

# Package: icesFO (via r-universe)

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**Description** Functions to support the creation of ICES Fisheries Overviews.

**License** GPL (>= 2)

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## Contents

icesFO-package . . . . .	2
CLD_trends . . . . .	3
compute_technical_interactions . . . . .	4
format_annex_table . . . . .	5
format_catches . . . . .	6
format_sag . . . . .	7
format_sag_status . . . . .	8
format_sid . . . . .	9
format_stecf . . . . .	10
guild_trends . . . . .	11
load_areas . . . . .	12
load_asfis_species . . . . .	13
load_catches . . . . .	13
load_ecoregion . . . . .	14

load_sag . . . . .	15
load_sid . . . . .	16
load_statrec2ecoregions . . . . .	17
plot_catch_trends . . . . .	17
plot_CLD_bar . . . . .	19
plot_discard_current . . . . .	20
plot_discard_trends . . . . .	21
plot_ecoregion_map . . . . .	22
plot_effort_map . . . . .	23
plot_GES_pies . . . . .	24
plot_guild_trends . . . . .	25
plot_kobe . . . . .	26
plot_sar_map . . . . .	27
plot_status_prop_pies . . . . .	28
plot_stecf . . . . .	29
plot_stock_trends . . . . .	30
plot_technical_interactions . . . . .	31
plot_vms . . . . .	32
stockstatus_CLD_current . . . . .	33
stock_trends . . . . .	34

## Index 35

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icesFO-package	<i>Functions to support the creation of ICES Fisheries Overviews</i>
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### Description

Functions to support the creation of ICES Fisheries Overviews, ....

### Details

*Loading data:*

<a href="#">load_sid</a>	load data from SID
<a href="#">load_sag</a>	load data from SAG
<a href="#">load_catches</a>	load catch data from ICES

*Formatting datas:*

<a href="#">format_sid</a>	format raw output from load_sid
<a href="#">format_stecf</a>	format raw output from load_sid

*Plots:*

<a href="#">plot_CLD_bar</a>	plot
<a href="#">plot_GES_pies</a>	plot
<a href="#">plot_catch_trends</a>	plot
<a href="#">plot_discard_current</a>	plot
<a href="#">plot_discard_trends</a>	plot
<a href="#">plot_kobe</a>	plot
<a href="#">plot_status_prop_pies</a>	plot
<a href="#">plot_stecf</a>	plot
<a href="#">plot_stock_trends</a>	plot

**Author(s)**

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---

CLD\_trends

*Catch, discards, and landings by stock*

---

**Description**

Returns a data frame of reference points, catch, discards, and landings by stock over time.

**Usage**

CLD\_trends(x)

**Arguments**

x a dataframe output of format\_sag function

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[stock\\_trends](#) for formatting data from the ICES Stock Assessment database.

[icesFO-package](#) gives an overview of the package.

## Examples

```
## Not run:  
CLD_2018 <- catch_landings_discards(sag_formatted)  
  
## End(Not run)
```

---

```
compute_technical_interactions  
      Compute a matrix of technical interactions.
```

---

## Description

Based on landings and catches by species and gear, compute a matrix of technical interaction values and main gear contributions.

## Usage

```
compute_technical_interactions(x, threshByCatch = 5,  
  thresholdMainGear = 0.8, thresholdCoCatches = 0.5,  
  catchCoverage = 0.95)
```

## Arguments

**x** a dataframe in the same format as the STECF data.

**threshByCatch** minimum tonnage for a species to be considered a by catch (default 5)

**thresholdMainGear** a threshold for including gears contributing to co-catches, to retain only the gear with the greatest contribution set this to 1 (default is 0.8)

**thresholdCoCatches** a proportion giving the threshold for when we decide that there is co-catches (default 0.5)

**catchCoverage** the proportion of total catch to cover in the tables i.e. 0.95 gives a table covering 95% of the total catch (default 0.95)

## Value

A list with four elements, technical interactions for landings (recapLand) and catch (recapCatch) and tables of main gears involved in the interactions based on landings (MainGearsLandings) and catches (MainGearsCatches)

