Cross test using Operating Model based on Life History

VPA

L Kell

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```
[1] "maxfbar has been changed to accomodate new plusgroup"
```
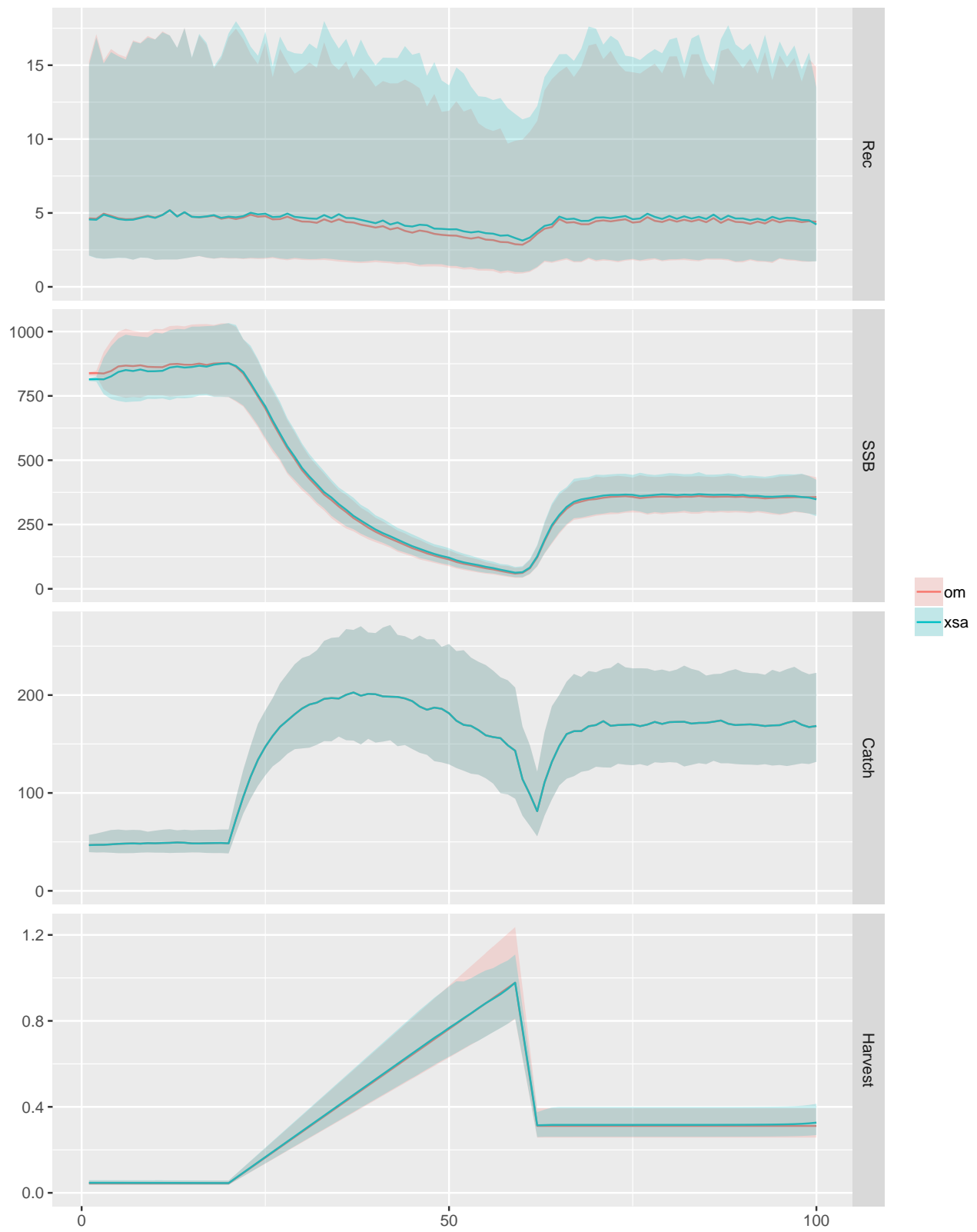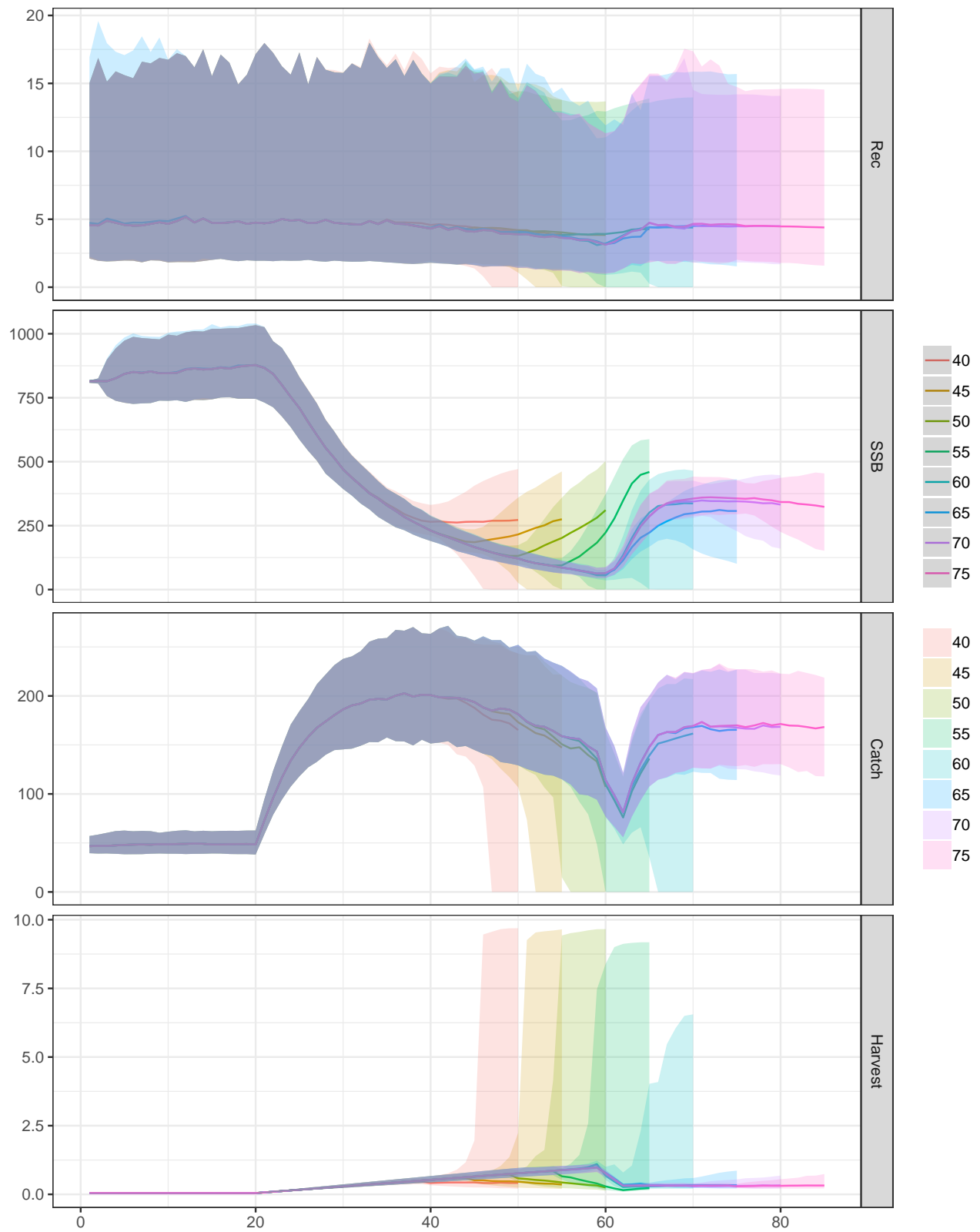
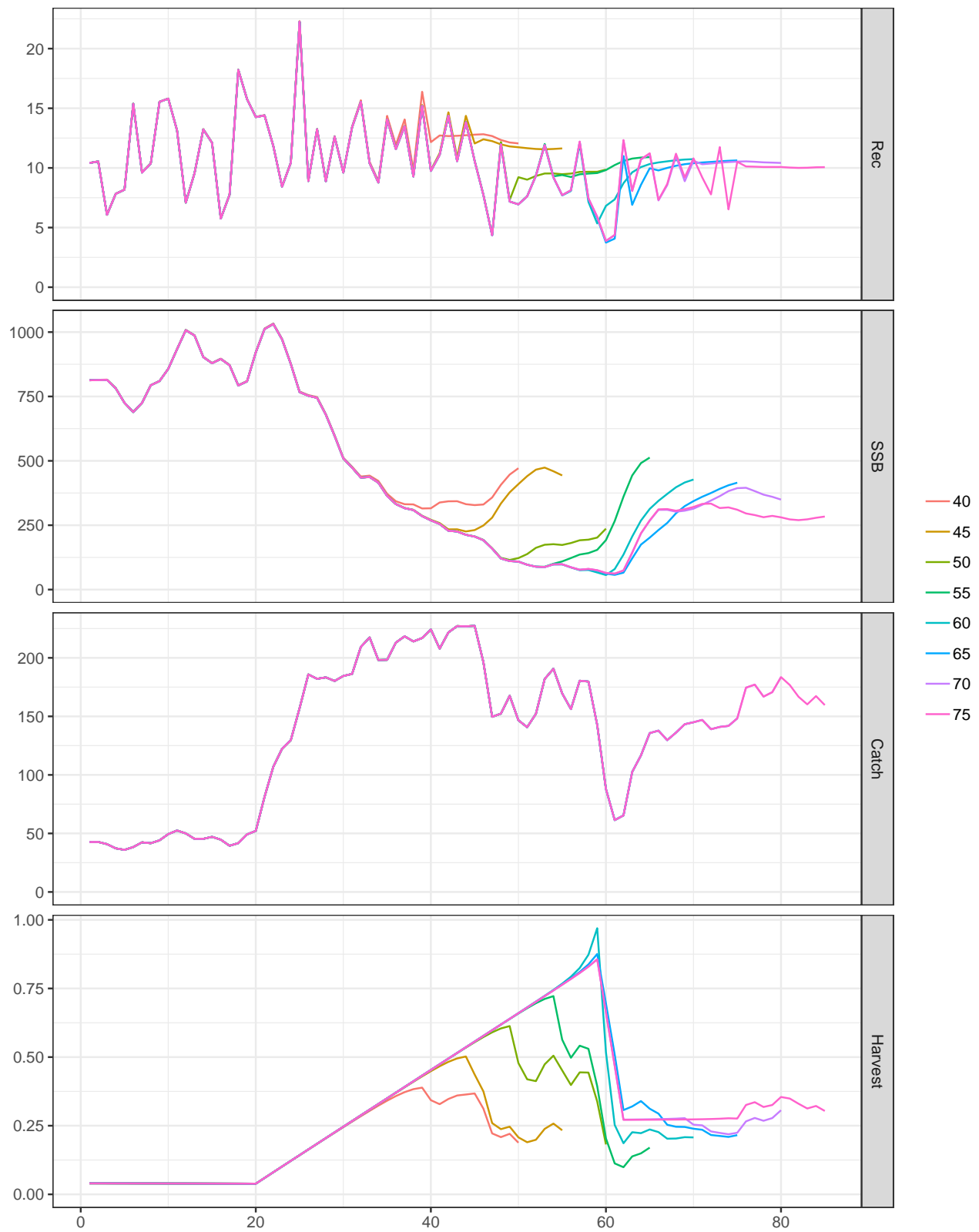**Figure 1.** VPA

Figure 2. VPA cross test

Figure 3. VPA cross test

Session Info

