Appendix B. Data files for model 21.1b

Model 21.1b data file for 2022

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#updating trawl and fixed gear bycatch data for length comp. during 1986-2022 and biomass 2009-2021
# base data file 21.1b model fall 2022
#==========================================================================================================
#   Gmacs   Main    Data    File    Version 1.1:    BBRKC   Example
#   GEAR_INDEX  DESCRIPTION
#   1   :   Pot fishery retained    catch.
#   1   :   Pot fishery with    discarded   catch.
#   2   :   Trawl   bycatch
#   3   :   Trawl   survey
#   Fisheries:  1   Pot Fishery,    2   Pot Discard,    3   Trawl   by-catch,   4   Tanner bycatch 5 fixed gear
#   Surveys:    6   NMFS    Trawl   Survey, 7   BSFRF   Survey
#==========================================================================================================
1975    # Start year
2021    # End   year - update annually in fall
7   # Number of seasons
6   # Number of fleets (fishing fleets and surveys)
2   # Number of sexes
2   # Number of shell condition types
1   # Number of maturity types
20  # Number of size-classes in the model
7   # Season recruitment occurs
7   # Season molting and growth occurs
6   # Season to calculate SSB
1   # Season for N output
# maximum size-class (males then females)
20 16
#   size_breaks (a  vector  giving  the break   points  between size    intervals,  dim=nclass+1)
65  70  75  80  85  90  95  100 105 110 115 120 125 130 135 140 145 150 155 160 165
#   Natural mortality   per season  input   type    (1  =   vector  by  season, 2   =   matrix  by  season/year)
2
#   Proportion of the total natural mortality to be applied each    season
0.0000  0.2329  0.0000  0.2671  0.000   0.194   0.306   #1975
0.0000  0.2795  0.0000  0.2205  0.000   0.194   0.306   #1976
0.0000  0.3233  0.0000  0.1767  0.000   0.194   0.306   #1977
0.0000  0.2548  0.0000  0.2452  0.000   0.194   0.306   #1978
0.0000  0.2493  0.0000  0.2507  0.000   0.194   0.306   #1979
0.0000  0.2493  0.0000  0.2507  0.000   0.194   0.306   #1980
0.0000  0.2493  0.0000  0.2507  0.000   0.194   0.306   #1981
0.0000  0.2356  0.0000  0.2644  0.000   0.194   0.306   #1982
0.0000  0.2400  0.0000  0.2600  0.000   0.194   0.306   #1983
0.0000  0.2712  0.0000  0.2288  0.000   0.194   0.306   #1984
0.0000  0.2438  0.0000  0.2562  0.000   0.194   0.306   #1985
0.0000  0.2521  0.0000  0.2479  0.000   0.194   0.306   #1986
0.0000  0.2493  0.0000  0.2507  0.000   0.194   0.306   #1987
0.0000  0.2438  0.0000  0.2562  0.000   0.194   0.306   #1988
0.0000  0.2493  0.0000  0.2507  0.000   0.194   0.306   #1989
0.0000  0.3507  0.0000  0.1493  0.000   0.194   0.306   #1990
0.0000  0.3425  0.0000  0.1575  0.000   0.194   0.306   #1991
0.0000  0.3425  0.0000  0.1575  0.000   0.194   0.306   #1992
0.0000  0.3452  0.0000  0.1548  0.000   0.194   0.306   #1993
0.0000  0.3400  0.0000  0.1600  0.000   0.194   0.306   #1994
0.0000  0.3400  0.0000  0.1600  0.000   0.194   0.306   #1995
0.0000  0.3400  0.0000  0.1600  0.000   0.194   0.306   #1996
0.0000  0.3400  0.0000  0.1600  0.000   0.194   0.306   #1997
0.0000  0.3400  0.0000  0.1600  0.000   0.194   0.306   #1998
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #1999
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2000
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2001
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2002
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2003
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2004
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2005
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2006
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2007
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2008
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2009
```

```
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2010
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2011
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2012
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2013
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2014
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2015
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2016
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2017
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2018
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2019
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2020
0.0000  0.3000  0.0000  0.2000  0.000   0.194   0.306   #2021 update annually
#0.0000  0.3000 0.0000  0.2000  0.000   0.194   0.306   #2022
# Fishing fleet names (delimited with: no spaces in names)
Pot_Fishery Trawl_Bycatch Bairdi_Fishery_Bycatch Fixed_Gear
# Survey names (delimited with: no spaces in names)
NMFS_Trawl BSFRF
# Are the seasons instantaneous (0) or continuous (1)
1 1 1 1 1 1 1
#1 1 1 1 1 1 1
# Number of catch data frames
7
# Number of rows in each data frame
47  32  32  46  25  25  26   # updated annually with new data
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
##  CATCH   DATA
##  Type of catch: 1 = retained, 2  = discard, 0 =  total
##  Units of catch: 1 = biomass, 2 = numbers
##  for BBRKC Units are in 1000 mt  for landed & discards.
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
##  Male    retained    pot fishery (tonnes)
#year   seas    fleet   sex obs cv  type    units   mult    effort  discard_mortality
1975    3   1   1   23281.2 0.03    1   1   1   0   0.2
1976    3   1   1   28993.6 0.03    1   1   1   0   0.2
1977    3   1   1   31736.9 0.03    1   1   1   0   0.2
1978    3   1   1   39743   0.03    1   1   1   0   0.2
1979    3   1   1   48910   0.03    1   1   1   0   0.2
1980    3   1   1   58943.6 0.03    1   1   1   0   0.2
1981    3   1   1   15236.8 0.03    1   1   1   0   0.2
1982    3   1   1   1361.3  0.03    1   1   1   0   0.2
1983    3   1   1   0.1 0.03    1   1   1   0   0.2 #AEP
1984    3   1   1   1897.1  0.03    1   1   1   0   0.2
1985    3   1   1   1893.8  0.03    1   1   1   0   0.2
1986    3   1   1   5168.2  0.03    1   1   1   0   0.2
1987    3   1   1   5574.2  0.03    1   1   1   0   0.2
1988    3   1   1   3351.1  0.03    1   1   1   0   0.2
1989    3   1   1   4656    0.03    1   1   1   0   0.2
1990    3   1   1   9272.8  0.03    1   1   1   0   0.2
1991    3   1   1   7885.1  0.03    1   1   1   0   0.2
1992    3   1   1   3681.8  0.03    1   1   1   0   0.2
1993    3   1   1   6659.6  0.03    1   1   1   0   0.2
1994    3   1   1   42.3    0.03    1   1   1   0   0.2
1995    3   1   1   36.4    0.03    1   1   1   0   0.2
1996    3   1   1   3861.7  0.03    1   1   1   0   0.2
1997    3   1   1   4042.1  0.03    1   1   1   0   0.2
1998    3   1   1   6779.2  0.03    1   1   1   0   0.2
1999    3   1   1   5377.9  0.03    1   1   1   0   0.2
2000    3   1   1   3737.9  0.03    1   1   1   0   0.2
2001    3   1   1   3866.2  0.03    1   1   1   0   0.2
2002    3   1   1   4384.5  0.03    1   1   1   0   0.2
2003    3   1   1   7135.3  0.03    1   1   1   0   0.2
2004    3   1   1   7006.7  0.03    1   1   1   0   0.2
2005    3   1   1   8399.7  0.03    1   1   1   0   0.2
2006    3   1   1   7143.2  0.03    1   1   1   0   0.2
2007    3   1   1   9303.9  0.03    1   1   1   0   0.2
2008    3   1   1   9216.1  0.03    1   1   1   0   0.2
2009    3   1   1   7272.5  0.03    1   1   1   0   0.2
2010    3   1   1   6761.5  0.03    1   1   1   0   0.2
2011    3   1   1   3607.1  0.03    1   1   1   0   0.2
2012    3   1   1   3621.7  0.03    1   1   1   0   0.2
2013    3   1   1   3991    0.03    1   1   1   0   0.2
2014    3   1   1   4538.6  0.03    1   1   1   0   0.2
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2015    3   1   1   4613.7  0.03    1   1   1   0   0.2
2016    3   1   1   3923.9  0.03    1   1   1   0   0.2
2017    3   1   1   3093.7  0.03    1   1   1   0   0.2
2018    3   1   1   2026.5  0.03    1   1   1   0   0.2
2019    3   1   1   1775.3  0.03    1   1   1   0   0.2
2020    3   1   1   1256.98 0.03    1   1   1   0   0.2
2021    3   1   1   17.45   0.03    1   1   1   0   0.2 # update annually - from where
##  Total Male  pot fishery (t)
#year   seas    fleet   sex obs cv  type    units   mult    effort  discard_mortality
1990    3   1   1   11621.8 0.04    0   1   1   0   0.2
1991    3   1   1   9792.9  0.04    0   1   1   0   0.2
1992    3   1   1   5916.2  0.04    0   1   1   0   0.2
1993    3   1   1   9516.8  0.04    0   1   1   0   0.2
1994    3   1   1   62.3    0.04    0   1   1   0   0.2
1995    3   1   1   52.8    0.04    0   1   1   0   0.2
1996    3   1   1   3845.2  0.04    0   1   1   0   0.2
1997    3   1   1   3758.8  0.04    0   1   1   0   0.2
1998    3   1   1   15644.8 0.04    0   1   1   0   0.2
1999    3   1   1   12112.3 0.04    0   1   1   0   0.2
2000    3   1   1   6579.7  0.04    0   1   1   0   0.2
2001    3   1   1   5711.5  0.04    0   1   1   0   0.2
2002    3   1   1   6961.4  0.04    0   1   1   0   0.2
2003    3   1   1   12166.5 0.04    0   1   1   0   0.2
2004    3   1   1   10692.0 0.04    0   1   1   0   0.2
2005    3   1   1   13615.9 0.04    0   1   1   0   0.2
2006    3   1   1   9254.0  0.04    0   1   1   0   0.2
2007    3   1   1   13871.9 0.04    0   1   1   0   0.2
2008    3   1   1   14894.9 0.04    0   1   1   0   0.2
2009    3   1   1   12218.8 0.04    0   1   1   0   0.2
2010    3   1   1   10095.4 0.04    0   1   1   0   0.2
2011    3   1   1   5665.3  0.04    0   1   1   0   0.2
2012    3   1   1   4495.5  0.04    0   1   1   0   0.2
2013    3   1   1   5305.9  0.04    0   1   1   0   0.2
2014    3   1   1   8113.8  0.04    0   1   1   0   0.2
2015    3   1   1   6726.8  0.04    0   1   1   0   0.2
2016    3   1   1   5651.8  0.04    0   1   1   0   0.2
2017    3   1   1   4077.2  0.04    0   1   1   0   0.2
2018    3   1   1   3423.2  0.04    0   1   1   0   0.2
2019    3   1   1   3144.6  0.04    0   1   1   0   0.2
2020    3   1   1   2299.7  0.04    0   1   1   0   0.2
2021    3   1   1   33.8    0.04    0   1   1   0   0.2 # updated from item1a
##  Female  discards    Pot fishery
#year seas fleet sex obs     cv   type units mult effort discard_mortality
1990    3   1   2   3196.2  0.07    0   1   1   0   0.2
1991    3   1   2   233.9   0.07    0   1   1   0   0.2
1992    3   1   2   1976.3  0.07    0   1   1   0   0.2
1993    3   1   2   3141.5  0.07    0   1   1   0   0.2
1994    3   1   2   1.877   0.07    0   1   1   0   0.2
1995    3   1   2   1.612   0.07    0   1   1   0   0.2
1996    3   1   2   5.1     0.07    0   1   1   0   0.2
1997    3   1   2   182.7   0.07    0   1   1   0   0.2
1998    3   1   2   2769.3  0.07    0   1   1   0   0.2
1999    3   1   2   28.0    0.07    0   1   1   0   0.2
2000    3   1   2   821.9   0.07    0   1   1   0   0.2
2001    3   1   2   604.0   0.07    0   1   1   0   0.2
2002    3   1   2   45.6    0.07    0   1   1   0   0.2
2003    3   1   2   1784.4  0.07    0   1   1   0   0.2
2004    3   1   2   859.2   0.07    0   1   1   0   0.2
2005    3   1   2   2027.1  0.07    0   1   1   0   0.2
2006    3   1   2   187.4   0.07    0   1   1   0   0.2
2007    3   1   2   799.4   0.07    0   1   1   0   0.2
2008    3   1   2   724.2   0.07    0   1   1   0   0.2
2009    3   1   2   441.3   0.07    0   1   1   0   0.2
2010    3   1   2   592.6   0.07    0   1   1   0   0.2
2011    3   1   2   124.8   0.07    0   1   1   0   0.2
2012    3   1   2   55.9    0.07    0   1   1   0   0.2
2013    3   1   2   490.7   0.07    0   1   1   0   0.2
2014    3   1   2   424.3   0.07    0   1   1   0   0.2
2015    3   1   2   1195.6  0.07    0   1   1   0   0.2
2016    3   1   2   617.2   0.07    0   1   1   0   0.2
2017    3   1   2   266.9   0.07    0   1   1   0   0.2
2018    3   1   2   750.4   0.07    0   1   1   0   0.2
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2019    3   1   2   218.0   0.07    0   1   1   0   0.2
2020    3   1   2   76.1    0.07    0   1   1   0   0.2
2021    3   1   2   29.4    0.07    0   1   1   0   0.2 #update annually
##  Trawl   fishery discards (t, without applying to handling mortality rate)
#year   seas    fleet   sex obs cv  type    units   mult    effort  discard_mortality
1976    5   2   0   853.494     0.10    2   1   1   0   0.8
1977    5   2   0   1562.313    0.10    2   1   1   0   0.8
1978    5   2   0   1650.775    0.10    2   1   1   0   0.8
1979    5   2   0   1664.925    0.10    2   1   1   0   0.8
1980    5   2   0   1295.625    0.10    2   1   1   0   0.8
1981    5   2   0   274.229     0.10    2   1   1   0   0.8
1982    5   2   0   718.610     0.10    2   1   1   0   0.8
1983    5   2   0   525.554     0.10    2   1   1   0   0.8
1984    5   2   0   1367.550    0.10    2   1   1   0   0.8
1985    5   2   0   487.576     0.10    2   1   1   0   0.8
1986    5   2   0   250.758     0.10    2   1   1   0   0.8
1987    5   2   0   233.045     0.10    2   1   1   0   0.8
1988    5   2   0   747.996     0.10    2   1   1   0   0.8
1989    5   2   0   219.023     0.10    2   1   1   0   0.8
1990    5   2   0   324.883     0.10    2   1   1   0   0.8
1991    5   2   0   436.783     0.10    2   1   1   0   0.8
1992    5   2   0   366.816     0.10    2   1   1   0   0.8
1993    5   2   0   501.770     0.10    2   1   1   0   0.8
1994    5   2   0   109.129     0.10    2   1   1   0   0.8
1995    5   2   0   102.623     0.10    2   1   1   0   0.8
1996    5   2   0   113.495     0.10    2   1   1   0   0.8
1997    5   2   0   71.862      0.10    2   1   1   0   0.8
1998    5   2   0   232.580     0.10    2   1   1   0   0.8
1999    5   2   0   188.101     0.10    2   1   1   0   0.8
2000    5   2   0   102.161     0.10    2   1   1   0   0.8
2001    5   2   0   241.011     0.10    2   1   1   0   0.8
2002    5   2   0   189.018     0.10    2   1   1   0   0.8
2003    5   2   0   171.114     0.10    2   1   1   0   0.8
2004    5   2   0   216.889     0.10    2   1   1   0   0.8
2005    5   2   0   155.924     0.10    2   1   1   0   0.8
2006    5   2   0   189.660     0.10    2   1   1   0   0.8
2007    5   2   0   192.571     0.10    2   1   1   0   0.8
2008    5   2   0   170.561     0.10    2   1   1   0   0.8
2009    5   2   0   118.672     0.10    2   1   1   0   0.8
2010    5   2   0   104.005     0.10    2   1   1   0   0.8
2011    5   2   0   70.286      0.10    2   1   1   0   0.8
2012    5   2   0   42.641      0.10    2   1   1   0   0.8
2013    5   2   0   83.613      0.10    2   1   1   0   0.8
2014    5   2   0   43.129      0.10    2   1   1   0   0.8
2015    5   2   0   56.410      0.10    2   1   1   0   0.8
2016    5   2   0   84.127      0.10    2   1   1   0   0.8
2017    5   2   0   114.624     0.10    2   1   1   0   0.8
2018    5   2   0   97.561      0.10    2   1   1   0   0.8
2019    5   2   0   100.915     0.10    2   1   1   0   0.8
2020    5   2   0   100.842     0.10    2   1   1   0   0.8
2021    5   2   0   42.990      0.10    2   1   1   0   0.8 # update annually - gf_weight?
# Tanner crab fishery discards males
#year   seas    fleet   sex obs cv  type    units   mult    potlifts    discard_mortality
1975    5   3   1   0   0.07    2   1   1   106.445     0.25
1976    5   3   1   0   0.07    2   1   1   233.667     0.25
1977    5   3   1   0   0.07    2   1   1   408.437     0.25
1978    5   3   1   0   0.07    2   1   1   356.594     0.25
1979    5   3   1   0   0.07    2   1   1   476.410     0.25
1980    5   3   1   0   0.07    2   1   1   496.751     0.25
1981    5   3   1   0   0.07    2   1   1   322.634     0.25
1982    5   3   1   0   0.07    2   1   1   192.538     0.25
1983    5   3   1   0   0.07    2   1   1   44.546      0.25
1984    5   3   1   0   0.07    2   1   1   67.037      0.25
#1985   5   3   1   0   0.07    2   1   1   0.0001      0.25
#1986   5   3   1   0   0.07    2   1   1   0.0001      0.25
1987    5   3   1   0   0.07    2   1   1   39.827      0.25
1988    5   3   1   0   0.07    2   1   1   92.551      0.25
1989    5   3   1   0   0.07    2   1   1   306.175     0.25
1990    5   3   1   0.000   0.07    2   1   1   493.82  0.25
1991    5   3   1   1890.540 0.07   2   1   1   360.864 0.25
1992    5   3   1   263.854 0.07    2   1   1   508.922 0.25
1993    5   3   1   118.614 0.07    2   1   1   286.62  0.25
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1994    5   3   1   38.907  0.07    2   1   1   228.254 0.25
#1995   5   3   1   0.000   0.07    2   1   1   201.988 0.25
#1996   5   3   1   0.000   0.07    2   1   1   64.989  0.25
#1997   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#1998   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#1999   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2000   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2001   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2002   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2003   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2004   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2005   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
2006    5   3   1   14.334  0.07    2   1   1   15.273  0.25
2007    5   3   1   5.536   0.07    2   1   1   26.441  0.25
2008    5   3   1   9.245   0.07    2   1   1   19.401  0.25
2009    5   3   1   3.089   0.07    2   1   1   6.635   0.25
#2010   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2011   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2012   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
2013    5   3   1   37.426  0.07    2   1   1   16.633  0.25
2014    5   3   1   68.588  0.07    2   1   1   72.768  0.25
2015    5   3   1   189.229 0.07    2   1   1   130.302 0.25
#2016   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2017   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2018   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2019   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2020   5   3   1   0.000   0.07    2   1   1   1e-4    0.25
#2021   5   3   1   0.000   0.07    2   1   1   1e-4    0.25 # update annually