**Note**

Technical interaction appears between stocks when they are caught by the same gear during a fishing operation. Ideally the technical interaction should then be studied at the scale of the fishing operation to prevent artificially creating technical interaction between stocks that might only be caught at day/night or in different areas/timing of the year. However, often, the finest available information is per stock/gear/area/season. Knowing these limitations, the methodology used here consists in computing the sum of landings per strata of one species given that a second species is also present in the landings of this strata and then dividing this number by the total landings of the first species:

$$T_{i,j} = \frac{\sum_s L_{s,j} * P_{s,j}}{\sum_s L_{s,i}} * 100$$

Where T is the value of the technical interaction, i and j are the two species for which the technical interaction is assessed. P is an indicator variable and equals 0 if the total landings of a species for a for a given strata is less than 5 total landings for that strata and 1 otherwise. L is the landings for a given species and strata.

Strata corresponds to the provided disaggregation of the landings.

**See Also**

[plot\\_technical\\_interactions](#) for plotting technical interactions.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:
technical_interacton <-
  compute_technical_interactions(STECF_landings, catchCoverage = 0.99)

plot_technical_interactions(technical_interacton$recapLand)

## End(Not run)
```

---

format\_annex\_table      *Format the SAG status data for its use as an annex table.*

---

**Description**

It provides an excel file with color names per status, as well as other information that might be required for an annex table

**Usage**

```
format_annex_table(df, year)
```

**Arguments**

df                    a dataframe output from format\_sag\_status.  
 year                the active year

**Value**

A data frame

**Note**

Can add some helpful information here

**See Also**

[format\\_sag](#) for formatting raw data from the ICES Stock Assessment database.  
[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:
sid_format <- format_sid(x, "Celtic Seas")

## End(Not run)
```

---

format_catches	<i>Format the data from the time-series of ICES historical, official and preliminary catches.</i>
----------------	---

---

**Description**

Format the data from the ICES Stock Assessment Database for the downloaded year and the specific Ecoregion for which you are producing the Fisheries Overviews.

**Usage**

```
format_catches(year, ecoregion, historical, official, preliminary = NULL,
  species_list, sid)
```

**Arguments**

year                the year required  
 ecoregion          an identifier of the Ecoregion of interest  
 historical          a dataframe output from load\_historical\_catches() required.  
 official            a dataframe output from load\_official\_catches() required.  
 preliminary        a dataframe output from load\_preliminary\_catches() optional.  
 species\_list        a list of species common names and scientific names from ASFIS  
 sid                 the main table from ICES Stock Information DB (SD)

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sid](#) for formatting raw data from the ICES Stock Information database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:
sid <- load_sid(2019)
species_list <- load_asfis_species()
historical <- load_historical_catches()
official <- load_official_catches()
preliminary <- load_preliminary_catches(2018)
catches_format <-
  format_catches(2019, "Celtic Seas", historical, official, preliminary,
                species_list, sid)

## End(Not run)
```

---

format\_sag

---

*Format the data from the ICES Stock Assessment Database.*


---

**Description**

Format the data from the ICES Stock Assessment Database for the downloaded year and the specific Ecoregion for which you are producing the Fisheries Overviews.

**Usage**

```
format_sag(x, y, year, ecoregion)
```

**Arguments**

x	a dataframe output from <code>load_sag_summary()</code> required.
y	a dataframe output from <code>load_sag_refpts()</code> required.
year	the year for which data is required.
ecoregion	an identifier of the Ecoregion of interest

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sid](#) for formatting raw data from the ICES Stock Information database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
sag_format <- format_sag(x,y, "Celtic Seas")  
  
## End(Not run)
```

---

format_sag_status	<i>Format the stock status data as is in the ICES Stock Assessment Database.</i>
-------------------	--

---

**Description**

Format the data from the ICES Stock Assessment Database for the downloaded year and the specific Ecoregion for which you are producing the Fisheries Overviews.

**Usage**

```
format_sag_status(x, year, ecoregion)
```

**Arguments**

x	a dataframe output from load_sag_status() required.
year	the year required
ecoregion	an identifier of the Ecoregion of interest

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sid](#) for formatting raw data from the ICES Stock Information database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
sag_status <- format_sag_status(x,"Celtic Seas")  
  
## End(Not run)
```

---

format\_sid

*Format the data from the ICES Stock Information Database.*

---

**Description**

Format the data from the ICES Stock Information Database for the downloaded year and the specific Ecoregion for which you are producing the Fisheries Overviews.

**Usage**

```
format_sid(x, ecoregion)
```

**Arguments**

x                    a dataframe output from load\_sid() required.  
ecoregion            an identifier of the Ecoregion of interest

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sag](#) for formatting raw data from the ICES Stock Assessment database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:
sid_format <- format_sid(x, "Celtic Seas")

## End(Not run)
```

---

format\_stecf

*Format the data from STECF effort and landings*

---

**Description**

Format the data from STECF effort and landings for the specific Ecoregion for which you are producing the Fisheries Overviews.

