

# Package: stockplotr (via r-universe)

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**Type** Package

**Title** Tables and Figures for Stock Assessments

**Version** 0.11.1.9000

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**Description** Creates exploratory and finished tables and figures for stock assessment documents from U.S. stock assessment model outputs. This packages addresses parts of the stock assessment workflow that interprets outputs of stock assessment models as well as allows the analyst to create report ready tables and figures, reducing the need to create their own and format then when adding into a report. This package is intended to be used in conjunction with 'asar', a partially automated template for writing various stock assessment reports. Throughout development, we will be creating a set of standardized figures and tables for a stock assessment report, developing functions to produce a variety of diagnostic plots, and other helpful materials. The advantage of using this package over others is that it applies to a range of stock assessment model outputs and standardizes them.

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**URL** <https://github.com/nmfs-ost/stockplotr>,  
<https://noaa-fisheries-integrated-toolbox.r-universe.dev/stockplotr>

**BugReports** <https://github.com/nmfs-ost/stockplotr/issues>

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---

<i>add_theme</i>	<i>Add NOAA formatting to figure or table</i>
------------------	---

---

### Description

Add NOAA formatting to figure or table

### Usage

```
add_theme(x, discrete = TRUE)
```

### Arguments

<code>x</code>	table or figures object from ggplot, base r plot, gt table, flextable, or kable extra
<code>discrete</code>	TRUE/FALSE indicate if data input is discrete. Specifically applied to plots. Default: TRUE

### Details

Currently, the function is able to format objects from: ggplot (ggplot2), base r plot, flextable (flextable), gt tables (gt), and kable tables (kableExtra).

### Value

Add the standard formatting for stock assessment reports for any figure or table.

### Examples

```
add_theme(ggplot2::ggplot(data = cars, ggplot2::aes(x = speed, y = dist)) +
  ggplot2::geom_point())
```

---

check\_label\_differences

*Create loop to test for differences in column values*

---

### Description

Create loop to test for differences in column values

### Usage

```
check_label_differences(dat, index_variables, id_group = NULL)
```

### Arguments

dat	input data into process_table
index_variables	the index_variables vector created within process_table
id_group	the identifying index variable as a string Default: NULL

---

convert\_output

*Convert Output*

---

### Description

Format stock assessment output files to a standardized format.

### Usage

```
convert_output(file, model = NULL, fleet_names = NULL, save_dir = NULL)
```

### Arguments

file	Assessment model output file path
model	Assessment model used in evaluation Default: NULL Options: "ss3", "bam", "fims", "rceattle"
fleet_names	Names of fleets in the assessment model as shortened in the output file. If fleet names are not properly read, then indicate the fleets names as an acronym in a vector Default: NULL
save_dir	File path to save the converted output file. Default: NULL

**Details**

The resulting object is simply a transformed and machine readable version of a model output file. Converted data frame is always returned. It will also be saved if save\_dir is not NULL.

**Value**

A reformatted and standardized version of assessment model results for application in building a stock assessment reports and to easily adapt results among regional assessments.

**Author(s)**

Samantha Schiano

**Examples**

```
## Not run:
convert_output(
  file = here::here("model1", "Report.sso"),
  model = "ss3",
  fleet_names = c("TWL", "NONTWL"),
  save_dir = here::here("standard_output.rda")
)

## End(Not run)
```

---

create\_latex\_table      *Create the rda package for a plot or table*

---

**Description**

Create the rda package for a plot or table

**Usage**

```
create_latex_table(data, caption, label)
```

**Arguments**

data	A dataframe-based table
caption	A string comprising the table caption
label	A string comprising the table label

**Value**

A table based in LaTeX.

**Examples**

```
create_latex_table(
  data = as.data.frame(head(mtcars, 6)),
  caption = "My caption",
  label = "My label"
)
```

---

 create\_rda

---

*Create the rda package for a plot or table*


---

**Description**

Create the rda package for a plot or table

**Usage**

```
create_rda(
  object,
  topic_label,
  fig_or_table,
  dat,
  dir = getwd(),
  year = format(as.POSIXct(Sys.Date()), format = "%YYYY-%mm-%dd"), "%Y"),
  ref_line = "msy",
  scale_amount = 1,
  unit_label = "mt",
  table_df = NULL
)
```

**Arguments**

object	Table or plot object
topic_label	A string that names the object
fig_or_table	A string identifying if the object is a "table" or "figure"
dat	Data frame containing data which will fill in captions and alternative text for the object
dir	Directory to where the rda will be saved Default: the working directory ('getwd()')
year	Assessment year Default: the current year
ref_line	Reference line value Default: "msy" Options: Including, but not limited to: "msy", "target", "unfished"

scale_amount	A number describing how much to scale down the quantities shown on the y axis. For example, scale_amount = 100 would scale down a value from 500,000 -> 5,000. This scale will be reflected in the y axis label. Default: 1
unit_label	A string containing a unit label for the y-axis Default: "mt"
table_df	The data frame that the table will be made into for purposes of exporting a latex formatted table.

**Value**

An rda package for a plot or table object. Requires an object from the R environment such as a ggplot or flextable object.

**See Also**

[export\_rda()], [extract\_caps\_alttext()]

**Examples**

```
## Not run:  
create_rda(  
  object = my_plot,  
  topic_label = "my_plot",  
  fig_or_table = "figure",  
  dat = my_data,  
  dir = "path/to/save"  
)  
  
## End(Not run)
```

---

example\_data

*SS3 Example data*

---

**Description**

Included data set that represents a Report.sso file converted using convert\_output(). This example is from the 2022 Petrale sole stock assessment.

