

# Package ‘RDBqc’

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**Title** Quality check functions for RDBFIS

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**Description** The package contains functions used to perform a priori and a posteriori quality checks on RDBFIS data.

**License** GPL (>= 3)

**Encoding** UTF-8

**Roxygen** list(markdown = TRUE)

**RoxygenNote** 7.1.2

**Depends** R (>= 4.1.0)

**Imports** dplyr, ggplot2, rworldmap, sp, rworldxtra, pander, data.table, grDevices, magrittr, tictoc, tidyverse, fishmethods, tidyr, gridExtra

**LazyData** true

**Suggests** rmarkdown,  
knitr

**VignetteBuilder** knitr

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---

ALK\_tab\_example

*ALK table in MED&BS datacall format*


---

## Description

ALK table in MED&BS datacall format

## Usage

ALK\_tab\_example

## Format

An object of class `data.frame` with 62 rows and 114 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

Catch_tab_example	<i>Catch table in MED&amp;BS datacall format</i>
-------------------	--

---

**Description**

Catch table in MED&BS datacall format

**Usage**

Catch\_tab\_example

**Format**

An object of class `data.frame` with 57 rows and 171 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

catfau_check	<i>catfau_check in GFCM datacall format</i>
--------------	---

---

**Description**

catfau\_check in GFCM datacall format

**Usage**

catfau\_check

**Format**

An object of class `data.frame` with 16 rows and 4 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

check_EF_FDI_G	<i>Check empty fields in FDI G table</i>
----------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
check_EF_FDI_G(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task G table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_FDI_G(fdi_g_effort)
```

---

check_EF_FDI_H	<i>Check empty fields in FDI H table</i>
----------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
check_EF_FDI_H(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task H table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_FDI_H(fdi_h_spatial_land)
```

---

check_EF_FDI_I	<i>Check empty fields in FDI I table</i>
----------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
check_EF_FDI_I(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task I table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_FDI_I(fdi_i_spatial_effort)
```

---

check_EF_FDI_J	<i>Check empty fields in FDI J table</i>
----------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
check_EF_FDI_J(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task J table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_FDI_J(fdi_j_capacity)
```

---

check_EF_taskII2	<i>Check empty fields in GFCM Task II.2 table</i>
------------------	---

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [GFCM, 2018. GFCM Data Collection Reference Framework \(DCRF\). Version: 20.1](#)

**Usage**

```
check_EF_taskII2(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task II.2 table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_taskII2(task_ii2)
```

---

check_EF_taskIII	<i>Check empty fields in GFCM Task III table</i>
------------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [GFCM, 2018. GFCM Data Collection Reference Framework \(DCRF\). Version: 20.1](#)

**Usage**

```
check_EF_taskIII(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task III table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_taskIII(task_iii)
```

---

check_EF_taskVII2	<i>Check empty fields in GFCM Task VII.2 table</i>
-------------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [GFCM, 2018. GFCM Data Collection Reference Framework \(DCRF\). Version: 20.1](#)

**Usage**

```
check_EF_taskVII2(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task VII.2 table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_taskVII2(task_vii2)
```



---

check_EF_TaskVII31	<i>Check empty fields in GFCM Task VII.3.1 table</i>
--------------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [GFCM, 2018. GFCM Data Collection Reference Framework \(DCRF\). Version: 20.1](#)

**Usage**

```
check_EF_TaskVII31(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task VII.3.1 table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_TaskVII31(task_vii31)
```

---

check_EF_TaskVII32	<i>Check empty fields in GFCM Task VII.3.2 table</i>
--------------------	--

---

**Description**

The function checks the presence of not allowed empty data in the given table, according to the [GFCM, 2018. GFCM Data Collection Reference Framework \(DCRF\). Version: 20.1](#)

**Usage**

```
check_EF_TaskVII32(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task VII.3.2 table
verbose	boolean. If TRUE a message is printed.

**Value**

Two lists are returned by the function. The first list gives the number of NA for each reference column. The second list gives the index of each NA in the reference column.

**Examples**

```
check_EF_TaskVII32(task_vii32)
```

---

```
check_lmat_TaskVII.3.2
```

*Plot of the maturity stages per length for each sex and species*

---

**Description**

Function to plot the lengths at maturity stages by species and sex to easily identify outliers.

**Usage**

```
check_lmat_TaskVII.3.2(data, MS, GSA, SP)
```

**Arguments**

data	GFCM Task VII.3.2 table
MS	member state code
GSA	GSA code
SP	species reference code in the three alpha code format

**Value**

The function return a plot of the maturity stages per length and sex per species.

**Examples**

```
check_lmat_TaskVII.3.2(task_vii32)
```

---

```
check_lw_TaskVII.2
```

*Plot of the relationship length weight for each species*

---

**Description**

Function to check the consistency of length-weight relationship in the GFCM Task VII.2 table per species.

**Usage**

```
check_lw_TaskVII.2(data, MS, GSA, SP, verbose = TRUE)
```

**Arguments**

data	GFCM Task VII.2 table
MS	member state code
GSA	GSA code
SP	species reference code in the three alpha code format
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function return a plot of the length weight relationship per species.

**Examples**

```
check_lw_TaskVII.2(task_vii2, MS = "ITA", GSA = "18", SP = "BOG")
```

---

```
check_minmaxl50_TaskVII.3.1
```

*Comparison between min/max L50 observed for each species and sex with theoretical values*

---

**Description**

Function to verify the consistency of L50 reported in the TaskVII.3.1 table with the theoretical values reported in the minmaxLtaskVII31 table. The function allows to identify the records in which the observed L50 are greater or lower than the expected ones.

**Usage**

```
check_minmaxl50_TaskVII.3.1(data, tab_L50, MS, GSA)
```

**Arguments**

data	GFCM Task VII.3.1 table
tab_L50	Theoretical values of min/max L50 for each species and sex
MS	member state code
GSA	GSA code

**Value**

The function returns a table with the comparison between min/max L50 observed for each species and sex with theoretical values.

**Examples**

```
check_minmaxl50_TaskVII.3.1(task_vii31,minmaxLtaskVII31,MS="ITA",GSA="19")
```

---

check\_minmax1\_TaskVII.2

*Comparison between min/max observed for each species with theoretical values*

---

### Description

Function to verify the consistency of the lengths reported in the TaskVII.2 table with the theoretical values reported in the minmaxLtaskVII2 table. The function allows to identify the records in which the observed lengths are greater or lower than the expected ones.

### Usage

```
check_minmax1_TaskVII.2(data, tab_length, MS, GSA)
```

### Arguments

data	GFCM Task II.2 table
tab_length	Theoretical values of min/max length for each species
MS	member state code
GSA	GSA code

### Value

The function returns a table with the comparison between min/max lengths observed for each species with theoretical values.

### Examples

```
check_minmax1_TaskVII.2(task_vii2,minmaxLtaskVII2,MS="ITA",GSA="18")
```

---

check\_presence\_taskII2

*Check of missing combination GSA/Fleet segment per year*

---

### Description

Function to verify the completeness of the GSA/Fleet segments in Task II.2 table, as reported in the combination\_taskII2 table.

### Usage

```
check_presence_taskII2(data1, data2, MS, GSA)
```

### Arguments

data1	GFCM Task II.2 table
data2	List of combination of the expected GSA/Fleet segments per year for Task II.2 table
MS	member state code
GSA	GSA code

**Value**

The function returns a list of missing combinations GSA/Fleet segment per year.

**Examples**

```
check_presence_taskII2(task_ii2, combination_taskII2, MS="ITA", GSA="18")
```

---

check\_RD\_FDI\_G

*Check duplicated records in FDI G table*


---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 15 columns generates duplicate records.

**Usage**

```
check_RD_FDI_G(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task G table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 15 columns of the FDI G table.