**Usage**

```
format_stecf_effort(x)
```

```
format_stecf_landings(x)
```

**Arguments**

x                    the name of the dataframe with effort data

**Details**

These two dataframes have to be downloaded by hand and put in the data folder. The proper Annexes have to be decided by the user.

**Value**

a data frame of stock status relative to reference points and catch, discards, and landings by stock for the most recent assessment.

**Note**

Some considerable errors have been identified in the STECF data. Finland and Estonia effort data are not reliable, and Germany recorded an erroneous haul in 2013. These values have been removed.

Can add some helpful information here

**References**

STECF dissemination tool <https://stecf.jrc.ec.europa.eu/web/stecf/dd/effort/graphs-annex>

**See Also**

[format\\_sag](#) for formatting raw data from the ICES Stock Assessment database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
stecf_formatted <- format_stecf("Celtic Seas")  
  
## End(Not run)
```

---

guild\_trends

*Wrangling of format\_sag output*

---

**Description**

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each guild in the Ecoregion, according to the last assessment (relative to the set year) This guild grouping is used in the Ecosystem Overviews.

**Usage**

```
guild_trends(x)
```

**Arguments**

x a dataframe output of format\_sag function

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sag](#) for formatting data from the ICES Stock Assessment database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
trends <- guild_trends(sag_formatted)  
  
## End(Not run)
```

---

load_areas	<i>Download ICES areas polygons</i>
------------	-------------------------------------

---

**Description**

Returns a simple features object with polygons for all subdivisions

**Usage**

```
load_areas(ecoregion, precision = 3)
```

**Arguments**

ecoregion	an ICES ecoregion to download ICES areas from (e.g "Baltic Sea")
precision	the number of decimal places required in the coordinates

**Value**

A simple features collection

**See Also**

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
ices_areas <- load_areas("Greater North Sea")  
  
## End(Not run)
```

---

load\_asfis\_species      *Download ASFIS Species list from FAO.*

---

**Description**

Download

**Usage**

```
load_asfis_species()
```

**Value**

A data frame

**See Also**

[load\\_sag](#) for loading data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
catches_hist_raw <- load_historical_catches()  
catches_official_raw <- load_official_catches()  
catches_prelim_raw <- load_preliminary_catches()  
  
## End(Not run)
```

---

load\_catches      *Download catch data from ICES web services.*

---

**Description**

Download historical and current catches data from the ICES web services also preliminary catches can be downloaded for the current year

**Usage**

```
load_historical_catches()
```

```
load_official_catches()
```

```
load_preliminary_catches(year)
```

**Arguments**

year                    the year for which data is required.

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[load\\_sag](#) for loading data from the ICES Stock Assessment database.

[icesFO-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
catches_hist_raw <- load_historical_catches()  
catches_official_raw <- load_official_catches()  
catches_prelim_raw <- load_preliminary_catches()  
  
## End(Not run)
```

---

load_ecoregion	<i>Download ecoregion polygons</i>
----------------	------------------------------------

---

**Description**

Returns a simple features object with a polygon for each ecoregion

**Usage**

```
load_ecoregion(ecoregion, precision = 3)
```

**Arguments**

ecoregion            an ICES ecoregion to download (e.g "Baltic Sea")

precision            the number of decimal places required in the coordinates

**Value**

A simple features collection

**See Also**

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
  ecoregion <- load_ecoregion("Baltic Sea")  
  
## End(Not run)
```

---

load\_sag

*Download data from the ICES Stock Assessment database.*

---

**Description**

Download data from the ICES Stock Assessment database for the year in which you are producing the Fisheries Overviews. Form SAG

**Usage**

```
load_sag_summary(year)
```

```
load_sag_refpts(year)
```

```
load_sag_status(year)
```

**Arguments**

year                    the year for which data is required.