**Usage**

example\_data

**Format**

A tibble with 591109 rows and 33 variables:

**label** standard name for estimate or value name

**estimate** actual value of the label

**year** annual indexing value

**fleet** names of fleets or surveys indexed by the data

**sex** native reference to male, female, unknown, or none

**area** specified areas by the model

**growth\_pattern** indexing column of data

**uncertainty** value of uncertainty associated with the label column

**uncertainty\_label** uncertainty label or name associated with the label columns

**module\_name** name of keyword (SS3) or list indexing in the original model output for tracking purposes

**time** time sometimes referenced in decimals to the year and month

**era** "time" for current time series in model; "fore" representing the projected or forecasted years of the model

**month** month factor

**season** season usually associated with year

**subseason** subseason when used

**birthseas** birthseason found in SS3

**initial** initial input value in the model when available associated with the label column

**likelihood** likelihood value for the data point

**platoon** platoon also an SS3 indexing value

**age** age of fish

**bio\_pattern** indexing column of data

**settlement** indexing column of data

**morph** indexing column of data

**type** indexing column of data

**factor** indexing column of data

**part** indexing column of data

**kind** indexing column of data

**nsim** indexing column of data

**bin** indexing column of data

**age\_a** alternative age column

**length\_bins** length bins for composition or other length based data

**count** indexing column of data

**block** indexing column of data

---

`export_kqs`*Export updated key quantities template*

---

**Description**

Export updated key quantities template

**Usage**

```
export_kqs(...)
```

**Arguments**

... Key quantities whose values should be added to the exported "key\_quantities.csv"

**Value**

Exports a file based on key quantities template, with values added next to the names of the key quantities specified as ellipsis arguments. File is saved as "key\_quantities.csv" to the working directory.

**See Also**

[fill\_in\_kqs()], [insert\_kqs()]

**Examples**

```
## Not run:
export_kqs(
  F.min,
  F.max
)

## End(Not run)
```

---

`export_rda`*Export a figure or table to rda*

---

**Description**

Export a figure/table, and its caption and alternative text, to an rda object. Typically used after `stockplotr::extract_caps_alttext()`.

**Usage**

```
export_rda(
  object = NULL,
  caps_alttext = NULL,
  figures_tables_dir = NULL,
  topic_label = NULL,
  fig_or_table = NULL,
  latex_table = NULL
)
```

**Arguments**

<code>object</code>	The final figure (ggplot) or table (flextable) object. Default: NULL
<code>caps_alttext</code>	The object containing a figure's caption and alternative text, in a list, or a table's caption, likely generated with <code>stockplotr::extract_caps_alttext()</code> . Default: NULL
<code>figures_tables_dir</code>	If the user has already created folders containing figures and tables ("figures" and "tables"), <code>figures_tables_dir</code> represents the location of these folders. Otherwise, these two folders will be created automatically, then used to store the exported rda files. Default: NULL
<code>topic_label</code>	A string that describes a figure or table's label. These labels are found in the "label" column of the "captions_alt_text.csv" file and are used to link the figure or table with its caption/alt text. Default: NULL
<code>fig_or_table</code>	A string describing whether the plot is a figure or table. Default: NULL Options: "figure", "table"
<code>latex_table</code>	The object containing a LaTeX-based table. Default: NULL

**Value**

An rda file with a figure's ggplot, caption, and alternative text, or a table's gt-based table, caption, and LaTeX-based table.

**See Also**

[`create_rda()`], [`extract_caps_alttext()`]

**Examples**

```
## Not run:
export_rda(
  final = final_table_object,
```

```

    caps_alttext = caps_alttext_object,
    figures_tables_dir = here::here(),
    topic_label = "bnc",
    fig_or_table = "table",
    latex_table = "latex_table"
  )

export_rda(
  final = final_figure_object,
  caps_alttext = another_caps_alttext_object,
  figures_tables_dir = "my_figures_tables_dir",
  topic_label = "landings",
  fig_or_table = "figure"
)

## End(Not run)

```

---

extract\_caps\_alttext *Extract captions and alternative texts*

---

### Description

Extract a figure or table's caption and alternative text for usage when generating a figure or table. Typically used before `stockplotr::export_rda()`.

### Usage

```
extract_caps_alttext(topic_label = NULL, fig_or_table = NULL, dir = getwd())
```

### Arguments

<code>topic_label</code>	A string that describes a figure or table's label. These labels are found in the "label" column of the "captions_alt_text.csv" file and are used to link the figure or table with its caption/alt text. Default: NULL
<code>fig_or_table</code>	A string describing whether the plot is a figure or table. Default: NULL
<code>dir</code>	The directory containing the "captions_alt_text.csv" file. Default: the working directory ( <code>'getwd()'</code> )

### Value

A figure's caption and alternative text, in a list, or a table's caption.

### See Also

[`export_rda()`], [`create_rda()`]

**Examples**

```
## Not run:
extract_caps_alttext(
  topic_label = "biomass",
  fig_or_table = "figure",
  dir = here::here()
)

extract_caps_alttext(
  topic_label = "bnc",
  fig_or_table = "table",
  dir = getwd()
)

## End(Not run)
```

---

fill\_in\_kqs

*Substitute key quantities' values into template*


---

**Description**

Substitute key quantities' values into template

**Usage**

```
fill_in_kqs(df, ...)
```

**Arguments**

df	Dataframe created by importing "key_quantity_template.csv" or "key_quantities.csv", empty or partially-filled templates with key quantity names and other associated information
...	Key quantity objects whose values will be added to the output dataframe

**Details**

The returned dataframe is input for [fill\_in\_kqs()].

**Value**

Dataframe based on key quantities template that contains newly-added values of key quantities indicated via ellipsis.

**See Also**

[export\_kqs()], [insert\_kqs()]

**Examples**

```
## Not run:
fill_in_kqs(
  df = data,
  F.min,
  F.max
)

## End(Not run)
```

---

filter\_data

*Filter data for input into aesthetics for ggplot2*


---

**Description**

Filter data for input into aesthetics for ggplot2

**Usage**

```
filter_data(
  dat,
  label_name,
  module = NULL,
  era = NULL,
  geom,
  group = NULL,
  facet = NULL,
  scale_amount = 1,
  interactive = TRUE
)
```

**Arguments**

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
label_name	a string of the name of the label that is used to filter the data.
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)

geom	A string stating the geom used for the plot. Default: "line". Options: "line", "point", or "area"
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
scale_amount	A number to scale the y-axis values. Default: 1
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'

**Value**

a data frame that is preformatted for plotting with ggplot2.

**Examples**

```
## Not run:
filter_data(dat, "biomass", "line", group = "fleet")

## End(Not run)
```

---

html\_all\_figs\_tables *Make an html file with all figures and tables*

---

**Description**

Show all tables and figures in a single html file.

**Usage**

```
html_all_figs_tables(figures_tables_dir = getwd())
```

**Arguments**

figures\_tables\_dir  
The location of the folder containing figures and tables ("figures" and "tables").  
Default: The current working directory ('getwd()')

**Value**

A folder ("all\_tables\_figures") in your working directory containing html and qmd files that show all tables and figures.

