

# Pre-Release notes for Stock Synthesis

## 3.30.19

February 2022

Greetings Stock Synthesis Users,

The release of Stock Synthesis (3.30.19.00) is planned for March 2022. Here we provide a [pre-release version](#) with notes on the included changes. There are no mandatory input changes with version 3.30.19.00. We recommend that all users update to the latest version of Stock Synthesis to take advantage of augmentations and bug fixes. The most notable changes in 3.30.19 are:

- The `data.ss_new` file is now deprecated. Instead, `data_echo.ss_new`, which echoes inputs to the data file with SS3 standardized comments, is generated. If requested, the expected values will be output into the file `data_expval.ss`, while each bootstrap file will be output into a separate file called `data_boot_XXX.ss`, where XXX is the number bootstrap. This change was made because dividing up the files will make examining the output files less error-prone. See the [output files section of the user manual](#) for more information.
- Optional outputting to sub-folders. If the user creates a sub-folder named `ssnew`, then all `.ss_new` files will go there. If the user creates a sub-folder named `sso`, then all `.sso` output files will go there. We hope this new option will ease management of output files.
- A new bioeconomic option created in collaboration with Andre Punt has been added to benchmarks. This option allows the MSY search to be in terms of value rather than dead catch. It is still a beta feature. See the [features section](#) of these release notes for how to invoke this option.
- Added a sub-option for cubic spline to control performance at tails.
- Improved predator M2.
- Fixed and improved output for hermaphroditic populations, in particular for multi-season models and for male-to-female transitions.
- Deprecated the helper spreadsheets. See the [Selectivity Web App](#) and the User Manual instead.

For Linux users, we have changed to compiling the Linux binary on CentOS to Ubuntu. This is because we have easier access to Ubuntu machines and the version of CentOS Linux we were using has reached end-of-life. However, this may cause issues for some Linux users. Please let us know through the forums or email if you are running into difficulties due to this change in compiling. If necessary, Stock Synthesis can be [built from source](#).

**VLAB updates:** We are providing more resources on Github rather than on the website. See the [Stock Synthesis homepage](#) for the latest links.

**GUI - Stock Synthesis Interface (SSI) updates:** The [GUI](#) has been updated to accommodate changes for this release of Stock Synthesis.

**ss3sim updates:** See the [ss3sim vignettes](#) for information on getting started.

**r4ss updates:** r4ss has been updated to maintain compatibility with Stock Synthesis 3.30.19.

**Additional tools for SS updates:**

- The helper spreadsheets have been deprecated, the information they provided is available in other resources. Please see the user manual for input file specifications and the [SS3 helper shiny app](#) or SSI for visualizations of the double normal and logistic selectivity functions. Thanks to Allan Hicks and Andrea Havron for developing the shiny app!
- The [ss3diags](#) R package contains additional diagnostic routines for SS3 models.

**SS3 User Manual updates:** Most documentation for Stock Synthesis can be viewed at <https://nmfs-stock-synthesis.github.io/doc/>. In particular, there is now an [html version of the user manual](#).

**Contact us:** Please do not hesitate to report bugs, ask a question about SS, or request a feature by posting on the [forums](#), opening an [issue](#) (for those with github accounts), or emailing the SS3 team at [nmfs.stock.synthesis@noaa.gov](mailto:nmfs.stock.synthesis@noaa.gov).

## Change log since last release:

See [Change log for SS 3.30.xlsx](#) for more details.

## Features

- Bioecon benchmark beta feature - Benchmark options and output in economic units. Issues [#222](#), [#251](#)  
To use this feature, use the following [options in the forecast file](#):

5	# MSY Method ( $F_{MEY}$ )	
COND: MSY Method = 5 1	Maximum economic yield (MEY) units 1 = dead biomass; 2 = dead biomass without excluded bycatch fleet; 3 = retained biomass; and 4 = profits using price and costs.	
1 0 0 1 -9999 0 0 0	MEY options - Fleet, Cost/F, Price/F, and Include FMEY in Optimization	To calculate the FMEY enter fleet number, the cost per fishing mortality, price per mt, and

		<p>whether optimization should adjust the fleet's F or keep it at the mean from the benchmark years (0 = no, 1= yes). Care should be taken when scaling the values used for cost/F and price/mt. Units in the example show cost=0 and price = 1, so will be identical to MSY in weight. Note, if a fleet's catch is excluded from the FMEY search, its catch or profits are still included in the MSY value using historical F levels from benchmark years</p>
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- Add option for constant/0 selectivity below the first knot in cubic spline. Issue [#86](#). See setup in [the cubic spline selectivity description of the User Manual](#).
- Add option to get a report file for each MCEVAL sample. Issue [#70](#). Evoke this by using this line in the starter file: `2 # MCMC output detail`
- Allow subfolders for .sso and .ssnew output; new filenames for ss\_new output. Issue [#226](#). Details available in the [optional output subfolders](#) and the [output files](#) sections of the user manual.
- Augment reporting of overall comps (table in Report.sso with the header OVERALL\_COMPS report:30) to include breakdown by season and sex. Issue [#215](#). New output has these fields after adding area and season:  
`area seas Fleet N_obs len_bins 10 14 18 22 etc.`  
 New rows include rows for season = 0 to report combined seasons when the number of seasons is more than 1 and separate rows for males and females in a two sex model.

## Corrections and Revisions

- Fix output for hermaphroditic populations. Issue [#246](#)
- Improve weight at age storage efficiency. Issue [#136](#)
- Revise F method 4 to allow constant F. Issue [#243](#)
- Fix multi-season forecast catch output. Issue [#205](#)
- Fixes for predator M2. Issue [#45](#)
- convert catchfleet IF statements to a lookup table. Issue [#192](#)