate sighting between platforms in double platform survey.

DuplicateSightingNumber:

Conditional field to record the corresponding sighting code from the primary platform in double platform survey.

***AphiaID*:**

Drop-down list of scientific names for cetacean species as recorded in the World Registry of Marine Species (WORMS) http://www.marinespecies.org/.

AphaID	Sci name	Common Name (English accepted)	Taxonomic level
2688	Cetacea	Cetacean	infraorder
148723	Odontoceti	Dolphins and porpoises	superfamily
148724	Mysticeti	Whale	superfamily
136980	Delphinidae	Dolphin	family
136984	Phocoenidae	Porpoises	family
136979	Balaenopteridae	Rorquals	family
136983	Monodontidae	Narwhal and beluga	family
136986	Ziphiidae	Beaked whales	family
136978	Balaenidae	Right and bowhead whales	family
159022	Eubalaena	Right whales	genus
136982	Kogia	Pygmy and dwarf sperm whales	genus
137026	Tursiops	Bottlenose dolphins	genus
137020	Lagenorhynchus spp.	Atlantic white-sided/White-beaked	genus
137017	Globicephala spp.	pilot whales	genus
204528	Sousa	Humpback dolphin	genus

AlphaID	Sci name	Common Name (English accepted)	Taxonomic level
137117	*Phocoena phocoena*	Harbour porpoise	species
137094	*Delphinus delphis*	Common dolphin	species complex
137111	*Tursiops truncatus*	Common bottlenose dolphin	species
137107	*Stenella coeruleoalba*	Striped dolphin	species
137098	*Grampus griseus*	Risso's dolphin	species
137100	*Lagenorhynchus acutus*	Atlantic white-sided dolphin	species
137101	*Lagenorhynchus albirostris*	White-beaked dolphin	species
137108	*Stenella frontalis*	Atlantic spotted dolphin	species
137105	*Stenella attenuata*	Pantropical spotted dolphin	species
137102	*Orcinus orca*	Orca	species complex
137096	*Globicephala macrorhynchus*	Short-finned pilot whale	species
137097	*Globicephala melas*	Long-finned pilot whale	species
137104	*Pseudorca crassidens*	False killer whale	species
137115	*Delphinapterus leucas*	Beluga	species
137087	*Balaenoptera acutorostrata*	Common minke whale	species
137089	*Balaenoptera edeni*	Bryde's whale	species complex
137088	*Balaenoptera borealis*	Sei whale	species
137090	*Balaenoptera musculus*	Blue whale	species
137091	*Balaenoptera physalus*	Fin whale	species
137086	*Balaena mysticetus*	Bowhead whale	species
137092	*Megaptera novaeangliae*	Humpback whale	species
137116	*Monodon monoceros*	Narwhal	species
137119	*Physeter macrocephalus*	Sperm whale	species
343899	*Hyperoodon ampullatus*	Northern bottlenose whale	species
137121	*Mesoplodon bidens*	Sowerby's beaked whale	species
137126	*Mesoplodon mirus*	True's beaked whale	species
137127	*Ziphius cavirostris*	Cuvier's beaked whale	species
137122	*Mesoplodon densirostris*	Blainville's beaked whale	species
137123	*Mesoplodon europaeus*	Gervais' beaked whale	species
159023	*Eubalaena glacialis*	North Atlantic right whale	species
137095	*Feresa attenuata*	Pygmy killer whale	species
137113	*Kogia breviceps*	Pygmy sperm whale	species
159025	*Kogia sima*	Dwarf sperm whale	species
220222	*Eubalaena australis*	Southern right whale	species
254974	*Eubalaena japonica*	Pacific right whale	species
231405	*Balaenoptera bonaerensis*	Antarctic minke whale	species
343896	*Balaenoptera omurai*	Omura's whale	species
137112	*Eschrichtius robustus*	Grey whale	species
231424	*Caperea marginata*	Pygmy right whale	species
254976	*Cephalorhynchus commersonii*	Commerson's dolphin	species
254977	*Cephalorhynchus eutropia*	Chilean dolphin	species
254978	*Cephalorhynchus heavisidii*	Heaviside's dolphin	species
254979	*Cephalorhynchus hectori*	Hector's dolphin	species
137099	*Lagenodelphis hosei*	Fraser's dolphin	species