**Examples**

```
check_RD_FDI_G(fdi_g_effort)
```

---

check\_RD\_FDI\_H

*Check duplicated records in FDI H table*


---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 15 columns generates duplicate records.

**Usage**

```
check_RD_FDI_H(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task H table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 20 columns of the FDI G table.

**Examples**

```
check_RD_FDI_H(fdi_h_spatial_land)
```

---

check_RD_FDI_I	<i>Check duplicated records in FDI I table</i>
----------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 15 columns generates duplicate records.

**Usage**

```
check_RD_FDI_I(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task I table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 19 columns of the FDI G table.

**Examples**

```
check_RD_FDI_I(fdi_i_spatial_effort)
```

---

check_RD_FDI_J	<i>Check duplicated records in FDI J table</i>
----------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 15 columns generates duplicate records.

**Usage**

```
check_RD_FDI_J(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task J table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 7 columns of the FDI G table.

**Examples**

```
check_RD_FDI_J(fdi_j_capacity)
```

---

check_RD_taskII2	<i>Check duplicated records in GFCM Task II.2 table</i>
------------------	---

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 5 columns generates duplicate records.

**Usage**

```
check_RD_taskII2(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task II.2 table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 5 columns of the Task II.2 table.

**Examples**

```
check_RD_taskII2(task_ii2)
```

---

check_RD_taskIII	<i>Check duplicated records in GFCM Task III table</i>
------------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 10 columns generates duplicate records.

**Usage**

```
check_RD_taskIII(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task III table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 10 columns of the Task Task III table.

**Examples**

```
check_RD_taskIII(task_iii)
```

---

check_RD_taskVII2	<i>Check duplicated records in GFCM Task VII.2 table</i>
-------------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 9 columns generates duplicate records.

**Usage**

```
check_RD_taskVII2(data, verbose = TRUE)
```

**Arguments**

- data                    GFCM Task VII.2 table
- verbose                boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 9 columns of the Task Task VII.2 table.

**Examples**

```
check_RD_taskVII2(task_vii2)
```

---

check_RD_taskVII31	<i>Check duplicated records in GFCM Task VII.3.1 table</i>
--------------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 5 columns generates duplicate records.

**Usage**

```
check_RD_taskVII31(data, verbose = TRUE)
```

**Arguments**

- data                    GFCM Task VII.3.1 table
- verbose                boolean. If TRUE a message is printed.



**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 5 columns of the Task Task VII.3.1 table.

**Examples**

```
check_RD_taskVII31(task_vii31)
```

---

check_RD_TaskVII32	<i>Check duplicated records in GFCM Task VII.3.2 table</i>
--------------------	--

---

**Description**

The function check the presence of duplicated records. In particular, it checks whether the combination of the first 10 columns generates duplicate records.

**Usage**

```
check_RD_TaskVII32(data, verbose = TRUE)
```

**Arguments**

data	GFCM Task VII.3.2 table
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns the indices of the duplicated rows, checking the unique combinations of the first 10 columns of the Task Task VII.3.2 table.

**Examples**

```
check_RD_TaskVII32(task_vii32)
```

---

check_species_catfau_TaskVII.3.2	<i>Check mismatching species/Catfau and Sex per maturity stages for Task VII.3.2 table</i>
----------------------------------	--

---

**Description**

Function to check the correct codification of faunistic category according to species and sex in Task VII.3.2 table.

**Usage**

```
check_species_catfau_TaskVII.3.2(data, species, matsex, MS, GSA)
```

**Arguments**

data	GFCM Task VII.3.2 table
species	List of combination of species/faunistic category for Task VII.3.2 table
matsex	List of combination of sex/maturity stages for Task VII.3.2 table
MS	member state code
GSA	GSA code

**Value**

Two vectors are returned by the function. The first provides the list of mismatching combination of species/faunistic categories. The second vector provides the list of mismatching combination of sex/maturity stages.

**Examples**

```
check_species_catfau_TaskVII.3.2(task_vii32, catfau_check, sex_mat, MS="ITA", GSA="18")
```

---

circabc

---

*Ports coordinates according to codification CIRCABC*


---

**Description**

Ports coordinates according to codification CIRCABC

**Usage**

```
circabc
```

**Format**

An object of class `data.frame` with 24335 rows and 5 columns.

**Author(s)**

CIRCABC <<https://circabc.europa.eu>>

---

combination_taskII2	<i>combination_taskII2 in GFCM datacall format</i>
---------------------	--

---

**Description**

combination\_taskII2 in GFCM datacall format

**Usage**

combination\_taskII2

**Format**

An object of class `data.frame` with 60 rows and 4 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

data_ex	<i>RCG CS example</i>
---------	-----------------------

---

**Description**

RCG CS example

**Usage**

data\_ex

**Format**

An object of class `data.frame` with 9099 rows and 40 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

data_exampleCL	<i>RCG CL example</i>
----------------	-----------------------

---

**Description**

RCG CL example

**Usage**

data\_exampleCL

**Format**

An object of class `data.frame` with 35 rows and 22 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

Discard_tab_example	<i>Discard table in MED&amp;BS datacall format</i>
---------------------	--

---

**Description**

Discard table in MED&BS datacall format

**Usage**

Discard\_tab\_example

**Format**

An object of class `data.frame` with 21 rows and 114 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

fdi_a_catch	<i>fdi_a_catch in FDI DGMAREMED&amp;BS datacall format</i>
-------------	--

---

### Description

fdi\_a\_catch in FDI DGMAREMED&BS datacall format

### Usage

```
fdi_a_catch
```

### Format

An object of class data.frame with 2450 rows and 23 columns.

### Author(s)

Isabella Bitetto <bitetto@coispa.it>

---

FDI_cov_tableA	<i>Check number of record in FDI A table</i>
----------------	--

---

### Description

The function checks and count the numbers of records data in the given table A grouped by year, GSA, MS, species, vessels length, and fishing techniques for three variables (Total live weight landed (ton), total value of landings (euro), and total discards (ton)) according to the [Fisheries Dependent Information data call 2021 - Annex 1](#). If SP, Vessel length, and fishing technique are not specified by the user the function combines those by default.

### Usage

