#V3.30

#C file created using the SS\_writectl function in the R package r4ss

#C file write time: 2021-05-23 18:08:06

#

1 # 0 means do not read wtatage.ss; 1 means read and usewtatage.ss and also read and use growth parameters

1 #\_N\_Growth\_Patterns

1 #\_N\_platoons\_Within\_GrowthPattern

4 # recr\_dist\_method for parameters

1 # not yet implemented; Future usage:Spawner-Recruitment; 1=global; 2=by area

1 # number of recruitment settlement assignments

0 # unused option

# for each settlement assignment:

#\_GPattern month area age

1 1 1 0 #\_recr\_dist\_pattern1

#

#\_Cond 0 # N\_movement\_definitions goes here if N\_areas > 1

#\_Cond 1.0 # first age that moves (real age at begin of season, not integer) also cond on do\_migration>0

#\_Cond 1 1 1 2 4 10 # example move definition for seas=1, morph=1, source=1 dest=2, age1=4, age2=10

#

2 #\_Nblock\_Patterns

2 1 #\_blocks\_per\_pattern

#\_begin and end years of blocks

1988 2005 2006 2020

1977 1977

#

# controls for all timevary parameters

1 #\_env/block/dev\_adjust\_method for all time-vary parms (1=warn relative to base parm bounds; 3=no bound check)

#

# AUTOGEN

1 1 1 1 1 # autogen: 1st element for biology, 2nd for SR, 3rd for Q, 4th reserved, 5th for selex

# where: 0 = autogen all time-varying parms; 1 = read each time-varying parm line; 2 = read then autogen if parm min==-12345

#

# setup for M, growth, maturity, fecundity, recruitment distibution, movement

#

3 #\_natM\_type:\_0=1Parm; 1=N\_breakpoints;\_2=Lorenzen;\_3=agespecific;\_4=agespec\_withseasinterpolate

#\_ #\_Age\_natmort\_by sex x growthpattern

#\_Age\_0 Age\_1 Age\_2 Age\_3 Age\_4 Age\_5 Age\_6

0.98 0.61 0.47 0.4 0.36 0.35 0.32 #\_natM1

1 # GrowthModel: 1=vonBert with L1&L2; 2=Richards with L1&L2; 3=age\_specific\_K\_incr; 4=age\_specific\_K\_decr;5=age\_specific\_K\_each; 6=NA; 7=NA; 8=growth cessation

0 #\_Age(post-settlement)\_for\_L1;linear growth below this

6 #\_Growth\_Age\_for\_L2 (999 to use as Linf)

-999 #\_exponential decay for growth above maxage (value should approx initial Z; -999 replicates 3.24; -998 to not allow growth above maxage)

0 #\_placeholder for future growth feature

#

0 #\_SD\_add\_to\_LAA (set to 0.1 for SS2 V1.x compatibility)

0 #\_CV\_Growth\_Pattern: 0 CV=f(LAA); 1 CV=F(A); 2 SD=F(LAA); 3 SD=F(A); 4 logSD=F(A)

5 #\_maturity\_option: 1=length logistic; 2=age logistic; 3=read age-maturity matrix by growth\_pattern; 4=read age-fecundity; 5=disabled; 6=read length-maturity

1 #\_First\_Mature\_Age

1 #\_fecundity option:(1)eggs=Wt\*(a+b\*Wt);(2)eggs=a\*L^b;(3)eggs=a\*Wt^b; (4)eggs=a+b\*L; (5)eggs=a+b\*W

0 #\_hermaphroditism option: 0=none; 1=female-to-male age-specific fxn; -1=male-to-female age-specific fxn

1 #\_parameter\_offset\_approach (1=none, 2= M, G, CV\_G as offset from female-GP1, 3=like SS2 V1.x)

#

#\_growth\_parms

#\_LO HI INIT PRIOR PR\_SD PR\_type PHASE env\_var&link dev\_link dev\_minyr dev\_maxyr dev\_PH Block Block\_Fxn

