# Grid empd

Razors

*L Kell*

*15 November, 2018*

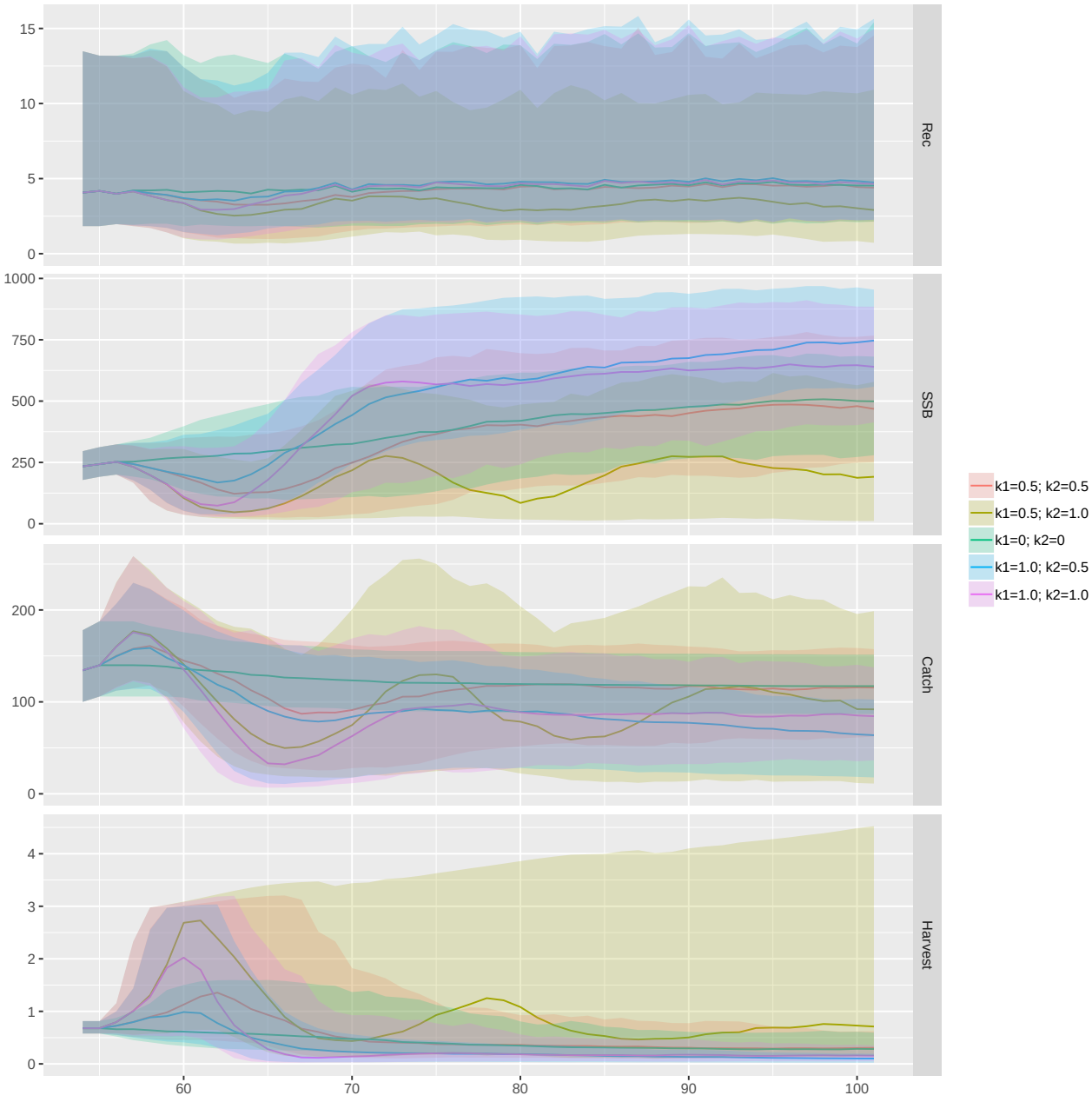



**Figure 1** Time series for brill of empirical HCR ran with