```
FDI_cov_tableA(
  data,
  MS,
  SP = "COMBINED",
  vessel_len = "COMBINED",
  fishtech = "COMBINED",
  GSA,
  verbose = TRUE
)
```

### Arguments

data	FDI table A catch
MS	member state code
SP	species reference code in the three alpha code format ("COMBINED" values perform the analysis for all species present in data)

vessel_len	vessels length code ("COMBINED" values perform the analysis for all vessels length present in data)
fishtech	selected fishing techniques ("COMBINED" values perform the analysis for all fishing techniques present in data)
GSA	GSA code
verbose	boolean. If TRUE a message is printed.

### Value

The function returns a list. The first element gives the summary table of records number. From the second to the fourth element gives 3 plots for each variables among: of total live weight landed, total value of landings (euro), and total discards (ton)).

### Examples

```
FDI_cov_tableA(data=fdi_a_catch, SP="MUT", MS="PSP", GSA="GSA99")
FDI_cov_tableA(data=fdi_a_catch, SP="MUT", MS="PSP", GSA="GSA99")
```

---

FDI\_cross\_checks\_AG      *Cross check between FDI tables A and G*

---

### Description

The function checks the possible data inconsistency between landings and effort. The two table shall have the same size. according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

### Usage

```
FDI_cross_checks_AG(data1, data2, verbose = FALSE)
```

### Arguments

data1	FDI table A catch
data2	FDI table G effort
verbose	boolean. If TRUE a message is printed.

### Value

The function returns a list where all the miss matches between landings and effort are shown.

### Examples

```
FDI_cross_checks_AG(data1=fdi_a_catch, data2=fdi_g_effort)
FDI_cross_checks_AG(fdi_a_catch, fdi_g_effort)
```

---

FDI_cross_checks_AH	<i>Cross check between FDI tables A and H</i>
---------------------	---

---

**Description**

The function checks the possible data inconsistency between landings in table A and spatial landings in table H. according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
FDI_cross_checks_AH(data1, data2)
```

**Arguments**

data1	FDI catch table A
data2	FDI spatial landings table H

**Value**

The function returns a list with two tables. In the first table all the miss matches between landings in table A and spatial landings in table H are shown, in the second table the comparison between total landings of table A and total spatial landings in table H is shown.

**Examples**

```
FDI_cross_checks_AH(data1=fdi_a_catch, data2=fdi_h_spatial_landings)
```

---

FDI_cross_checks_IG	<i>Cross check between FDI tables I and G</i>
---------------------	---

---

**Description**

The function checks the possible data inconsistency between spatial effort in table I and effort in table G. according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
FDI_cross_checks_IG(data1, data2)
```

**Arguments**

data1	FDI spatial effort in table I
data2	FDI effort table G

**Value**

The function returns a list with two tables. In the first table all the miss matches between stpatial effort in table I and effort in table G are shown, in the second table the comparison between total spatial effort of table I and total effort in table G is shown.

**Examples**

```
FDI_cross_checks_IG(data1=fdi_i_spatial_effort, data2=fdi_g_effort)
```

---

```
FDI_cross_checks_JG      Cross check between FDI tables J and G
```

---

**Description**

The function checks the possible data inconsistency between the amount of vessels in table J capacity and the amount of vessels in table G. according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
FDI_cross_checks_JG(data1, data2, verbose = FALSE)
```

**Arguments**

data1	FDI capacity in table J
data2	FDI effort table G
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns a list with all the miss matches between number of vessels in table J and G are shown.

**Examples**

```
FDI_cross_checks_JG(data1=fdi_j_capacity, data2=fdi_g_effort, verbose=TRUE)
FDI_cross_checks_JG(fdi_j_capacity, fdi_g_effort)
```

---

```
fdi_g_effort      fdi_g_effort in FDI DGMAREMED&BS datacall format
```

---

**Description**

fdi\_g\_effort in FDI DGMAREMED&BS datacall format

**Usage**

```
fdi_g_effort
```

**Format**

An object of class data.frame with 2450 rows and 26 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>



---

fdi_h_spatial_land	<i>fdi_h_spatial_land in FDI DGMAREMED&amp;BS datacall format</i>
--------------------	---

---

**Description**

fdi\_h\_spatial\_land in FDI DGMAREMED&BS datacall format

**Usage**

fdi\_h\_spatial\_land

**Format**

An object of class `data.frame` with 5 rows and 23 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

fdi_h_spatial_landings	<i>fdi_h_spatial_landings in FDI DGMAREMED&amp;BS datacall format</i>
------------------------	---

---

**Description**

fdi\_h\_spatial\_landings in FDI DGMAREMED&BS datacall format

**Usage**

fdi\_h\_spatial\_landings

**Format**

An object of class `data.frame` with 2450 rows and 18 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

fdi_i_spatial_effort	<i>fdi_i_spatial_effort in FDI DGMAREMED&amp;BS datacall format</i>
----------------------	---

---

**Description**

fdi\_i\_spatial\_effort in FDI DGMAREMED&BS datacall format

**Usage**

fdi\_i\_spatial\_effort

**Format**

An object of class data.frame with 2450 rows and 21 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

fdi_j_capacity	<i>fdi_j_capacity in FDI DGMAREMED&amp;BS datacall format</i>
----------------	---

---

**Description**

fdi\_j\_capacity in FDI DGMAREMED&BS datacall format

**Usage**

fdi\_j\_capacity

**Format**

An object of class data.frame with 2450 rows and 14 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

FDI_price_tableA	<i>Check prices trend in FDI A table</i>
------------------	--

---

### Description

The function checks the trend prices in the given table grouped by year, GSA, MS, and species. According to the [Fisheries Dependent Information data call 2021 - Annex 1](#). If SP are not specified by the user the function combines those by default.

### Usage

```
FDI_price_tableA(data, MS, SP = "COMBINED", GSA = "COMBINED", verbose = TRUE)
```

### Arguments

data	FDI table A catch
MS	member state code
SP	species reference code in the three alpha code format ("COMBINED" values perform the analysis for all species present in data)
GSA	GSA code
verbose	boolean. If TRUE a message is printed.

### Value

The function returns a list. The first element gives the summary table of records number. From the second to the fourth element gives 3 plots for each variables among: of total live weight landed, total value of landings (euro), and total discards (ton)).

### Examples

```
FDI_price_tableA(data=fdi_a_catch, SP="MUT", MS="PSP", GSA="GSA99")
FDI_price_tableA(data=fdi_a_catch, SP="MUT", MS="PSP", GSA="GSA99")
```

---

FDI_ts_tableG	<i>Check number of record in FDI G table</i>
---------------	--

---

### Description

The function checks and count the numbers of records data in the given table grouped by year, GSA, MS, vessels length, fishing techniques, and metier for the following 8 variables: Total days at sea; Total Fishing Days; Total kW days at Sea; total GT days at sea; Total kW fishing days; totgtfishdays; Hours at Sea; kW hours at sea; according to the [Fisheries Dependent Information data call 2021 - Annex 1](#) If Vessel length, fishing technique, and metier are not specified by the user the function combines those by default.

