**Sequence of WHAM model configurations with Run9 ASAP dat file from 2023MT**

**Goal: Reproducing ASAP results in WHAM**

This appendix details the sequence of model configurations explored to arrive at the latest WHAM model. In the summary table below, the following abbreviations are used: Big = Bigelow, Alb = Albatross, OFV = objective function value; ESS = effective sample size; agg = aggregate, obs = observed, stdev = standard deviation, B = biomass, SSB = spawning stock biomass.

| **Run** | **Description** | **Diagnostics** |
| --- | --- | --- |
|  |  |  |
| 1 | RUN9\_For\_WHAM.DAT – ASAP Run 9 but meets WHAM requirements (index age of first selectivity specification (initial guesses now set at 0) and 2) -999 in Albatross extended to 2020-2022) | General trends captured but still have some differences in F, especially at the end of the time series. Is this due to the penalized selectivity in ASAP that cannot be reproduced in WHAM? |
| 2 | Run 1 but Fix Alb selectivity for ages 9 and 10, Big selectivity for age-7 to mimic the ASAP parameterization | Still different than ASAP output but much better than run 1; Run 2 is also still different than SSRT run 1, though Alex changed the ESS's in SSRT run 1 |
| 3 | Run 2 but Fix all Bigelow selectivity parameters to see if can resolve remaining differences | Still did not resolve differences in F at end of time series |
| 4 | Run 3 but fix all age-specific selectivity parameters (fishery and index) to see if can resolve remaining differences | Differences reduced but still see difference in 2020-2021 F (in trend and not just magnitude); Index q’s also slightly different |
| 5 | Run4 (all selectivity parameters fixed) but set age-1 and age-2 as 1 instead of zero like it was in the original ASAP file | Setting age-1 and age-2 BTS selectivity to zero does not work because WHAM apparently does not use age of first selectivity designation |
|  | Abandon ship |  |
| 6 | Go back to RUN9\_For\_WHAM.DAT file and add in ESS changes from SSRT Run1 to create apples-to-apples single to multi WHAM comparison | Very different… likely need to implement Run 2 SSRT |
| 7 | Run 2 from SSRT | Still different ☹ |
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