CIGALA FU2627 CON CAPTURAS, CPUE, INDEX\_SURVEY (SIN EFFORT)

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| --- |
| capture.output(summary(res))  [1] "Convergence: 0 MSG: both X-convergence and relative convergence (5)"  [2] "Objective function at optimum: 107.0023023"  [3] "Euler time step (years): 1/16 or 0.0625"  [4] "Nobs C: 45, Nobs I1: 32, Nobs I2: 26"  [5] ""  [6] "Priors"  [7] " logn ~ dnorm[log(2), 2^2]"  [8] " logalpha ~ dnorm[log(1), 2^2]"  [9] " logbeta ~ dnorm[log(1), 2^2]"  [10] ""  [11] "Model parameter estimates w 95% CI "  [12] " estimate cilow ciupp log.est "  [13] " alpha1 8.6244844 2.1459142 34.6620254 2.1546052 "  [14] " alpha2 2.9884469 0.7273827 12.2780133 1.0947538 "  [15] " beta 5.8496862 1.2311200 27.7948768 1.7663880 "  [16] " r 19.9352174 1.5217326 261.1581662 2.9924879 "  [17] " rc 8.5073357 1.3193202 54.8576170 2.1409288 "  [18] " rold 5.4074881 0.9217042 31.7248503 1.6877847 "  [19] " m 644.6666039 562.3644316 739.0137192 6.4687333 "  [20] " K 230.4324844 31.7834760 1670.6520695 5.4399579 "  [21] " q1 5.2182395 0.8623024 31.5782762 1.6521601 "  [22] " q2 1.2429110 0.2203654 7.0103007 0.2174562 "  [23] " n 4.6865947 1.3895065 15.8071730 1.5447063 "  [24] " sdb 0.1504762 0.0379198 0.5971309 -1.8939501 "  [25] " sdf 0.0390445 0.0080798 0.1886776 -3.2430523 "  [26] " sdi1 1.2977800 1.0114591 1.6651517 0.2606551 "  [27] " sdi2 0.4496903 0.3256367 0.6210028 -0.7991962 "  [28] " sdc 0.2283983 0.1717538 0.3037242 -1.4766643 "  [29] " "  [30] "Deterministic reference points (Drp)"  [31] " estimate cilow ciupp log.est "  [32] " Bmsyd 151.555464 24.2924643 945.52197 5.020952 "  [33] " Fmsyd 4.253668 0.6596601 27.42881 1.447782 "  [34] " MSYd 644.666604 562.3644316 739.01372 6.468733 "  [35] "Stochastic reference points (Srp)"  [36] " estimate cilow ciupp log.est rel.diff.Drp "  [37] " Bmsys 150.489011 25.1082325 901.97279 5.013890 -0.007086582 "  [38] " Fmsys 4.307143 0.7103496 26.11599 1.460275 0.012415527 "  [39] " MSYs 648.234769 568.6156675 739.00235 6.474253 0.005504434 "  [40] ""  [41] "States w 95% CI (inp$msytype: s)"  [42] " estimate cilow ciupp log.est "  [43] " B\_2019.81 0.9390165 0.1629804 5.4101724 -0.0629223 "  [44] " F\_2019.81 5.1011422 0.8102143 32.1169992 1.6294645 "  [45] " B\_2019.81/Bmsy 0.0062398 0.0031264 0.0124534 -5.0768123 "  [46] " F\_2019.81/Fmsy 1.1843447 0.8486674 1.6527939 0.1691896 "  [47] ""  [48] "Predictions w 95% CI (inp$msytype: s)"  [49] " prediction cilow ciupp log.est "  [50] " B\_2020.00 0.9944426 0.1728776 5.7203237 -0.0055729 "  [51] " F\_2020.00 5.1017856 0.8103923 32.1180443 1.6295906 "  [52] " B\_2020.00/Bmsy 0.0066081 0.0030631 0.0142556 -5.0194630 "  [53] " F\_2020.00/Fmsy 1.1844940 0.8473997 1.6556840 0.1693157 "  [54] " Catch\_2020.00 5.8450955 2.3706759 14.4115612 1.7656029 "  [55] " E(B\_inf) 106.9614776 NA NA 4.6724687 " |
|  |
| |  | | --- | | > | |

#Summary of the parameter estimates and their 95% CIs.