8e+00 18.000000 14.00 0.0 0.0 0 -2 0 0 0 0 0 0 0 #\_L\_at\_Amin\_Fem\_GP\_1

2e+01 25.000000 23.00 0.0 0.0 0 -4 0 0 0 0 0 0 0 #\_L\_at\_Amax\_Fem\_GP\_1

2e-01 0.800000 0.40 0.0 0.0 0 -4 0 0 0 0 0 0 0 #\_VonBert\_K\_Fem\_GP\_1

5e-02 0.250000 0.10 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_CV\_young\_Fem\_GP\_1

5e-02 0.250000 0.10 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_CV\_old\_Fem\_GP\_1

-3e+00 3.000000 2.00 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Wtlen\_1\_Fem\_GP\_1

-3e+00 4.000000 3.00 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Wtlen\_2\_Fem\_GP\_1

5e+01 60.000000 55.00 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Mat50%\_Fem\_GP\_1

-3e+00 3.000000 -0.25 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Mat\_slope\_Fem\_GP\_1

-3e+00 3.000000 1.00 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Eggs\_intercept\_Fem\_GP\_1

-3e+00 3.000000 0.00 0.0 0.0 0 -3 0 0 0 0 0 0 0 #\_Eggs\_slope\_wt\_Fem\_GP\_1

#0e+00 0.000000 0.00 0.0 0.0 0 -4 0 0 0 0 0 0 0 #\_RecrDist\_GP\_1

#0e+00 0.000000 0.00 0.0 0.0 0 -4 0 0 0 0 0 0 0 #\_RecrDist\_Area\_1

#0e+00 0.000000 0.00 0.0 0.0 0 -4 0 0 0 0 0 0 0 #\_RecrDist\_month\_1

1e+00 1.000000 1.00 1.0 1.0 0 -1 0 0 0 0 0 0 0 #\_CohortGrowDev

1e-06 0.999999 0.50 0.5 0.5 0 -99 0 0 0 0 0 0 0 #\_FracFemale\_GP\_1

#\_no timevary MG parameters

#

#\_seasonal\_effects\_on\_biology\_parms

0 0 0 0 0 0 0 0 0 0 #\_femwtlen1,femwtlen2,mat1,mat2,fec1,fec2,Malewtlen1,malewtlen2,L1,K

#\_ LO HI INIT PRIOR PR\_SD PR\_type PHASE

#\_Cond -2 2 0 0 -1 99 -2 #\_placeholder when no seasonal MG parameters

#

3 #\_Spawner-Recruitment; 2=Ricker; 3=std\_B-H; 4=SCAA;5=Hockey; 6=B-H\_flattop; 7=survival\_3Parm;8=Shepard\_3Parm

0 # 0/1 to use steepness in initial equ recruitment calculation

0 # future feature: 0/1 to make realized sigmaR a function of SR curvature

#\_LO HI INIT PRIOR PR\_SD PR\_type PHASE env-var use\_dev dev\_mnyr dev\_mxyr dev\_PH Block Blk\_Fxn # parm\_name

1 20 16.00 4.5 5.00 0 1 0 0 0 0 0 0 0 #\_SR\_LN(R0)

0 2 0.71 0.7 0.05 0 -1 0 0 0 0 0 0 0 #\_SR\_BH\_steep

0 4 0.70 0.6 0.80 0 -4 0 0 0 0 0 0 0 #\_SR\_sigmaR

-5 5 0.00 0.0 1.00 0 -2 0 0 0 0 0 0 0 #\_SR\_regime

0 0 0.00 0.0 0.00 0 -99 0 0 0 0 0 0 0 #\_SR\_autocorr

#\_no timevary SR parameters

1 #do\_recdev: 0=none; 1=devvector (R=F(SSB)+dev); 2=deviations (R=F(SSB)+dev); 3=deviations (R=R0\*dev; dev2=R-f(SSB)); 4=like 3 with sum(dev2) adding penalty

1978 # first year of main recr\_devs; early devs can preceed this era

2020 # last year of main recr\_devs; forecast devs start in following year

2 #\_recdev phase

1 # (0/1) to read 13 advanced options

-4 #\_recdev\_early\_start (0=none; neg value makes relative to recdev\_start)