#   Tanner  crab    fishery discards    females
#year   seas    fleet   sex obs cv  type    units   mult    potlifts    discard_mortality
1975    5   3   2   0   0.07    2   1   1   106.445 0.25
1976    5   3   2   0   0.07    2   1   1   233.667 0.25
1977    5   3   2   0   0.07    2   1   1   408.437 0.25
1978    5   3   2   0   0.07    2   1   1   356.594 0.25
1979    5   3   2   0   0.07    2   1   1   476.410 0.25
1980    5   3   2   0   0.07    2   1   1   496.751 0.25
1981    5   3   2   0   0.07    2   1   1   322.634 0.25
1982    5   3   2   0   0.07    2   1   1   192.538 0.25
1983    5   3   2   0   0.07    2   1   1   44.546  0.25
1984    5   3   2   0   0.07    2   1   1   67.037  0.25
#1985   5   3   2   0   0.07    2   1   1   0.0001  0.25
#1986   5   3   2   0   0.07    2   1   1   0.0001  0.25
1987    5   3   2   0   0.07    2   1   1   39.827  0.25
1988    5   3   2   0   0.07    2   1   1   92.551  0.25
1989    5   3   2   0   0.07    2   1   1   306.175 0.25
1990    5   3   2   0.000   0.07    2   1   1   493.82  0.25
1991    5   3   2   3690.303 0.07   2   1   1   360.864 0.25
1992    5   3   2   698.992 0.07    2   1   1   508.922 0.25
1993    5   3   2   99.498  0.07    2   1   1   286.62  0.25
1994    5   3   2   0.488   0.07    2   1   1   228.254 0.25
#1995   5   3   2   0.000   0.07    2   1   1   201.988 0.25
#1996   5   3   2   0.000   0.07    2   1   1   64.989  0.25
#1997   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#1998   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#1999   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2000   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2001   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2002   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2003   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2004   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2005   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
2006    5   3   2   0.883   0.07    2   1   1   15.273  0.25
2007    5   3   2   1.606   0.07    2   1   1   26.441  0.25
2008    5   3   2   6.825   0.07    2   1   1   19.401  0.25
2009    5   3   2   3.410   0.07    2   1   1   6.635   0.25
#2010   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2011   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2012   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
2013    5   3   2   75.637  0.07    2   1   1   16.633  0.25
2014    5   3   2   68.907  0.07    2   1   1   72.768  0.25
2015    5   3   2   449.020 0.07    2   1   1   130.302 0.25
```

```
#2016   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2017   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2018   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2019   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2020   5   3   2   0.000   0.07    2   1   1   1e-4    0.25
#2021   5   3   2   0.000   0.07    2   1   1   1e-4    0.25

##  Fixed gear  crab    fishery discards    (t, without applying to handling mortality rate)
1996    5   4   0   82.859  0.10    2   1   1   0   0.5
1997    5   4   0   44.979  0.10    2   1   1   0   0.5
1998    5   4   0   36.916  0.10    2   1   1   0   0.5
1999    5   4   0   100.242 0.10    2   1   1   0   0.5
2000    5   4   0   9.446   0.10    2   1   1   0   0.5
2001    5   4   0   70.553  0.10    2   1   1   0   0.5
2002    5   4   0   58.382  0.10    2   1   1   0   0.5
2003    5   4   0   25.351  0.10    2   1   1   0   0.5
2004    5   4   0   30.422  0.10    2   1   1   0   0.5
2005    5   4   0   39.802  0.10    2   1   1   0   0.5
2006    5   4   0   39.134  0.10    2   1   1   0   0.5
2007    5   4   0   64.655  0.10    2   1   1   0   0.5
2008    5   4   0   31.158  0.10    2   1   1   0   0.5
2009    5   4   0   11.614  0.10    2   1   1   0   0.5
2010    5   4   0   4.944   0.10    2   1   1   0   0.5
2011    5   4   0   21.726  0.10    2   1   1   0   0.5
2012    5   4   0   36.897  0.10    2   1   1   0   0.5
2013    5   4   0   110.208 0.10    2   1   1   0   0.5
2014    5   4   0   237.374 0.10    2   1   1   0   0.5
2015    5   4   0   154.775 0.10    2   1   1   0   0.5
2016    5   4   0   59.418  0.10    2   1   1   0   0.5
2017    5   4   0   260.011 0.10    2   1   1   0   0.5
2018    5   4   0   309.415 0.10    2   1   1   0   0.5
2019    5   4   0   90.291  0.10    2   1   1   0   0.5
2020    5   4   0   75.130  0.10    2   1   1   0   0.5
2021    5   4   0   80.602  0.10    2   1   1   0   0.5 # udpate annually from gf_weight
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
##  RELATIVE    ABUNDANCE   DATA
##  Units   of  Abundance:  1   =   biomass,    2   =   numbers
##  TODO:   add column  for maturity    for terminal    molt    life-histories
##  for BBRKC   Units   are in  1000    mt.
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
##  Number  of  relative    abundance   indicies
2
# Data type (1=total selectivity; 2=retention*selectivity)
 1 1
##  Number  of  rows    in  each    index
106
#   Survey  data    (abundance  indices,    units   are 1000    mt)
#Index Year Season  Fleet   Sex Abundance   CV  Units
1   1975    1   5   1   0   133084.0    0.193   1  0
1   1976    1   5   1   0   256362.2    0.207   1  0
1   1977    1   5   1   0   232538.7    0.144   1  0
1   1978    1   5   1   0   199542.2    0.152   1  0
1   1979    1   5   1   0   102448.2    0.164   1  0
1   1980    1   5   1   0   166524.3    0.221   1  0
1   1981    1   5   1   0   68294.4     0.190   1  0
1   1982    1   5   1   0   72296.3     0.251   1  0
1   1983    1   5   1   0   34761.9     0.214   1  0
1   1984    1   5   1   0   96418.3     0.606   1  0
1   1985    1   5   1   0   26819.4     0.159   1  0
1   1986    1   5   1   0   40549.3     0.420   1  0
1   1987    1   5   1   0   46769.1     0.209   1  0
1   1988    1   5   1   0   35373.6     0.228   1  0
1   1989    1   5   1   0   42357.7     0.232   1  0
1   1990    1   5   1   0   38727.8     0.242   1  0
1   1991    1   5   1   0   66528.0     0.443   1  0
1   1992    1   5   1   0   25096.2     0.176   1  0
1   1993    1   5   1   0   35670.6     0.198   1  0
1   1994    1   5   1   0   23002.5     0.174   1  0
1   1995    1   5   1   0   27251.9     0.266   1  0
1   1996    1   5   1   0   26815.7     0.203   1  0
1   1997    1   5   1   0   59638.3     0.264   1  0
1   1998    1   5   1   0   46208.6     0.182   1  0
```