```
R version 3.4.1 (2017-06-30)
Platform: x86_64-pc-linux-gnu (64-bit)
Running under: Ubuntu 16.04.2 LTS

Matrix products: default
BLAS: /usr/lib/libblas/libblas.so.3.6.0
LAPACK: /usr/lib/lapack/liblapack.so.3.6.0

locale:
 [1] LC_CTYPE=en_US.UTF-8       LC_NUMERIC=C
 [3] LC_TIME=en_GB.UTF-8        LC_COLLATE=en_US.UTF-8
 [5] LC_MONETARY=en_GB.UTF-8    LC_MESSAGES=en_US.UTF-8
 [7] LC_PAPER=en_GB.UTF-8       LC_NAME=C
 [9] LC_ADDRESS=C               LC_TELEPHONE=C
[11] LC_MEASUREMENT=en_GB.UTF-8 LC_IDENTIFICATION=C

attached base packages:
[1] parallel  stats     graphics  grDevices utils     datasets  methods
[8] base

other attached packages:
 [1] FLRP_1.0.1.9001     FLasher_0.0.5.9005  FLFishery_0.1.3.9002
 [4] doParallel_1.0.10   iterators_1.0.8     foreach_1.4.3
 [7] FLXSA_2.6.1         FLAssess_2.6.1      ggplotFL_2.6.3
[10] FLCore_2.6.8        lattice_0.20-35     dplyr_0.7.5
[13] plyr_1.8.4          reshape_0.8.7       ggplot2_3.0.0
[16] knitr_1.20

loaded via a namespace (and not attached):
 [1] Rcpp_0.12.17      pillar_1.1.0      compiler_3.4.1    bindr_0.1.1
 [5] tools_3.4.1       digest_0.6.15     evaluate_0.10.1   tibble_1.4.2
 [9] gtable_0.2.0      pkgconfig_2.0.1   rlang_0.2.1       Matrix_1.2-10
[13] yaml_2.1.18       bindrcpp_0.2.2    gridExtra_2.3     withr_2.1.2
[17] stringr_1.3.1     stats4_3.4.1      rprojroot_1.3-2   grid_3.4.1
[21] tidyselect_0.2.4  glue_1.2.0        R6_2.2.2          rmarkdown_1.9
[25] reshape2_1.4.3    purrr_0.2.5       magrittr_1.5      codetools_0.2-15
[29] backports_1.1.2   scales_0.5.0      htmltools_0.3.6   MASS_7.3-47
[33] assertthat_0.2.0  colorspace_1.3-2  labeling_0.3      stringi_1.2.3
[37] lazyeval_0.2.1    munsell_0.5.0
```

Software Versions

- R version 3.4.1 (2017-06-30)
- FLCore: 2.6.8
- FLife: 3.2.0
- FLRP: 1.0.1.9001
- **Compiled**: Mon Jul 9 09:17:07 2018

Author information

Laurence KELL. laurie@kell.es

References