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock assessment graphs Database web services: <http://standardgraphs.ices.dk/stockList.aspx>

**See Also**

[load\\_sid](#) for loading data from the ICES Stock Information database.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:
sag_summary_raw <- load_sag_summary(2019)
sag_refpts_raw <- load_sag_refpts(2019)
sag_status_raw <- load_sag_status(2019)

## End(Not run)
```

---

load\_sid

*Download data from the ICES Stock Information Database.*

---

**Description**

Download data from the ICES Stock Information Database for the year in which you are producing the Fisheries Overviews.

**Usage**

```
load_sid(year)
```

**Arguments**

year                    the year for which data is required.

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[load\\_sag](#) for loading data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:
sid_raw <- load_sid(2019)

## End(Not run)
```

---

```
load_statrec2ecoregions
```

*Download a statistical rectangles mapped to ecoregion*

---

**Description**

Returns a data frame of giving the ecoregion for each ICES statistical rectangle

**Usage**

```
load_statrec2ecoregions()
```

**Value**

A data frame

**See Also**

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:
statrec2ecoregion <- load_statrec2ecoregion()

## End(Not run)
```

---

```
plot_catch_trends
```

*Returns an ordered plot of catch bars colored according to  $F/F_{MSY}$  and  $SSB/MSY$   $B_{trigger}$  by fish category and ecoregion*

---

**Description**

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

**Usage**

```
plot_catch_trends(x, type = c("COMMON_NAME", "COUNTRY", "GUILD"),
  line_count = 10, plot_type = c("line", "area"),
  preliminary_catches = TRUE, official_catches_year = 2018,
  return_data = FALSE)
```

**Arguments**

x	a dataframe output of stockstatus+catch_current.R
type	COMMON_NAME, COUNTRY or GUILD
line_count	number of lines to show
plot_type	either line or area
preliminary_catches	logical flag
official_catches_year	year required
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

**Value**

A plot

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[plot\\_CLD\\_bar](#) Stock status relative to reference points.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:
plot1 <- plot_CLD_bar(CLDstatus, guild="Demersal", return_data = TRUE)

## End(Not run)
```

---

plot_CLD_bar	<i>Returns an ordered plot of catch bars colored according to <math>F/F_{MSY}</math> and <math>SSB/MSY</math> <math>B_{trigger}</math> by fish category and ecoregion</i>
--------------	---

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_CLD_bar(x, guild, caption = TRUE, cap_year, cap_month,
             return_data = FALSE)
```

### Arguments

x	a dataframe output of stockstatus+catch_current.R
guild	an identifier of the Fisheries guild to plot
caption	logical flag
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_CLD\\_bar](#) Stock status relative to reference points.  
[icesF0-package](#) gives an overview of the package.

### Examples

```
## Not run:
plot1 <- plot_CLD_bar(CLDstatus, guild="Demersal", return_data = TRUE)

## End(Not run)
```

---

plot\_discard\_current *Returns a plot of discard rate by fish category for an ecoregion in the last assessment year.*

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_discard_current(x, year, position_letter = "b)", caption = TRUE,  
                    cap_year, cap_month, return_data = FALSE)
```

### Arguments

x	a dataframe output of CLD_trends
year	the year required
position_letter	is this figure "a)", or "b)" etc.
caption	logical for whether there should be a caption
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_discard\\_current](#) a plot of landings and discards by fish category in the last year for an ecoregion.

[icesFO-package](#) gives an overview of the package.

### Examples

```
## Not run:
plot1 <- plot_discard_trends(CLDtrends, caption = T, cap_year, cap_month, return_data = TRUE)

## End(Not run)
```

---

plot\_discard\_trends *Returns a plot of discard rate trends by fish category for an ecoregion.*

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_discard_trends(x, year, caption = FALSE, cap_year, cap_month,
  return_data = FALSE)
```

### Arguments

x	a dataframe output of CLD_trends
year	year required
caption	logical flag
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_discard\\_current](#) a plot of landings and discards by fish category in the last year for an ecoregion.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
plot1 <- plot_discard_trends(CLDtrends, caption = T, cap_year, cap_month, return_data = TRUE)  
  
## End(Not run)
```

---

plot\_ecoregion\_map      *Returns an map of the ecoregion and the divisions included in it*