AlphaID	Sci name	Common Name (English accepted)	Taxonomic level
254980	*Lagenorhynchus australis*	Peale's dolphin	species
383563	*Lagenorhynchus cruciger*	Hourglass dolphin	species
254981	*Lagenorhynchus obliquidens*	Pacific white-sided dolphin	species
231434	*Lagenorhynchus obscurus*	Dusky dolphin	species
254975	*Lissodelphis borealis*	Northern right whale dolphin	species
231414	*Lissodelphis peronii*	Southern right whale dolphin	species
148732	*Orcaella brevirostris*	Irrawaddy dolphin	species
137103	*Peponocephala electra*	Melon-headed whale	species
344009	*Sotalia guianensis*	Guiana dolphin	species
220226	*Sousa chinensis*	Indo-Pacific hump-backed dolphin	species complex
383586	*Sousa plumbea*	Humpback dolphin	species
816452	*Sousa sahulensis*	Australian humpback dolphin	species
254970	*Sousa teuszii*	Atlantic hump-backed dolphin	species
137106	*Stenella clymene*	Short-snouted spinner dolphin	species
137109	*Stenella longirostris*	Long-snouted spinner dolphin	species
137110	*Steno bredanensis*	Rough-toothed dolphin	species
254983	*Tursiops aduncus*	Indo-Pacific bottlenose dolphin	species
446125	*Neophocaena asiaeorientalis*	Narrow-ridged finless porpoise	species
254985	*Neophocaena phocaenoides*	Finless porpoise	species
254971	*Phocoena dioptrica*	Spectacled porpoise	species
343897	*Phocoena sinus*	Vaquita	species
343898	*Phocoena spinipinnis*	Black porpoise	species
254987	*Phocoenoides dalli*	Dall porpoise	species complex
254964	*Pontoporia blainvillei*	Franciscana	species
242606	*Berardius arnuxii*	Arnoux's beaked whale	species
242608	*Berardius bairdii*	Baird's beaked whale	species
343900	*Hyperoodon planifrons*	Southern bottlenose whale	species
231418	*Indopacetus pacificus*	Longman's beaked whale	species
231430	*Mesoplodon bowdoini*	Andrew's beaked whale	species
254990	*Mesoplodon carlhubbsi*	Hubbs' beaked whale	species
	Mesoplodon eueu	Ramari's beaked whale	species
231407	*Mesoplodon ginkgodens*	Ginkgo-toothed beaked whale	species
137124	*Mesoplodon grayi*	Gray's beaked whale	species
137125	*Mesoplodon hectori*	Hector's beaked whale	species
384422	*Mesoplodon hotaula*	Deraniyagala's beaked whale	species
231429	*Mesoplodon layardii*	Layard's beaked whale	species
254992	*Mesoplodon perrini*	Perrin's beaked whale	species
231409	*Mesoplodon peruvianus*	Peruvian beaked whale	species
254991	*Mesoplodon stejnegeri*	Stejneger's beaked whale	species
254993	*Mesoplodon traversii*	Spade-toothed beaked whale	species
231433	*Tasmacetus shepherdi*	Shepherd's beaked whale	species

To note: the dataset is of higher quality when records are given to the best level of confidence. Definite confidence in a record to higher taxonomic level is a more useful record than a probable or possible record to species level. Record to the **highest possible confidence** and add relevant notes to the comments field including notes on potential species and confidence in that judgement.

***IdentificationConfidence*:**

From a drop-down list, the observer confidence in the species id:

Definite	The observer is confident in the species Id following presence of several cues that confirm identification. Also, to be recorded for unidentified records, in terms of confidence in the selected category (e.g. definite oceanic dolphin *Delphinidae*).
Probable	The observer is not completely confident in the species id, but presence of cues and features enables a moderate level of confidence in the species id. Also, to be recorded for unidentified records, in terms of confidence in the selected category.
Possible	The observer is not confident in the species id or even presence of an animal, as the cue was unclear. Also, to be recorded for unidentified records, in terms of confidence in the selected category.

Cue:

The factor that first alerted the observer to the presence of a cetacean:

Cue	Description
Not recorded	Self-explanatory.
Splash	A splash or water disturbance created by cetacean movement before the animal is sighted.
Body part (back, whole or part of the body, or fin)	All or part of the animal(s) becomes visible above the surface of the water.
Body underwater	The body of an animal/animals is seen below the surface of the water.
Blow	The blow, or exhalation on surfacing, appearing like a puff of steam – the exact description of which, depends on the species.
Breach	A deliberate leap either fully or partially clear of the water, resulting in a large splash. May be repeated multiple times.
Sound or noise caused by the animal	The animal is heard, before a sighting is made (e.g. re-entering the water after a breach, breathing sounds, etc.).
Birds or fish boil	An aggregation of birds or fish, which was noted before sighting of associated cetaceans.
Glint	Light reflecting of the body was the first cue to an animal's presence.
Surface slick/footprint/ring	No animal sighted but signs of recently submerged animal on the surface.
Third party alert	On occasion, third parties may alert observers to the presence of a sighting before the observer has spotted the animal(s). Inclusion of these data affect analysis e.g. application of a detection function. Therefore, this option is included to enable users to filter out these records if desired.
Other	If an additional option is required, send a request to accessions@ices.dk.