**See Also**

[asar::create\\_figures\\_doc\(\)](#), [asar::create\\_tables\\_doc\(\)](#)

**Examples**

```
## Not run:
html_all_figs_tables()
html_all_figs_tables(figures_tables_dir = "my_figures_tables_dir")

## End(Not run)
```

---

insert\_kqs

*Insert key quantities into the captions and alternative text file*

---

**Description**

Insert key quantities into the captions and alternative text file

**Usage**

```
insert_kqs(...)
```

**Arguments**

... Key quantities whose values should be added to the exported "captions\_alt\_text.csv"

**Value**

Exports a file ("captions\_alt\_text.csv") containing captions and alternative text for figures and tables, with key quantities inserted into the "captions\_alt\_text\_template.csv" template's placeholders.

**See Also**

[\[fill\\_in\\_kqs\(\)\]](#), [\[export\\_kqs\(\)\]](#)

**Examples**

```
## Not run:
insert_kqs(
  F.min,
  F.max
)

## End(Not run)
```

---

merge_error	<i>Rename columns and merge estimate and uncertainty columns for table presentation</i>
-------------	---

---

**Description**

Rename columns and merge estimate and uncertainty columns for table presentation

**Usage**

```
merge_error(table_data, uncert_lab, fleets, label, unit_label)
```

**Arguments**

table_data	list of dataframes that will be eventually turned into tables
uncert_lab	uncertainty label. Typically inherited from another function but is the exact string of the uncertainty in the data (e.g., "sd", "se", "cv", "uncertainty".)
fleets	Vector of fleet names.
label	Label name of target quantity that is being presented by the table.
unit_label	String. The units of the estimate being presented in the table.

**Value**

List of formatted dataframes that contain column names formatted for a table along with a merge of values in the estimate and error columns to reduce redundancy in the table.

---

plot_aa	<i>Create "at-age" plot</i>
---------	-----------------------------

---

**Description**

Create "at-age" plot

**Usage**

```
plot_aa(
  dat,
  x = "year",
  y = "age",
  z = "estimate",
  label = "Abundance",
  xlab = "Year",
  ylab = "Age",
  facet = NULL,
  proportional = TRUE,
  ...
)
```

**Arguments**

dat	filtered data frame from standard output file(s) preformatted for the target label from <a href="#">filter_data</a>
x	a string of the column name of data used to plot on the x-axis Default: "year"
y	a string of the column name of data used to plot on the y-axis Default: "age"
z	a string of the column name of data used to control the size of the bubbles Default: "estimate"
label	a string of the label for the size of the bubbles Default: "Abundance"
xlab	a string of the x-axis label Default: "Year"
ylab	a string of the y-axis label Default: "Age"
facet	a string or vector of strings of a column that facets the data. It is not recommended to include more than one facet due to the complexity of the plot. Default: NULL Options: Including, but not limited to: "sex", "area", "fleet"
proportional	Set size of points relative to z when TRUE, point size are relative to one another while when set to FALSE, point size is relative to z Default: 'TRUE'
...	inherited arguments from internal functions from <a href="#">geom_point</a>

**Value**

Create a plot of abundance at age for a stock assessment report.

**Examples**

```
## Not run:
plot_aa(dat)

## End(Not run)
```

---

plot\_abundance\_at\_age *Plot Abundance at Age*

---

**Description**

Plot Abundance at Age

**Usage**

```
plot_abundance_at_age(
  dat,
  facet = NULL,
  unit_label = "fish",
  scale_amount = 1000,
  proportional = TRUE,
  make_rda = FALSE,
  figures_dir = getwd()
)
```

**Arguments**

dat	A data frame returned from <a href="#">convert_output</a>
facet	a string or vector of strings of a column that facets the data. Set facet = "none" to summarize the data in a single plot. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
unit_label	units for abundance Default: "fish"
scale_amount	A number describing how much to scale down the abundance at age. Please choose a value ranging from 1-1,000,000,000 (one billion) in orders of magnitude (e.g., 1, 10, 100, 1000, etc.). For example, scale_amount = 100 would scale down a value from 500,000 → 5,000 and would report abundance in hundreds of fish (if "fish" was the unit_label). This scale will be reflected in the legend label if proportional is set to FALSE. Default: 1,000
proportional	Set size of points relative to z when TRUE, point size are relative to one another while when set to FALSE, point size is relative to z Default: 'TRUE'
make_rda	TRUE/FALSE; indicate whether to produce an .rda file containing a list with the figure/table, caption, and alternative text (if figure). If TRUE, the .rda will be exported to the folder indicated in the argument "rda_dir". Default: 'FALSE'
figures_dir	The location of the folder containing the generated .rda files ("rda_files") that will be created if the argument 'make_rda' = TRUE. Default: the working directory ('getwd()')

**Details**

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

**Value**

A plot showing total abundance (or numbers) at age.

**See Also**

[convert\_output()], [filter\_data()], [process\_data()], [plot\_aa()], [export\_kqs()], [insert\_kqs()], [create\_rda()]

**Examples**

```
plot_abundance_at_age(
  dat = stockplotr::example_data,
  facet = "growth_pattern",
  unit_label = "fish",
  scale_amount = 1000,
  proportional = TRUE
)
plot_abundance_at_age(
  dat = stockplotr::example_data,
  facet = "none",
  proportional = FALSE
)
```

---

plot\_biomass

*Plot Total Biomass*


---

**Description**

Plot Total Biomass

**Usage**

```
plot_biomass(
  dat,
  geom = "line",
  group = NULL,
  facet = NULL,
  ref_line = "msy",
  era = NULL,
  unit_label = "mt",
  module = NULL,
  scale_amount = 1,
  relative = FALSE,
  make_rda = FALSE,
  figures_dir = getwd(),
  interactive = TRUE,
  ...
)
```

**Arguments**

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
geom	A string stating the geom used for the plot. Default: "line". Options: "line", "point", or "area"
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
ref_line	A string specifying the type of reference you want to compare biomass to. The default "msy" looks for "biomass_msy" in the "label" column of 'dat'. The actual searching in 'dat' is case-agnostic and will work with either upper- or lower-case letters. However, you must use one of the options specified in the default list to ensure that the label on the figure looks correct regardless of how it is specified in 'dat'. Default: "msy" Options: Including, but not limited to: "target", "MSY", "unfished"
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
unit_label	units for biomass Default: "mt"
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
scale_amount	A number to scale the y-axis values. Default: 1
relative	A logical value specifying to set y-axis values relative to the ref_line value. Default: 'FALSE'
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.

interactive     A logical value indicating if the environment is interactive.  
 Default: 'FALSE'

...             Arguments called from [geom\\_line](#) or [geom\\_point](#)

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing total biomass.