```
1   1999    1   5   1   0   44528.7     0.204   1  0
1   2000    1   5   1   0   38390.7     0.216   1  0
1   2001    1   5   1   0   27942.7     0.187   1  0
1   2002    1   5   1   0   45139.9     0.202   1  0
1   2003    1   5   1   0   74641.0     0.283   1  0
1   2004    1   5   1   0   90354.3     0.321   1  0
1   2005    1   5   1   0   54789.5     0.171   1  0
1   2006    1   5   1   0   51215.2     0.169   1  0
1   2007    1   5   1   0   58144.3     0.174   1  0
1   2008    1   5   1   0   67214.4     0.249   1  0
1   2009    1   5   1   0   43170.4     0.326   1  0
1   2010    1   5   1   0   39020.6     0.223   1  0
1   2011    1   5   1   0   27385.1     0.213   1  0
1   2012    1   5   1   0   30655.4     0.237   1  0
1   2013    1   5   1   0   39650.2     0.244   1  0
1   2014    1   5   1   0   60649.4     0.191   1  0
1   2015    1   5   1   0   37085.3     0.208   1  0
1   2016    1   5   1   0   27184.9     0.194   1  0
1   2017    1   5   1   0   25335.3     0.173   1  0
1   2018    1   5   1   0   16034.2     0.161   1  0
1   2019    1   5   1   0   15169.9     0.157   1  0
1   2021    1   5   1   0   18235.4     0.177   1  0
1   2022    1   5   1   0   24940.4     0.181   1  0
1   1975    1   5   2   0   66558.7     0.193   1  0
1   1976    1   5   2   0   71252.4     0.207   1  0
1   1977    1   5   2   0   138684.3    0.144   1  0
1   1978    1   5   2   0   143646.6    0.152   1  0
1   1979    1   5   2   0   63000.5     0.164   1  0
1   1980    1   5   2   0   80701.3     0.221   1  0
1   1981    1   5   2   0   62850.4     0.190   1  0
1   1982    1   5   2   0   69601.4     0.251   1  0
1   1983    1   5   2   0   13713.6     0.214   1  0
1   1984    1   5   2   0   56188.5     0.606   1  0
1   1985    1   5   2   0   7318.7      0.159   1  0
1   1986    1   5   2   0   6884.6      0.420   1  0
1   1987    1   5   2   0   22475.5     0.209   1  0
1   1988    1   5   2   0   19223.7     0.228   1  0
1   1989    1   5   2   0   12778.0     0.232   1  0
1   1990    1   5   2   0   20722.8     0.242   1  0
1   1991    1   5   2   0   17363.5     0.443   1  0
1   1992    1   5   2   0   12238.2     0.176   1  0
1   1993    1   5   2   0   17235.1     0.198   1  0
1   1994    1   5   2   0   9101.7      0.174   1  0
1   1995    1   5   2   0   10816.3     0.266   1  0
1   1996    1   5   2   0   17143.2     0.203   1  0
1   1997    1   5   2   0   24392.1     0.264   1  0
1   1998    1   5   2   0   37892.7     0.182   1  0
1   1999    1   5   2   0   20225.3     0.204   1  0
1   2000    1   5   2   0   28990.5     0.216   1  0
1   2001    1   5   2   0   24512.6     0.187   1  0
1   2002    1   5   2   0   23946.5     0.202   1  0
1   2003    1   5   2   0   41118.5     0.283   1  0
1   2004    1   5   2   0   40201.7     0.321   1  0
1   2005    1   5   2   0   50937.4     0.171   1  0
1   2006    1   5   2   0   43262.1     0.169   1  0
1   2007    1   5   2   0   45183.0     0.174   1  0
1   2008    1   5   2   0   45867.2     0.249   1  0
1   2009    1   5   2   0   47376.6     0.326   1  0
1   2010    1   5   2   0   41480.2     0.223   1  0
1   2011    1   5   2   0   39023.0     0.213   1  0
1   2012    1   5   2   0   30042.0     0.237   1  0
1   2013    1   5   2   0   22566.7     0.244   1  0
1   2014    1   5   2   0   52485.7     0.191   1  0
1   2015    1   5   2   0   27089.5     0.208   1  0
1   2016    1   5   2   0   33773.1     0.194   1  0
1   2017    1   5   2   0   27599.3     0.173   1  0
1   2018    1   5   2   0   12770.5     0.161   1  0
1   2019    1   5   2   0   13368.6     0.157   1  0
1   2021    1   5   2   0   10240.7     0.177   1  0
1   2022    1   5   2   0   11257.5     0.181   1  0
    #   BSFRF
2   2007    1   6   1   0   79542   0.116   1  0
```

```
2   2008    1   6   1   0   67569   0.094   1  0
2   2013    1   6   1   0   68384   0.209   1  0
2   2014    1   6   1   0   62327   0.192   1  0
2   2015    1   6   1   0   63709   0.161   1  0
2   2016    1   6   1   0   34417   0.22    1  0
2   2007    1   6   2   0   50811   0.116   1  0
2   2008    1   6   2   0   38472   0.094   1  0
2   2013    1   6   2   0   26633   0.209   1  0
2   2014    1   6   2   0   49414   0.192   1  0
2   2015    1   6   2   0   35244   0.161   1  0
2   2016    1   6   2   0   43399   0.22    1  0