**Usage**

```
FDI_ts_tableG(
  data,
  MS,
  GSA,
  vessel_len = "COMBINED",
  fishtech = "COMBINED",
  met = "COMBINED",
  verbose = TRUE
)
```

**Arguments**

data	FDI table G effort
MS	member state code
GSA	GSA code
vessel_len	vessels length code ("COMBINED" values perform the analysis for all vessels length present in data)
fishtech	selected fishing techniques ("COMBINED" values perform the analysis for all fishing techniques present in data)
met	selected metiers ("COMBINED" values perform the analysis for all metiers present in data)
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns a list. The first element gives the summary table of records number. From the second to the ninth element gives 8 plots for each variables among:

- totseadays,
- totfishdays,
- totkwdaysatsea,
- totgtdaysatsea,
- totkwfishdays,
- totgtfishdays,
- hrsea,
- kwhrsea

**Examples**

```
FDI_ts_tableG(data=fdi_g_effort, MS="PSP", GSA="GSA99")
FDI_ts_tableG(fdi_g_effort, MS="PSP", GSA="GSA99", fishtech="DTS", met="OTB_MDD_>=40_0_0")
```

FDI\_ts\_tableJ

*Check empty fields in FDI J table***Description**

The function checks and count the numbers of records data in the given table grouped by year, GSA, MS, vessels length, and fishing techniques for the following 4 variables: total trips; total kW; total GT; total vessels; according to the [Fisheries Dependent Information data call 2021 - Annex 1](#)

**Usage**

```
FDI_ts_tableJ(
  data,
  MS,
  GSA,
  vessel_len = "COMBINED",
  fishtech = "COMBINED",
  verbose = TRUE
)
```

**Arguments**

data	FDI table J capacity
MS	member state code
GSA	GSA code
vessel_len	vessels length code ("COMBINED" values perform the analysis for all vessels length present in data)
fishtech	selected fishing techniques ("COMBINED" values perform the analysis for all fishing techniques present in data)
verbose	boolean. If TRUE a message is printed.

**Value**

The function returns a list. The first element gives the summary table of records number. From the second to the fifth element gives 4 plots for each variables among:

- total trips;
- total kW;
- total GT;
- total vessels;

**Examples**

```
FDI_ts_tableJ(data=fdi_j_capacity, MS="PSP", GSA="GSA99")
FDI_ts_tableJ(data=fdi_j_capacity, MS="PSP", GSA="GSA99", fishtech = c("DTS","PGP"))
```

---

GP_tab_example	<i>GP table in MED&amp;BS datacall format</i>
----------------	---

---

**Description**

GP table in MED&BS datacall format

**Usage**

GP\_tab\_example

**Format**

An object of class `data.frame` with 12 rows and 22 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

Landing_tab_example	<i>Landing table in MED&amp;BS datacall format</i>
---------------------	--

---

**Description**

Landing table in MED&BS datacall format

**Usage**

Landing\_tab\_example

**Format**

An object of class `data.frame` with 57 rows and 114 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

MA_tab_example	<i>MA table in MED&amp;BS datacall format</i>
----------------	---

---

**Description**

MA table in MED&BS datacall format

**Usage**

MA\_tab\_example

**Format**

An object of class `data.frame` with 71 rows and 11 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

MEDBS_ALK	<i>Plot of Age-Length Keys</i>
-----------	--------------------------------

---

**Description**

The function allows to check the data in the ALK table providing plots by sex for a selected species

**Usage**

```
MEDBS_ALK(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	ALK table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a list of ALK plots by sex is returned

**Examples**

```
MEDBS_ALK(data=ALK_tab_example, SP="MUT", MS="ITA", GSA="GSA 99")
```

---

MEDBS\_Catch\_coverage    *Catch\_cov: function to check the coverage in Catch table*

---

### Description

The function allows to check the coverage in Catch table by mean of summary tables summarizing both landing and discard volumes and producing relative plots for the selected species.

### Usage

```
MEDBS_Catch_coverage(data, SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	Catch table in MEDBS format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

### Value

summary table and plots

### Examples

```
MEDBS_Catch_coverage(Catch_tab_example,"DPS","ITA","GSA 9")
```

---

MEDBS\_check\_duplicates  
*Check for duplicated data rows*

---

### Description

The function checks the presence of duplicated rows in both landings and discards data.

### Usage

```
MEDBS_check_duplicates(data, type = "l", SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	data frame containing landing data
type	string vector indicating the type of table to be checked. "l" for landing; "d" for discards; "c" for catch table.
SP	vector of the species reference codes in the three alpha code format
MS	member state code
GSA	vector of the GSA codes to be included in the check
verbose	Boolean value to obtain further explanation messages from the function



**Value**

The function returns a data frame containing the duplicated rows to be likely deleted from the data.

**Author(s)**

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_check_duplicates(data=Discard_tab_example,type="d",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
MEDBS_check_duplicates(data=Landing_tab_example,type="l",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
MEDBS_check_duplicates(data=Catch_tab_example,type="c",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
```

---

MEDBS_comp_disc_YQ	<i>Comparison between discards in weight by quarter and -1</i>
--------------------	--

---

**Description**

The function allows to compare the discards weights aggregated by quarter and by year for a selected species at the gear level.

**Usage**

```
MEDBS_comp_disc_YQ(data, MS, GSA, SP)
```

**Arguments**

data	data frame containing discards data
MS	member state code as it is reported in the discards data
GSA	GSA code
SP	species reference code in the three alpha code format

**Value**

The function returns a data frame for the comparison of discards aggregated by quarters and by year

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_comp_disc_YQ(data=Discard_tab_example,MS="ITA",GSA="GSA 9",SP="DPS")
```

---

MEDBS\_comp\_disc\_YQ\_fishery

*Comparison between discards in weight by quarter, quarter -1 and by fishery*

---

### Description

The function allow to estimates the discards in weight for a selected species by quarter and fishery

### Usage

```
MEDBS_comp_disc_YQ_fishery(data, MS, GSA, SP, verbose = TRUE)
```

### Arguments

data	data frame containing discards data
MS	member state code as it is reported in the discards data
GSA	GSA code
SP	species reference code in the three alpha code format
verbose	boolean value to obtain further explanation messages from the function

### Value

The function returns a data frame for the comparison of discards aggregated by quarters and by year and fishery

### Author(s)

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

### Examples

```
MEDBS_comp_disc_YQ_fishery(data=Discard_tab_example,MS="ITA",GSA="GSA_9",SP="DPS")
```

---

MEDBS\_comp\_land\_Q\_VL     *Comparison between landings in weight by quarter accounting for vessel length*

---

### Description

The function allows to perform the comparison of landings of a selected species aggregated by quarters accounting for the presence of vessel length

### Usage

```
MEDBS_comp_land_Q_VL(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a dataframe for the comparison of landings aggregated by quarters accounting for the presence of vessel length information.