different values of K1 & K2

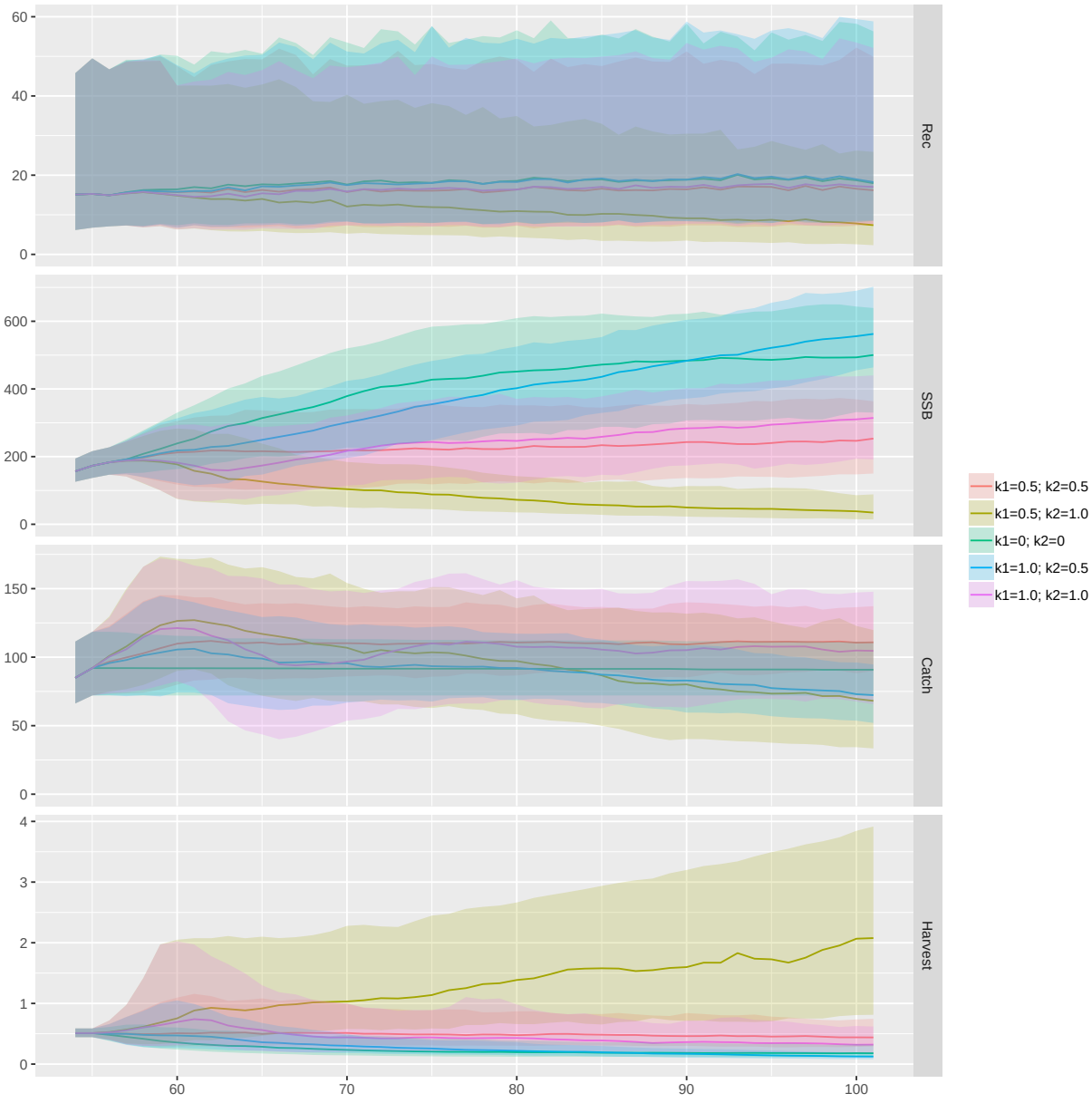



**Figure 2** Time series for turbot of empirical HCR ran with different values of K1 & K2