### See Also

[[convert\\_output\(\)](#)], [[plot\\_timeseries\(\)](#)], [[calculate\\_reference\\_point\(\)](#)], [[reference\\_line\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_biomass(
  dat = stockplotr::example_data,
  unit_label = "mt",
  ref_line = c("target" = 20000),
  scale_amount = 100,
  module = "TIME_SERIES",
  figures_dir = getwd()
)
plot_biomass(
  dat = stockplotr::example_data,
  ref_line = NULL,
  module = "TIME_SERIES",
  figures_dir = getwd()
)
```

---

plot\_biomass\_at\_age     *Plot Total Biomass at Age (BAA)*

---

### Description

Plot Total Biomass at Age (BAA)

**Usage**

```
plot_biomass_at_age(
  dat,
  facet = NULL,
  unit_label = "mt",
  scale_amount = 1000,
  proportional = TRUE,
  interactive = TRUE,
  make_rda = FALSE,
  figures_dir = getwd()
)
```

**Arguments**

dat	A data frame returned from <a href="#">convert_output</a>
facet	a string or vector of strings of a column that facets the data. Set facet = "none" to summarize the data in a single plot. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
unit_label	units for abundance Default: "fish"
scale_amount	A number describing how much to scale down the biomass at age. For example, scale_amount = 100 would scale down a value from 500,000 → 5,000. This scale will be reflected in the legend label if proportion is set to FALSE. Default: 1,000
proportional	Set size of points relative to z when TRUE, point size are relative to one another while when set to FALSE, point size is relative to z Default: 'TRUE'
interactive	TRUE/FALSE; indicate whether the environment in which the function is operating is interactive. This bypasses some options for filtering when preparing data for the plot. Default: 'TRUE'
make_rda	TRUE/FALSE; indicate whether to produce an .rda file containing a list with the figure/table, caption, and alternative text (if figure). If TRUE, the .rda will be exported to the folder indicated in the argument "rda_dir". Default: 'FALSE'
figures_dir	The location of the folder containing the generated .rda files ("rda_files") that will be created if the argument 'make_rda' = TRUE. Default: the working directory ('getwd()')

**Details**

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

**Value**

A plot showing total biomass at age.

**See Also**

[convert\_output()], [filter\_data()], [process\_data()], [plot\_aa()], [export\_kqs()], [insert\_kqs()], [create\_rda()]

**Examples**

```
plot_biomass_at_age(
  dat = stockplotr::example_data,
  unit_label = "mt",
  scale_amount = 100,
  proportional = FALSE, # displays legend
  make_rda = FALSE
)
plot_biomass_at_age(
  dat = stockplotr::example_data,
  unit_label = "mt",
  facet = "none",
  proportional = FALSE
)
```

---

plot\_catch\_comp

*Plot catch composition*


---

**Description**

Plot catch composition

**Usage**

```
plot_catch_comp(
  dat,
  facet = NULL,
  era = "time",
  unit_label = "mt",
  scale_amount = 1,
  proportional = TRUE,
  interactive = TRUE,
  module = NULL,
  make_rda = FALSE,
  figures_dir = getwd()
)
```

**Arguments**

dat	A data frame returned from <a href="#">convert_output</a>
facet	a string or vector of strings of a column that facets the data. Set facet = "none" to summarize the data in a single plot. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
unit_label	indicate the name of the units of catch as to label the axis Default: "mt"
scale_amount	A number describing how much to scale down the catch at age. Please choose a value ranging from 1-1,000,000,000 (one billion) in orders of magnitude (e.g., 1, 10, 100, 1000, etc.). For example, scale_amount = 100 would scale down a value from 500,000 → 5,000 and would report catch in hundreds of the 'unit_label'. This scale will be reflected in the legend label if proportional is set to FALSE. Default: 1
proportional	Set size of points relative to z when TRUE, point size are relative to one another while when set to FALSE, point size is relative to z Default: 'TRUE'
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
make_rda	TRUE/FALSE; indicate whether to produce an .rda file containing a list with the figure/table, caption, and alternative text (if figure). If TRUE, the .rda will be exported to the folder indicated in the argument "rda_dir". Default: 'FALSE'
figures_dir	The location of the folder containing the generated .rda files ("rda_files") that will be created if the argument 'make_rda' = TRUE. Default: the working directory ('getwd()')

**Details**

This plot is made only when catch or landings are explicitly named in the output file. The current plot function does not combine all sources of catch. The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

**Value**

A plot showing catch or landings composition.

**See Also**

[convert\_output()], [filter\_data()], [process\_data()], [plot\_aa()], [export\_kqs()], [insert\_kqs()], [create\_rda()]

**Examples**

```
plot_catch_comp(  
  dat = stockplotr::example_data,  
  facet = "fleet",  
  unit_label = "mt",  
  scale_amount = 100,  
  interactive = FALSE,  
  make_rda = FALSE,  
  figures_dir = getwd()  
)
```

```
plot_catch_comp(  
  dat = stockplotr::example_data,  
  facet = "none",  
  unit_label = "mt",  
  scale_amount = 100,  
  interactive = FALSE,  
  era = "fore",  
  proportional = FALSE  
)
```

---

plot\_error

*Create plot with error*

---

**Description**

Create plot with error

**Usage**

```
plot_error(  
  dat,  
  x = "year",  
  y = "estimate",  
  geom = "point",  
  group = NULL,  
  facet = NULL,  
  xlab = "Year",  
  ylab = NULL,
```