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_comp_land_Q_VL(data = Landing_tab_example, MS = "ITA", GSA = "GSA 9", SP = "DPS")
```

---

```
MEDBS_comp_land_Q_VL_fishery
```

*Comparison between landings in weight by quarter and fishery accounting for vessel length*

---

**Description**

The function allows to perform the comparison of landings of a selected species aggregated by quarters and fishery accounting for the presence of vessel length

**Usage**

```
MEDBS_comp_land_Q_VL_fishery(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a data frame for the comparison of landings aggregated by quarters and fishery accounting for the presence of vessel length information.

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

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**Examples**

```
MEDBS_comp_land_Q_VL_fishery(data = Landing_tab_example, SP = "DPS", MS = "ITA", GSA = "GSA 9")
```

---

MEDBS_comp_land_YQ	<i>Comparison between landings in weight by quarter and -1</i>
--------------------	--

---

**Description**

The function allows to perform the comparison of landings of a selected species aggregated by quarters and by year

**Usage**

```
MEDBS_comp_land_YQ(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a data frame for the comparison of landings aggregated by quarters and by year

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_comp_land_YQ(data=Landing_tab_example,SP="DPS",MS="ITA",GSA="GSA 9")
```

---

MEDBS\_comp\_land\_YQ\_fishery

*Comparison between landings in weight by quarter, quarter -1 and by fishery*

---

### Description

The function allows to perform the comparison of landings of a selected species aggregated by quarters and by year and fishery

### Usage

```
MEDBS_comp_land_YQ_fishery(data, SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

### Value

The function returns a data frame for the comparison of landings aggregated by quarters and by year and fishery

### Author(s)

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

### Examples

```
MEDBS_comp_land_YQ_fishery(data = Landing_tab_example, SP = "DPS", MS = "ITA", GSA = "GSA 9")
```

---

MEDBS\_discard\_coverage

*Discard\_cov: function to check the coverage in discard table*

---

### Description

The function allows to check the coverage of the time series in discard table for a selected species.

### Usage

```
MEDBS_discard_coverage(Discard_tab, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

Discard_tab	Discard table in MED&BS format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

summary table and plots of discard time series by year and gear

**Examples**

```
MEDBS_discard_coverage(Discard_tab_example,"DPS","ITA","GSA 9")
```

---

MEDBS\_disc\_mean\_weight

*Mean weight by year,gear and fishery aggregation*

---

**Description**

The function allows to check consistency of mean discard of a selected species plotting the discards' weight by year, gear and fishery

**Usage**

```
MEDBS_disc_mean_weight(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data frame containing discards data
SP	species reference code in the three alpha code format
MS	member state code as it is reported in the discards data
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a plot of the mean discards weight by year, gear and fishery aggregation

**Author(s)**

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_disc_mean_weight(data=Discard_tab_example,SP="DPS",MS="ITA",GSA="GSA 9")
```

---

MEDBS_GP_check	<i>GP_tab (growth params) table check</i>
----------------	---

---

**Description**

The function allows to check the growth parameters by sex and year for a selected species

**Usage**

```
MEDBS_GP_check(data, SP, MS, GSA)
```

**Arguments**

data	growth params table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))

**Value**

a list of objects containing a summary table and different plots of the growth curves by sex and year.

**Examples**

```
MEDBS_GP_check(GP_tab_example, "MUT", "ITA", "GSA 18")
```

---

MEDBS_ks	<i>Kolmogorov-Smirnov test</i>
----------	--------------------------------

---

**Description**

The function allows to perform the Kolmogorov-Smirnov test on both landings and discards for a selected species providing cumulative length distribution plots by fishery and year. The function performs Kolmogorov-Smirnov tests on couples of years to assess if they belong to the same population.

**Usage**

```
MEDBS_ks(data, type, SP, MS, GSA, Rt = 1, verbose = TRUE)
```

**Arguments**

data	data frame of landings or discards data
type	type of data frame. "l" for landing and "d" for discard
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
Rt	ratio to be applied to subsample data to reduce the risk of rejection of H0 Hypothesis
verbose	boolean value to obtain further explanation messages from the function

**Value**

the function returns a list of data frames and cumulative distribution plots

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_ks(data=Landing_tab_example, type="1", SP="DPS", MS="ITA", GSA="GSA 9", Rt=1)
```

---

MEDBS\_Landing\_coverage

*Landing\_cov: function to check the coverage in Landing table*

---

**Description**

the function allows to check the coverage in landing table providing a summary table and a plot of landing

**Usage**

```
MEDBS_Landing_coverage(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	Landing table in MED&BS format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a list containing a summary table and coverage plot is provided

**Examples**

```
MEDBS_Landing_coverage(Landing_tab_example, "DPS", "ITA", "GSA 9")
```



---

MEDBS\_land\_mean\_weight

*Mean weight by year, gear and fishery aggregation*


---

### Description

The function allows to check consistency of mean landing of a selected species plotting the landings' weight by year, gear and fishery

### Usage

```
MEDBS_land_mean_weight(data, SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

### Value

The function returns a plot of the mean landing weight by year, gear and fishery aggregation, and return the data frame as well.

### Author(s)

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

### Examples

```
MEDBS_land_mean_weight(data=Landing_tab_example, SP="DPS", MS="ITA", GSA="GSA 9")
```

---

MEDBS\_lengthclass\_0

*Length classes number 0 in landings and discards*


---

### Description

The function checks landings and discards for the presence of length class filled in having weight > 0.

### Usage

```
MEDBS_lengthclass_0(data, type = "l", SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data frame containing landing data
type	string vector indicating the type of table to be checked. "l" for landing; "d" for discards.
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	Boolean value to obtain further explanation messages from the function

**Value**

The function returns a data frame with the rows with 0 values length class having weight > 0.