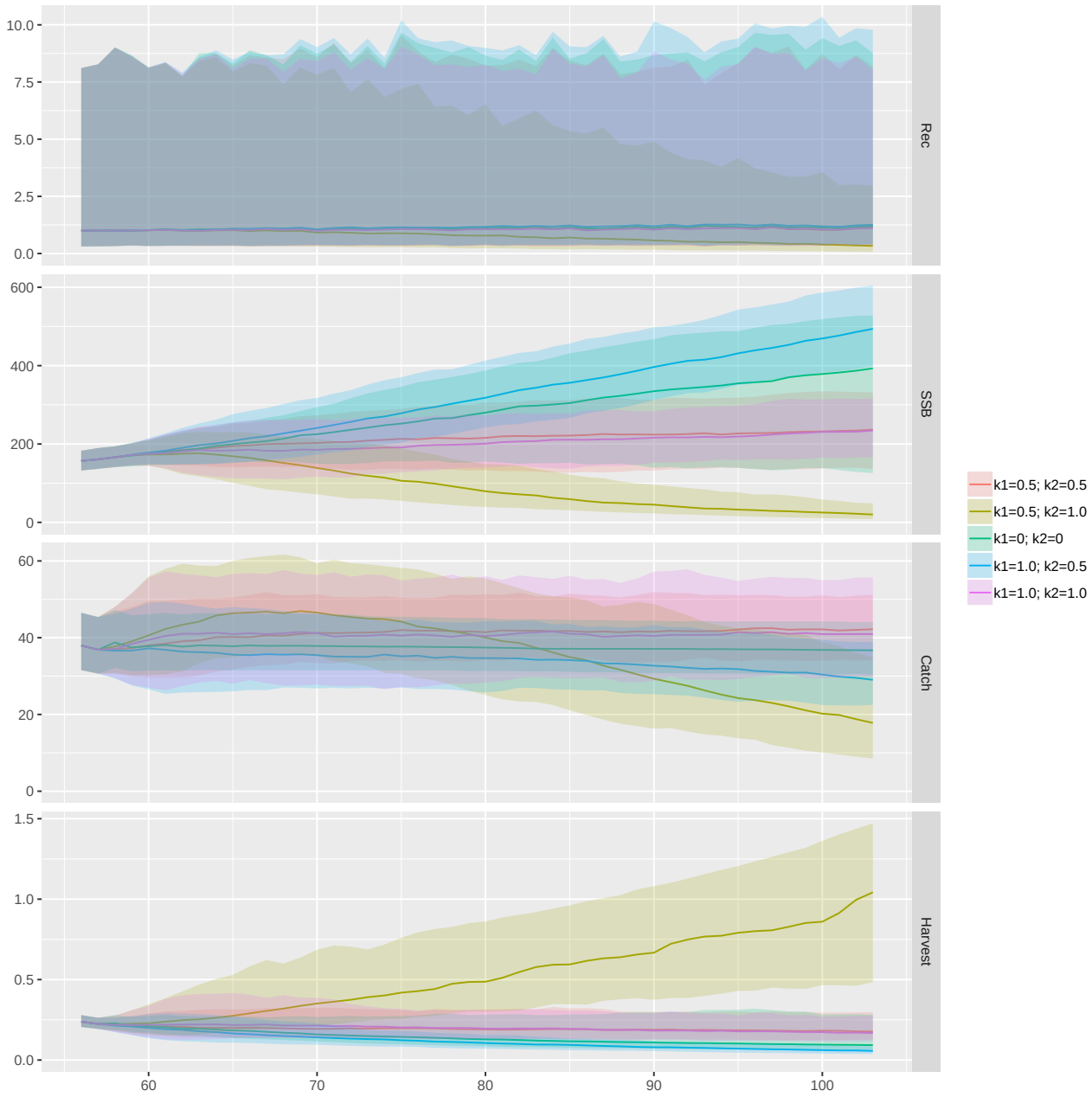



**Figure 3** Time series for pollack of empirical HCR ran with different values of K1 & K2

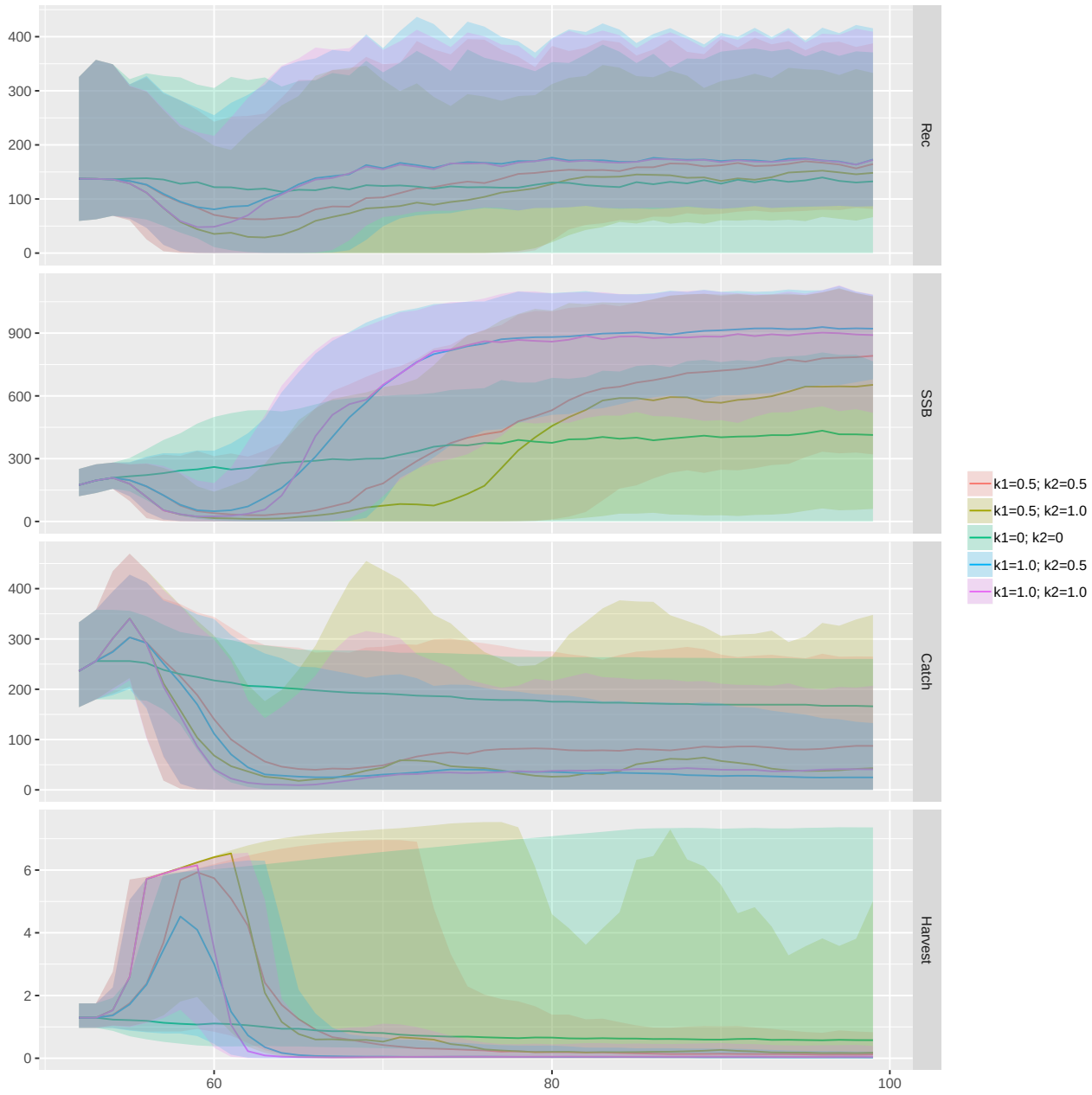