## Number of length frequency matrices
13
## Number of rows in each matrix
44  30  30  45  45  11  11  26  26  47  47  6   6  #update annually
##  Number  of  bins    in  each    matrix  (columns    of  size    data)
20  20  16  20  16  20  16  20  16  20  16  20  16
##  SIZE COMPOSITION DATA FOR ALL FLEETS
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
##  SIZE    COMP    LEGEND
##  Sex: 1  = male, 2 = female, 0   = both sexes combined
##  Type of composition: 1  = retained, 2 = discard, 0 = total composition
##  Maturity    state:  1   =   immature,   2   =   mature, 0   =   both    states  combined
##  Shell   condition:  1   =   new shell,  2   =   old shell,  0   =   both    shell   types   combined
##  â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â
#Retained   males
#Year   Season  Fleet   Sex Type    Shell   Maturity    Nsamp   DataVec
1975    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0071  0.0741  0.1721  0.2239  0.2122  0.1464  0.0858  0.0785
1976    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0016  0.029   0.1418  0.2316  0.2199  0.1635  0.1071  0.1055
1977    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0017  0.0192  0.1382  0.2442  0.2226  0.1605  0.104   0.1096
1978    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0012  0.0209  0.1441  0.2588  0.2401  0.1673  0.0966  0.0711
1979    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0013  0.0119  0.0747  0.1649  0.1998  0.2004  0.1556  0.1914
1980    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0008  0.0138  0.0919  0.1771  0.195   0.1792  0.1404  0.2019
1981    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0006  0.0225  0.1164  0.1743  0.1711  0.1584  0.1284  0.2283
1982    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0   0.0544  0.2576  0.2802  0.1667  0.0837  0.0508  0.1067
1984    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0.0003  0.0023  0.0654  0.311   0.3135  0.1763  0.0846  0.0321  0.
1985    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0.0005  0.0044  0.079   0.2869  0.3098  0.1898  0.086   0.0306  0.
1986    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0016  0.0531  0.2613  0.3289  0.2084  0.0978  0.0352  0.0137
1987    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0013  0.0284  0.1895  0.3045  0.2522  0.1421  0.0565  0.0255
1988    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0   0.0202  0.1294  0.2646  0.2471  0.1876  0.1033  0.0477
1989    3   1   1   1   0   0   150 0   0   0   0   0   0   0   0   0   0   0   0   0.0005  0.0187  0.1211  0.2209  0.219   0.1908  0.1197  0.1094
1990    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
1991    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.
1992    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0002  0.0001  0.0001  0.0001  0.
1993    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0001  0.
1996    3       1       1       1       0       0       150     0.0000  0.0000  0.0001  0.0000  0.0001  0.0000  0.0000  0.0001  0.0001  0.0002  0.
1997    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0001  0.0001  0.
1998    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0001  0.0001  0.0001  0.
1999    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2000    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0001  0.0000  0.0001  0.0000  0.0000  0.0001  0.0001  0.
2001    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0001  0.0001  0.0001  0.
2002    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0001  0.0001  0.
2003    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0001  0.0002  0.0001  0.0001  0.0000  0.0001  0.
2004    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2005    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0000  0.0000  0.0000  0.
2006    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2007    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2008    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2009    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2010    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2011    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0000  0.0000  0.0000  0.
2012    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.
2013    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0001  0.0000  0.
2014    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2015    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2016    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2017    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0001  0.
2018    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0001  0.0000  0.0000  0.0000  0.
2019    3       1       1       1       0       0       150     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
2020    3       1       1       1       0       0       150     0       0       0       0       0       0       0       0       0       0       0
2021    3       1       1       1       0       0        5.05   0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.
```

#Total males

#Year	Season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec										
1990	3	1	1	0	0	0	127.2	0	0	0.0004	0.0028	0.0016	0.0043	0.0024	0.013	0.0173	0.0263	0.
1991	3	1	1	0	0	0	150	0.0009	0.0038	0.0075	0.0081	0.0092	0.0149	0.0124	0.0241	0.0236	0.0262	0.
1992	3	1	1	0	0	0	150	0	0.0006	0.0008	0.0075	0.0151	0.0375	0.0591	0.0777	0.0806	0.0838	0.
1993	3	1	1	0	0	0	150	0.0009	0.0025	0.0032	0.0028	0.0035	0.007	0.0177	0.0325	0.0445	0.0615	0.
1996	3	1	1	0	0	0	32.1	0	0	0	0.0047	0.0187	0.0296	0.0265	0.0109	0.0171	0.0249	0.
1997	3	1	1	0	0	0	150	0	0.0001	0.0002	0.0003	0.0006	0.0081	0.0227	0.0446	0.0519	0.0534	0.
1998	3	1	1	0	0	0	150	0.0001	0.0002	0.0004	0.0021	0.0037	0.0054	0.0056	0.0104	0.0246	0.0588	0.
1999	3	1	1	0	0	0	150	0	0	0	0.0013	0.0013	0.0006	0.0017	0.0013	0.0025	0.0059	0.
2000	3	1	1	0	0	0	150	0.0002	0.002	0.0071	0.0185	0.0234	0.0242	0.0256	0.0262	0.0254	0.0291	0.
2001	3	1	1	0	0	0	150	0.0004	0.0023	0.0037	0.005	0.0066	0.0139	0.0249	0.0381	0.0447	0.0539	0.
2002	3	1	1	0	0	0	150	0.0017	0.0046	0.0044	0.0051	0.0043	0.0054	0.0066	0.0151	0.0272	0.0504	0.
2003	3	1	1	0	0	0	150	0.0034	0.0053	0.0065	0.0144	0.0257	0.0323	0.0355	0.0335	0.0315	0.0322	0.
2004	3	1	1	0	0	0	150	0.0001	0.0019	0.0061	0.016	0.021	0.0231	0.0316	0.0519	0.0613	0.0616	0.
2005	3	1	1	0	0	0	150	0.0001	0.0005	0.0008	0.0017	0.0044	0.0128	0.0199	0.0243	0.0264	0.0383	0.
2006	3	1	1	0	0	0	150	0.0001	0.0006	0.0019	0.0065	0.014	0.0171	0.0166	0.0154	0.02	0.0333	0.
2007	3	1	1	0	0	0	150	0.0006	0.0021	0.0034	0.0051	0.0089	0.0191	0.034	0.044	0.0477	0.044	0.
2008	3	1	1	0	0	0	150	0.0001	0.0002	0.0007	0.0026	0.0059	0.0078	0.0088	0.0118	0.0243	0.0445	0.
2009	3	1	1	0	0	0	150	0.0002	0.0005	0.0009	0.0016	0.0021	0.0038	0.0093	0.0213	0.033	0.0371	0.
2010	3	1	1	0	0	0	150	0.0004	0.0006	0.0013	0.0028	0.0044	0.0061	0.0077	0.0113	0.0179	0.0286	0.
2011	3	1	1	0	0	0	150	0.0008	0.0031	0.0055	0.0097	0.01	0.0089	0.0129	0.0147	0.0193	0.0265	0.
2012	3	1	1	0	0	0	150	0.0002	0.0003	0.0008	0.0014	0.0037	0.0088	0.0141	0.0189	0.018	0.0192	0.
2013	3	1	1	0	0	0	150	0.0001	0.0007	0.0017	0.0022	0.0047	0.0058	0.0096	0.015	0.0257	0.0378	0.
2014	3	1	1	0	0	0	150	0.0003	0.0006	0.0008	0.0012	0.0017	0.0038	0.0063	0.0111	0.0155	0.0206	0.
2015	3	1	1	0	0	0	150	0.0001	0.0002	0.0008	0.0017	0.0038	0.0059	0.0063	0.007	0.012	0.0271	0.
2016	3	1	1	0	0	0	150	0.0001	0.0002	0.0015	0.0034	0.0046	0.0064	0.0111	0.0188	0.0225	0.0279	0.
2017	3	1	1	0	0	0	150	0.0002	0.0006	0.0031	0.0115	0.0241	0.0341	0.0294	0.0235	0.0197	0.0248	0.
2018	3	1	1	0	0	0	150	0.0004	0.0027	0.0072	0.0082	0.0067	0.011	0.0232	0.0432	0.0643	0.0723	0.
2019	3	1	1	0	0	0	150	0	0.0001	0.0002	0.0019	0.0084	0.017	0.0218	0.0194	0.0196	0.0356	0.
2020	3	1	1	0	0	0	150	0	0.0007	0.0034	0.0075	0.0101	0.0142	0.0177	0.03	0.0426	0.0589	0.
2021	3	1	1	0	0	0	55	0.0009	0.0000	0.0082	0.0127	0.0073	0.0127	0.0145	0.0200	0.0218	0.0418	0.

#Total females

#Year	Season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec										
1990	3	1	2	0	0	0	34.95	0	0.0014	0.0029	0.0029	0.0057	0.0072	0.0143	0.0672	0.1016	0.1731	0.
1991	3	1	2	0	0	0	18.75	0.0027	0.024	0.0613	0.096	0.1333	0.16	0.1227	0.072	0.0693	0.056	0.
1992	3	1	2	0	0	0	50	0	0.0013	0.0029	0.0177	0.0803	0.1765	0.195	0.1698	0.0958	0.0815	0.
1993	3	1	2	0	0	0	50	0.0013	0.0024	0.0044	0.0059	0.013	0.0326	0.1011	0.1598	0.1443	0.1139	0.
1996	3	1	2	0	0	0	0.55	0	0	0	0.0909	0.6364	0.2727	0	0	0	0	0
1997	3	1	2	0	0	0	45.3	0	0	0.0011	0.0011	0.0099	0.0265	0.0364	0.0464	0.0695	0.1391	0.
1998	3	1	2	0	0	0	50	0.0002	0.0004	0.0009	0.0026	0.0066	0.0174	0.055	0.1755	0.2268	0.1521	0.
1999	3	1	2	0	0	0	2	0	0	0	0.025	0.025	0.025	0.05	0.025	0	0.125	0.
2000	3	1	2	0	0	0	50	0	0.0044	0.0256	0.0607	0.0744	0.0816	0.0701	0.0543	0.055	0.0998	0.
2001	3	1	2	0	0	0	50	0.0007	0.0042	0.0129	0.0307	0.0568	0.0844	0.0986	0.0909	0.0646	0.0568	0.
2002	3	1	2	0	0	0	35.3	0.0595	0.1714	0.1601	0.1388	0.1091	0.0581	0.0297	0.0326	0.0382	0.0326	0.
2003	3	1	2	0	0	0	50	0.012	0.0164	0.0231	0.0635	0.102	0.1075	0.0682	0.043	0.06	0.0866	0.
2004	3	1	2	0	0	0	50	0.0003	0.0056	0.0258	0.0575	0.0774	0.0918	0.1413	0.1308	0.0876	0.0449	0.
2005	3	1	2	0	0	0	50	0.0004	0.0013	0.0022	0.005	0.0146	0.05	0.0788	0.0931	0.1233	0.1212	0.
2006	3	1	2	0	0	0	50	0.0003	0.004	0.0256	0.1183	0.1939	0.1616	0.0692	0.0519	0.0672	0.0704	0.
2007	3	1	2	0	0	0	50	0.0029	0.0124	0.0214	0.0235	0.0461	0.0886	0.1116	0.0832	0.0556	0.0739	0.
2008	3	1	2	0	0	0	50	0.0004	0.0018	0.0097	0.0362	0.0775	0.0662	0.0472	0.0772	0.1071	0.0871	0.
2009	3	1	2	0	0	0	50	0.0036	0.0083	0.0099	0.0144	0.0164	0.0282	0.0652	0.0867	0.0803	0.0912	0.
2010	3	1	2	0	0	0	50	0.0036	0.0051	0.0052	0.0199	0.0276	0.0292	0.0269	0.0444	0.0882	0.1135	0.
2011	3	1	2	0	0	0	50	0.013	0.037	0.0604	0.101	0.076	0.0698	0.0583	0.0411	0.0266	0.0359	0.
2012	3	1	2	0	0	0	28.15	0.0089	0.0107	0.0124	0.0337	0.0604	0.1155	0.0941	0.0391	0.0178	0.0124	0.
2013	3	1	2	0	0	0	50	0.0005	0.0017	0.0083	0.0107	0.0188	0.0365	0.0714	0.1329	0.1423	0.0972	0.
2014	3	1	2	0	0	0	50	0.0011	0.0053	0.0068	0.0086	0.0086	0.021	0.0282	0.0274	0.0526	0.0713	0.
2015	3	1	2	0	0	0	50	0	0.0011	0.0019	0.0052	0.0122	0.0166	0.0196	0.0357	0.0559	0.0869	0.
2016	3	1	2	0	0	0	50	0	0.0003	0.0072	0.0122	0.0183	0.0189	0.0213	0.0346	0.0388	0.0636	0.
2017	3	1	2	0	0	0	50	0.0007	0.0032	0.0148	0.0544	0.0992	0.1096	0.0769	0.0317	0.0354	0.0477	0.
2018	3	1	2	0	0	0	50	0.0005	0.0054	0.0182	0.0241	0.0237	0.0371	0.0627	0.0942	0.0774	0.0647	0.
2019	3	1	2	0	0	0	50	0	0	0.0017	0.0059	0.0287	0.0491	0.038	0.0342	0.0549	0.0757	0.
2020	3	1	2	0	0	0	48.05	0	0.0114	0.0375	0.0978	0.0874	0.0499	0.0385	0.0708	0.0572	0.0583	0.
2021	3	1	2	0	0	0	50	0.0000	0.0021	0.0035	0.0119	0.0147	0.0272	0.0426	0.0593	0.0670	0.0823	0.

#Trawl bycatch male

#Year	Season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec												
1976	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130	0.0087	0.0043	0.0216	0.0087	0.0260	0.0390	0.0433	0.0649
1977	5	2	1	0.0	0	0	50	0.0036	0.0009	0.0009	0.0009	0.0026	0.0035	0.0079	0.0097	0.0317	0.0485	0.0599	0.0996	0.1084	0.1251
1978	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0012	0.0025	0.0149	0.0274	0.0511	0.0872

1979	5	2	1	0.0	0	0	50	0.0178	0.0013	0.0025	0.0013	0.0025	0.0076	0.0038	0.0025	0.0013	0.0063	0.0051	0.0114	0.0228	0.0556
1980	5	2	1	0.0	0	0	50	0.0531	0.0207	0.0096	0.0135	0.0142	0.0163	0.0274	0.0263	0.0380	0.0375	0.0422	0.0394	0.0368	0.0377
1981	5	2	1	0.0	0	0	50	0.0262	0.0028	0.0045	0.0066	0.0112	0.0175	0.0279	0.0349	0.0386	0.0504	0.0434	0.0480	0.0287	0.0334
1982	5	2	1	0.0	0	0	50	0.0701	0.0268	0.0247	0.0326	0.0356	0.0443	0.0409	0.0403	0.0401	0.0475	0.0426	0.0479	0.0405	0.0326
1983	5	2	1	0.0	0	0	50	0.0231	0.0214	0.0336	0.0344	0.0311	0.0319	0.0377	0.0445	0.0473	0.0471	0.0457	0.0437	0.0409	0.0414
1984	5	2	1	0.0	0	0	50	0.0366	0.0156	0.0147	0.0199	0.0270	0.0342	0.0399	0.0407	0.0431	0.0476	0.0511	0.0596	0.0594	0.0563
1985	5	2	1	0.0	0	0	50	0.0051	0.0014	0.0034	0.0059	0.0100	0.0164	0.0256	0.0396	0.0357	0.0446	0.0538	0.0636	0.0843	0.0862
1986	5	2	1	0.0	0	0	50	0.0038	0.0019	0.0085	0.0019	0.0056	0.0136	0.0193	0.0357	0.0160	0.0249	0.0221	0.0320	0.0710	0.0
1987	5	2	1	0.0	0	0	49.9	0.0020	0.0000	0.0010	0.0020	0.0050	0.0080	0.0190	0.0271	0.0170	0.0220	0.0441	0.0491	0.0401	0.
1988	5	2	1	0.0	0	0	31.5	0.0048	0.0048	0.0063	0.0016	0.0032	0.0000	0.0095	0.0175	0.0127	0.0397	0.0524	0.0540	0.0571	0.
1989	5	2	1	0.0	0	0	50	0.0047	0.0024	0.0019	0.0006	0.0019	0.0019	0.0045	0.0047	0.0097	0.0142	0.0237	0.0379	0.0437	0.
1990	5	2	1	0.0	0	0	45.4	0.0055	0.0044	0.0077	0.0022	0.0077	0.0077	0.0253	0.0154	0.0253	0.0286	0.0220	0.0308	0.0352	0.
1991	5	2	1	0.0	0	0	13.75	0.0036	0.0073	0.0036	0.0073	0.0182	0.0145	0.0145	0.0182	0.0364	0.0255	0.0364	0.0327	0.0400	0.
1992	5	2	1	0.0	0	0	16.65	0.0210	0.0210	0.0180	0.0000	0.0060	0.0060	0.0030	0.0000	0.0060	0.0120	0.0240	0.0210	0.0360	0.
1994	5	2	1	0.0	0	0	28.55	0.0000	0.0000	0.0035	0.0070	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018	0.0088	0.
1995	5	2	1	0.0	0	0	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0083	0.0000	0.0083	0.0083	0.0167	0.0000	0.0167	0.0167	0.
1996	5	2	1	0.0	0	0	50	0.0000	0.0008	0.0000	0.0017	0.0050	0.0116	0.0149	0.0174	0.0281	0.0347	0.0480	0.0662	0.0463	0.
1997	5	2	1	0.0	0	0	16.95	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029	0.0029	0.0088	0.0088	0.0206	0.0206	0.0265	0.0236	0.
1998	5	2	1	0.0	0	0	50	0.0007	0.0007	0.0007	0.0000	0.0000	0.0000	0.0035	0.0028	0.0056	0.0133	0.0280	0.0315	0.0566	0.