**Author(s)**

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_lengthclass_0(data=Landing_tab_example,type="l",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
MEDBS_lengthclass_0(data=Discard_tab_example,type="d",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
```

---

MEDBS_length_ind	<i>Main length size indicators</i>
------------------	------------------------------------

---

**Description**

The function allows to check the consistency of length data for a selected species on both landings and discards: Main length size indicators

**Usage**

```
MEDBS_length_ind(
  data,
  type,
  SP,
  MS,
  GSA,
  splines = c(0.2, 0.4, 0.6, 0.8),
  Xtresholds = c(0.25, 0.5, 0.75),
  verbose = TRUE
)
```

**Arguments**

data	data frame of landings or discards data
type	type of data frame. "l" for landing and "d" for discard
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
splines	spline values assignment to fit cumulative distributions
Xtresholds	threshold value
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a plot of the Main length size indicators time series by fishery

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_length_ind(Landing_tab_example,type="l",SP="DPS",MS=c("ITA"),
GSA=c("GSA 9"), splines=c(0.2,0.4,0.6,0.8),
Xtresholds = c(0.25,0.5,0.75))
MEDBS_length_ind(Discard_tab_example,type="d",SP="DPS",MS=c("ITA"),
GSA=c("GSA 9"), splines=c(0.2,0.4,0.6,0.8),
Xtresholds = c(0.25,0.5,0.75))
```

---

MEDBS\_LW\_check

*LW params in GP\_tab in table check*


---

**Description**

The function allows to check the length-weight parameters included in the GP table for a selected species

**Usage**

```
MEDBS_LW_check(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	growth params table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a summary table and plots of the LW params

**Examples**

```
MEDBS_LW_check(GP_tab_example, "MUT", "ITA", "GSA 18")
```

---

MEDBS_MA_check	<i>MA_tab (maturity at age) table check</i>
----------------	---

---

**Description**

The function allows to check the maturity at age (MA) table providing a summary table of the data coverage and plots for the selected species of the proportion of matures for age class by sex and year.

**Usage**

```
MEDBS_MA_check(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	maturity at AGE table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a summary table and plots

**Examples**

```
MEDBS_MA_check(MA_tab_example, "DPS", "ITA", "GSA 99")
```

---

MEDBS_ML_check	<i>ML_tab (maturity at length) table check</i>
----------------	--

---

### Description

The function allows to check the maturity at length (ML) table providing a summary table of the data coverage and plots for the selected species of the proportion of matures for age class by sex and year.

### Usage

```
MEDBS_ML_check(data, SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	maturity at length table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

### Value

a summary table and plots

### Examples

```
MEDBS_ML_check(ML_tab_example, "DPS", "ITA", "GSA 99")
```

---

MEDBS_plot_discard_ts	<i>Plot of total discards</i>
-----------------------	-------------------------------

---

### Description

The function estimates the total discard time series by both year and quarters for a selected combination of member state, GSA and species.

### Usage

```
MEDBS_plot_discard_ts(data, SP, MS, GSA, by = "year")
```

### Arguments

data	data frame containing discard data
SP	species reference code in the three alpha code format
MS	member state code as it is reported in the discard data
GSA	GSA code
by	string defining the temporal aggregation level of discard data to be plotted. Allowed values are: "year" and "quarter"

**Value**

The function returns a plot of the total discard time series by year or by quarters. The plot by year also reports the landing by gear.

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_plot_discard_ts(data=Discard_tab_example, SP="DPS", MS="ITA", GSA="GSA 9", by="quarter")
MEDBS_plot_discard_ts(data=Discard_tab_example, SP="DPS", MS="ITA", GSA="GSA 9", by="year")
```

---

MEDBS\_plot\_disc\_vol     *Plot of total discards by gear and fishery*

---

**Description**

The function allows to visual check the time series of discard volumes by fishery of a selected species

**Usage**

```
MEDBS_plot_disc_vol(data, SP, MS, GSA)
```

**Arguments**

data	data frame containing discard data
SP	species reference code in the three alpha code format
MS	member state code as it is reported in the discard data
GSA	GSA code

**Value**

The function returns a plot of the total discards time series by fishery and gear

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_plot_disc_vol(data=Discard_tab_example, SP="DPS", MS="ITA", GSA="GSA 9")
```

---

**MEDBS\_plot\_landing\_ts** *Plot of total landing*

---

**Description**

The function estimates the total landings time series by both year and quarters for a selected combination of member state, GSA and species.

**Usage**

```
MEDBS_plot_landing_ts(data, SP, MS, GSA, by = "year", verbose = TRUE)
```

**Arguments**

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
by	string defining the temporal aggregation level of landing data to be plotted. Allowed values are: "year" and "quarter"
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns a plot of the total landing time series by year or by quarters. The plot by year also reports the landing by gear.

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_plot_landing_ts(data=Landing_tab_example, SP="DPS", MS="ITA", GSA="GSA 9", by="quarter")  
MEDBS_plot_landing_ts(data=Landing_tab_example, SP="DPS", MS="ITA", GSA="GSA 9", by="year")
```

---

MEDBS\_plot\_land\_vol      *Plot of total landing by gear and fishery*

---

### Description

The function allows to visual check the time series of landing volumes by fishery of a selected species

### Usage

```
MEDBS_plot_land_vol(data, SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	data frame containing landing data
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

### Value

The function returns a plot of the total landing time series by fishery and gear

### Author(s)

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

### Examples

```
MEDBS_plot_land_vol(data=Landing_tab_example,SP="DPS",MS="ITA",GSA="GSA 9")
```

---

MEDBS\_SA\_check      *SA\_tab (sex ratio at age) table check*

---

### Description

The function allows to check the sex ratio at age (SA) table providing a summary table of the data coverage and plots for the selected species of the proportion of sex ratio for age class by year.

### Usage

```
MEDBS_SA_check(data, SP, MS, GSA, verbose = TRUE)
```



**Arguments**

data	sex ratio at age table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a summary table and plots

**Examples**

```
MEDBS_SA_check(SA_tab_example, "DPS", "ITA", "GSA 99")
```

---

MEDBS_SL_check	<i>SL_tab (sex ratio at length) table check</i>
----------------	---

---

**Description**

The function allows to check the sex ratio at length (SL) table providing a summary table of the data coverage and plots for the selected species of the proportion of sex ratio for length class by year.

**Usage**

```
MEDBS_SL_check(data, SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	sex ratio at length table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
verbose	boolean value to obtain further explanation messages from the function

**Value**

a summary table and plots

**Examples**

```
MEDBS_SL_check(SL_tab_example, "DPS", "ITA", "GSA 99")
```

---

MEDBS_SOP	<i>um of products</i>
-----------	-----------------------

---

### Description

um of products

### Usage

```
MEDBS_SOP(data, SP, MS, GSA, threshold = 5, verbose = TRUE)
```

### Arguments

data	Catch table in MED&BS datacall format
SP	species (three alpha code)
MS	Country
GSA	GSA (Geographical sub-area (GFCM sensu))
threshold	threshold value in percentage to check the percentage difference between SOP and both volumes of landing and discard. Default value is 5%
verbose	boolean value to obtain further explanation messages from the function

### Value

the function returns a data frame of the record with values of percentage difference between SOP and both volumes of landing and discard greater then threshold value.