**Figure 4** Time series for sprat of empirical HCR ran with different values of K1 & K2

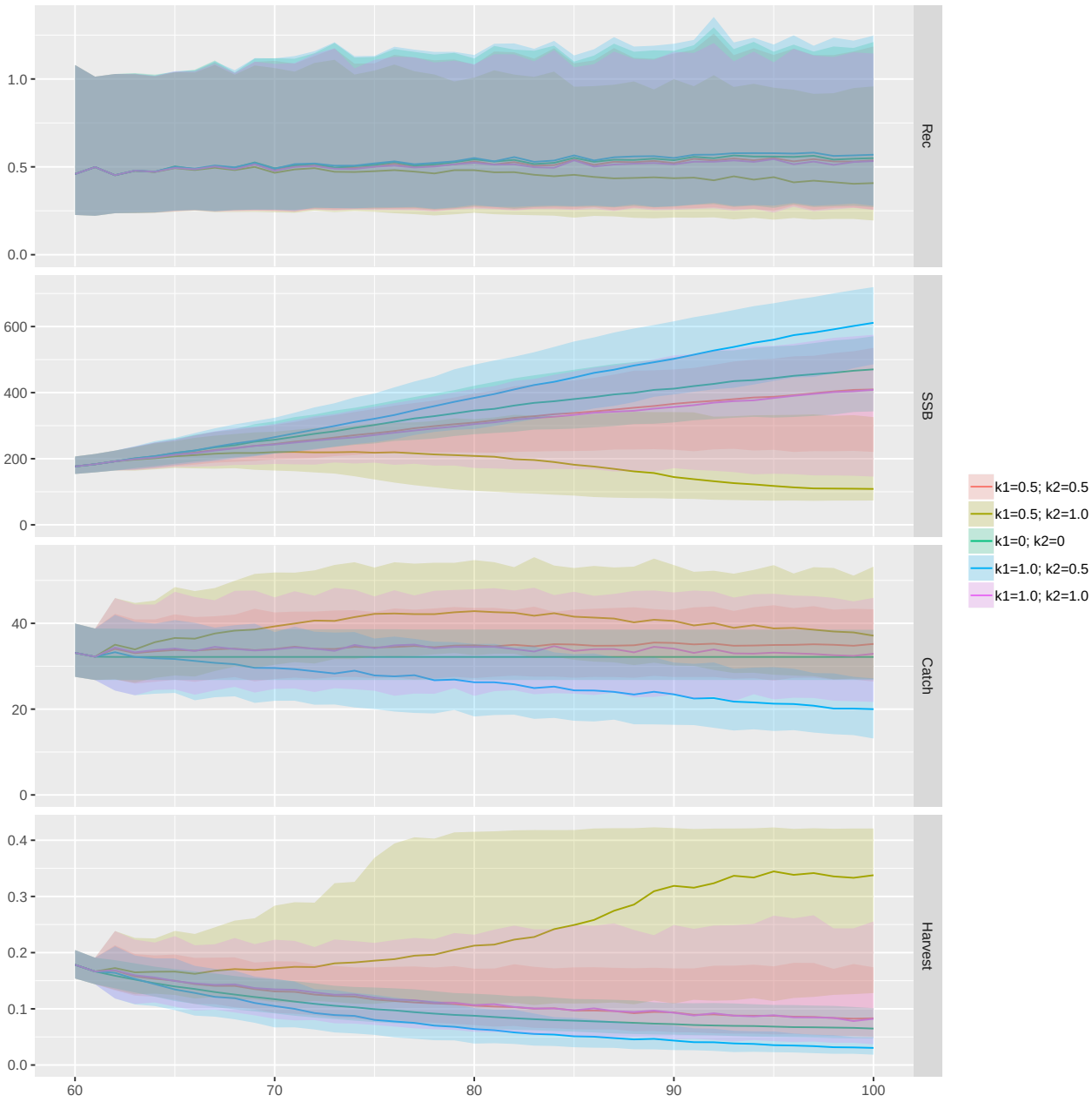