> round(sumspict.parest(res),2)

estimate cilow ciupp log.est

alpha1 8.62 2.15 34.66 2.15

alpha2 2.99 0.73 12.28 1.09

beta 5.85 1.23 27.79 1.77

r 19.94 1.52 261.16 2.99

rc 8.51 1.32 54.86 2.14

rold 5.41 0.92 31.72 1.69

m 644.67 562.36 739.01 6.47

K 230.43 31.78 1670.65 5.44

q1 5.22 0.86 31.58 1.65

q2 1.24 0.22 7.01 0.22

n 4.69 1.39 15.81 1.54

sdb 0.15 0.04 0.60 -1.89

sdf 0.04 0.01 0.19 -3.24

sdi1 1.30 1.01 1.67 0.26

sdi2 0.45 0.33 0.62 -0.80

sdc 0.23 0.17 0.30 -1.48

> #Reference points

> sumspict.drefpoints(res)#deterministic reference points

estimate cilow ciupp log.est

Bmsyd 151.555464 24.2924643 945.52197 5.020952

Fmsyd 4.253668 0.6596601 27.42881 1.447782

MSYd 644.666604 562.3644316 739.01372 6.468733

> sumspict.srefpoints(res)#stochastic reference points

estimate cilow ciupp log.est rel.diff.Drp

Bmsys 150.489011 25.1082325 901.97279 5.013890 -0.007086582

Fmsys 4.307143 0.7103496 26.11599 1.460275 0.012415532

MSYs 648.234769 568.6156675 739.00235 6.474253 0.005504434

> #The basic plotting of the results is done using the generic function

> plot(res)

> ###############################################################################################################################################

> #1. The assessment converged equals 0

> ##############################################################################################################################################

> res$opt$convergence

[1] 0

> ###############################################################################################################################################

> #2. All variance parameters of the model parameters are finite should be TRUE

> ###############################################################################################################################################

> all(is.finite(res$sd))

[1] TRUE

> ##########################################################################################

> #3. No violation of model assumptions based on one-step-ahead residuals (bias, auto-correlation, normality).

> ##########################################################################################

> res <- calc.osa.resid(res)

> #tiff(filename = "Model\_results/Plots/Diagnostics.tiff")

> plotspict.diagnostic(res)#check correlation and normality

> rep=retro(res, nretroyear=3)# by the 1 to 5 last observations, change with nretroyear

> plotspict.retro(rep)

> ##########################################################################################

> #5. Realistic production curve.

> #The shape of the production curve should not be too skewed.

> # BMSY/K should be between 0.1 and 0.9

> #Low values of BMSY/K allow for an infinite population growth rate K

> ##########################################################################################

> calc.bmsyk(res)

[1] 0.6577001

> ############################################################################################################

> #6. High assessment uncertainty can indicate a lack of contrast in the input data or violation of

> #the ecological model assumptions. Confidence intervals for B/BMSY and F/BSMY should not span more

> #than 1 order of magnitude

> ##########################################################################################

> calc.om(fit)

Error in calc.om(fit) : object 'fit' not found

> ############################################################################################################

> #6. High assessment uncertainty can indicate a lack of contrast in the input data or violation of

> #the ecological model assumptions. Confidence intervals for B/BMSY and F/BSMY should not span more

> #than 1 order of magnitude

> ##########################################################################################

> calc.om(res)

lower est upper CI range order magnitude

B/Bmsy 0.00 0.01 0.01 0.01 1

F/Fmsy 0.85 1.18 1.65 0.80 1

> ############################################################################################################

> #7. Initial values do not influence the parameter estimates

> ############################################################################################################

> fit <- check.ini(res)

Checking sensitivity of fit to initial parameter values...

Trial 1 ... convergence not obtained!

Trial 2 ... model fitted!

Trial 3 ... model fitted!

Trial 4 ... model fitted!

Trial 5 ... model fitted!

Trial 6 ... model fitted!

Trial 7 ... model fitted!

Trial 8 ... model fitted!

Trial 9 ... model fitted!

Trial 10 ... model fitted!