### Examples

```
MEDBS_SOP(data=Catch_tab_example,SP="DPS",MS="ITA",GSA="GSA 9",threshold = 5)
```

---

MEDBS_weight_0	<i>weight 0 in landings and discards</i>
----------------	--

---

### Description

The function checks landings or discards in weight equal to 0 having length classes filled in

### Usage

```
MEDBS_weight_0(data, type = "l", SP, MS, GSA, verbose = TRUE)
```

### Arguments

data	data.table object containing landing or discard data
type	type of table: "l" for landings; "d" for discards
SP	species reference code in the three alpha code format
MS	member state code as it is reported in both landing and discard data
GSA	GSA code
verbose	boolean value to obtain further explanation messages from the function

**Value**

The function returns the number of rows with 0 values in weights having length classes filled in.

**Author(s)**

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_weight_0(data=Landing_tab_example,type="l",SP="DPS",MS="ITA",GSA="GSA 9", verbose=TRUE)
MEDBS_weight_0(data=Discard_tab_example,type="d",SP="DPS",MS="ITA",GSA="GSA 9", verbose=TRUE)
```

---

MEDBS_weight_minus1	<i>weight -1 in landings</i>
---------------------	------------------------------

---

**Description**

The function checks landings in weight equal to -1 having length class filled in

**Usage**

```
MEDBS_weight_minus1(data, type = "l", SP, MS, GSA, verbose = TRUE)
```

**Arguments**

data	data.table object containing landing or discards data
type	type of table: "l" for landings; "d" for discards
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code
verbose	Boolean value to obtain further explanation messages from the function

**Value**

The function returns the number of rows with -1 values in landing weights having length class filled in.

**Author(s)**

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

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Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

**Examples**

```
MEDBS_weight_minus1(data=Landing_tab_example,type="l",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
MEDBS_weight_minus1(data=Discard_tab_example,type="d",SP="DPS",MS="ITA",GSA="GSA 9",verbose=TRUE)
```

---

MEDBS\_yr\_missing\_length

*Years with missing length distributions*


---

### Description

The function checks the presence of years with missing length distributions in both landings and discards for a selected species

### Usage

```
MEDBS_yr_missing_length(data, type, SP, MS, GSA)
```

### Arguments

data	data frame of landings or discards data
type	type of data frame. "l" for landing and "d" for discard
SP	species reference code in the three alpha code format
MS	member state code
GSA	GSA code

### Value

the function returns a data frame containing the reference combination of year, gear and fishery missing length distributions

### Author(s)

Alessandro Mannini [alessandro.mannini@ec.europa.eu](mailto:alessandro.mannini@ec.europa.eu)

Walter Zupa [zupa@coispa.it](mailto:zupa@coispa.it)

Isabella Bitetto [bitetto@coispa.it](mailto:bitetto@coispa.it)

### Examples

```
MEDBS_yr_missing_length(data=Discard_tab_example,type="d",SP="DPS",MS="ITA",GSA="GSA 9")
MEDBS_yr_missing_length(data=Landing_tab_example,type="l",SP="DPS",MS="ITA",GSA="GSA 9")
```

---

minmaxLtaskVII2

*minmaxLtaskVII2 in GFCM datacall format*


---

### Description

minmaxLtaskVII2 in GFCM datacall format

### Usage

```
minmaxLtaskVII2
```

**Format**

An object of class `data.frame` with 26 rows and 3 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

`minmaxLtaskVII31`*minmaxLtaskVII31 in GFCM datacall format*

---

**Description**

minmaxLtaskVII31 in GFCM datacall format

**Usage**

```
minmaxLtaskVII31
```

**Format**

An object of class `data.frame` with 36 rows and 4 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

`ML_tab_example`*ML table in MED&BS datacall format*

---

**Description**

ML table in MED&BS datacall format

**Usage**

```
ML_tab_example
```

**Format**

An object of class `data.frame` with 437 rows and 12 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

RCG_check_AL	<i>Check consistency of age-length relationship</i>
--------------	---

---

### Description

Check consistency of age-length relationship

### Usage

```
RCG_check_AL(data, MS, GSA, SP, min_age = 0, max_age = 30, verbose = TRUE)
```

### Arguments

data	table of detailed data in RCG format
MS	member state code
GSA	GSA code
SP	reference species for the analysis
min_age	minimum age expected
max_age	maximum age expected
verbose	boolean. If it is TRUE messages are reported with the outputs

### Value

summary table length-age and error (if any)

### Examples

```
RCG_check_AL(data_ex, MS="ITA", GSA="GSA99", SP="Mullus barbatus", min_age=0, max_age=30)
```

---

RCG_check_CL	<i>Quality checks on CL RCG table</i>
--------------	---------------------------------------

---

### Description

The output is a list of 6 data frames:

1. Sum of Landings by year, quarter and month;
2. Sum of Landing value by year, quarter and month;
3. Sum of landings by LandCtry, VslFlgCtry, Area, Rect, SubRect, Harbour;
4. Sum of landing value by LandCtry, VslFlgCtry, Area, Rect, SubRect, Harbour;
5. Sum of landings by Year, Species, foCatEu5, foCatEu6;
6. Sum of landing value by Year, Species, foCatEu5, foCatEu6.

### Usage

```
RCG_check_CL(data, MS, GSA, SP, verbose = TRUE)
```

**Arguments**

data	Landing table in RCG CL format
MS	member state code
GSA	GSA code
SP	reference species for the analysis
verbose	boolean. If it is TRUE messages are reported with the outputs

**Value**

Checks\_CL list of tables for temporal, spatial, species and metier coverage

**Examples**

```
RCG_check_CL(data_exampleCL,MS="COUNTRY1",GSA="GSA99",SP="Parapenaeus longirostris")
```

---

RCG_check_LFD	<i>RCG_check LFD</i>
---------------	----------------------

---

**Description**

The function allows to check the consistency of LFDs (length frequency distributions) by year on a given species generating a multi-frame plot. The function also returns the records in which the length classes are greater or lower than the expected ones (min\_len and max\_len parameters).

**Usage**

```
RCG_check_LFD(data, MS, GSA, SP, min_len = 1, max_len = 1000, verbose = TRUE)
```

**Arguments**

data	RCG CS table
MS	member state code
GSA	GSA code
SP	reference species for the analysis
min_len	minimum length
max_len	maximum length
verbose	boolean. If it is TRUE messages are reported with the outputs

**Value**

comparison plot of LFDs among the years and check of length range of the data using allowed range

**Examples**

```
RCG_check_LFD(data_ex,MS="ITA",GSA="GSA99", SP="Mullus barbatus",min_len=1,max_len=35)
```

---

RCG\_check\_LFD\_comm\_cat

*Check consistency of LFD by year and commercial category*


---

### Description

The function allows to check the consistency of LFDs (length frequency distributions) by year and commercial size category on a given species generating a multi-frame plot. The function also returns a data frame with the length range by year and commercial size category.

### Usage

```
RCG_check_LFD_comm_cat(data, MS, GSA, SP, verbose = TRUE)
```

### Arguments

data	RCG CS table
MS	member state code
GSA	GSA code
SP	reference species for the analysis
verbose	boolean. If it is TRUE messages are reported with the outputs

### Value

plot and a summary table with ranges by year and commercial category

### Examples