**Figure 5** Time series for ray of empirical HCR ran with different values of K1 & K2

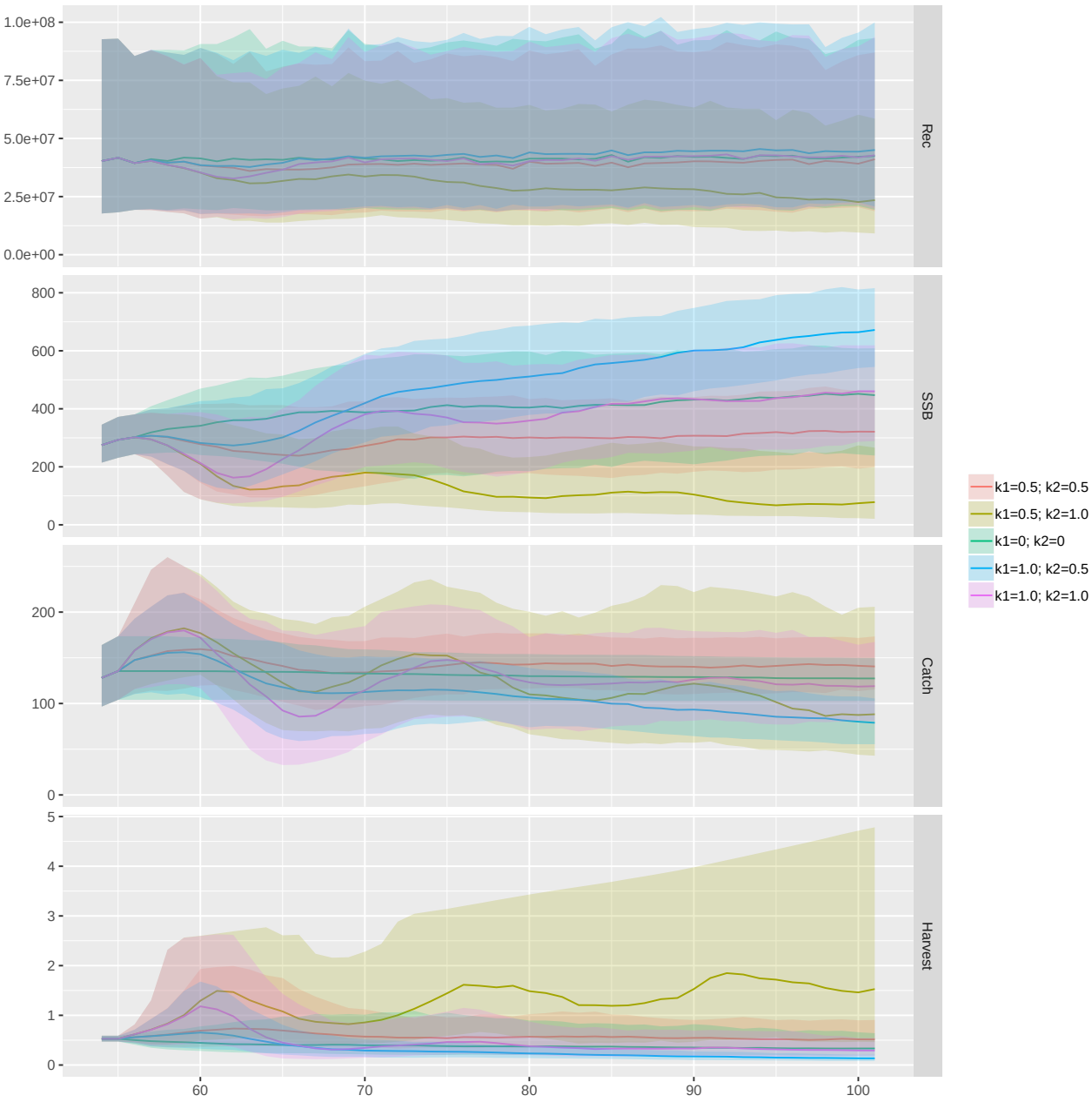
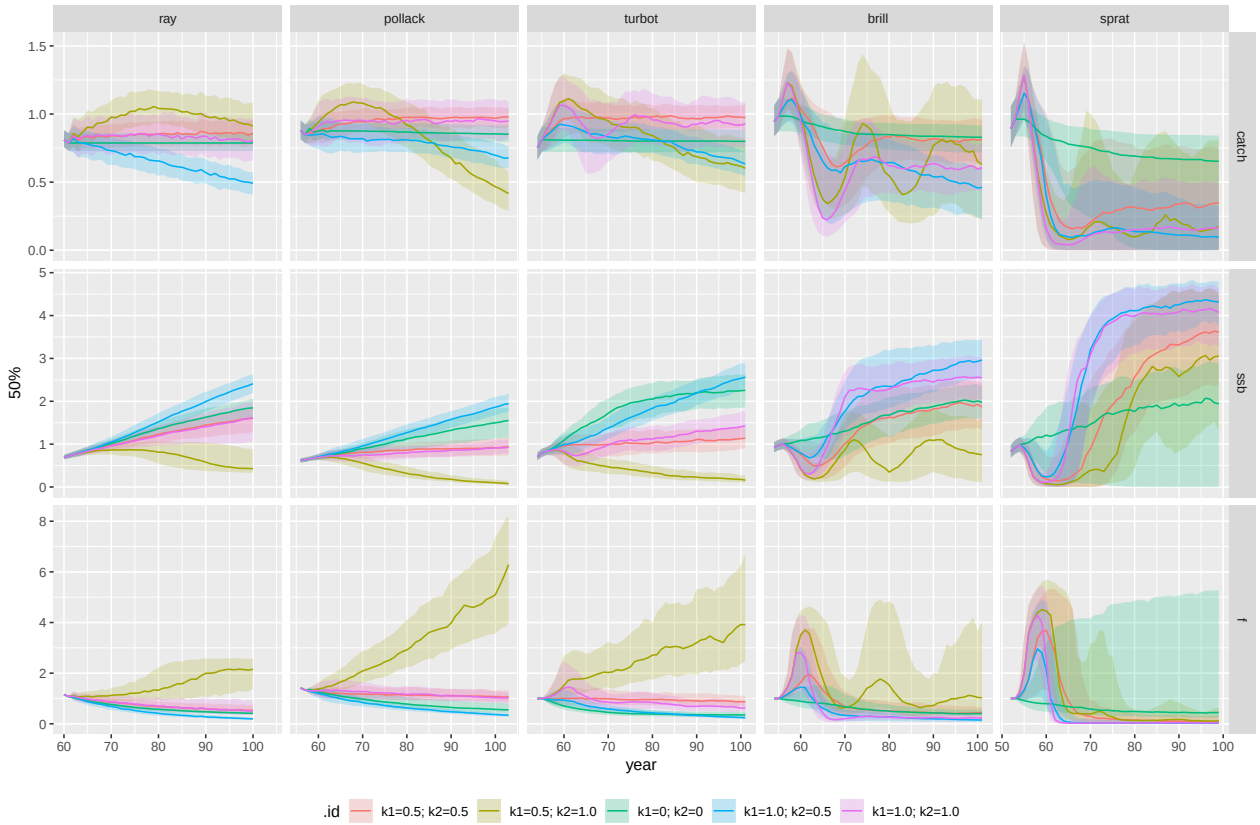



