Spict run turbot ibp 2017

Input:

Catch observations from 1981 – 2016

Index 1: BTS-ISIS

Index 2 NL-LPUE

Index 3: SNS

BTS-ISIS and SNS age aggregated and made biomass using stock weights:

obsI <- list()

obsI$index1 <- c(apply(index(TUR.tun[[2]])[2:7,] \* stock.wt(TUR)[ac(2:7),ac(1991:2016)],

FUN = sum, 2)) ##BTS-ISIS

obsI$index2 <- c(TUR.tun[[3]]@index)#NL\_LPUE

obsI$index3 <- c(apply(index(TUR.tun[[1]])[2:6,] \* stock.wt(TUR)[ac(2:6),ac(2004:2016)],

FUN = sum, 2))##SNS

Priors:

inp$priors$logn <- c(log(2), 1, 0)

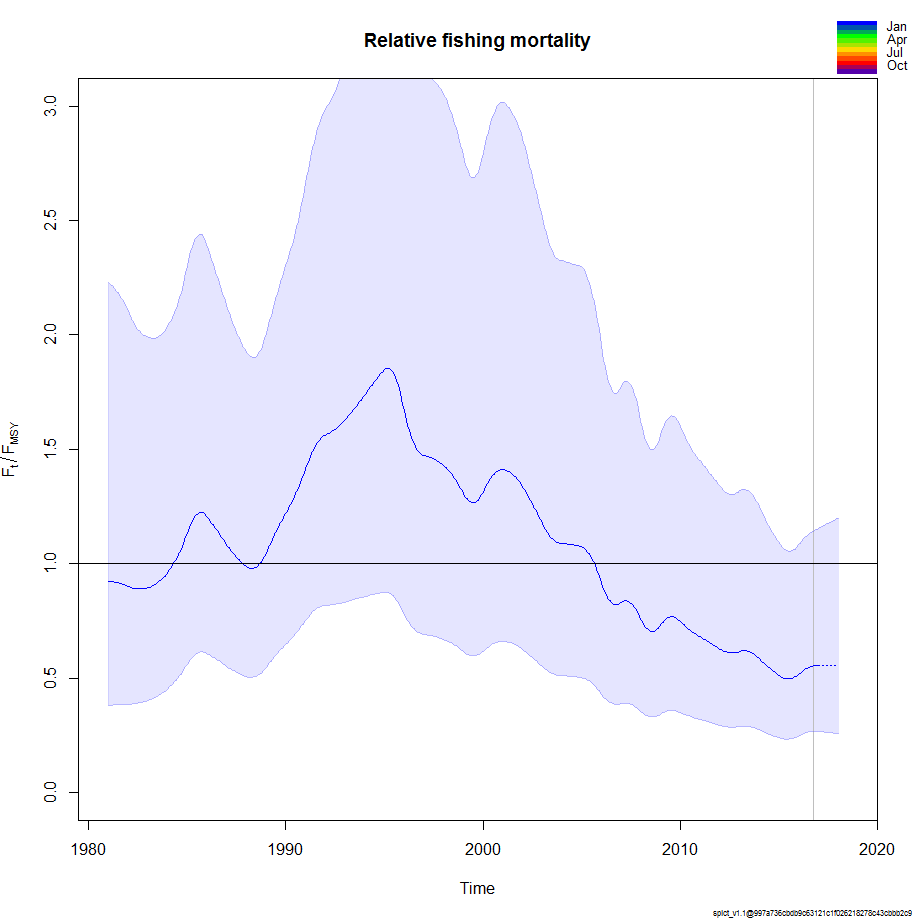
inp$priors$logalpha <- c(log(2), 3, 0)

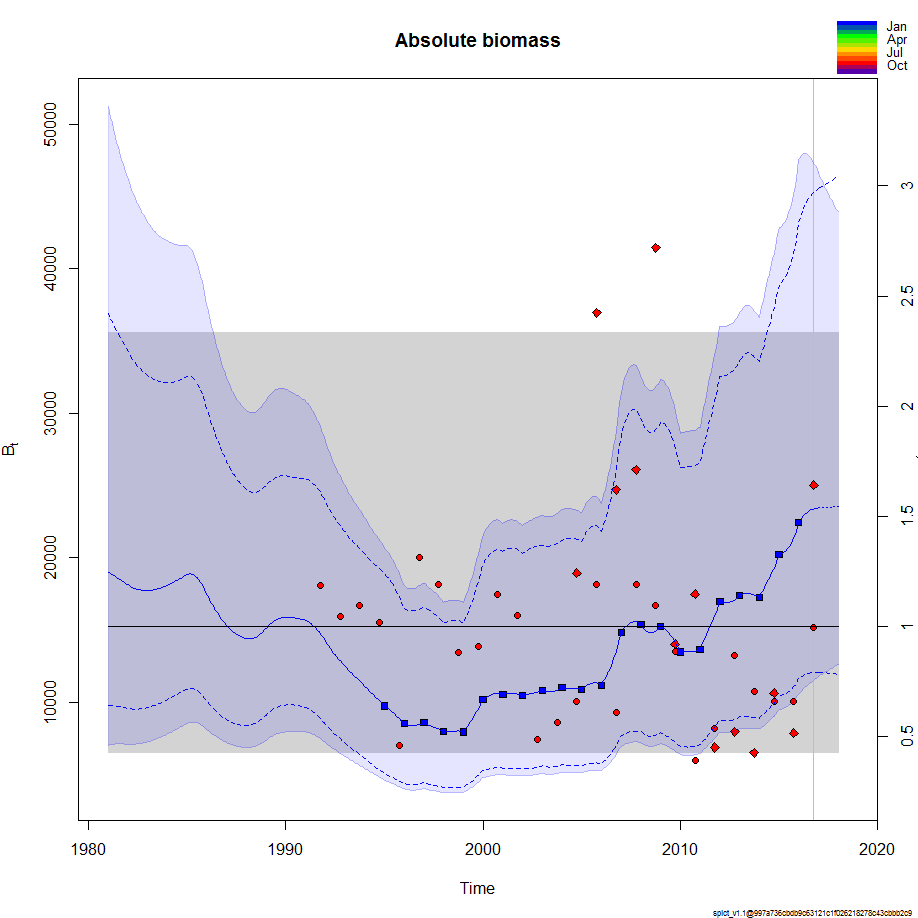
inp$priors$logbeta <- c(log(2), 1, 0)