Surveyteam:

Conditional field based on entry to PlatformClass. This field is only required for ship-based survey. If an additional option is required, send a request to accessions@ices.dk

Observer2 and Observer3 are for double platform surveys:

Code	Single platform	Double platform
Not recorded	N/A	N/A
Observer 1	Single observer, or port side observer if part of a team of two observers.	Primary platform, port side observer.
Observer 2	Starboard side if part of a team of two observers.	Primary platform, starboard side observer.
Observer 3	N/A	Secondary platform (e.g tracker), port side observer.
Observer 4	N/A	Secondary platform (e.g. tracker), starboard side observer.
Observer 5	Single observer covering full search area on a platform.	

***MinGroupSize*:**

Restricted format field - numerical value recording the estimate of the smallest possible number of animals observed in a sighting. This is to essentially to act as a basic coefficient of variation (CV) to illustrate confidence in the value noted as the sighting group size. Conditional field based on whether this information is recorded or not.

***BestGroupSize*:**

Restricted format field - numerical value recording the best estimate of the actual number of a species in a sighting. This may be the same as the min and max values where observers are highly confident in the number count.

***MaxGroupSize*:**

Restricted format field - estimate of the largest possible number of animals in a sighting. Conditional field based on whether this information is recorded or not.

NumberOfCalves:

This is the number of calves within the recorded group size total, not in addition.

SightingStatus:

Where ‘mixed’ is selected, further details are required in the SightingDemographics field.

SightingDemographics:

Optional free text field to include further detail on the individual or group demographics (e.g. dead animal in group; known Orca pod; maternal sperm whale pod with calves, etc.)

SightingDirection:

Conditional field based on Methodology. Mandatory field for non-distance sampling methods. Drop down list for non-distance sampling methods, where the direction of sighting is recorded in place of an angle. Where 'left or 'right' are recorded for aerial, select 'port/left' or 'starboard/right' as required. Directions are roughly converted to angles to standardise use of this information if incorporated into analyses for ship-based survey.

Direction	Bearing
Port	285 degrees
Starboard	75 degrees
Ahead	0 degrees
Starboard-ahead	330 degrees
Port-ahead	30 degrees

SightingAngle:

Conditional field based on Methodology. Mandatory field for distance sampling methods. Additional field for direction for non-distance sampling methods.

RadialDistance:

Distance to the centre of group/to the animal(s) in metres from the observer. This might be recorded by eye with or without a rangefinder or converted from a reticule binocular measurement recorded in the field. Not required for aerial survey methodologies.

PerpendicularDistance:

Optional field to record perpendicular distance if calculated in advance of submission. Recorded in KM to a max of 5 decimal places.

Behaviour:

These are optional fields given the variation and bias in recording this information. Categories and definitions are as follows:

Behaviour	Description
Surfacing	Animal(s) seen breaking the surface to breathe, but with limited additional information to assign the wider behaviour.
Submerged	Animal(s) seen below the surface of the water.
Travelling	An animal or group of animals moving with either slow/normal swim, fast swim or porpoising in a set direction.
Milling	Slow surfacing or submerged movements with no distinct direction or regularly changing direction.
Breaching	A deliberate leap either fully or partially clear of the water that is not part of normal travelling behaviour. Generally, the animal(s) re-enters the water side on rather than head-first, often resulting in a large splash. May be repeated multiple times.
Feeding/foraging	Animal(s) seen visibly chasing, capturing or feeding on prey species, or demonstrating species specific behaviour associated with searching for prey.

Behaviour	Description
Cooperative foraging	A singles species or mixed species group displaying behaviour conducive to searching for and capturing prey cooperatively.
Logging/Resting	Animal(s) seen floating at surface of the water with back visible for a prolonged period of time.
Spy-hopping	Animal(s) raising the head and possibly chest out of the water, usually from a vertical or near-vertical position.
Vessel avoidance	Deliberate change of behaviour such as change of swimming direction, or a submerged/surface role to avoid the vessel.
Approaching ship	Deliberate change of behaviour such as direction or travel or speed of travel to intercept the vessel on its course.
Bowriding	Deliberate interaction with the vessel including fast swim and breaching behaviour at the front of vessel bow pressure wave, swimming along-side or behind the vessel in the wake.

If an additional option is required, send a request to accessions@ices.dk.

7.4. Summary of data submission requirements

- Data submission will be made through the JCDP portal hosted within the ICES datacentre https://www.ices.dk/data/data-portals/Pages/Cetaceans.aspx.
- Ahead of submission, all data should be prepared according to the JCDP standard and saved in xml format. You can use the JCDP data templated provided to help prepare data. This Excel spreadsheet has separate identifiers, effort and environment and sightings tables for you to input survey data and includes a script to which re-formats the data into the necessary xml format needed for upload. The data template is in the portal linked above.
- The data custodian who will be submitting and managing the data must have permission from the data rights holder (where different) before submitting to the JCDP.
- Casual, unsystematic, observations not associated with formal commencement of search effort must not be included.
- Personal data should not be submitted. Information on individual observers should stay with the data rights holder and or data custodian.