**Figure 6** Time series for razor of empirical HCR ran with different values of K1 & K2

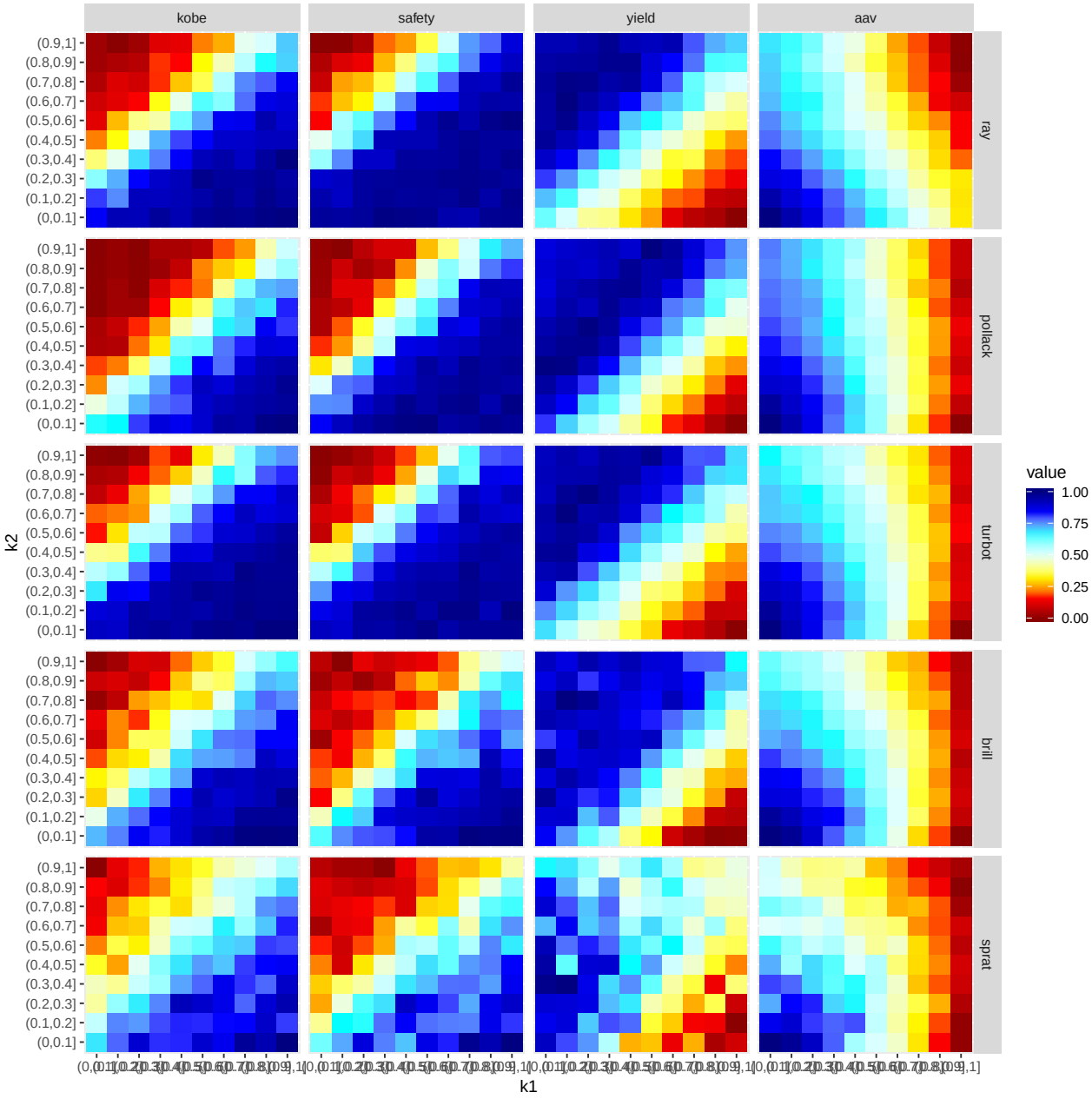


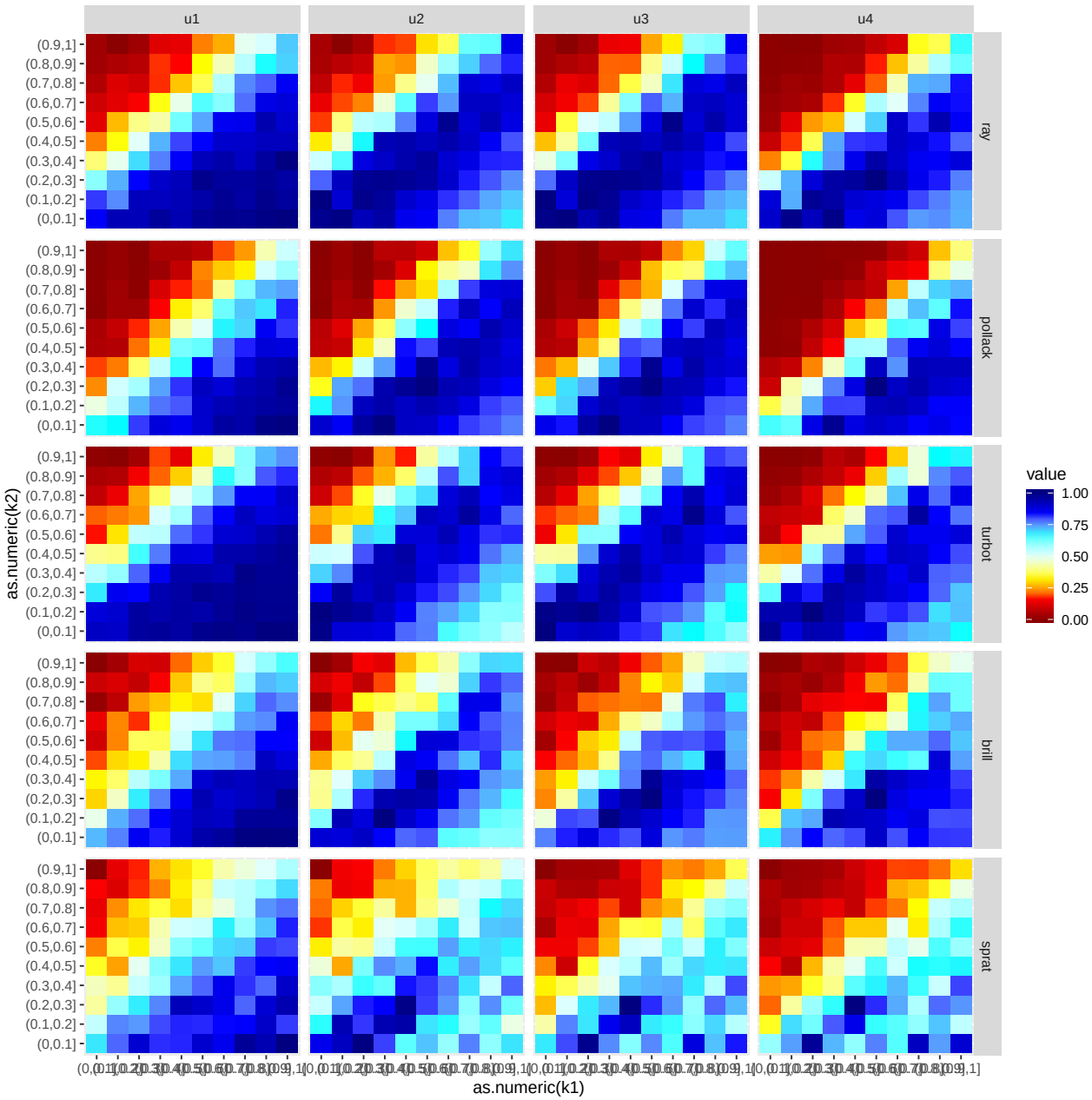


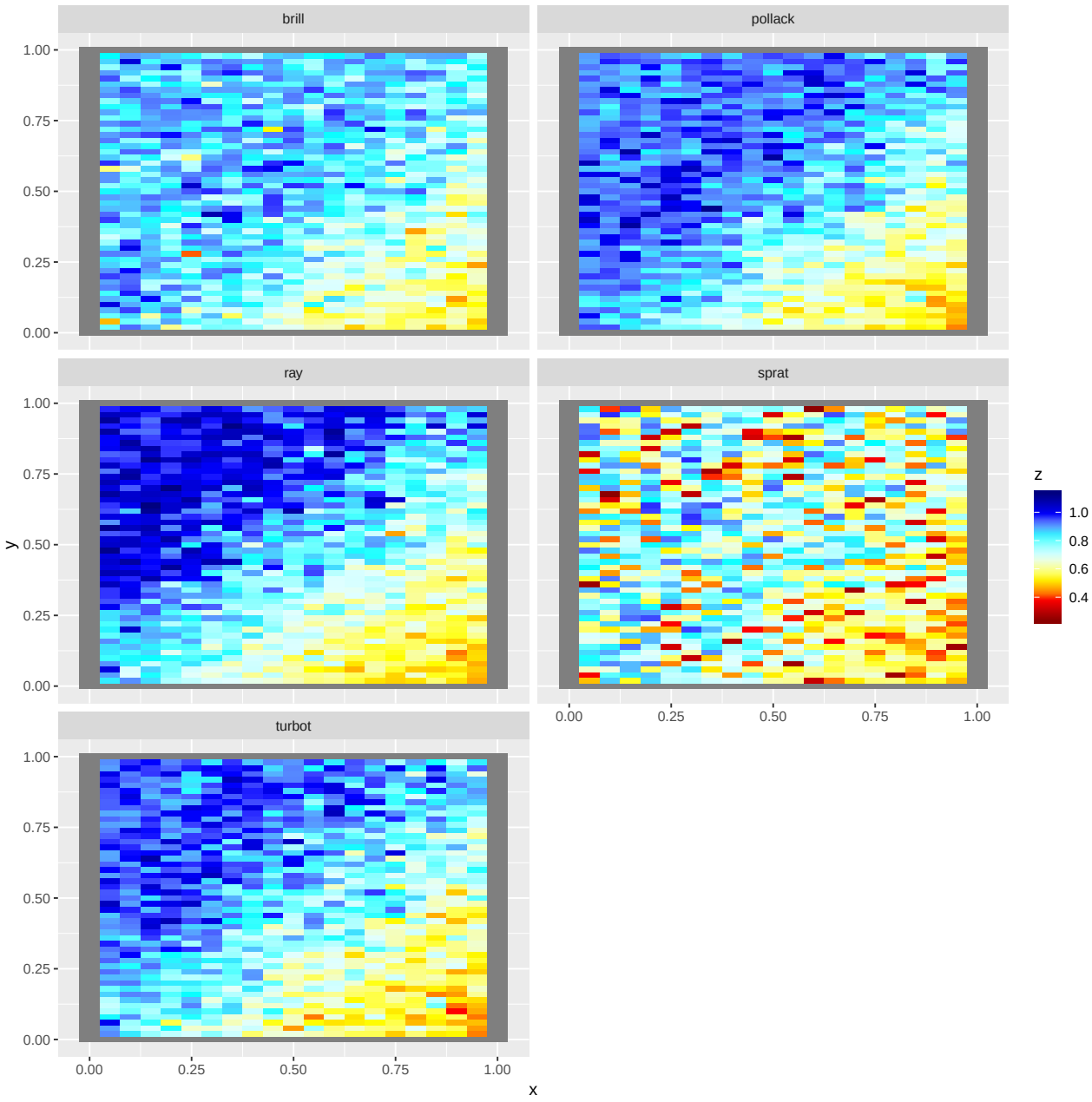
```
[1] "mydas_mpb_pm"    "swon_mpb100"     "swon_mpb100_pm" "swonmpb"
```

```
 [5] "albnrobust"      "swonempp"        "swonempd"        "swonpmd"
 [9] "swonpmp"         "mydas_xsa"       "mydas_xsa_pm"    "mydas_mpb"
[13] "mydas_empd_pm"   "mydas_empp_pm"   "mydas_empd"      "swonmsmpb100"
[17] "swonmsepmp"      "swonmsepmb"      "swonmsepmd"      "swonmpb2045"
[21] "randgridpm"      "mydas_empp"      "albnpella"       "albnsbt1"
[25] "albnsbt2"        "albnwg"          "swonmsmpb1000"   "om"
[29] "swonmse1000"
```

```
[1] TRUE
```




u1
u2
u3
u4
ray
pollack
turbot
brill
sprat
(0.9,1]
(0.8,0.9]
(0.7,0.8]
(0.6,0.7]
(0.5,0.6]
(0.4,0.5]
(0.3,0.4]
(0.2,0.3]
(0.1,0.2]
(0,0.1]
as.numeric(k2)
as.numeric(k1)
value
1.00
0.75
0.50
0.25
0.00