---

**Description**

Returns an map of the ecoregion and the divisions included in it

**Usage**

```
plot_ecoregion_map(ecoregion, ices_areas)
```

**Arguments**

ecoregion      a simple features dataframe output of load\_ecoregions( ... )  
ices\_areas      a simple features dataframe output of load\_areas( ... )

**Value**

A ggplot plot

**See Also**

[plot\\_CLD\\_bar](#) Stock status relative to reference points.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
ices_areas <- load_areas("Baltic Sea")  
ecoregion <- load_ecoregion("Baltic Sea")  
eco_map <- plot_ecoregion_map(ecoregion, ices_areas)  
  
## End(Not run)
```

---

plot_effort_map	Returns an map of the ecoregion and the divisions included in it
-----------------	--

---

### Description

Returns an map of the ecoregion and the divisions included in it

### Usage

```
plot_effort_map(effort, ecoregion)
```

### Arguments

effort	a dataframe of effort data with a WKT columns (see notes)
ecoregion	a dataframe output of load_ecoregion( ... )

### Value

A ggplot object

### Note

The effort data.frame is converted to an sf object for plotting and is expected to have a Well Known Text column containing polygons of c-squares

### See Also

[plot\\_ecoregion\\_map](#) plots ICES areas and ecoregion.

### Examples

```
## Not run:
ecoregion <- load_ecoregion("Baltic Sea")
effort <- icesVMS::get_effort_map("Baltic Sea")

# convert to sf
effort <- sf::st_as_sf(effort, wkt = "wkt", crs = 4326)

# select gears to plot
gears <- c("Static", "Midwater", "Otter", "Demersal seine")
effort <- effort[effort$fishery_category_F0 %in% gears,]

plot1 <- plot_effort_map(effort, ecoregion)

## End(Not run)
```

---

plot_GES_pies	<i>Returns an ordered plot of catch bars colored according to <math>F/F_{MSY}</math> and <math>SSB/MSY</math> B trigger by fish category and ecoregion</i>
---------------	--

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_GES_pies(x, y, cap_month = "August", cap_year = "2019",
  return_data = FALSE)
```

### Arguments

x	a dataframe output of format_sag_status.R
y	a dataframe output of stockstatus_CLD_current.R
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
cap_year	the year to be shown in the figure caption
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_CLD\\_bar](#) Stock status relative to reference points.  
[icesFO-package](#) gives an overview of the package.

### Examples

```
## Not run:
plot1 <- plot_CLD_bar(CLDstatus, guild="Demersal", return_data = TRUE)

## End(Not run)
```

---

plot_guild_trends	<i>Plotting time series of F/Fmsy and SSB/MSY B trigger by guilds. This plots are used int the Ecosystem Overviews.</i>
-------------------	---

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each guild in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_guild_trends(x, cap_year, cap_month, return_data = FALSE)
```

### Arguments

x	a dataframe output of guild_trends function
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web seVICES: <http://sid.ices.dk/services/>

### See Also

[format\\_sag](#) for formatting data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

### Examples

```
## Not run:  
plot1 <- plot_guild_trends(trends2018)  
  
## End(Not run)
```

---

plot_kobe	<i>Returns a scatterplot of <math>F/F_{MSY}</math> and <math>SSB/MSY</math> <math>B_{trigger}</math> by fish category and ecoregion</i>
-----------	---

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_kobe(x, guild, caption = FALSE, cap_year, cap_month,
          return_data = FALSE)
```

### Arguments

x	a dataframe output of stockstatus+catch_current.R
guild	an identifier of the Fisheries guild to plot
caption	logical flag
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_kobe](#) Stock status relative to reference points.  
[icesF0-package](#) gives an overview of the package.

### Examples

```
## Not run:
plot1 <- plot_kobe(CLDstatus, guild="Demersal", return_data = TRUE)

## End(Not run)
```

---

plot\_sar\_map                      *Returns an map of the ecoregion and the divisions included in it*

---

### Description

Returns an map of the ecoregion and the divisions included in it

### Usage

```
plot_sar_map(sar, ecoregion, what)
```

### Arguments

sar	a dataframe of swept area ratio data with a WKT columns (see notes)
ecoregion	a dataframe output of load_ecoregion( ... )
what	a flag which SAR value to plot - either "surface" or "subsurface"

### Value

A ggplot object

### Note

The effort data.frame is converted to an sf object for plotting and is expected to have a Well Known Text column containing polygons of c-squares

### See Also

[plot\\_ecoregion\\_map](#) plots ICES areas and ecoregion.