2 #\_recdev\_early\_phase

-1 #\_forecast\_recruitment phase (incl. late recr) (0 value resets to maxphase+1)

1 #\_lambda for Fcast\_recr\_like occurring before endyr+1

1900 #\_last\_yr\_nobias\_adj\_in\_MPD; begin of ramp

1900 #\_first\_yr\_fullbias\_adj\_in\_MPD; begin of plateau

1900 #\_last\_yr\_fullbias\_adj\_in\_MPD

1900 #\_end\_yr\_for\_ramp\_in\_MPD (can be in forecast to shape ramp, but SS sets bias\_adj to 0.0 for fcast yrs)

1 #\_max\_bias\_adj\_in\_MPD (-1 to override ramp and set biasadj=1.0 for all estimated recdevs)

0 #\_period of cycles in recruitment (N parms read below)

-5 #min rec\_dev

5 #max rec\_dev

0 #\_read\_recdevs

#\_end of advanced SR options

#

#\_placeholder for full parameter lines for recruitment cycles

# read specified recr devs

#\_Yr Input\_value

#

#Fishing Mortality info

0.3 # F ballpark

-2001 # F ballpark year (neg value to disable)

3 # F\_Method: 1=Pope; 2=instan. F; 3=hybrid (hybrid is recommended)

2 # max F or harvest rate, depends on F\_Method

4 # N iterations for tuning F in hybrid method (recommend 3 to 7)

#

#\_initial\_F\_parms

#\_LO HI INIT PRIOR PR\_SD PR\_type PHASE

-1 2 0.3 0.3 0.2 0 1 #\_InitF\_seas\_1\_flt\_1purse\_seine

#

#\_Q\_setup for fleets with cpue or survey data

#\_fleet link link\_info extra\_se biasadj float # fleetname

2 1 0 0 0 0 #\_Acoustic\_survey

3 1 0 0 0 0 #\_DEPM\_survey

4 1 0 0 0 0 #\_Rec\_survey

-9999 0 0 0 0 0 #\_terminator

#\_Q\_parms(if\_any);Qunits\_are\_ln(q)

#\_LO HI INIT PRIOR PR\_SD PR\_type PHASE env-var use\_dev dev\_mnyr dev\_mxyr dev\_PH Block Blk\_Fxn # parm\_name

-3 3 0 0 1 0 1 0 0 0 0 0 0 0 #\_LnQ\_base\_Acoustic\_survey(2)

-3 3 0 0 1 0 1 0 0 0 0 0 0 0 #\_LnQ\_base\_DEPM\_survey(3)

-3 3 0 0 1 0 1 0 0 0 0 0 0 0 #\_LnQ\_base\_Rec\_survey(3)

#\_no timevary Q parameters

#

#\_size\_selex\_patterns

#\_Pattern Discard Male Special

0 0 0 0 #\_1 purse\_seine

0 0 0 0 #\_2 Acoustic\_survey

0 0 0 0 #\_3 DEPM\_survey

0 0 0 0 #\_4 Rec\_survey

#

#\_age\_selex\_patterns

#\_Pattern Discard Male Special

17 0 0 0 #\_1 purse\_seine

17 0 0 0 #\_2 Acoustic\_survey

10 0 0 0 #\_3 DEPM\_survey

11 0 0 0 #\_4 Rec\_survey

#

#\_SizeSelex

#\_No size\_selex\_parm

#\_AgeSelex

-4 4 0e+00 0.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_1\_purse\_seine(1)

-3 3 9e-01 0.5 0.01 0 2 0 0 0 0 0 1 3 #\_AgeSel\_P\_2\_purse\_seine(1)

-4 4 4e-01 0.5 0.01 0 2 0 0 0 0 0 1 3 #\_AgeSel\_P\_3\_purse\_seine(1)

-4 4 1e-01 0.3 0.01 0 2 0 0 0 0 0 1 3 #\_AgeSel\_P\_4\_purse\_seine(1)

-4 4 0e+00 0.1 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_5\_purse\_seine(1)

-4 4 0e+00 0.1 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_6\_purse\_seine(1)

-4 4 -5e-01 0.5 0.01 0 2 0 0 0 0 0 1 3 #\_AgeSel\_P\_7\_purse\_seine(1)

