Stock & Miller (2021).

Mar 27, 2025

Impact

- Cited 65 times.
- Many citing papers have similar methodological aims. Some citing papers are data analysis.
- At the NOAA research center in Woods Hole, MA.

TMB vs particle filtering

- “we note that the development of TMB has been a critical advance for fisheries assessment modeling frameworks such as WHAM, allowing us to rapidly fit models that treat population and environmental processes as time-varying random effects in a state-space framework.”
- Is the magic of TMB due to the strength of the Laplace approximation, the use of autodiff, other software quality issues, or something else?

Mohn's rho

Mohn, R. (1999) The retrospective problem in sequential population analysis: An investigation using cod fishery and simulated data. ICES Journal of Marine Science, 56, 473–488.

- Apparently, model misspecification can lead to widespread incongruous results.
- E.g., failure to describe increases in skill at catching.

Model comparison

- Appendix B deals with model specification. It appears to have overdispersion only in the measurement model.
- 2.1.2.2. Catch and index age composition. This explains why the log-normal is preferred for the measurment model, in order to be “self-weighting” and allow for correlations.
- Continuing work on evaluation and comparison of models: https://doi.org/10.1016/j.fishres.2024.106968

Reproducibility

- “Documentation and tutorials for how to specify additional random effect structures in WHAM are available at https://timjmiller.github.io/wham/.”
- “Code and data files to run the analysis presented here are available at https://github.com/brianstock-NOAA/wham-sim.”
- The models and data are well specified, and within the reach of an (ambitious) 531/631 final project