```

    hline = TRUE,
    ...
)

```

### Arguments

dat	filtered data frame from standard output file(s) preformatted for the target label from <a href="#">filter_data</a>
x	a string of the column name of data used to plot on the x-axis Default: "year"
y	a string of the column name of data used to plot on the y-axis Default: "estimate"
geom	type of geom to use for plotting found in ggplot2 (e.g. "point", "line", etc.). Default: "line" Options: "point" and "area"
group	a string of a single column that groups the data. Currently can only have one level of grouping. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	a string or vector of strings of a column that facets the data (e.g. "year", "area", etc.) Default: NULL
xlab	a string of the x-axis label Default: "Year"
ylab	a string of the y-axis label. If NULL, it will be set to the name of 'y'. Default: NULL
hline	indicate true or false to place a horizontal line at 1 Default: 'TRUE'
...	inherited arguments from internal functions from ggplot2::geom_xx

### Details

The user can create a line, point, or area plot, where the x-axis is year and y can vary for any time series quantity. Currently, grouping is restricted to one group where faceting can be any number of facets.

### Value

Create a plot with error for a stock assessment report.

---

 plot\_fishing\_mortality

*Plot fishing mortality timeseries*


---

## Description

Plot fishing mortality timeseries

## Usage

```
plot_fishing_mortality(
  dat,
  geom = "line",
  group = NULL,
  facet = NULL,
  ref_line = "msy",
  era = NULL,
  module = NULL,
  make_rda = FALSE,
  figures_dir = getwd(),
  interactive = TRUE,
  ...
)
```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
geom	A string stating the geom used for the plot. Default: "line". Options: "line", "point", or "area"
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
ref_line	A string specifying a reference point name. Default: "target" Options: (including, but not limited to) "target", "msy", and "unfished" If the reference point is not found in the data, set ref_line = c("name" = value).
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)

module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing fishing mortality over time.

### See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_timeseries\(\)](#)], [[reference\\_line\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_fishing_mortality(
  dat = stockplotr::example_data,
  ref_line = c("target" = 0.2),
  group = "fleet",
  interactive = FALSE,
  module = "TIME_SERIES"
)
plot_fishing_mortality(
  dat = stockplotr::example_data,
  ref_line = c("target" = 0.2),
  group = "none",
  interactive = FALSE,
  module = "TIME_SERIES"
)
```

---

plot_indices	<i>Plot Index of Abundance</i>
--------------	--------------------------------

---

## Description

Plot Index of Abundance

## Usage

```
plot_indices(
  dat,
  unit_label = "",
  group = NULL,
  facet = NULL,
  interactive = TRUE,
  module = NULL,
  focus = NULL,
  make_rda = FALSE,
  figures_dir = getwd(),
  ...
)
```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
unit_label	units for index of abundance/CPUE Default: ""
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	a string or vector of strings of a column that facets the data. "fleet" is always added on to any faceting selections Default: NULL Options: May include, but is not limited to: "fleet", "year", "area", NULL
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]

focus	a string or vector of strings indicating how data should be filtered. (i.e. select names of fleets to zoom into the plot) Default: NULL
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing the expected and predicted indices.

### See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_obsvpred\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_indices(
  dat = stockplotr::example_data,
  unit_label = "fish/hr",
  interactive = FALSE
)
```

---

plot\_landings

*Plot observed landings*

---

### Description

Plot observed landings

**Usage**

```
plot_landings(
  dat,
  unit_label = "mt",
  geom = "line",
  group = NULL,
  facet = NULL,
  lbs = FALSE,
  era = NULL,
  scale_amount = 1,
  module = NULL,
  interactive = TRUE,
  make_rda = FALSE,
  figures_dir = getwd(),
  ...
)
```

**Arguments**

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
unit_label	A string specifying spawning biomass unit. Default: "mt"
geom	A string stating the geom used for the plot. Default: "line". Options: "line", "point", or "area"
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
lbs	A logical value indicating whether to convert the y-axis values from kilograms to pounds. The default units match the default in the unit_label argument - 'mt'. Default: 'FALSE'
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
scale_amount	A number to scale the y-axis values. Default: 1
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL

	If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing cumulative landings over time.

### See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_timeseries\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_landings(
  dat = stockplotr::example_data,
  unit_label = "metric tons",
  group = "fleet",
  interactive = FALSE,
  make_rda = FALSE
)
plot_landings(
  dat = stockplotr::example_data,
  unit_label = "metric tons",
  facet = "fleet",
  interactive = FALSE,
  make_rda = FALSE
)
```

---

```
plot_natural_mortality
      Plot natural mortality (M) at age
```

---

## Description

Plot natural mortality (M) at age

## Usage

```
plot_natural_mortality(
  dat,
  group = NULL,
  facet = NULL,
  era = NULL,
  interactive = TRUE,
  module = NULL,
  make_rda = FALSE,
  figures_dir = getwd(),
  ...
)
```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]

make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()'. The folder is created within the path if it does not exist.
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing natural mortality at age.

### See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_timeseries\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_natural_mortality(
  dat = stockplotr::example_data,
  module = "Natural_Mortality",
  interactive = FALSE
)
```

---

plot_obsvpred	<i>Plot observed vs. predicted data</i>
---------------	---

---

### Description

Plot observed vs. predicted data

### Usage

```
plot_obsvpred(
  dat,
  x = "year",
  y = "estimate",
  observed_label = "observed",
  predicted_label = "predicted",
```

```

    geom = "line",
    xlab = "Year",
    ylab = NULL,
    group = NULL,
    facet = NULL,
    ...
  )

```

### Arguments

dat	filtered data frame from standard output file(s) preformatted for the target label from <a href="#">filter_data</a>
x	a string of the column name of data used to plot on the x-axis Default: "year"
y	a string of the column name of data used to plot on the y-axis Default: "estimate"
observed_label	a string of the label used to filter the observed data Default: "observed"
predicted_label	a string of the label used to filter the predicted data Default: "predicted"
geom	type of geom to use for plotting found in ggplot2 (e.g. "point", "line", etc.). Default: "line" Options: "point" and "area"
xlab	a string of the x-axis label Default: "Year"
ylab	a string of the y-axis label. If NULL, it will be set to the name of 'y'. Default: NULL
group	a string of a single column that groups the data. Currently can only have one level of grouping. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	a string or vector of strings of a column that facets the data (e.g. "year", "area", etc.) Default: NULL
...	inherited arguments from internal functions from ggplot2::geom_xx

### Value

A plot of observed vs. predicted data for a stock assessment report.

---

plot\_recruitment      *Plot Recruitment*

---

## Description

Plot Recruitment

## Usage