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| --- |
| > summary(fit)  Convergence: 0 MSG: both X-convergence and relative convergence (5)  Objective function at optimum: 7.9313578  Euler time step (years): 1/16 or 0.0625  Nobs C: 36, Nobs I1: 26, Nobs I2: 22, Nobs I3: 13  Residual diagnostics (p-values)  shapiro bias acf LBox shapiro bias acf LBox  C 0.2538 0.7754 0.0480 0.0972 - - \* .  I1 0.7237 0.6519 0.0021 0.0002 - - \*\* \*\*\*  I2 0.4744 0.9918 0.0875 0.3141 - - . -  I3 0.3685 0.9891 0.0220 0.0176 - - \* \*  Model parameter estimates w 95% CI  estimate cilow ciupp log.est  alpha1 4.960137e+00 3.1489514 7.813065e+00 1.6014334  alpha2 1.196369e-01 0.0000816 1.754187e+02 -2.1232941  alpha3 7.687052e+00 4.5233648 1.306345e+01 2.0395373  beta 3.577090e-02 0.0000302 4.242571e+01 -3.3306200  r 2.402434e-01 0.0087836 6.570982e+00 -1.4261029  rc 5.570380e-01 0.2489503 1.246399e+00 -0.5851218  rold 1.748170e+00 0.0000000 2.419633e+09 0.5585694  m 4.287111e+03 3586.5805255 5.124470e+03 8.3633684  K 4.513327e+04 6317.1339573 3.224582e+05 10.7173749  q1 1.146000e-04 0.0000589 2.230000e-04 -9.0739089  q2 4.300000e-06 0.0000022 8.300000e-06 -12.3509722  q3 3.710700e-03 0.0017199 8.005900e-03 -5.5965431  n 8.625744e-01 0.0505801 1.471002e+01 -0.1478339  sdb 9.581800e-02 0.0665961 1.378623e-01 -2.3453046  sdf 1.215013e-01 0.0857153 1.722278e-01 -2.1078306  sdi1 4.752705e-01 0.3607752 6.261020e-01 -0.7438712  sdi2 1.146340e-02 0.0000093 1.411794e+01 -4.4685987  sdi3 7.365580e-01 0.5010226 1.082821e+00 -0.3057672  sdc 4.346200e-03 0.0000038 5.014694e+00 -5.4384507    Deterministic reference points (Drp)  estimate cilow ciupp log.est  Bmsyd 15392.526454 6566.9207764 3.607929e+04 9.641637  Fmsyd 0.278519 0.1244752 6.231994e-01 -1.278269  MSYd 4287.111230 3586.5805255 5.124470e+03 8.363368  Stochastic reference points (Srp)  estimate cilow ciupp log.est rel.diff.Drp  Bmsys 1.524843e+04 6530.2398757 3.560583e+04 9.632232 -0.009449893  Fmsys 2.788262e-01 0.1258981 6.175155e-01 -1.277167 0.001101726  MSYs 4.251706e+03 3600.0872308 5.021268e+03 8.355076 -0.008327321  States w 95% CI (inp$msytype: s)  estimate cilow ciupp log.est  B\_2016.75 2.337392e+04 1.207222e+04 4.525598e+04 10.0593764  F\_2016.75 1.545035e-01 7.960620e-02 2.998679e-01 -1.8675382  B\_2016.75/Bmsy 1.532874e+00 7.565896e-01 3.105651e+00 0.4271445  F\_2016.75/Fmsy 5.541214e-01 2.687584e-01 1.142478e+00 -0.5903715  Predictions w 95% CI (inp$msytype: s)  prediction cilow ciupp log.est  B\_2017.00 2.346066e+04 1.208349e+04 4.554998e+04 10.0630802  F\_2017.00 1.550850e-01 7.921400e-02 3.036253e-01 -1.8637817  B\_2017.00/Bmsy 1.538562e+00 7.732731e-01 3.061239e+00 0.4308484  F\_2017.00/Fmsy 5.562068e-01 2.679242e-01 1.154678e+00 -0.5866150  Catch\_2017.00 3.645997e+03 2.888802e+03 4.601665e+03 8.2013853  E(B\_inf) 2.396382e+04 NA NA 10.0843006 |
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| |  | | --- | | > | |