geom_density2d()

## Software Versions

- R version 3.4.4 (2018-03-15)
- FLCore: 2.6.9.9009
- FLBRP: 2.5.3.9001
- FLasher: 0.5.0.9001
- FLife: 3.2.1.9001
- ggplotFL: 2.6.4.9002
- **Compiled**: Thu Nov 15 10:17:35 2018

## Author information

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## Acknowledgements

This vignette and many of the methods documented in it were developed under the MyDas project funded by the Irish exchequer and EMFF 2014-2020. The overall aim of MyDas is to develop and test a range of assessment models and methods to establish Maximum Sustainable Yield (MSY) reference points (or proxy MSY reference points) across the spectrum of data-limited stocks.

# References

## Session Info

```
R version 3.4.4 (2018-03-15)
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:
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 [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] stats     graphics  grDevices utils     datasets  methods   base

other attached packages:
 [1] RPostgreSQL_0.6-2   DBI_1.0.0           akima_0.6-2
 [4] bindrcpp_0.2.2      dplyr_0.7.6         reshape_0.8.7
 [7] FLife_3.2.1.9001    ggplotFL_2.6.4.9002 FLCore_2.6.9.9009
[10] lattice_0.20-35     plyr_1.8.4          ggplot2_3.0.0
[13] knitr_1.20

loaded via a namespace (and not attached):
 [1] Rcpp_0.12.19     pillar_1.1.0     compiler_3.4.4   bindr_0.1.1
 [5] tools_3.4.4      digest_0.6.15    evaluate_0.10.1  tibble_1.4.2
 [9] gtable_0.2.0     pkgconfig_2.0.1  rlang_0.2.2      Matrix_1.2-10
[13] yaml_2.1.18      gridExtra_2.3    withr_2.1.2      stringr_1.3.1
[17] stats4_3.4.4     rprojroot_1.3-2  grid_3.4.4       tidyselect_0.2.4
[21] glue_1.2.0       R6_2.2.2         rmarkdown_1.9    sp_1.2-5
[25] FLBRP_2.5.3.9001 purrr_0.2.5      magrittr_1.5     codetools_0.2-15
[29] backports_1.1.2  scales_1.0.0     htmltools_0.3.6  MASS_7.3-51
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[37] lazyeval_0.2.1   munsell_0.5.0
```