1999	5	2	1	0.0	0	0	31.45	0.0016	0.0016	0.0000	0.0016	0.0032	0.0000	0.0064	0.0016	0.0079	0.0127	0.0127	0.0413	0.0493	0.
2000	5	2	1	0.0	0	0	36.45	0.0000	0.0000	0.0014	0.0014	0.0014	0.0069	0.0096	0.0288	0.0370	0.0316	0.0357	0.0302	0.0425	0.
2001	5	2	1	0.0	0	0	39.75	0.0000	0.0000	0.0050	0.0025	0.0101	0.0340	0.0226	0.0264	0.0403	0.0377	0.0428	0.0352	0.0352	0.
2002	5	2	1	0.0	0	0	50	0.0009	0.0009	0.0009	0.0009	0.0018	0.0026	0.0061	0.0044	0.0061	0.0105	0.0219	0.0193	0.0281	0.
2003	5	2	1	0.0	0	0	25.8	0.0019	0.0039	0.0058	0.0078	0.0194	0.0097	0.0155	0.0233	0.0252	0.0174	0.0136	0.0194	0.0310	0.
2004	5	2	1	0.0	0	0	31.8	0.0016	0.0000	0.0000	0.0016	0.0016	0.0047	0.0047	0.0157	0.0220	0.0173	0.0220	0.0346	0.0393	0.
2005	5	2	1	0.0	0	0	50	0.0029	0.0038	0.0019	0.0087	0.0077	0.0135	0.0212	0.0154	0.0125	0.0231	0.0260	0.0394	0.0510	0.
2006	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0017	0.0026	0.0026	0.0128	0.0111	0.0394	0.0360	0.0428	0.0488	0.
2007	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0000	0.0016	0.0024	0.0033	0.0049	0.0114	0.0122	0.0131	0.0237	0.0220	0.0294	0.
2008	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0006	0.0000	0.0025	0.0025	0.0019	0.0025	0.0132	0.0257	0.0257	0.0595	0.0620	0.
2009	5	2	1	0.0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0009	0.0026	0.0026	0.0034	0.0068	0.0103	0.0111	0.0308	0.0308	0.
2010	5	2	1	0.0	0	0	45.05	0.0000	0.0000	0.0022	0.0022	0.0022	0.0055	0.0033	0.0122	0.0189	0.0178	0.0200	0.0322	0.0499	0.
2011	5	2	1	0.0	0	0	21.95	0.0000	0.0000	0.0023	0.0068	0.0068	0.0023	0.0023	0.0068	0.0137	0.0091	0.0068	0.0068	0.0228	0.
2012	5	2	1	0.0	0	0	14.05	0.0000	0.0036	0.0000	0.0000	0.0000	0.0036	0.0071	0.0071	0.0036	0.0071	0.0142	0.0107	0.0285	0.
2013	5	2	1	0.0	0	0	24.05	0.0000	0.0021	0.0000	0.0021	0.0021	0.0000	0.0000	0.0021	0.0042	0.0083	0.0104	0.0229	0.0457	0.
2014	5	2	1	0.0	0	0	13.05	0.0000	0.0038	0.0000	0.0038	0.0115	0.0038	0.0000	0.0192	0.0038	0.0115	0.0192	0.0230	0.0268	0.
2015	5	2	1	0.0	0	0	20.45	0.0000	0.0000	0.0073	0.0073	0.0073	0.0049	0.0122	0.0147	0.0122	0.0147	0.0220	0.0293	0.0318	0.0
2016	5	2	1	0.0	0	0	30.85	0.0000	0.0016	0.0032	0.0049	0.0032	0.0016	0.0130	0.0097	0.0162	0.0065	0.0113	0.0357	0.0243	0.0
2017	5	2	1	0.0	0	0	35.9	0.0000	0.0000	0.0000	0.0000	0.0056	0.0042	0.0056	0.0056	0.0070	0.0056	0.0084	0.0153	0.0265	0.0
2018	5	2	1	0.0	0	0	44.65	0.0011	0.0000	0.0022	0.0000	0.0022	0.0045	0.0112	0.0045	0.0213	0.0202	0.0403	0.0426	0.0437	0.0
2019	5	2	1	0.0	0	0	41.15	0.0012	0.0024	0.0049	0.0073	0.0122	0.0134	0.0049	0.0109	0.0097	0.0267	0.0304	0.0316	0.0401	0.0
2020	5	2	1	0.0	0	0	38.2	0.0026	0.0000	0.0039	0.0079	0.0105	0.0118	0.0118	0.0092	0.0288	0.0249	0.0340	0.0301	0.0314	0.058
2021	5	2	1	0.0	0	0	25.2	0.004	0	0	0.002	0.002	0	0.008	0.0099	0.0338	0.0159	0.0378	0.0378	0.0258	0.0477	0.0795	0.0775	0.0596	0.0755

#Trawl bycatch female

#Year	Season	Fleet	Sex	Type			Shell	Maturity	Nsamp	DataVec										
1976	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130	0.0087	0.0216	0.0260	0.0303	0.0563	0.0130	0.0260
1977	5	2	2	0	0	0	0	0.0000	0.0009	0.0009	0.0000	0.0000	0.0009	0.0026	0.0053	0.0070	0.0088	0.0062	0.0053	0.0044	0.0026
1978	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0050	0.0075	0.0262
1979	5	2	2	0	0	0	0	0.0130	0.0013	0.0000	0.0000	0.0063	0.0038	0.0152	0.0468	0.0354	0.0392	0.0544	0.0215	0.0164	0.0177
1980	5	2	2	0	0	0	0	0.0433	0.0160	0.0096	0.0189	0.0281	0.0409	0.0497	0.0472	0.0489	0.0525	0.0362	0.0265	0.0134	0.0081
1981	5	2	2	0	0	0	0	0.0612	0.0245	0.0245	0.0437	0.0540	0.0608	0.0525	0.0425	0.0315	0.0383	0.0312	0.0267	0.0240	0.0158
1982	5	2	2	0	0	0	0	0.0631	0.0235	0.0237	0.0285	0.0379	0.0413	0.0332	0.0246	0.0190	0.0177	0.0156	0.0144	0.0104	0.0080
1983	5	2	2	0	0	0	0	0.0281	0.0233	0.0351	0.0363	0.0358	0.0407	0.0392	0.0316	0.0222	0.0154	0.0100	0.0087	0.0065	0.0042
1984	5	2	2	0	0	0	0	0.0400	0.0156	0.0155	0.0211	0.0298	0.0344	0.0399	0.0359	0.0287	0.0151	0.0085	0.0060	0.0042	0.0031
1985	5	2	2	0	0	0	0	0.0034	0.0013	0.0024	0.0046	0.0096	0.0171	0.0195	0.0193	0.0163	0.0128	0.0119	0.0111	0.0108	0.0057
1986	5	2	2	0	0	0	0	0.0038	0.0014	0.0038	0.0000	0.0038	0.0099	0.0329	0.0762	0.0630	0.0470	0.0494	0.0466	0.0428	0.0202
1987	5	2	2	0	0	0	0	0.0020	0.0020	0.0030	0.0100	0.0180	0.0311	0.0331	0.0401	0.0220	0.0311	0.0160	0.0391	0.0080	0.0080
1988	5	2	2	0	0	0	0	0.0079	0.0143	0.0032	0.0079	0.0063	0.0127	0.0222	0.0333	0.0476	0.0524	0.0397	0.0222	0.0175	0.0079
1989	5	2	2	0	0	0	0	0.0026	0.0024	0.0013	0.0022	0.0065	0.0108	0.0205	0.0429	0.0502	0.0480	0.0435	0.0295	0.0256	0.0170
1990	5	2	2	0	0	0	0	0.0022	0.0044	0.0077	0.0088	0.0121	0.0121	0.0198	0.0220	0.0374	0.0297	0.0308	0.0264	0.0165	0.0099
1991	5	2	2	0	0	0	0	0.0000	0.0036	0.0073	0.0036	0.0000	0.0073	0.0036	0.0073	0.0291	0.0182	0.0182	0.0291	0.0182	0.0327
1992	5	2	2	0	0	0	0	0.0030	0.0000	0.0000	0.0030	0.0420	0.0631	0.0480	0.0480	0.0450	0.0480	0.0631	0.0691	0.0480	0.0450
1994	5	2	2	0	0	0	0	0.0000	0.0035	0.0088	0.0280	0.0333	0.0438	0.0298	0.0665	0.0455	0.0175	0.0140	0.0123	0.0140	0.0210
1995	5	2	2	0	0	0	0	0.0083	0.0000	0.0000	0.0250	0.0083	0.0250	0.0417	0.0167	0.0250	0.0000	0.0250	0.0000	0.0083	0.0167
1996	5	2	2	0	0	0	0	0.0000	0.0000	0.0008	0.0091	0.0207	0.0339	0.0149	0.0165	0.0182	0.0248	0.0256	0.0190	0.0240	0.0215
1997	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0265	0.0383	0.0678	0.0944	0.0472	0.0413	0.0560	0.0295
1998	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0007	0.0014	0.0042	0.0182	0.0503	0.0545	0.0441	0.0392	0.0322	0.0469	0.0371
1999	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0016	0.0000	0.0000	0.0048	0.0048	0.0079	0.0207	0.0254	0.0223	0.0350	0.0238
2000	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0027	0.0041	0.0082	0.0151	0.0192	0.0082	0.0151	0.0316	0.0425	0.0178	0.0233
2001	5	2	2	0	0	0	0	0.0000	0.0000	0.0025	0.0025	0.0138	0.0126	0.0289	0.0226	0.0252	0.0302	0.0201	0.0239	0.0302	0.0340
2002	5	2	2	0	0	0	0	0.0000	0.0009	0.0000	0.0018	0.0035	0.0079	0.0149	0.0272	0.0527	0.0369	0.0281	0.0316	0.0395	0.0430
2003	5	2	2	0	0	0	0	0.0000	0.0058	0.0039	0.0116	0.0155	0.0233	0.0174	0.0194	0.0213	0.0271	0.0252	0.0426	0.0310	0.0329

2004	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0016	0.0016	0.0142	0.0299	0.0377	0.0393	0.0299	0.0535	0.0330	0.0409	0.0220
2005	5	2	2	0	0	0	0	0.0010	0.0058	0.0077	0.0048	0.0087	0.0212	0.0346	0.0500	0.0673	0.0596	0.0260	0.0308	0.0221	0.0192
2006	5	2	2	0	0	0	0	0.0000	0.0000	0.0009	0.0009	0.0043	0.0094	0.0068	0.0103	0.0154	0.0231	0.0300	0.0308	0.0342	0.0257
2007	5	2	2	0	0	0	0	0.0000	0.0000	0.0016	0.0016	0.0033	0.0139	0.0269	0.0359	0.0359	0.0376	0.0465	0.0563	0.0522	0.0506
2008	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0006	0.0063	0.0044	0.0075	0.0169	0.0307	0.0269	0.0263	0.0269	0.0338	0.0194
2009	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0017	0.0120	0.0231	0.0453	0.0427	0.0256	0.0274	0.0342	0.0436	0.0393
2010	5	2	2	0	0	0	0	0.0011	0.0011	0.0011	0.0011	0.0044	0.0122	0.0244	0.0322	0.0322	0.0433	0.0599	0.0511	0.0488	0.0433
2011	5	2	2	0	0	0	0	0.0000	0.0000	0.0046	0.0137	0.0091	0.0068	0.0342	0.0091	0.0205	0.0228	0.0433	0.0456	0.0524	0.0342
2012	5	2	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0036	0.0320	0.0214	0.0463	0.0142	0.0356	0.0320	0.0285	0.0569	0.0463
2013	5	2	2	0	0	0	0	0.0021	0.0000	0.0021	0.0000	0.0083	0.0062	0.0249	0.0416	0.0333	0.0395	0.0249	0.0187	0.0229	0.0353
2014	5	2	2	0	0	0	0	0.0000	0.0000	0.0038	0.0038	0.0038	0.0077	0.0268	0.0153	0.0460	0.0307	0.0268	0.0153	0.0115	0.0115
2015	5	2	2	0	0	0	0	0.0000	0.0024	0.0024	0.0073	0.0342	0.0293	0.0465	0.0538	0.0318	0.0465	0.0367	0.0293	0.0293	0.0220
2016	5	2	2	0	0	0	0	0.0000	0.0000	0.0065	0.0049	0.0016	0.0081	0.0097	0.0097	0.0097	0.0227	0.0373	0.0324	0.0340	0.0243
2017	5	2	2	0	0	0	0	0.0000	0.0000	0.0028	0.0028	0.0181	0.0056	0.0070	0.0028	0.0056	0.0070	0.0097	0.0153	0.0153	0.0125
2018	5	2	2	0	0	0	0	0.0000	0.0045	0.0067	0.0112	0.0078	0.0112	0.0157	0.0347	0.0168	0.0202	0.0246	0.0291	0.0314	0.0325
2019	5	2	2	0	0	0	0	0.0024	0.0024	0.0097	0.0036	0.0085	0.0194	0.0073	0.0109	0.0122	0.0170	0.0182	0.0170	0.0207	0.0182
2020	5	2	2	0	0	0	0	0.0000	0.0026	0.0026	0.0026	0.0092	0.0052	0.0105	0.0079	0.0131	0.0105	0.0065	0.0131	0.0209	0.0157
2021	5	2	2	0	0	0	0	0.0000	0.0020	0.0000	0.000	0.0040	0.0060	0.0099	0.0080	0.0219	0.0040	0.0080	0.0119	0.0159	0.0219

#Tanner crab bycatch Male (male and female combined compositons are normalized to be 1)

#Year	Season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec										
1991	5	1	1	0	0	0	50	0.0026	0.0048	0.0029	0.0042	0.0051	0.0042	0.0102	0.0141	0.0144	0.0112	0.
1992	5	1	1	0	0	0	48.25	0.0000	0.0000	0.0010	0.0031	0.0114	0.0166	0.0259	0.0238	0.0259	0.0301	0.
1993	5	1	1	0	0	0	24.85	0.0000	0.0000	0.0000	0.0000	0.0040	0.0020	0.0262	0.0483	0.0584	0.0664	0.
1994	5	1	1	0	0	0	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0588	0.
2006	5	1	1	0	0	0	7	0.0000	0.0000	0.0000	0.0000	0.0214	0.0500	0.0429	0.0500	0.0786	0.0857	0.
2007	5	1	1	0	0	0	2.65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0189	0.0189	0.
2008	5	1	1	0	0	0	7.25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0069	0.0138	0.0276	0.0897	0.
2009	5	1	1	0	0	0	9.65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0155	0.0207	0.
2013	5	1	1	0	0	0	40.7	0.0000	0.0012	0.0000	0.0000	0.0000	0.0086	0.0074	0.0135	0.0184	0.0393	0.
2014	5	1	1	0	0	0	31.55	0.0000	0.0000	0.0016	0.0000	0.0079	0.0079	0.0127	0.0190	0.0158	0.0317	0.
2015	5	1	1	0	0	0	50	0.0017	0.0038	0.0017	0.0024	0.0181	0.0247	0.0178	0.0115	0.0153	0.0205	0.

#Tanner crab bycatch female

#Year	Season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec										
1991	5	1	2	0	0	0	0	0.0051	0.0105	0.0096	0.0102	0.0240	0.0326	0.0565	0.0466	0.0827	0.1150	0.
1992	5	1	2	0	0	0	0	0.0000	0.0000	0.0010	0.0062	0.0228	0.0456	0.0819	0.0933	0.0870	0.0539	0.
1993	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0040	0.0342	0.0825	0.1127	0.0805	0.0362	0.
1994	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0588	0.0000	0.
2006	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0143	0.
2007	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0189	0.1698	0.2264	0.2453	0.1321	0.
2008	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0069	0.0069	0.0138	0.0621	0.0552	0.
2009	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0155	0.0622	0.0674	0.0518	0.
2013	5	1	2	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0221	0.0504	0.1806	0.1437	0.0774	0.
2014	5	1	2	0	0	0	0	0.0000	0.0000	0.0016	0.0032	0.0111	0.0222	0.0475	0.0539	0.1442	0.1537	0.
2015	5	1	2	0	0	0	0	0.0003	0.0014	0.0028	0.0052	0.0240	0.0348	0.0637	0.1031	0.1445	0.1114	0.

Fixed gear crab bycatch Male

#Year	season	Fleet	Sex	Type	Shell	Maturity	Nsamp	DataVec										
1996	5	4	1	0	0	0	37.8	0.0026	0.0013	0.0066	0.0053	0.0026	0.0053	0.0132	0.0132	0.0079	0.0146	0.0146	0.0079	0.0146	0.
1997	5	4	1	0	0	0	50	0.0000	0.0000	0.0024	0.0024	0.0134	0.0284	0.0504	0.0686	0.0654	0.0607	0.0496	0.0315	0.0347	0.
1998	5	4	1	0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019	0.0039	0.0077	0.0125	0.0251	0.0367	0.0521	0.
1999	5	4	1	0	0	0	50	0.0031	0.0006	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0094	0.0218	0.0524	0.
2000	5	4	1	0	0	0	29.55	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0085	0.0169	0.0321	0.0271	0.0761	0.0508	0.
2001	5	4	1	0	0	0	50	0.0000	0.0002	0.0006	0.0004	0.0016	0.0044	0.0074	0.0111	0.0201	0.0221	0.0239	0.0233	0.0257	0.
2002	5	4	1	0	0	0	50	0.0000	0.0000	0.0000	0.0003	0.0009	0.0017	0.0003	0.0020	0.0049	0.0111	0.0151	0.0220	0.0305	0.
2003	5	4	1	0	0	0	50	0.0011	0.0000	0.0032	0.0118	0.0150	0.0171	0.0235	0.0107	0.0075	0.0118	0.0128	0.0299	0.0310	0.
2004	5	4	1	0	0	0	50	0.0000	0.0005	0.0018	0.0055	0.0037	0.0092	0.0114	0.0284	0.0307	0.0288	0.0343	0.0247	0.0243	0.
2005	5	4	1	0	0	0	50	0.0005	0.0000	0.0014	0.0000	0.0005	0.0042	0.0009	0.0116	0.0075	0.0075	0.0205	0.0266	0.0266	0.
2006	5	4	1	0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0027	0.0016	0.0070	0.0070	0.0107	0.0161	0.0155	0.
2007	5	4	1	0	0	0	39.25	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0000	0.0013	0.0025	0.0051	0.0051	0.0140	0.0051	0.
2008	5	4	1	0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0069	0.0172	0.0232	0.0369	0.0378	0.0464	0.
2009	5	4	1	0	0	0	50	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009	0.0101	0.0129	0.0129	0.0129	0.0202	0.0395	0.
2010	5	4	1	0	0	0	25.65	0.0000	0.0000	0.0019	0.0000	0.0000	0.0019	0.0019	0.0000	0.0019	0.0039	0.0117	0.0136	0.0273	0.
2011	5	4	1	0	0	0	50	0.0000	0.0000	0.0008	0.0017	0.0000	0.0025	0.0017	0.0025	0.0042	0.0025	0.0050	0.0067	0.0076	0.
2012	5	4	1	0	0	0	50	0.0000	0.0000	0.0003	0.0007	0.0013	0.0010	0.0047	0.0074	0.0114	0.0138	0.0225	0.0269	0.0316	0.
2013	5	4	1	0	0	0	50	0.0073	0.0097	0.0153	0.0253	0.0210	0.0185	0.0211	0.0215	0.0232	0.0264	0.0275	0.0327	0.0340	0.
2014	5	4	1	0	0	0	50	0.0019	0.0026	0.0040	0.0026	0.0033	0.0054	0.0089	0.0128	0.0121	0.0145	0.0191	0.0238	0.0285	0.
2015	5	4	1	0	0	0	50	0.0007	0.0011	0.0007	0.0022	0.0063	0.0098	0.0107	0.0130	0.0125	0.0192	0.0177	0.0170	0.0150	0.
2016	5	4	1	0	0	0	50	0.0018	0.0032	0.0062	0.0090	0.0192	0.0210	0.0240	0.0291	0.0261	0.0229	0.0247	0.0189	0.0155	0.
2017	5	4	1	0	0	0	50	0.0000	0.0014	0.0000	0.0071	0.0141	0.0148	0.0163	0.0120	0.0071	0.0163	0.0085	0.0120	0.0078	0.
2018	5	4	1	0	0	0	50	0.0009	0.0020	0.0041	0.0080	0.0045	0.0126	0.0242	0.0392	0.0399	0.0470	0.0385	0.0255	0.0201	0.
2019	5	4	1	0	0	0	43.15	0.0000	0.0023	0.0046	0.0104	0.0185	0.0197	0.0255	0.0209	0.0209	0.0197	0.0070	0.0139	0.0139	0.01
2020	5	4	1	0	0	0	12.3	0.0122	0.0000	0.0041	0.0000	0.0000	0.0000	0.0000	0.0041	0.0081	0.0000	0.0081	0.0203	0.0122	0.0285