$propchng

logm logK logq logq logn logsdb logsdf logsdi logsdi logsdc

Trial 1 -2.00 -0.15 0.17 -1.07 -0.41 0.80 -0.67 1.05 -0.46 -0.12

Trial 2 2.46 0.03 0.13 -1.13 -0.90 -0.22 1.04 -0.22 -0.44 -0.71

Trial 3 -3.07 -0.09 -0.38 -0.23 -1.08 1.10 1.28 -0.79 0.97 -1.06

Trial 4 2.50 0.10 0.29 -1.01 0.36 -1.23 -0.25 -0.68 -1.08 -0.54

Trial 5 -1.23 0.02 0.09 1.31 -0.33 -0.53 0.05 -0.87 1.24 0.71

Trial 6 -0.58 0.26 -0.24 -0.89 -1.21 -0.10 -0.03 -0.37 1.06 -0.14

Trial 7 -0.84 0.11 -0.18 1.44 -0.14 0.15 0.36 0.17 -0.44 -0.85

Trial 8 0.84 0.22 -0.26 -0.30 0.39 -1.14 1.25 -1.36 0.30 -0.60

Trial 9 0.48 0.20 -0.34 -0.81 0.30 -0.56 -0.95 -0.17 0.23 1.23

Trial 10 -3.24 0.00 -0.13 0.27 0.80 -0.27 -0.37 -1.01 1.32 -1.15

$inimat

Distance logn logK logm logq1 logq2 logsdb logsdf logsdi1 logsdi2

Basevec 0.00 0.69 8.10 5.84 -1.52 -1.52 -1.61 -1.61 -1.61 -1.61

Trial 1 3.69 -0.69 6.92 6.82 0.10 -0.89 -2.90 -0.53 -3.30 -0.86

Trial 2 3.65 2.40 8.37 6.62 0.20 -0.15 -1.25 -3.29 -1.25 -0.91

Trial 3 5.20 -1.44 7.40 3.63 -1.17 0.12 -3.38 -3.67 -0.33 -3.16

Trial 4 4.28 2.43 8.94 7.52 0.02 -2.07 0.36 -1.20 -0.52 0.14

Trial 5 3.65 -0.16 8.29 6.39 -3.52 -1.03 -0.75 -1.69 -0.20 -3.61

Trial 6 3.90 0.29 10.24 4.45 -0.17 0.31 -1.44 -1.56 -1.01 -3.31

Trial 7 3.17 0.11 8.99 4.77 -3.72 -1.32 -1.86 -2.19 -1.89 -0.90

Trial 8 4.46 1.27 9.91 4.31 -1.07 -2.12 0.22 -3.63 0.57 -2.10

Trial 9 3.99 1.02 9.75 3.83 -0.29 -1.98 -0.71 -0.07 -1.33 -1.98

Trial 10 4.29 -1.55 8.07 5.07 -1.94 -2.74 -1.17 -1.02 0.02 -3.73

logsdc

Basevec -1.61

Trial 1 -1.41

Trial 2 -0.47

Trial 3 0.09

Trial 4 -0.74

Trial 5 -2.75

Trial 6 -1.38

Trial 7 -0.24

Trial 8 -0.64

Trial 9 -3.58

Trial 10 0.23

$resmat

Distance m K q q n sdb sdf sdi sdi sdc

Basevec 0.00 644.67 230.43 5.22 1.24 4.69 0.15 0.04 1.30 0.45 0.23

Trial 1 0.00 NA NA NA NA NA NA NA NA NA NA

Trial 2 0.00 644.67 230.44 5.22 1.24 4.69 0.15 0.04 1.30 0.45 0.23

Trial 3 15537.42 0.00 15754.47 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 4 15523.25 0.00 15740.29 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 5 15540.35 0.00 15757.41 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 6 15539.91 0.00 15756.97 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 7 15538.52 0.00 15755.57 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 8 15534.32 0.00 15751.37 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 9 15536.45 0.00 15753.51 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

Trial 10 15540.52 0.00 15757.58 0.05 0.01 2.00 0.30 0.09 1.25 0.44 0.22

There were 12 warnings (use warnings() to see them)

> #The estimates should be the same for all initial values

> res$ckeck.ini$resmat

NULL