```
plot_recruitment(
  dat,
  unit_label = "mt",
  scale_amount = 1,
  era = NULL,
  group = NULL,
  facet = NULL,
  interactive = TRUE,
  module = NULL,
  make_rda = FALSE,
  figures_dir = getwd(),
  ...
)
```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
unit_label	units for recruitment Default: "mt"
scale_amount	A number to scale the y-axis values. Default: 1
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'

module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

### Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

### Value

A plot showing recruitment over time.

### See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_timeseries\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

### Examples

```
plot_recruitment(
  dat = stockplotr::example_data,
  unit_label = "metric tons",
  scale_amount = 100,
  interactive = TRUE,
  module = "TIME_SERIES",
  make_rda = FALSE
)
plot_recruitment(
  dat = stockplotr::example_data,
  era = "fore",
  module = "TIME_SERIES",
  make_rda = FALSE
)
```

---

```
plot_recruitment_deviations
      Plot recruitment deviations
```

---

## Description

Plot recruitment deviations

## Usage

```
plot_recruitment_deviations(
  dat,
  module = NULL,
  era = NULL,
  interactive = TRUE,
  make_rda = FALSE,
  figures_dir = getwd(),
  ...
)
```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

**Details**

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

**Value**

A plot showing recruitment deviations relative to one, over time.

**Note**

All plotting functions automatically recognize indexing variables and will use them in groupings and/or faceting.

**See Also**

[[convert\\_output\(\)](#)], [[plot\\_error\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

**Examples**

```
plot_recruitment_deviations(  
  dat = stockplotr::example_data,  
  interactive = FALSE,  
  size = 1.5  
)  
plot_recruitment_deviations(  
  dat = stockplotr::example_data,  
  era = "early",  
  interactive = FALSE,  
  shape = 2  
)
```

---

plot\_spawning\_biomass *Plot spawning biomass (SB)*

---

**Description**

Plot spawning biomass with a reference line as a dashed line. The figure can also be made relative to this reference line rather than in absolute units.

**Usage**

```
plot_spawning_biomass(  
  dat,  
  geom = "line",  
  group = NULL,  
  facet = NULL,
```

```

ref_line = "msy",
unit_label = "mt",
era = NULL,
lbs = FALSE,
module = NULL,
scale_amount = 1,
relative = FALSE,
make_rda = FALSE,
figures_dir = getwd(),
interactive = TRUE,
...
)

```

### Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
geom	A string stating the geom used for the plot. Default: "line". Options: "line", "point", or "area"
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings of a column name. Default: NULL
ref_line	A string specifying a reference point name. Default: "target" Options: (including, but not limited to) "target", "msy", and "unfished" If the reference point is not found in the data, set ref_line = c("name" = value).
unit_label	A string specifying spawning biomass unit. Default: "mt"
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
lbs	A logical value indicating whether to convert the y-axis values from kilograms to pounds. The default units match the default in the unit_label argument - 'mt'. Default: 'FALSE'
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]

scale_amount	A number to scale the y-axis values. Default: 1
relative	A logical value specifying to set y-axis values relative to the ref_line value. Default: 'FALSE'
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
...	Arguments called from <a href="#">geom_line</a> or <a href="#">geom_point</a>

**Details**

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

**Value**

A plot showing spawning biomass over time.

**Note**

All plotting functions automatically recognize indexing variables and will use them in groupings and/or faceting. @seealso [[process\\_data\(\)](#)].

**See Also**

[[convert\\_output\(\)](#)], [[plot\\_timeseries\(\)](#)], [[calculate\\_reference\\_point\(\)](#)], [[reference\\_line\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

**Examples**

```
plot_spawning_biomass(
  dat = stockplotr::example_data,
  geom = "line",
  ref_line = "msy",
  unit_label = "mt",
  scale_amount = 1000,
  interactive = FALSE,
  module = "TIME_SERIES",
  linewidth = 1.5
)
plot_spawning_biomass(
```

```

dat = stockplotr::example_data,
ref_line = c("target" = 10),
interactive = FALSE,
module = "TIME_SERIES"
)

```

---

plot\_stock\_recruitment

*Plot Stock Recruit Relationship*

---

## Description

Plot Stock Recruit Relationship

## Usage

```

plot_stock_recruitment(
  dat,
  spawning_biomass_label = "mt",
  recruitment_label = "mt",
  interactive = TRUE,
  era = NULL,
  module = NULL,
  scale_amount = 1,
  make_rda = FALSE,
  figures_dir = getwd()
)

```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
spawning_biomass_label	Units for spawning biomass Default: "mt"
recruitment_label	units for recruitment Default: "mt"
interactive	Indicate whether the environment the plot is being made in is interactive. By default, this is set to false. If true, dependent on your data, a option menu will pop-up. Default: TRUE
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)

module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
scale_amount	A number to scale the y-axis values. Default: 1
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'
figures_dir	A string indicating a path to the "figures" folder. Default: 'getwd()' The folder is created within the path if it does not exist.

## Details

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)). There are options to return a 'ggplot2' object or export an .rda object containing associated caption and alternative text for the figure.

## Value

A plot showing the stock recruitment relationship.

## See Also

[[convert\\_output\(\)](#)], [[filter\\_data\(\)](#)], [[process\\_data\(\)](#)], [[plot\\_timeseries\(\)](#)], [[export\\_kqs\(\)](#)], [[insert\\_kqs\(\)](#)], [[create\\_rda\(\)](#)]

## Examples

```
plot_stock_recruitment(
  dat = stockplotr::example_data,
  interactive = FALSE,
  spawning_biomass_label = "metric tons",
  recruitment_label = "metric tons",
  module = "DERIVED_QUANTITIES"
)
```

---

plot\_timeseries      *Plot time series trends*

---

### Description

Plot time series trends

### Usage

```
plot_timeseries(  
  dat,  
  x = "year",  
  y = "estimate",  
  geom = "line",  
  xlab = "Year",  
  ylab = NULL,  
  group = NULL,  
  facet = NULL,  
  ...  
)
```

### Arguments

dat	filtered data frame from standard output file(s) preformatted for the target label from <a href="#">filter_data</a>
x	a string of the column name of data used to plot on the x-axis Default: "year"
y	a string of the column name of data used to plot on the y-axis Default: "estimate"
geom	type of geom to use for plotting found in ggplot2 (e.g. "point", "line", etc.). Default: "line" Options: "point" and "area"
xlab	a string of the x-axis label Default: "Year"
ylab	a string of the y-axis label. If NULL, it will be set to the name of 'y'. Default: NULL
group	a string of a single column that groups the data. Currently can only have one level of grouping. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	a string or vector of strings of a column that facets the data (e.g. "year", "area", etc.) Default: NULL
...	inherited arguments from internal functions from ggplot2::geom_xx

**Details**

The user can create a line, point, or area plot, where the x-axis is year and y can vary for any time series quantity. Currently, grouping is restricted to one group where faceting can be any number of facets.

**Value**

Create a time series plot for a stock assessment report.

**Examples**