```
2021    5   4   1   0   0   0 6.0   0.000  0.000  0.000 0.000 0.000  0.000 0.000 0.0083 0.0167 0.0000 0.0083 0.0083 0.0250 0.0167 0.0083 0.0000 0.

# Fixed gear    crab    bycatch female
#Year   Season  Fleet   Sex Type    Shell   Maturity    Nsamp   DataVec
1996    5   4   2   0   0   0   0   0.0066  0.0013  0.0053  0.0040  0.0159  0.0079  0.0238  0.0423  0.0556  0.0860  0.1270  0.1230  0.0847  0.0741
1997    5   4   2   0   0   0   0   0.0000  0.0000  0.0008  0.0008  0.0047  0.0126  0.0299  0.0260  0.0339  0.0252  0.0165  0.0126  0.0071  0.0071
1998    5   4   2   0   0   0   0   0.0000  0.0000  0.0010  0.0000  0.0000  0.0000  0.0068  0.0251  0.0309  0.0193  0.0203  0.0097  0.0058  0.0106
1999    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0031  0.0075  0.0131  0.0194  0.0256  0.0237
2000    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0000  0.0017  0.0017  0.0102  0.0152  0.0237  0.0508  0.0440  0.0423  0.0321
2001    5   4   2   0   0   0   0   0.0004  0.0002  0.0000  0.0016  0.0028  0.0066  0.0127  0.0195  0.0177  0.0205  0.0441  0.0787  0.0678  0.0380
2002    5   4   2   0   0   0   0   0.0000  0.0003  0.0009  0.0000  0.0000  0.0006  0.0000  0.0029  0.0060  0.0106  0.0086  0.0226  0.0340  0.0348
2003    5   4   2   0   0   0   0   0.0011  0.0005  0.0011  0.0101  0.0198  0.0150  0.0091  0.0069  0.0150  0.0240  0.0331  0.0337  0.0342  0.0438
2004    5   4   2   0   0   0   0   0.0005  0.0000  0.0023  0.0032  0.0055  0.0114  0.0174  0.0330  0.0293  0.0284  0.0476  0.0481  0.0458  0.0426
2005    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0005  0.0005  0.0023  0.0056  0.0149  0.0322  0.0503  0.0499  0.0517  0.0718  0.0555
2006    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0011  0.0016  0.0123  0.0348  0.0717  0.1108  0.1055  0.0964  0.0675  0.0498
2007    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0000  0.0038  0.0064  0.0318  0.0446  0.0815  0.1197  0.1108  0.0726  0.0433
2008    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0000  0.0043  0.0120  0.0198  0.0438  0.0335  0.0576  0.0653  0.0730  0.0490
2009    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0000  0.0000  0.0028  0.0147  0.0184  0.0220  0.0294  0.0340  0.0312  0.0487  0.0395
2010    5   4   2   0   0   0   0   0.0000  0.0000  0.0000  0.0019  0.0039  0.0000  0.0058  0.0214  0.0663  0.0682  0.0975  0.1111  0.1150  0.0663
2011    5   4   2   0   0   0   0   0.0000  0.0017  0.0008  0.0067  0.0076  0.0176  0.0202  0.0336  0.0580  0.0664  0.1000  0.0908  0.0739  0.0639
2012    5   4   2   0   0   0   0   0.0000  0.0000  0.0010  0.0027  0.0020  0.0104  0.0215  0.0262  0.0339  0.0346  0.0339  0.0571  0.0668  0.0648
2013    5   4   2   0   0   0   0   0.0056  0.0108  0.0224  0.0266  0.0243  0.0245  0.0249  0.0316  0.0354  0.0272  0.0251  0.0241  0.0296  0.0412
2014    5   4   2   0   0   0   0   0.0023  0.0061  0.0049  0.0014  0.0042  0.0056  0.0084  0.0229  0.0422  0.0537  0.0497  0.0502  0.0511  0.0560
2015    5   4   2   0   0   0   0   0.0002  0.0002  0.0002  0.0045  0.0072  0.0132  0.0228  0.0512  0.0745  0.0879  0.1082  0.1064  0.0767  0.0557
2016    5   4   2   0   0   0   0   0.0037  0.0028  0.0044  0.0162  0.0245  0.0208  0.0231  0.0370  0.0499  0.0695  0.0931  0.0845  0.0640  0.0464
2017    5   4   2   0   0   0   0   0.0007  0.0007  0.0021  0.0127  0.0155  0.0261  0.0184  0.0184  0.0240  0.0382  0.0615  0.0912  0.0876  0.1110
2018    5   4   2   0   0   0   0   0.0006  0.0039  0.0026  0.0050  0.0067  0.0162  0.0344  0.0613  0.0585  0.0615  0.0574  0.0713  0.0654  0.0520
2019    5   4   2   0   0   0   0   0.0000  0.0000  0.0012  0.0104  0.0174  0.0313  0.0290  0.0406  0.0788  0.0823  0.0788  0.0718  0.0637  0.0707
2020    5   4   2   0   0   0   0 0.0000  0.0041  0.0041  0.0000  0.0041  0.0041  0.0285  0.0081  0.0244  0.0366  0.0813  0.0650  0.0691  0.0935
2021    5   4   2   0   0   0   0  0.0000 0.0083  0.0083  0.0000  0.0083  0.0083  0.0250  0.0167  0.0333  0.0417  0.0583  0.0333  0.0750  0.0667

#NMFS   males   combined
#Year   Season  Fleet   Sex Type    Shell   Maturity    Nsamp   DataVec
1975    1   5   1   0.000   0   0   200 0.0222  0.0411  0.0299  0.0379  0.0342  0.0299  0.0309  0.0246  0.0264  0.0314  0.0268  0.0292  0.0284  0.
1976    1   5   1   0.000   0   0   200 0.0025  0.0127  0.0268  0.0503  0.0623  0.0522  0.0559  0.0449  0.0392  0.0329  0.0409  0.0438  0.0369  0.
1977    1   5   1   0.000   0   0   200 0.0040  0.0043  0.0065  0.0102  0.0199  0.0376  0.0453  0.0441  0.0414  0.0450  0.0409  0.0409  0.0311  0.
1978    1   5   1   0.000   0   0   200 0.0043  0.0120  0.0136  0.0240  0.0172  0.0191  0.0178  0.0279  0.0296  0.0297  0.0300  0.0304  0.0291  0.
1979    1   5   1   0.000   0   0   200 0.0206  0.0154  0.0103  0.0123  0.0144  0.0163  0.0137  0.0155  0.0164  0.0157  0.0235  0.0338  0.0333  0.
1980    1   5   1   0.000   0   0   200 0.0067  0.0133  0.0376  0.0287  0.0295  0.0296  0.0265  0.0262  0.0224  0.0192  0.0208  0.0165  0.0231  0.
1981    1   5   1   0.000   0   0   200 0.0160  0.0113  0.0182  0.0240  0.0366  0.0362  0.0331  0.0367  0.0291  0.0356  0.0261  0.0285  0.0194  0.
1982    1   5   1   0.000   0   0   200 0.0792  0.0811  0.0682  0.0287  0.0240  0.0310  0.0353  0.0287  0.0197  0.0171  0.0198  0.0141  0.0131  0.
1983    1   5   1   0.000   0   0   200 0.0325  0.0356  0.0497  0.0665  0.0801  0.0783  0.0598  0.0468  0.0402  0.0398  0.0320  0.0309  0.0190  0.
1984    1   5   1   0.000   0   0   200 0.0161  0.0626  0.1229  0.1327  0.0682  0.0389  0.0206  0.0202  0.0208  0.0154  0.0119  0.0072  0.0063  0.
1985    1   5   1   0.000   0   0   200 0.0026  0.0128  0.0244  0.0395  0.0589  0.0582  0.0424  0.0403  0.0602  0.0614  0.0513  0.0523  0.0497  0.
1986    1   5   1   0.000   0   0   200 0.0112  0.0179  0.0248  0.0201  0.0232  0.0156  0.0408  0.0400  0.0559  0.0485  0.0675  0.0734  0.0700  0.
1987    1   5   1   0.000   0   0   200 0.0012  0.0071  0.0340  0.0546  0.0469  0.0317  0.0290  0.0291  0.0310  0.0253  0.0332  0.0270  0.0363  0.
1988    1   5   1   0.000   0   0   200 0.0013  0.0013  0.0066  0.0110  0.0133  0.0215  0.0469  0.0430  0.0405  0.0374  0.0262  0.0308  0.0210  0.
1989    1   5   1   0.000   0   0   200 0.0017  0.0000  0.0009  0.0024  0.0149  0.0348  0.0184  0.0376  0.0232  0.0412  0.0288  0.0253  0.0450  0.
1990    1   5   1   0.000   0   0   200 0.0013  0.0106  0.0151  0.0348  0.0329  0.0094  0.0080  0.0084  0.0182  0.0296  0.0219  0.0298  0.0341  0.
1991    1   5   1   0.000   0   0   200 0.0011  0.0090  0.0224  0.0168  0.0265  0.0217  0.0137  0.0274  0.0221  0.0172  0.0053  0.0198  0.0347  0.
1992    1   5   1   0.000   0   0   200 0.0010  0.0000  0.0020  0.0127  0.0252  0.0355  0.0552  0.0528  0.0382  0.0399  0.0291  0.0378  0.0348  0.
1993    1   5   1   0.000   0   0   200 0.0021  0.0110  0.0137  0.0105  0.0095  0.0157  0.0142  0.0235  0.0309  0.0443  0.0417  0.0627  0.0479  0.
1994    1   5   1   0.000   0   0   163.75  0.0016  0.0000  0.0031  0.0237  0.0235  0.0152  0.0124  0.0173  0.0213  0.0354  0.0412  0.0403  0.0627
1995    1   5   1   0.000   0   0   200 0.0283  0.0683  0.0557  0.0220  0.0110  0.0169  0.0222  0.0255  0.0275  0.0305  0.0263  0.0268  0.0343  0.
1996    1   5   1   0.000   0   0   200 0.0278  0.0135  0.0298  0.0529  0.0632  0.0594  0.0276  0.0225  0.0117  0.0179  0.0140  0.0150  0.0139  0.
1997    1   5   1   0.000   0   0   200 0.0000  0.0036  0.0022  0.0052  0.0127  0.0564  0.0943  0.1070  0.0910  0.0515  0.0301  0.0162  0.0149  0.
1998    1   5   1   0.000   0   0   200 0.0209  0.0174  0.0103  0.0127  0.0120  0.0101  0.0135  0.0169  0.0226  0.0467  0.0485  0.0523  0.0451  0.
1999    1   5   1   0.000   0   0   200 0.0583  0.0244  0.0134  0.0104  0.0120  0.0110  0.0121  0.0148  0.0047  0.0132  0.0182  0.0233  0.0520  0.
2000    1   5   1   0.000   0   0   200 0.0018  0.0047  0.0195  0.0396  0.0310  0.0200  0.0228  0.0163  0.0201  0.0147  0.0134  0.0296  0.0294  0.
2001    1   5   1   0.000   0   0   200 0.0069  0.0050  0.0106  0.0149  0.0156  0.0421  0.0372  0.0523  0.0346  0.0200  0.0253  0.0166  0.0140  0.
2002    1   5   1   0.000   0   0   200 0.0534  0.0638  0.0436  0.0272  0.0119  0.0091  0.0076  0.0106  0.0229  0.0266  0.0347  0.0290  0.0203  0.
2003    1   5   1   0.000   0   0   200 0.0149  0.0069  0.0142  0.0236  0.0392  0.0320  0.0301  0.0165  0.0112  0.0143  0.0133  0.0251  0.0236  0.
2004    1   5   1   0.000   0   0   200 0.0371  0.0289  0.0268  0.0195  0.0187  0.0187  0.0350  0.0535  0.0436  0.0445  0.0293  0.0238  0.0142  0.
2005    1   5   1   0.000   0   0   200 0.0353  0.0586  0.0419  0.0160  0.0098  0.0228  0.0234  0.0215  0.0184  0.0171  0.0219  0.0233  0.0159  0.
2006    1   5   1   0.000   0   0   200 0.0133  0.0197  0.0173  0.0276  0.0291  0.0369  0.0210  0.0208  0.0129  0.0188  0.0116  0.0128  0.0236  0.
2007    1   5   1   0.000   0   0   200 0.0017  0.0025  0.0053  0.0084  0.0196  0.0271  0.0345  0.0436  0.0386  0.0288  0.0187  0.0233  0.0236  0.
2008    1   5   1   0.000   0   0   200 0.0000  0.0008  0.0038  0.0068  0.0149  0.0188  0.0194  0.0239  0.0372  0.0470  0.0453  0.0328  0.0382  0.
2009    1   5   1   0.000   0   0   200 0.0010  0.0005  0.0037  0.0053  0.0053  0.0104  0.0096  0.0225  0.0330  0.0301  0.0315  0.0328  0.0363  0.
2010    1   5   1   0.000   0   0   200 0.0000  0.0033  0.0080  0.0094  0.0077  0.0054  0.0161  0.0134  0.0130  0.0153  0.0270  0.0363  0.0302  0.
2011    1   5   1   0.000   0   0   200 0.0036  0.0044  0.0125  0.0204  0.0169  0.0138  0.0168  0.0151  0.0182  0.0132  0.0181  0.0203  0.0161  0.
2012    1   5   1   0.000   0   0   200 0.0025  0.0040  0.0120  0.0159  0.0128  0.0227  0.0336  0.0247  0.0174  0.0174  0.0153  0.0196  0.0217  0.
2013    1   5   1   0.000   0   0   200 0.0008  0.0025  0.0123  0.0145  0.0101  0.0174  0.0134  0.0235  0.0280  0.0261  0.0323  0.0348  0.0303  0.
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2014	1	5	1	0.000	0	0	200	0.0000	0.0005	0.0026	0.0030	0.0160	0.0313	0.0437	0.0348	0.0313	0.0192	0.0231	0.0326	0.0336	0.
2015	1	5	1	0.000	0	0	200	0.0105	0.0207	0.0103	0.0093	0.0047	0.0110	0.0158	0.0149	0.0244	0.0187	0.0285	0.0203	0.0235	0.
2016	1	5	1	0.000	0	0	200	0.0066	0.0009	0.0026	0.0032	0.0041	0.0043	0.0034	0.0083	0.0069	0.0129	0.0085	0.0145	0.0127	0.
2017	1	5	1	0.000	0	0	200	0.0032	0.0011	0.0029	0.0095	0.0243	0.0199	0.0135	0.0068	0.0083	0.0077	0.0086	0.0134	0.0064	0.
2018	1	5	1	0.000	0	0	161	0.0051	0.0173	0.0173	0.0153	0.0093	0.0161	0.0144	0.0174	0.0367	0.0160	0.0334	0.0210	0.0033	0.
2019	1	5	1	0.000	0	0	143	0.0017	0.0036	0.0106	0.0071	0.0071	0.0314	0.0157	0.0244	0.0231	0.0336	0.0299	0.0436	0.0424	0.
2021	1	5	1	0.000	0	0	142.75	0.0038	0.0187	0.0136	0.0140	0.0248	0.0129	0.0183	0.0211	0.0198	0.0245	0.0236	0.0229	0.0384	
2022	1	5	1	0.0000	0	0	180	0.0000	0.0044	0.0176	0.0143	0.0197	0.0098	0.0256	0.0319	0.0209	0.0241	0.0168	0.0295	0.0402	