```
RCG_check_LFD_comm_cat(data_ex, MS="ITA", GSA="GSA99", SP="Mullus barbatus")
```

---

RCG\_check\_loc

*Check trip location*


---

### Description

The function allows to check the spatial distribution of data using the initial and final coordinates, where available, and the ports position included in the data.

If Initial and/or Final coordinates are included in the data, maps of them are produced. If not the locations of the harbours are mapped.

### Usage

```
RCG_check_loc(data, ports = circabc)
```

### Arguments

data	detailed data in RCG CS format
ports	ports codification file



**Value**

map of trip locations

**Examples**

```
RCG_check_loc(data_ex)
```

---

RCG_check_lw	<i>Consistency of length-weight relationship and consistency with allowed ranges</i>
--------------	--

---

**Description**

The function allows to check the consistency of length-weight relationship by sex and year on a given species generating a multi-frame plot. The function also returns the records in which the individual weights are greater or lower than the expected ones (Min and Max parameters).

**Usage**

```
RCG_check_lw(data, MS, GSA, SP, Min = 0, Max = 1000, verbose = TRUE)
```

**Arguments**

data	table of detailed data in RCG format
MS	member state code
GSA	GSA code
SP	reference species for the analysis
Min	min weight expected in the data
Max	max weight expected in the data
verbose	boolean. If it is TRUE messages are reported with the outputs

**Value**

Plot and error message

**Examples**

```
RCG_check_lw(data_ex,MS="ITA",GSA="GSA99", SP="Mullus barbatus",Min=0,Max=1000)
```

---

RCG_check_mat	<i>Check consistency sex and maturity stage</i>
---------------	---

---

### Description

The function allows to perform a visual check of the maturity stage composition by length class, sex and year.

### Usage

```
RCG_check_mat(data, MS, GSA, SP, verbose = TRUE)
```

### Arguments

data	table of detailed data in RCG format
MS	member state code
GSA	GSA code
SP	reference species for the analysis
verbose	boolean. If it is TRUE messages are reported with the outputs

### Value

The function the returns the plot of the maturity stages by length class

### Examples

```
RCG_check_mat(data_ex, MS="ITA", GSA="GSA99", SP="Mullus barbatus")
```

---

RCG_check_mat_ogive	<i>Maturity ogives by sex</i>
---------------------	-------------------------------

---

### Description

The function allows to check the maturity stages composition estimating the maturity ogives by sex for the selected species, using a selected pool of stages to classify the immature stages in the sample.

### Usage

```
RCG_check_mat_ogive(
  data,
  MS,
  GSA,
  SP,
  sex,
  immature_stages = c("0", "1", "2a"),
  verbose = TRUE
)
```

**Arguments**

data	table of detailed data in RCG format
MS	member state code
GSA	GSA code
SP	reference species for the analysis
sex	defines the sex of the individuals selected for the analysis ('F' for females, 'M' for males)
immature_stages	maturity stages considered immature
verbose	boolean. If it is TRUE messages are reported with the outputs

**Value**

Plot ogive by sex

**Examples**

```
RCG_check_mat_ogive(data_ex,MS="ITA",GSA="GSA99",SP="Mullus barbatus",
sex="F",immature_stages=c("0","1","2a"))
```

---

RCG\_summarize\_ind\_meas

*Number of individual by trip for which biological data have been collected (length, sex, maturity, weight and age)*

---

**Description**

Number of individual by trip for which biological data have been collected (length, sex, maturity, weight and age)

**Usage**

```
RCG_summarize_ind_meas(data, MS, GSA, SP, verbose = TRUE)
```

**Arguments**

data	detailed data in RCG CS format
MS	member state code
GSA	GSA code
SP	species reference code in the three alpha code format
verbose	boolean value to obtain further explanation messages from the function

**Value**

a list containing a summary of measurements by trip for each biological variable

**Examples**

```
RCG_summarize_ind_meas(data=data_ex,MS="ITA",GSA="GSA99",SP="Mullus barbatus")
```

---

RCG_summarize_trips	<i>summarizing the number of trips/hauls monitored by year by port, metier, sampling method;</i>
---------------------	--

---

**Description**

summarizing the number of trips/hauls monitored by year by port, metier, sampling method;

**Usage**

```
RCG_summarize_trips(data, MS, GSA, SP, verbose = TRUE)
```

**Arguments**

data	RCG CS table
MS	member state code
GSA	GSA code
SP	species reference code in the three alpha code format
verbose	boolean value to obtain further explanation messages from the function

**Value**

Number of trips by area, year, port, metier and sampling method

**Examples**

```
RCG_summarize_trips(data_ex, MS="ITA", GSA="GSA99", SP="Mullus barbatus")
```

---

SA_tab_example	<i>SA table in MED&amp;BS datacall format</i>
----------------	---

---

**Description**

SA table in MED&BS datacall format

**Usage**

```
SA_tab_example
```

**Format**

An object of class `data.frame` with 74 rows and 9 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

sex_mat	<i>sex_mat in GFCM datacall format</i>
---------	--

---

**Description**

sex\_mat in GFCM datacall format

**Usage**

sex\_mat

**Format**

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 42 rows and 5 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

SL_tab_example	<i>SL table in MED&amp;BS datacall format</i>
----------------	---

---

**Description**

SL table in MED&BS datacall format

**Usage**

SL\_tab\_example

**Format**

An object of class `data.frame` with 454 rows and 10 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

task_ii2	<i>task_ii2 in GFCM DCRF datacall format</i>
----------	--

---

**Description**

task\_ii2 in GFCM DCRF datacall format

**Usage**

task\_ii2

**Format**

An object of class `data.frame` with 5 rows and 9 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

task_iii	<i>task_iii in GFCM DCRF datacall format</i>
----------	--

---

**Description**

task\_iii in GFCM DCRF datacall format

**Usage**

task\_iii

**Format**

An object of class `data.frame` with 5 rows and 16 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

task\_vii2*task\_vii2 in GFCM DCRF datacall format*

---

**Description**

task\_vii2 in GFCM DCRF datacall format

task\_vii31 in GFCM DCRF datacall format

**Usage**

```
task_vii2
```

```
task_vii2
```

**Format**

An object of class data.frame with 20 rows and 13 columns.

An object of class data.frame with 20 rows and 13 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

Isabella Bitetto <bitetto@coispa.it>

---

task\_vii31*task\_vii31 in GFCM datacall format*

---

**Description**

task\_vii31 in GFCM datacall format

**Usage**

```
task_vii31
```

**Format**

An object of class data.frame with 5 rows and 8 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>

---

`task_vii32`*task\_vii32 in GFCM DCRF datacall format*

---

**Description**

`task_vii32` in GFCM DCRF datacall format

**Usage**

`task_vii32`

**Format**

An object of class `data.frame` with 10 rows and 15 columns.

**Author(s)**

Isabella Bitetto <bitetto@coispa.it>



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