### Examples

```
## Not run:
ecoregion <- load_ecoregion("Baltic Sea")
sar <- icesVMS::get_sar_map("Baltic Sea")

# convert to sf
sar <- sf::st_as_sf(sar, wkt = "wkt", crs = 4326)

plot1 <- plot_sar_map(sar, ecoregion, what = "surface")

## End(Not run)
```

---

`plot_status_prop_pies` Returns an ordered plot of catch bars colored according to  $F/F_{MSY}$  and  $SSB/MSY$   $B_{trigger}$  by fish category and ecoregion

---

### Description

Wrangling of `format_sag` output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_status_prop_pies(x, cap_month = "November", cap_year = "2018",  
  return_data = FALSE)
```

### Arguments

<code>x</code>	a dataframe output of <code>format_sag_status.R</code>
<code>cap_month</code>	the month to be shown in the figure caption, the accession date to SAG usually
<code>cap_year</code>	the year to be shown in the figure caption
<code>return_data</code>	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[plot\\_CLD\\_bar](#) Stock status relative to reference points.  
[icesF0-package](#) gives an overview of the package.

### Examples

```
## Not run:  
plot1 <- plot_CLD_bar(CLDstatus, guild="Demersal", return_data = TRUE)  
  
## End(Not run)
```

---

`plot_stecf`*STECF Landings over time by country, guild, or species*

---

### Description

The `stecf_plot` function returns an area or line plot of landings (historic and official catch) for an ecoregion by country guild, or species.

### Usage

```
plot_stecf(x, type, variable = NULL, cap_year, cap_month, line_count,
           stecf_report, return_data = FALSE)
```

### Arguments

<code>x</code>	a dataframe resulting from <code>format_stecf_effort</code> function
<code>type</code>	need description
<code>variable</code>	need description
<code>cap_year</code>	the year to be shown in the figure caption
<code>cap_month</code>	the month to be shown in the figure caption, the accession date to SAG usually
<code>line_count</code>	indicates the number of lines to be shown in the graph
<code>stecf_report</code>	need description
<code>return_data</code>	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A `ggplot2` object

### Examples

```
## Not run:
stecf_plot("Greater North Sea Ecoregion",
           metric = "EFFORT",
           type = "GEAR",
           return_plot = TRUE,
           line_count = 4)

## End(Not run)
```

---

plot_stock_trends	<i>Plotting time series of F/Fmsy and SSB/MSY B trigger for all stocks with data available by guild.</i>
-------------------	--

---

### Description

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

### Usage

```
plot_stock_trends(x, guild, cap_year, cap_month, return_data = FALSE)
```

### Arguments

x	a dataframe output of stock_trends function
guild	an identifier of the Fisheries guild to plot
cap_year	the year to be shown in the figure caption
cap_month	the month to be shown in the figure caption, the accession date to SAG usually
return_data	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A plot

### Note

Can add some helpful information here

### References

The ICES stock information Database web services: <http://sid.ices.dk/services/>

### See Also

[format\\_sag](#) for formatting data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

### Examples

```
## Not run:  
plot1 <- plot_stock_trends(trends2018)  
  
## End(Not run)
```

---

`plot_technical_interactions`*Visualise a matrix of technical interactions.*

---

**Description**

Based on a matrix of technical interactions produce an image plot with a legend.

**Usage**

```
plot_technical_interactions(x, col = heat.colors(5, rev = TRUE))
```

**Arguments**

<code>x</code>	a square matrix with identical row and column names containing values of technical interaction between species
<code>col</code>	a vector of colours to use on the image plot

**Value**

A list with four elements, technical interactions for landings (`recapLand`) and catch (`recapCatch`) and tables of main gears involved in the interactions based on landings (`MainGearsLandings`) and catches (`MainGearsCatches`)

**See Also**

[compute\\_technical\\_interactions](#) for computing technical interactions.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
technical_interacton <-  
  compute_technical_interactions(STECF_landings, catchCoverage = 0.99)  
  
plot_technical_interactions(technical_interacton$recapLand)  
  
## End(Not run)
```

---

plot\_vms

*VMS Effort and landings over time by country or gear*

---

### Description

The `stecf_plot` function returns an area or line plot of landings (historic and official catch) for an ecoregion by country guild, or species.