#NMFS female

#Year	Season	Fleet	Sex	Type		Shell	Maturity	Nsamp	DataVec												
1975	1	5	2	0.000	0	0	0	0.0331	0.0401	0.0481	0.0494	0.0564	0.0439	0.0444	0.0454	0.0326	0.0289	0.0162	0.0158	0.0116	0.
1976	1	5	2	0.000	0	0	0	0.0029	0.0092	0.0313	0.0563	0.0688	0.0628	0.0494	0.0269	0.0121	0.0137	0.0066	0.0049	0.0023	0.
1977	1	5	2	0.000	0	0	0	0.0026	0.0068	0.0079	0.0193	0.0337	0.0701	0.0808	0.0715	0.0453	0.0435	0.0415	0.0316	0.0151	0.
1978	1	5	2	0.000	0	0	0	0.0060	0.0111	0.0187	0.0201	0.0233	0.0418	0.0920	0.1212	0.0791	0.0440	0.0301	0.0267	0.0176	0.
1979	1	5	2	0.000	0	0	0	0.0286	0.0154	0.0121	0.0147	0.0148	0.0230	0.0381	0.0734	0.0922	0.0876	0.0565	0.0336	0.0215	0.
1980	1	5	2	0.000	0	0	0	0.0048	0.0219	0.0322	0.0292	0.0597	0.0820	0.0487	0.0581	0.0540	0.0424	0.0315	0.0130	0.0110	0.
1981	1	5	2	0.000	0	0	0	0.0152	0.0113	0.0151	0.0190	0.0366	0.0456	0.0443	0.0472	0.0600	0.0774	0.0804	0.0510	0.0252	0.
1982	1	5	2	0.000	0	0	0	0.0536	0.0954	0.0603	0.0378	0.0423	0.0482	0.0398	0.0232	0.0190	0.0257	0.0281	0.0203	0.0114	0.
1983	1	5	2	0.000	0	0	0	0.0174	0.0383	0.0475	0.0629	0.0647	0.0398	0.0341	0.0152	0.0107	0.0042	0.0090	0.0056	0.0061	0.
1984	1	5	2	0.000	0	0	0	0.0174	0.0585	0.1229	0.1105	0.0647	0.0325	0.0159	0.0119	0.0038	0.0017	0.0000	0.0004	0.0001	0.
1985	1	5	2	0.000	0	0	0	0.0009	0.0155	0.0377	0.0521	0.0643	0.0555	0.0516	0.0397	0.0161	0.0068	0.0000	0.0000	0.0015	0.
1986	1	5	2	0.000	0	0	0	0.0124	0.0224	0.0355	0.0274	0.0263	0.0313	0.0362	0.0388	0.0274	0.0113	0.0072	0.0008	0.0000	0.
1987	1	5	2	0.000	0	0	0	0.0013	0.0124	0.0525	0.0918	0.0761	0.0462	0.0445	0.0569	0.0414	0.0292	0.0179	0.0079	0.0018	0.
1988	1	5	2	0.000	0	0	0	0.0006	0.0076	0.0064	0.0062	0.0139	0.0695	0.0910	0.0979	0.0697	0.0600	0.0407	0.0184	0.0077	0.
1989	1	5	2	0.000	0	0	0	0.0017	0.0000	0.0017	0.0082	0.0310	0.0740	0.0646	0.0692	0.0531	0.0376	0.0315	0.0194	0.0064	0.
1990	1	5	2	0.000	0	0	0	0.0041	0.0052	0.0235	0.0513	0.0525	0.0071	0.0256	0.0601	0.0732	0.0708	0.0633	0.0410	0.0215	0.
1991	1	5	2	0.000	0	0	0	0.0042	0.0115	0.0196	0.0320	0.0218	0.0344	0.0343	0.0310	0.0366	0.0329	0.0281	0.0431	0.0232	0.
1992	1	5	2	0.000	0	0	0	0.0000	0.0053	0.0074	0.0197	0.0364	0.0414	0.0625	0.0448	0.0353	0.0273	0.0450	0.0407	0.0265	0.
1993	1	5	2	0.000	0	0	0	0.0066	0.0080	0.0175	0.0085	0.0131	0.0248	0.0437	0.0647	0.0639	0.0269	0.0300	0.0268	0.0271	0.
1994	1	5	2	0.000	0	0	0	0.0000	0.0016	0.0044	0.0030	0.0169	0.0092	0.0124	0.0213	0.0431	0.0416	0.0362	0.0280	0.0395	0.
1995	1	5	2	0.000	0	0	0	0.0294	0.0482	0.0316	0.0145	0.0139	0.0182	0.0163	0.0254	0.0234	0.0334	0.0272	0.0234	0.0240	0.
1996	1	5	2	0.000	0	0	0	0.0260	0.0219	0.0436	0.0794	0.0796	0.0436	0.0226	0.0218	0.0245	0.0202	0.0161	0.0285	0.0244	0.
1997	1	5	2	0.000	0	0	0	0.0004	0.0037	0.0016	0.0020	0.0146	0.0791	0.0969	0.0616	0.0212	0.0137	0.0095	0.0146	0.0143	0.
1998	1	5	2	0.000	0	0	0	0.0145	0.0196	0.0101	0.0088	0.0111	0.0116	0.0303	0.1040	0.1153	0.0594	0.0303	0.0252	0.0225	0.
1999	1	5	2	0.000	0	0	0	0.0243	0.0169	0.0125	0.0115	0.0044	0.0055	0.0093	0.0164	0.0512	0.0800	0.0583	0.0358	0.0340	0.
2000	1	5	2	0.000	0	0	0	0.0018	0.0067	0.0269	0.0403	0.0357	0.0272	0.0255	0.0226	0.0358	0.0524	0.0676	0.0603	0.0419	0.
2001	1	5	2	0.000	0	0	0	0.0056	0.0168	0.0195	0.0136	0.0259	0.0598	0.0779	0.0579	0.0395	0.0398	0.0291	0.0691	0.0560	0.
2002	1	5	2	0.000	0	0	0	0.0506	0.0769	0.0485	0.0247	0.0222	0.0176	0.0225	0.0520	0.0399	0.0296	0.0163	0.0206	0.0205	0.
2003	1	5	2	0.000	0	0	0	0.0163	0.0059	0.0143	0.0314	0.0414	0.0464	0.0239	0.0292	0.0351	0.0533	0.0526	0.0356	0.0219	0.
2004	1	5	2	0.000	0	0	0	0.0279	0.0327	0.0194	0.0132	0.0199	0.0369	0.0577	0.0514	0.0334	0.0204	0.0196	0.0232	0.0184	0.
2005	1	5	2	0.000	0	0	0	0.0405	0.0561	0.0457	0.0116	0.0099	0.0336	0.0386	0.0521	0.0567	0.0468	0.0336	0.0383	0.0347	0.
2006	1	5	2	0.000	0	0	0	0.0143	0.0139	0.0198	0.0425	0.0615	0.0462	0.0254	0.0259	0.0481	0.0656	0.0619	0.0415	0.0301	0.
2007	1	5	2	0.000	0	0	0	0.0015	0.0023	0.0064	0.0078	0.0155	0.0356	0.0574	0.0560	0.0325	0.0570	0.0614	0.0641	0.0459	0.
2008	1	5	2	0.000	0	0	0	0.0000	0.0027	0.0054	0.0136	0.0116	0.0167	0.0303	0.0570	0.0724	0.0560	0.0555	0.0562	0.0575	0.
2009	1	5	2	0.000	0	0	0	0.0005	0.0019	0.0050	0.0055	0.0081	0.0122	0.0206	0.0466	0.0656	0.0866	0.0645	0.0603	0.0523	0.
2010	1	5	2	0.000	0	0	0	0.0018	0.0006	0.0037	0.0048	0.0069	0.0116	0.0213	0.0365	0.0565	0.0927	0.0955	0.0700	0.0509	0.
2011	1	5	2	0.000	0	0	0	0.0058	0.0085	0.0092	0.0141	0.0284	0.0310	0.0384	0.0484	0.0299	0.0530	0.0637	0.0905	0.0635	0.
2012	1	5	2	0.000	0	0	0	0.0293	0.0180	0.0191	0.0250	0.0281	0.0461	0.0351	0.0220	0.0331	0.0355	0.0365	0.0461	0.0663	0.
2013	1	5	2	0.000	0	0	0	0.0008	0.0027	0.0093	0.0112	0.0067	0.0125	0.0202	0.0384	0.0429	0.0450	0.0304	0.0302	0.0455	0.
2014	1	5	2	0.000	0	0	0	0.0000	0.0000	0.0012	0.0040	0.0091	0.0258	0.0219	0.0320	0.0499	0.0770	0.0569	0.0456	0.0307	0.
2015	1	5	2	0.000	0	0	0	0.0074	0.0129	0.0110	0.0055	0.0120	0.0114	0.0107	0.0234	0.0408	0.0461	0.0616	0.0668	0.0531	0.
2016	1	5	2	0.000	0	0	0	0.0120	0.0019	0.0036	0.0043	0.0026	0.0051	0.0143	0.0141	0.0390	0.0714	0.0782	0.1023	0.0737	0.
2017	1	5	2	0.000	0	0	0	0.0010	0.0028	0.0030	0.0126	0.0258	0.0248	0.0167	0.0188	0.0214	0.0511	0.0665	0.0804	0.0885	0.
2018	1	5	2	0.000	0	0	0	0.0031	0.0109	0.0172	0.0186	0.0094	0.0198	0.0516	0.0362	0.0421	0.0296	0.0254	0.0652	0.0462	0.
2019	1	5	2	0.000	0	0	0	0.0017	0.0105	0.0018	0.0070	0.0070	0.0140	0.0143	0.0174	0.0312	0.0355	0.0335	0.0279	0.0515	0.
2021	1	5	2	0.000	0	0	0	0.0107	0.0051	0.0100	0.0121	0.0033	0.0000	0.0120	0.0356	0.0296	0.0189	0.0224	0.0309	0.0446	0.
2022	1	5	2	0.000	0	0	0	0.0100	0.0146	0.0170	0.0288	0.0125	0.0222	0.0360	0.0418	0.0440	0.0257	0.0182	0.0310	0.0236	0.

#BSFRF males

#Year	Season	Fleet	Sex	Type		Shell	Maturity	Nsamp	DataVec												
2007	1	6	1	0	0	0	200	0.0045	0.0074	0.0103	0.0155	0.0198	0.0321	0.0532	0.0491	0.0443	0.0354	0.0268	0.0231	0.0236	0.0256
2008	1	6	1	0	0	0	200	0.0017	0.001	0.0093	0.0119	0.0175	0.0279	0.0267	0.0348	0.0428	0.0596	0.0581	0.0455	0.0371	0.0284
2013	1	6	1	0	0	0	75.75	0	0.0073	0.0145	0.0291	0.0102	0.0136	0.0205	0.0341	0.0357	0.0458	0.0448	0.0383	0.042	0.0348
2014	1	6	1	0	0	0	105.75	0	0	0.003	0.0101	0.0118	0.0448	0.0546	0.0423	0.047	0.0164	0.0221	0.0321	0.0226	0.0369	0.
2015	1	6	1	0	0	0	98.75	0.0208	0.0463	0.037	0.0162	0.0069	0.0162	0.0119	0.0174	0.0355	0.0206	0.0274	0.0357	0.0228	0.
2016	1	6	1	0	0	0	73.5	0.0138	0.0039	0.02	0.0193	0.0104	0.0122	0.0064	0.0126	0.0062	0.0034	0.0068	0.0134	0.0204	0.