```
## Not run:
plot_timeseries(dat,
  x = "year",
  y = "estimate",
  geom = "line",
  xlab = "Year",
  ylab = "Biomass",
  group = "fleet",
  facet = "area"
)

## End(Not run)
```

---

 process\_data

*Processing for figures*


---

**Description**

Processing for figures

**Usage**

```
process_data(dat, group = NULL, facet = NULL, lbs = FALSE, method = "sum")
```

**Arguments**

dat	Pre-filtered data from <a href="#">filter_data</a> following a long format data.
group	A string identifying the indexing variable of the data. To remove any groups and summarize data across all factors, set <code>group = "none"</code> . Setting <code>group = NULL</code> will keep any grouping variables identified in the data by the function. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
facet	A string or vector of strings identifying the faceting variable(s) of the data. Default: NULL

lbs	A logical value indicating whether to convert the y-axis values from kilograms to pounds. The default units match the default in the unit_label argument - 'metric tons'. Default: 'FALSE'
method	A string describing the method of summarizing data when group is set to "none". Default: "sum" Options: "sum" or "mean"

### Details

Automatically detects potential grouping and faceting data from a dataframe output from [filter\\_data](#).

### Value

List of 3 objects:

data	A data frame of the processed data ready for plotting.
group	A string identifying the grouping variable of the data. If NULL, no grouping variable is identified. If not NULL, the function will verify that the data is indexed by this variables, otherwise it will overwrite it to a different, valid indexed variable or NULL.
facet	A string or vector of strings identifying the faceting variable(s) of the data. If NULL, no faceting variable is identified. Any identified indexed variables found in this function will be added to facet.

### Examples

```
{
  filtered <- stockplotr::filter_data(
    dat = stockplotr::example_data,
    label_name = "fishing_mortality$",
    geom = "line",
    module = "TIME_SERIES"
  )
  process_data(dat = filtered, method = "sum")
}
```

---

process\_table

*Processing for tables*

---

### Description

Processing for tables

### Usage

```
process_table(dat, group = NULL, method = "sum", label = NULL, digits = 2)
```

**Arguments**

dat	Pre-filtered data from <a href="#">filter_data</a> following a long format data.
group	A string identifying the indexing variable of the data. To remove any groups and summarize data across all factors, set group = "none". Setting group = NULL will keep any grouping variables identified in the data by the function. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
method	A string describing the method of summarizing data when group is set to "none". Default: "sum" Options: "sum" or "mean"
label	A string or vector of strings identifying the label values to filter the data. Default: NULL
digits	Numeric value indicating the number of rounding digits. Default: 2

**Details**

Input is an object created with [filter\\_data](#).

**Value**

A dataframe of processed data ready for formatting into a table.

**Examples**

```
{
  filtered <- filter_data(
    dat = stockplotr::example_data,
    label = "landings",
    geom = "line",
    era = "time"
  )
  process_table(dat = filtered, method = "sum")
}
```

---

reference_line	<i>Preformatted reference line</i>
----------------	------------------------------------

---

**Description**

Preformatted reference line

**Usage**

```
reference_line(plot, dat, label_name, reference, scale_amount = 1, lbs = FALSE)
```

**Arguments**

plot	a ggplot2 object where the reference line will be added
dat	standard data frame where reference point should be extracted
label_name	string of the name of the quantity that users want to extract the reference point from
reference	string of the reference point Options: Including, but not limited to: "msy", "unfished", "target"
scale_amount	A number to scale the y-axis values. Default: 1
lbs	A logical value indicating whether to convert the y-axis values from kilograms to pounds. The default units match the default in the unit_label argument - 'mt'. Default: 'FALSE'

**Value**

A ggplot2 geom\_hline object for a reference point that can be added to a plot

**Examples**

```
## Not run:
reference_line(dat, "biomass", "msy")

## End(Not run)
```

---

save_all_plots	<i>Export all figures and tables</i>
----------------	--------------------------------------

---

**Description**

Export all figures and tables to Rda files within one function.

**Usage**

```
save_all_plots(
  dat,
  recruitment_unit_label = "mt",
  recruitment_scale_amount = 1,
  relative = FALSE,
  proportional = TRUE,
  interactive = FALSE,
  figures_tables_dir = getwd(),
  ref_line = "msy",
  biomass_scale_amount = 1,
  landings_unit_label = "mt",
  spawning_biomass_label = "mt",
```