### Usage

```
plot_vms(x, metric = NULL, type = NULL, cap_year, cap_month,  
         line_count, return_data = FALSE)
```

### Arguments

<code>x</code>	a dataframe resulting from <code>icesVMS::get_fo_effort()</code> or <code>icesVMS::get_fo_landings()</code>
<code>metric</code>	either "effort" or "landings"
<code>type</code>	either "country" or "gear_category"
<code>cap_year</code>	the year to be shown in the figure caption
<code>cap_month</code>	the month to be shown in the figure caption, the accession date to SAG usually
<code>line_count</code>	indicates the number of lines to be shown in the graph
<code>return_data</code>	a parameter indicating if the data behind the plot should be returned as a dataframe

### Value

A `ggplot2` object

### Examples

```
## Not run:  
vms_plot("Greater North Sea Ecoregion",  
         metric = "effort",  
         type = "gear_category",  
         line_count = 4)  
  
## End(Not run)
```

---

`stockstatus_CLD_current`*Stock status relative to reference points*

---

**Description**

returns a data frame of stock status relative to reference points and catch, discards, and landings by stock for the most recent assessment.

**Usage**

```
stockstatus_CLD_current(x)
```

**Arguments**

`x` a dataframe output of `format_sag` function

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[stock\\_trends](#) for formatting data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
CLD_2018 <- catch_landings_discards(sag_formatted)  
  
## End(Not run)
```

---

stock_trends	<i>Wrangling of format_sag output</i>
--------------	---------------------------------------

---

**Description**

Wrangling of format\_sag output to obtain a dataframe with time-series of F, Fmsy, SSB and MSY B trigger for each stock in the Ecoregion, according to the last assessment (relative to the set year)

**Usage**

```
stock_trends(x)
```

**Arguments**

x a dataframe output of format\_sag function

**Value**

A data frame..

**Note**

Can add some helpful information here

**References**

The ICES stock information Database web services: <http://sid.ices.dk/services/>

**See Also**

[format\\_sag](#) for formatting data from the ICES Stock Assessment database.

[icesF0-package](#) gives an overview of the package.

**Examples**

```
## Not run:  
trends <- stock_trends(sag_formatted)  
  
## End(Not run)
```

# Index

CLD\_trends, 3  
compute\_technical\_interactions, 4, 31

format\_annex\_table, 5  
format\_catches, 6  
format\_sag, 6, 7, 10, 11, 25, 30, 34  
format\_sag\_status, 8  
format\_sid, 2, 7–9, 9  
format\_stecf, 2, 10  
format\_stecf\_effort (format\_stecf), 10  
format\_stecf\_landings (format\_stecf), 10

guild\_trends, 11

icesFO (icesFO-package), 2  
icesFO-package, 2

load\_areas, 12  
load\_asfis\_species, 13  
load\_catches, 2, 13  
load\_ecoregion, 14  
load\_historical\_catches (load\_catches), 13  
load\_official\_catches (load\_catches), 13  
load\_preliminary\_catches (load\_catches), 13  
load\_sag, 2, 13, 14, 15, 16  
load\_sag\_refpts (load\_sag), 15  
load\_sag\_status (load\_sag), 15  
load\_sag\_summary (load\_sag), 15  
load\_sid, 2, 16, 16  
load\_statrec2ecoregions, 17

plot\_catch\_trends, 3, 17  
plot\_CLD\_bar, 3, 18, 19, 19, 22, 24, 28  
plot\_discard\_current, 3, 20, 20, 21  
plot\_discard\_trends, 3, 21  
plot\_ecoregion\_map, 22, 23, 27  
plot\_effort\_map, 23  
plot\_GES\_pies, 3, 24  
plot\_guild\_trends, 25  
plot\_kobe, 3, 26, 26  
plot\_sar\_map, 27  
plot\_status\_prop\_pies, 3, 28  
plot\_stecf, 3, 29  
plot\_stock\_trends, 3, 30  
plot\_technical\_interactions, 5, 31  
plot\_vms, 32

stock\_trends, 3, 33, 34  
stockstatus\_CLD\_current, 33