Release notes for Stock Synthesis 3.30.20

Sept 30, 2022

Greetings Stock Synthesis Users,

A new release of Stock Synthesis is now available. The most notable changes in 3.30.20 are:

- SS3 is now compiled with ADMB 13.0. This release of ADMB revises output to the console during a model run and we have made corresponding revisions to the SS3 specific console output. We highly recommend that you study the new features of ADMB (listed here) so you can use its advanced command line features.
- Our development team continues to advance our use of GitHub features. Notably, you can now view the change log as a GitHub project board incorporating links to the list of issues worked for this release. Find more information at the GitHub SS3 readme.
- Internal to the code, Neal Schindler has done a complete overhaul of the warning system and has created a consistent style to the C++ code. Users will see that each row of warning.sso is now categorized as follows:
    - NOTE (information that could be useful)
    - SUGGEST (a possible better way)
    - PERFORM (can help performance)
    - WARN (might be a problem, execution continues anyway)
    - ADJUST (adjustment has been made, execution continues)
    - FATAL (major problem, program will exit)
- We made several changes to the implementation of Dirichlet-multinomial (D-M) logL for composition data. D-M is now available for generalized sizecomp and the bin-specific logL reported in compreport.sso is now consistent with the total logL. We also generalized the multinomial and D-M code so that we can easily add in new logL approaches for composition data. We plan to add Multivariate Tweedie in the next release (Thorson et al. 2022).
- A new control rule is linked to Bmsy.
- The predator implementation (M2) is now area-specific (so is the same as fishing fleets that are area-specific). Base M remains a biology feature common to all areas.
- The Lorenzen M calculation has a new option to use a range of ages rather than a single age for scaling. Thanks to Nathan Vaughan for implementing this feature.
- Bittersweet team change: Kathryn Doering, who has been instrumental in advancing SS3 over the last 2 and a half years, has moved to a new position. Fortunately, she is still part of the NMFS Modeling Team and now leading the NMFS Toolbox Project. We are working to fill her position on the SS3 Team.

There are no mandatory input changes. As always, we recommend that you update to the latest version of Stock Synthesis to take advantage of augmentations and bug fixes. Updating to the newest version

even if no new features pertain to your model ensures that the *.ss_new files created whenever you do a run contain updated notes on what we consider to be good practices with respect to SS3.

Change Log: Now directly linked to the included issues on GitHub

VLAB updates: No updates at VLAB as we are migrating more resources to GitHub. See the Stock Synthesis homepage for the latest links. The message forum at VLAB is still a good way to post inquiries.

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 3.30.20.

SS3 User Manual: 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 SS3, or request a feature. Contact the SS3 development team by posting on the forums, opening an issue (for those with GitHub accounts), or emailing nmfs.stock.synthesis@noaa.gov.