Summary plot spict run







retrospective



Parameter estimates retrospective



With error bars



Without priors:

Input:

> inp\_no$priors$logn <- c(1, 1, 0)

> inp\_no$priors$logalpha <- c(1, 1, 0)

> inp\_no$priors$logbeta <- c(1, 1, 0)

> summary(fit\_no)

Convergence: 0 MSG: both X-convergence and relative convergence (5)

Objective function at optimum: 7.9313578

Euler time step (years): 1/16 or 0.0625

Nobs C: 36, Nobs I1: 26, Nobs I2: 22, Nobs I3: 13

Residual diagnostics (p-values)

shapiro bias acf LBox shapiro bias acf LBox

C 0.2538 0.7754 0.0480 0.0972 - - \* .

I1 0.7237 0.6519 0.0021 0.0002 - - \*\* \*\*\*

I2 0.4744 0.9918 0.0875 0.3141 - - . -

I3 0.3685 0.9891 0.0220 0.0176 - - \* \*

Model parameter estimates w 95% CI

estimate cilow ciupp log.est

alpha1 4.960137e+00 3.1489514 7.813065e+00 1.6014334

alpha2 1.196369e-01 0.0000816 1.754187e+02 -2.1232941

alpha3 7.687052e+00 4.5233648 1.306345e+01 2.0395373

beta 3.577090e-02 0.0000302 4.242571e+01 -3.3306200

r 2.402434e-01 0.0087836 6.570982e+00 -1.4261029

rc 5.570380e-01 0.2489503 1.246399e+00 -0.5851218

rold 1.748170e+00 0.0000000 2.419633e+09 0.5585694

m 4.287111e+03 3586.5805255 5.124470e+03 8.3633684

K 4.513327e+04 6317.1339573 3.224582e+05 10.7173749

q1 1.146000e-04 0.0000589 2.230000e-04 -9.0739089

q2 4.300000e-06 0.0000022 8.300000e-06 -12.3509722

q3 3.710700e-03 0.0017199 8.005900e-03 -5.5965431

n 8.625744e-01 0.0505801 1.471002e+01 -0.1478339

sdb 9.581800e-02 0.0665961 1.378623e-01 -2.3453046

sdf 1.215013e-01 0.0857153 1.722278e-01 -2.1078306

sdi1 4.752705e-01 0.3607752 6.261020e-01 -0.7438712

sdi2 1.146340e-02 0.0000093 1.411794e+01 -4.4685987

sdi3 7.365580e-01 0.5010226 1.082821e+00 -0.3057672

sdc 4.346200e-03 0.0000038 5.014694e+00 -5.4384507

Deterministic reference points (Drp)

estimate cilow ciupp log.est

Bmsyd 15392.526454 6566.9207764 3.607929e+04 9.641637

Fmsyd 0.278519 0.1244752 6.231994e-01 -1.278269

MSYd 4287.111230 3586.5805255 5.124470e+03 8.363368

Stochastic reference points (Srp)

estimate cilow ciupp log.est rel.diff.Drp

Bmsys 1.524843e+04 6530.2398757 3.560583e+04 9.632232 -0.009449893

Fmsys 2.788262e-01 0.1258981 6.175155e-01 -1.277167 0.001101726

MSYs 4.251706e+03 3600.0872308 5.021268e+03 8.355076 -0.008327321

States w 95% CI (inp$msytype: s)

estimate cilow ciupp log.est

B\_2016.75 2.337392e+04 1.207222e+04 4.525598e+04 10.0593764

F\_2016.75 1.545035e-01 7.960620e-02 2.998679e-01 -1.8675382

B\_2016.75/Bmsy 1.532874e+00 7.565896e-01 3.105651e+00 0.4271445

F\_2016.75/Fmsy 5.541214e-01 2.687584e-01 1.142478e+00 -0.5903715

Predictions w 95% CI (inp$msytype: s)

prediction cilow ciupp log.est

B\_2017.00 2.346066e+04 1.208349e+04 4.554998e+04 10.0630802

F\_2017.00 1.550850e-01 7.921400e-02 3.036253e-01 -1.8637817

B\_2017.00/Bmsy 1.538562e+00 7.732731e-01 3.061239e+00 0.4308484

F\_2017.00/Fmsy 5.562068e-01 2.679242e-01 1.154678e+00 -0.5866150

Catch\_2017.00 3.645997e+03 2.888802e+03 4.601665e+03 8.2013853

E(B\_inf) 2.396382e+04 NA NA 10.0843006