```

    spawning_biomass_scale_amount = 1,
    ref_line_sb = "msy",
    abundance_at_age_scale_amount = 1,
    abundance_at_age_unit_label = "fish",
    biomass_at_age_scale_amount = 1,
    biomass_at_age_unit_label = "mt",
    indices_unit_label = "",
    biomass_unit_label = "mt",
    catch_unit_label = "mt",
    catch_scale_amount = 1
  )

```

## Arguments

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
recruitment_unit_label	Units for recruitment Default: "mt"
recruitment_scale_amount	A number describing how much to scale down the recruitment quantities shown on the y axis. For example, recruitment_scale_amount = 100 would scale down a value from 500,000 → 5,000. This scale will be reflected in the y axis label. Default: 1
relative	A logical value specifying to set y-axis values relative to the ref_line value. Default: 'FALSE'
proportional	T/F to scale size of bubble plots Default: 'TRUE'
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
figures_tables_dir	The location of the folder containing figures and tables ("figures" and "tables"). Default: the working directory ('getwd()')
ref_line	A string specifying the type of reference you want to compare biomass to. The default is "msy", which looks for "biomass_msy" in the "label" column of 'dat'. The actual searching in 'dat' is case agnostic and will work with either upper- or lower-case letters but you must use one of the options specified in the default list to ensure that the label on the figure looks correct regardless of how it is specified in 'dat'. Other possibilities may include "target", "MSY", and "unfished". When the reference cannot be found, indicate the reference line in the form c("label" = value). Default: "msy" Options: Including, but not limited to: "target", "MSY", "unfished"

`biomass_scale_amount`  
A number describing how much to scale down the biomass quantities shown on the y axis. See 'recruitment\_scale\_amount'.  
Default: 1

`landings_unit_label`  
Units for landings  
Default: "mt"

`spawning_biomass_label`  
Units for spawning biomass  
Default: "mt"

`spawning_biomass_scale_amount`  
A number describing how much to scale down the spawning biomass quantities shown on the y axis. See 'recruitment\_scale\_amount'.  
Default: 1

`ref_line_sb` Identical definition as 'ref\_line', but this argument is applied to plot\_spawning\_biomass.  
Default: "msy"  
Options: Including, but not limited to: "target", "MSY", "unfished"

`abundance_at_age_scale_amount`  
A number describing how much to scale down the abundance quantities shown via bubble size. See 'recruitment\_scale\_amount'.  
Default: 1

`abundance_at_age_unit_label`  
Abbreviated units for abundance at age  
Default: "fish"

`biomass_at_age_scale_amount`  
A number describing how much to scale down the biomass quantities shown via bubble size. See 'recruitment\_scale\_amount'.  
Default: 1

`biomass_at_age_unit_label`  
Abbreviated units for biomass at age  
Default: "mt"

`indices_unit_label`  
Units for index of abundance/CPUE  
Default: ""

`biomass_unit_label`  
Abbreviated units for biomass  
Default: "mt"

`catch_unit_label`  
Abbreviated units for catch  
Default: "mt"

`catch_scale_amount`  
A number describing how much to scale down the catch quantities shown via bubble size. See 'recruitment\_scale\_amount'.  
Default: 1

**Details**

The input is from an assessment model output file translated to a standardized output ([convert\\_output](#)).

**Value**

Rda files for each figure/table.

**See Also**

[[convert\\_output\(\)](#)], [[create\\_rda\(\)](#)]

**Examples**

```
## Not run:
save_all_plots(dat,
  ref_line = "unfished",
  ref_line_sb = "target",
  indices_unit_label = "CPUE",
  biomass_at_age_scale_amount = 1,
  biomass_at_age_unit_label = "metric tons"
)

## End(Not run)
```

---

table_landings	<i>Landed catch by fleet and year table</i>
----------------	---

---

**Description**

Landed catch by fleet and year table

**Usage**

```
table_landings(
  dat,
  unit_label = "mt",
  era = NULL,
  interactive = TRUE,
  group = NULL,
  method = "sum",
  module = NULL,
  label = NULL,
  digits = 2,
  scale_amount = 1,
  make_rda = FALSE,
  tables_dir = getwd()
)
```

**Arguments**

dat	A tibble or named list of tibbles (input as 'list()') returned from <a href="#">convert_output</a> . If inputting a list of tibbles, the first tibble's reference point defined in 'ref_line' is used to plot a reference line or calculate relative spawning biomass.
unit_label	Abbreviated units of landings Default: "mt"
era	A string naming the era of data. Default: "time" Options: "early", "time", "fore" (forecast), or NULL (all data)
interactive	A logical value indicating if the environment is interactive. Default: 'FALSE'
group	A string of a single column that groups the data. Set group = "none" to summarize data over all indexing values. Default: NULL Options: Including, but not limited to: "year", "area", "fleet", "sex", "none", NULL
method	A string describing the method of summarizing data when group is set to "none". Default: "sum" Options: "sum" or "mean"
module	(Optional) A string indicating the module_name found in 'dat'. If selecting >1 module, place them in a vector like c("module1", "module2"). Default: NULL If the interactive and >1 module_name is found, user will select the module_name in the console. @seealso [filter_data()]
label	The label that will be chosen from the input file. If unspecified, the function will search the "label" column and use the first matching label in this ordered list: "landings_weight", "landings_numbers", "landings_expected", "landings_predicted", "landings". Default: NULL
digits	Numeric value indicating the number of digits values in the table will be rounded to. Default: 2
scale_amount	A number to scale the y-axis values. Default: 1
make_rda	A logical value indicating whether to save the object and make an automated caption and alternative text in the form of an 'rda' object. If TRUE, the rda will be exported to the folder indicated in the argument "figures_dir". Default: 'FALSE'.
tables_dir	The location of the folder containing the generated table rda files ("tables") that will be created if the argument 'make_rda' = TRUE. Default: the working directory ('getwd()')

**Details**

The input is from an assessment model output file translated to a standardized output (`convert_output`). There are options to return a `[gt::gt()]` object or export an rda object containing a gt-based table, caption, and LaTeX-based table.

**Value**

A table ready of landed catch by fleet and year.

**See Also**

`[convert_output()]`, `[filter_data()]`, `[process_table()]`, `[export_kqs()]`, `[insert_kqs()]`, `[create_rda()]`

**Examples**

```
table_landings(stockplotr::example_data)

table_landings(
  stockplotr::example_data,
  unit_label = "landings label",
  group = "fleet"
)
```

---

theme_noaa	<i>Add NOAA theming to ggplot2 object. The palette is from the 'viridis' package, which contains palettes distinguishable by those with color vision deficiency.</i>
------------	--

---

**Description**

Add NOAA theming to ggplot2 object. The palette is from the 'viridis' package, which contains palettes distinguishable by those with color vision deficiency.

**Usage**

```
theme_noaa(discrete = TRUE, ...)
```

**Arguments**

discrete	Variable indicating whether the color or fill aesthetic is discrete. Default: TRUE
...	Arguments passed to 'ggplot2::theme()'.

**Value**

A list applying a theme to a ggplot2 object.

**Examples**

```
ggplot2::ggplot(  
  data = OrchardSprays,  
  ggplot2::aes(  
    x = rowpos,  
    y = decrease,  
    color = treatment  
  )  
) +  
  ggplot2::geom_point() +  
  theme_noaa()  
  
ggplot2::ggplot(  
  data = OrchardSprays,  
  ggplot2::aes(  
    x = rowpos,  
    y = decrease,  
    color = decrease  
  )  
) +  
  ggplot2::geom_point() +  
  theme_noaa(discrete = FALSE)  
## Not run:  
ggplot2::theme_set(stockplotr::theme_noaa())  
  
## End(Not run)
```

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