**Abundances**

Database model documentation

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# 1. Model details

**Model name:** 
Abundances

**Version:** 
2.4

**Database engine:** 
PostgreSQL

**Description:** 
The aim of the tables of ‘Accepted’ Abundance Estimates is (i) to collate information in a consistent way on abundance estimates accepted by the Scientific Committee for various purposes and (ii) to provide a simplified table of abundance estimates suitable as a broad overview for the Commission and the public. See IWC 2014 (JCRM 15 suppl. p416-7) for further details on the objectives. i) Accepted abundance estimates for Scientific Committee The aim is to provide information consistently in a single table to represent an initial summary of the Committee’s current set of ‘accepted’ abundance estimates. Work will be required to examine the comments and commonalities in order make the tables more consistent. ii) Broad overview estimates for the Commission and general public IWC 2014 envisaged the broad overview estimates as a separate table. They are included here in the same table as i) above but shown as being either on, or recommended for inclusion on, the IWC website. The advantage of using a single table is that it is easier to maintain and less prone to error when updating as data do not need to be entered or changed in multiple places. Different subsets can be used for different purposes. Estimates for disjoint areas are summed if they were from the same year or years close together in time. These combined estimates are highlighted in green. Approximate 95% confidence intervals for summed estimates are calculated from the CVs of the estimates and assuming a log-normal error distribution. In the interests of simplicity and a common approach, any additional variance estimate (available in only some cases) has been ignored for this purpose. Only the most recent estimates for a species and ocean basin are given for the broad overview. Information on trend should be considered as an additional step to be pursued in the future, recognising the need for more consideration inter alia of information from modelling exercises. The tables include notes about early values of the estimates which were later updated (or corrected) to explain from where different values have come from and to ensure the most recent agreed values are used.

# 2. Tables

## 2.1. Table abundances

**Description:** 
Main table holding all the abundance estimates

2.1.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| id | int | PK |  |
| ocean\_code | char(2) |  |  |
| species\_code | smallint |  |  |
| areas\_area | smallint |  |  |
| categories\_category | varchar(2) |  |  |
| evaluation\_extent | smallint |  |  |
| AWMP\_awmp\_status | smallint |  |  |
| year | int |  | The year to which the estimate applies. This will typically be the year of the survey unless the estimate is based on multiple years or a population assessment model. Note: Consideration needs to be given as to whether estimates from such models are acceptable for this table, in contrast to, for example, mark-recapture-based estimates which do require model processing. |
| year\_start | int | null |  |
| year\_end | int | null |  |
| method\_code | varchar(10) |  |  |
| correction\_code | varchar(3) |  |  |
| estimate | real |  | Estimate of 1+ abundance unless otherwise indicated. The original estimate, rather than the rounded value, is stored as it is useful when tracing the history of the estimate. |
| cv | real | null | CV of the estimate from survey sampling error only |
| cvav | real | null | CV with Additional Variance component arising from annual distributional changes added |
| calculated\_cv | real |  |  |
| sd | real | null |  |
| approximate95cil | real | null | lower limit of approximate 95% confidence intervals (or equivalent) rounded to three significant figures of the upper limit |
| approximate95ciu | real | null | upper limit of approximate 95% confidence intervals (or equivalent) rounded to three significant figures of the upper limit |
| reported95cil | real | null |  |
| reported95ciu | real | null |  |
| clalculated\_pl | real | null |  |
| calculated\_pu | real | null |  |
| timing | varchar(100) |  |  |
| g0 | int |  |  |
| mode\_code | char(2) |  |  |
| coverage | decimal(2,2) | null | % survey area coverage |
| type\_code | char(1) |  |  |
| program\_name | varchar(25) |  |  |
| notes | text | null | Brief comments on survey and any difficulties encountered |
| suspended | char(1) | null | Y(yes) or N (no) |
| date\_added | date |  |  |
| date\_modified | date |  |  |
| website | char(1) |  | should the value be listed on the website? Y (yes) or N (no) values |

## 2.2. Table ocean

**Description:** 
ocean basin

2.2.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | char(2) | PK |  |
| name | varchar(20) |  |  |
| geom | geometry |  |  |

## 2.3. Table species

**Description:** 
species table

2.3.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | smallint | PK |  |
| common\_name | varchar(100) |  |  |
| latin\_name | varchar(100) |  |  |

## 2.4. Table areas

**Description:** 
If Areas are identified in an RMP context these are used.
If estimates pertaining to only a portion known range are agreed to be included (e.g. for AWMP) a comment should be included to show that this constitutes only part of the population.
Otherwise broad categories (e.g. Schedule management areas) are used and we indicate whether coverage is total or partial.