-1000 -1000 -1e+03 -6.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_1\_Acoustic\_survey(2)

-4 4 0e+00 0.5 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_2\_Acoustic\_survey(2)

-4 4 0e+00 0.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_3\_Acoustic\_survey(2)

-4 4 0e+00 0.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_4\_Acoustic\_survey(2)

-4 4 0e+00 0.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_5\_Acoustic\_survey(2)

-4 4 0e+00 0.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_6\_Acoustic\_survey(2)

-4 4 0e+00 -1.0 0.01 0 -2 0 0 0 0 0 0 0 #\_AgeSel\_P\_7\_Acoustic\_survey(2)

#Rec\_survey

0 12 0 -2 0.01 0 -3 0 0 0 0 0 0 0 # AgeSel\_P1\_Active(3)

0 12 0 0 0.01 0 -3 0 0 0 0 0 0 0 # AgeSel\_P2\_Active(3)

# timevary selex parameters

#\_LO HI INIT PRIOR PR\_SD PR\_type PHASE

-4 4 0.9 1 0.01 0 2 # AgeSel\_P\_2\_purse\_seine(1)\_BLK1add1988

-4 4 0.9 1 0.01 0 2 # AgeSel\_P\_2\_purse\_seine(1)\_BLK1add2006

-4 4 0.4 1 0.01 0 2 # AgeSel\_P\_3\_purse\_seine(1)\_BLK1add1988

-4 4 0.4 1 0.01 0 2 # AgeSel\_P\_3\_purse\_seine(1)\_BLK1add2006

-4 4 0.1 1 0.01 0 2 # AgeSel\_P\_4\_purse\_seine(1)\_BLK1add1988

-4 4 0.1 1 0.01 0 2 # AgeSel\_P\_4\_purse\_seine(1)\_BLK1add2006

-4 4 -0.5 1 0.01 0 2 # AgeSel\_P\_7\_purse\_seine(1)\_BLK1add1988

-4 4 -0.5 1 0.01 0 2 # AgeSel\_P\_7\_purse\_seine(1)\_BLK1add2006

# info on dev vectors created for selex parms are reported with other devs after tag parameter section

#

0 # use 2D\_AR1 selectivity(0/1): experimental feature

#\_no 2D\_AR1 selex offset used

# Tag loss and Tag reporting parameters go next

0 # TG\_custom: 0=no read; 1=read if tags exist

#\_Cond -6 6 1 1 2 0.01 -4 0 0 0 0 0 0 0 #\_placeholder if no parameters

#

# Input variance adjustments factors:

#\_Factor Fleet Value

4 1 1 #\_Variance\_adjustment\_list1

4 2 1 #\_Variance\_adjustment\_list2

4 3 1 #\_Variance\_adjustment\_list3

4 4 1 #\_Variance\_adjustment\_list4

-9999 1 1 #\_terminator

#

4 #\_maxlambdaphase

1 #\_sd\_offset; must be 1 if any growthCV, sigmaR, or survey extraSD is an estimated parameter

# read 3 changes to default Lambdas (default value is 1.0)

#\_like\_comp fleet phase value sizefreq\_method

9 1 1 1 1 #\_init\_equ\_catch\_purse\_seine\_lambda\_for\_init\_equ\_catch\_can\_only\_enable/disable for\_all\_fleets\_Phz1

4 2 2 1 1 #\_length\_Acoustic\_survey\_sizefreq\_method\_1\_Phz2

4 2 3 1 1 #\_length\_Acoustic\_survey\_sizefreq\_method\_1\_Phz3

4 2 4 1 1 #\_length\_Acoustic\_survey\_sizefreq\_method\_1\_Phz3

-9999 0 0 0 0 #\_terminator

#

1 # (0/1) read specs for more stddev reporting

0 2 -1 7 0 0 -1 2020 6 # selex type, len/age, year, N selex bins, Growth pattern, N growth ages, NatAge\_area(-1 for all), NatAge\_yr, N Natages

1 2 3 4 5 6 # vector with NatAge std bin picks (-1 in first bin to self-generate)

999