2.4.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| area | smallint | PK |  |
| description | varchar(200) |  |  |
| geom | geometry |  |  |

## 2.5. Table categories

**Description:** 
categories indicate how the estimates can be interpreted and used for assessments, management or other purposes

2.5.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| category | varchar(2) | PK |  |
| description | text |  |  |

## 2.6. Table evaluation

**Description:** 
the degree to which the estimate was considered originally by the sub-committee concerned

2.6.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| extent | smallint | PK |  |
| description | text |  |  |

## 2.7. Table AWMP

**Description:** 
status in RMP or AWMP trials

2.7.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| awmp\_status | smallint | PK |  |
| description | text |  |  |

## 2.8. Table method

2.8.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | varchar(10) | PK |  |
| description | varchar(200) |  |  |

## 2.9. Table correction

**Description:** 
Where applicable, we indicate if the estimate is corrected and what for

2.9.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | varchar(3) | PK |  |
| description | text |  |  |

## 2.10. Table mode

2.10.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | char(2) | PK |  |
| description | text |  |  |

## 2.11. Table type

2.11.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| code | char(1) | PK |  |
| description | text |  |  |

## 2.12. Table references

2.12.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| id | int | PK |  |
| zotero\_id | varchar(10) |  |  |
| full\_ref | text |  |  |

## 2.13. Table references\_abundances

2.13.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| id | int | PK |  |
| abundances\_id | int |  |  |
| references\_id | int |  |  |

## 2.14. Table program

**Description:** 
Survey program/organiser

2.14.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| name | varchar(25) | PK |  |
| description | text |  |  |

## 2.15. Table timeseries

**Description:** 
the table shows if there is a time series linked to the estimate
Note regarding tabling of time series:
IWC 2021: J. Cetacean Res. Manage (Supp) 22: 1-122 p59
The Committee noted that where a time series of abundance estimates is provided, it has adopted the practice of tabling the most recent estimate and one earlier estimate sufficiently long in the past that the two are not strongly correlated. However, it was recognised that in cases where a long time series of abundance estimates is provided, choosing the earliest year for which there is an acceptable estimate may not always be the best choice and alternatives (e.g. selecting an estimate from 10 years prior to the most recent) should be considered next year.

2.15.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| id | int | PK |  |
| location | text |  | where the whole time series is kept. in the future those time series will be part of the database |
| abundances\_id | int |  |  |

# 3. References

## 3.1. Reference abundances\_ocean

|  |  |  |
| --- | --- | --- |
| **ocean** | **0..\*** | **abundances** |
| code | <-> | ocean\_code |

## 3.2. Reference abundances\_species

|  |  |  |
| --- | --- | --- |
| **species** | **0..\*** | **abundances** |
| code | <-> | species\_code |

## 3.3. Reference abundances\_areas

|  |  |  |
| --- | --- | --- |
| **areas** | **0..\*** | **abundances** |
| area | <-> | areas\_area |

## 3.4. Reference abundances\_categories

|  |  |  |
| --- | --- | --- |
| **categories** | **0..\*** | **abundances** |
| category | <-> | categories\_category |

## 3.5. Reference abundances\_evaluation

|  |  |  |
| --- | --- | --- |
| **evaluation** | **0..\*** | **abundances** |
| extent | <-> | evaluation\_extent |

## 3.6. Reference abundances\_AWMP

|  |  |  |
| --- | --- | --- |
| **AWMP** | **0..\*** | **abundances** |
| awmp\_status | <-> | AWMP\_awmp\_status |

## 3.7. Reference abundances\_method

|  |  |  |
| --- | --- | --- |
| **method** | **0..\*** | **abundances** |
| code | <-> | method\_code |

## 3.8. Reference abundances\_correction

|  |  |  |
| --- | --- | --- |
| **correction** | **0..\*** | **abundances** |
| code | <-> | correction\_code |

## 3.9. Reference abundances\_mode

|  |  |  |
| --- | --- | --- |
| **mode** | **0..\*** | **abundances** |
| code | <-> | mode\_code |

## 3.10. Reference abundances\_type

|  |  |  |
| --- | --- | --- |
| **type** | **0..\*** | **abundances** |
| code | <-> | type\_code |

## 3.11. Reference references\_abundances\_abundances

|  |  |  |
| --- | --- | --- |
| **abundances** | **0..\*** | **references\_abundances** |
| id | <-> | abundances\_id |

## 3.12. Reference references\_abundances\_references

|  |  |  |
| --- | --- | --- |
| **references** | **0..\*** | **references\_abundances** |
| id | <-> | references\_id |

## 3.13. Reference abundances\_program

|  |  |  |
| --- | --- | --- |
| **program** | **0..\*** | **abundances** |
| name | <-> | program\_name |

## 3.14. Reference timeseries\_abundances

|  |  |  |
| --- | --- | --- |
| **abundances** | **0..\*** | **timeseries** |
| id | <-> | abundances\_id |