#BSFRF females

#Year	Season	Fleet	Sex	Type		Shell	Maturity	Nsamp	DataVec												
2007	1	6	2	0	0	0	000	0.0007	0.0016	0.0044	0.0198	0.0302	0.0705	0.0563	0.0345	0.0364	0.0493	0.0501	0.0448	0.0272	0.0183
2008	1	6	2	0	0	0	000	0.0004	0.0013	0.0088	0.0142	0.0286	0.0483	0.0754	0.0687	0.0463	0.0386	0.0411	0.0357	0.021	0.0179

```
2013    1   6   2   0   0   0   000 0.0035  0    0.0191  0.0258  0.0176  0.0105  0.0094  0.0407  0.024   0.0291  0.0308  0.0216  0.0232  0.0403  0.
2014    1   6   2   0   0   0   000 0    0.0037  0.0071  0.0037  0.014   0.031   0.0238  0.0415  0.0457  0.0708  0.0481  0.0279  0.0385  0.0448  0.
2015    1   6   2   0   0   0   000 0.0116  0.0324  0.0231  0.0069  0.0153  0.0112  0.0042  0.0231  0.0361  0.0358  0.0427  0.0364  0.0528  0.0366
2016    1   6   2   0   0   0   000 0.0039  0.0178  0.0039  0.0263  0.003   0.0124  0.0096  0.0168  0.0422  0.0514  0.0826  0.1077  0.072   0.078
##  Growth  data
# Type of growth increment (1=growth increment with a CV;2=size-at-release; size-at)
0
#   nobs_growth
0
##  Note    SM  used    loewss  regression  for males   BBRKC   data
##  and cubic   spine   to  interpolate 3   sets    of  female  BBRKC   data
# MidPoint Sex  Increment   CV
#67.5   2   14.766667   1000000000000000000000
# MidPoint Sex  MidPoint   Time-at-liberty Size-trans matrix Number of points
# Release       Recapture
##  eof
9999
```

Model 21.1b control file for 2022

```
### control file for base model 2022 model 21.1b ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## LEADING PARAMETER CONTROLS                                                          ##
##     Controls for leading parameter vector (theta)                                   ##
## LEGEND                                                                              ##
##     prior: 0 = uniform, 1 = normal, 2 = lognormal, 3 = beta, 4 = gamma              ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ntheta
   91
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ival        lb        ub        phz   prior     p1      p2         # parameter       ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
    0.18       0.15    0.2        -4      2    0.18    0.04       # M
  # 0.18       0.15    0.4         4      2    0.18    0.03       # M
    0.0       -0.4     0.4         4      1    0.0     0.03       # M
   16.5      -10       18         -2      0  -10.0    20.0        # logR0
   19.5      -10       25          3      0   10.0    25.0        # logRini, to estimate if NOT initialized at unfished (n68)
   16.5      -10       25          1      0   10.0    20.0   #1      # logRbar, to estimate if NOT initialized at unfished      #1
   72.5       55      100         -4      1   72.5     7.25       # recruitment expected value (males or combined)
    0.726149   0.32     1.64       3      0    0.1     5.0        # recruitment scale (variance component) (males or combined)
    0.00      -5        5         -4      0   0.0     20.00       # recruitment expected value (females)
    0.00      -1.69     0.40       3      0    0.0    20.0        # recruitment scale (variance component) (females)
   -0.10536     -10        0.75      -4       0  -10.0     0.75       # ln(sigma_R)
   #-0.10        -5        5.0       4       0   -10.0     10.0       # ln(sigma_R)
    0.75       0.20      1.00      -2      3    3.0     2.00       # steepness
    0.01       0.00      1.00      -3      3    1.01    1.01       # recruitment autocorrelation
#   0.00      -10        4          2      0   10.0    20.00       # Deviation for size-class 1 (normalization class)
    1.107962885630     -10        4         9      0   10.0    20.00       # Deviation for size-class 2
    0.563229168219     -10        4         9      0   10.0    20.00       # Deviation for size-class 3
    0.681928313426     -10        4         9      0   10.0    20.00       # Deviation for size-class 4
    0.491057364532     -10        4         9      0   10.0    20.00       # Deviation for size-class 5
    0.407911777560     -10        4         9      0   10.0    20.00       # Deviation for size-class 6
    0.436516142684     -10        4         9      0   10.0    20.00       # Deviation for size-class 7
    0.40612675395550   -10        4         9      0   10.0    20.00       # Deviation for size-class 8
    0.436145974880     -10        4         9      0   10.0    20.00       # Deviation for size-class 9
    0.40494522852708     -10        4         9       0   10.0    20.00       # Deviation for size-class 10
    0.30401970466854     -10        4         9       0   10.0    20.00       # Deviation for size-class 11
    0.2973752673022    -10        4         9      0   10.0    20.00       # Deviation for size-class 12
    0.1746800712364   -10        4         9      0   10.0    20.00       # Deviation for size-class 13
    0.0845298456942    -10        4         9      0   10.0    20.00       # Deviation for size-class 14
    0.0107462399193    -10        4         9      0   10.0    20.00       # Deviation for size-class 15
    -0.190468322904    -10        4         9      0   10.0    20.00       # Deviation for size-class 16
    -0.376312503735    -10        4         9      0   10.0    20.00       # Deviation for size-class 17
    -0.699162895473    -10        4         9      0   10.0    20.00       # Deviation for size-class 18
    -1.15881771530     -10        4         9      0   10.0    20.00       # Deviation for size-class 19
    -1.17311583316     -10        4         9      0   10.0    20.00       # Deviation for size-class 20
 -100.00      -101        5         -2      0   10.0    20.00       # Deviation for size-class 1
 -100.00      -101        5         -2      0   10.0    20.00       # Deviation for size-class 2
 -100.00      -101        5         -2      0   10.0    20.00       # Deviation for size-class 3
 -100.00      -101        5         -2      0   10.0    20.00       # Deviation for size-class 4
```

```
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 5
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 6
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 7
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 8
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 9
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 10
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 11
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 12
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 13
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 14
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 15
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 16
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 17
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 18
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 19
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 20
    0.425704202053      -10         4          9       0   10.0    20.00        # Deviation for size-class 1
    2.268408592660      -10         4          9       0   10.0    20.00        # Deviation for size-class 2
    1.810451373080      -10         4          9       0   10.0    20.00        # Deviation for size-class 3
    1.37035725111       -10         4          9       0   10.0    20.00        # Deviation for size-class 4
    1.158258087990      -10         4          9       0   10.0    20.00        # Deviation for size-class 5
    0.596196784439      -10         4          9       0   10.0    20.00        # Deviation for size-class 6
    0.225756761257      -10         4          9       0   10.0    20.00        # Deviation for size-class 7
    -0.0247857565368    -10         4          9       0   10.0    20.00        # Deviation for size-class 8
    -0.214045895269     -10         4          9       0   10.0    20.00        # Deviation for size-class 9
    -0.560539577780     -10         4          9       0   10.0    20.00        # Deviation for size-class 10
    -0.974218300021     -10         4          9       0   10.0    20.00        # Deviation for size-class 11
    -1.24580072031      -10         4          9       0   10.0    20.00        # Deviation for size-class 12
    -1.49292897450      -10         4          9       0   10.0    20.00        # Deviation for size-class 13
    -1.94135821253      -10         4          9       0   10.0    20.00        # Deviation for size-class 14
    -2.05101560679      -10         4          9       0   10.0    20.00        # Deviation for size-class 15
    -1.94956606430      -10         4          9       0   10.0    20.00        # Deviation for size-class 16
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 17
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 18
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 19
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 20
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 1
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 2
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 3
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 4
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 5
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 6
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 7
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 8
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 9
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 10
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 11
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 12
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 13
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 14
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 15
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 16
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 17
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 18
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 19
 -100.00      -101         5         -2       0   10.0    20.00        # Deviation for size-class 20

#   weight-at-length input  method  (1 = allometry  [w_l = a*l^b],  2 = vector by sex)
2
##  Males
0.000224781 0.000281351 0.000346923 0.000422209 0.000507927 0.000604802 0.000713564 0.00083495  0.0009697   0.00111856  0.00128229  0.00146163  0.
##  Females
0.0002151   0.00026898  0.00033137  0.00040294  0.00048437  0.00062711  0.0007216   0.00082452  0.00093615  0.00105678  0.00118669  0.00132613  0.
# Proportion mature by sex
0   0   0   0   0   0   0   0   0   0   1   1   1   1   1   1   1   1   1   1
0   0   0   0   0   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1
# Proportion legal by sex
0   0   0   0   0   0   0   0   0   0   0   1   1   1   1   1   1   1   1   1
0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
```

```
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## GROWTH PARAMETER CONTROLS                                                     ##
##     Two lines for each parameter if split sex, one line if not                ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
# Use growth transition matrix option (1=read in growth-increment matrix; 2=read in size-transition; 3=gamma distribution for size-increment; 4=ga
3
# growth increment model (1=alpha/beta; 2=estimated by size-class;3=pre-specified/emprical)
3
# molt probability function (0=pre-specified; 1=flat;2=declining logistic)
2
# Maximum size-class for recruitment(males then females)
7 5
## number of size-increment periods
1 3
## Year(s) size-incremnt period changes (blank if no changes)
1983 1994
## number of molt periods
2 2
## Year(s) molt period changes (blank if no changes)
1980 1980
## Beta parameters are relative (1=Yes;0=no)
1

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ival       lb        ub        phz   prior     p1      p2          # parameter       ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
16.5    0   20  -33 0   0   999     # Males
16.5    0   20  -33 0   0   999     # Males
16.4    0   20  -33 0   0   999     # Males
16.3    0   20  -33 0   0   999     # Males
16.3    0   20  -33 0   0   999     # Males
16.2    0   20  -33 0   0   999     # Males
16.2    0   20  -33 0   0   999     # Males
16.1    0   20  -33 0   0   999     # Males
16.1    0   20  -33 0   0   999     # Males
16      0   20  -33 0   0   999     # Males
16      0   20  -33 0   0   999     # Males
15.9    0   20  -33 0   0   999     # Males
15.8    0   20  -33 0   0   999     # Males
15.8    0   20  -33 0   0   999     # Males
15.7    0   20  -33 0   0   999     # Males
15.7    0   20  -33 0   0   999     # Males
15.6    0   20  -33 0   0   999     # Males
15.6    0   20  -33 0   0   999     # Males
15.5    0   20  -33 0   0   999     # Males
15.5    0   20  -33 0   0   999     # Males
#1.38403  0.5   3.7 7   0   0   999     # Males (beta)
1.0     0.5 3.0  6  0   0   999     # Males (beta)
13.8    0   20  -33 0   0   999     # Females
12.2    0   20  -33 0   0   999     # Females
10.5    0   20  -33 0   0   999     # Females
8.4 0   20  -33 0   0   999     # Females
7.5 0   20  -33 0   0   999     # Females
7   0   20  -33 0   0   999     # Females
6.6 0   20  -33 0   0   999     # Females
6.1 0   20  -33 0   0   999     # Females
5.6 0   20  -33 0   0   999     # Females
5.1 0   20  -33 0   0   999     # Females
4.6 0   20  -33 0   0   999     # Females
4.1 0   20  -33 0   0   999     # Females
3.6 0   20  -33 0   0   999     # Females
3.2 0   20  -33 0   0   999     # Females
2.7 0   20  -33 0   0   999     # Females
2.2 0   20  -33 0   0   999     # Females
1.7 0   20  -33 0   0   999     # Females
1.2 0   20  -33 0   0   999     # Females
0.7 0   20  -33 0   0   999     # Females
0.4 0   20  -33 0   0   999     # Females
#1.38403    0.5 3.0  7  0   0   999     # Females (beta)
1.5 0.5  3.0  6  0   0   999     # Females (beta)
15.4    0   20  -33 0   0   999     # Females
13.8    0   20  -33 0   0   999     # Females
```

```
12.2    0   20  -33 0   0   999     # Females
10.5    0   20  -33 0   0   999     # Females
8.9 0   20  -33 0   0   999     # Females
7.9 0   20  -33 0   0   999     # Females
7.2 0   20  -33 0   0   999     # Females
6.6 0   20  -33 0   0   999     # Females
6.1 0   20  -33 0   0   999     # Females
5.6 0   20  -33 0   0   999     # Females
5.1 0   20  -33 0   0   999     # Females
4.6 0   20  -33 0   0   999     # Females
4.1 0   20  -33 0   0   999     # Females
3.6 0   20  -33 0   0   999     # Females
3.2 0   20  -33 0   0   999     # Females
2.7 0   20  -33 0   0   999     # Females
2.2 0   20  -33 0   0   999     # Females
1.7 0   20  -33 0   0   999     # Females
1.2 0   20  -33 0   0   999     # Females
0.7 0   20  -33 0   0   999     # Females
0.0     -1.0    1.0  -7 0   0   999     # Females (beta)
#1.38403    0.5 3.7  -7 0   0   999     # Females (beta)
15.1    0   20  -33 0   0   999     # Females
14  0   20  -33 0   0   999     # Females
12.9    0   20  -33 0   0   999     # Females
11.8    0   20  -33 0   0   999     # Females
10.6    0   20  -33 0   0   999     # Females
8.7 0   20  -33 0   0   999     # Females
7.4 0   20  -33 0   0   999     # Females
6.6 0   20  -33 0   0   999     # Females
6.1 0   20  -33 0   0   999     # Females
5.6 0   20  -33 0   0   999     # Females
5.1 0   20  -33 0   0   999     # Females
4.6 0   20  -33 0   0   999     # Females
4.1 0   20  -33 0   0   999     # Females
3.6 0   20  -33 0   0   999     # Females
3.2 0   20  -33 0   0   999     # Females
2.7 0   20  -33 0   0   999     # Females
2.2 0   20  -33 0   0   999     # Females
1.7 0   20  -33 0   0   999     # Females
1.2 0   20  -33 0   0   999     # Females
0.7 0   20  -33 0   0   999     # Females
0.0     -1.0    1.0  -7 0   0   999     # Females (beta)
#1.38403    0.5 3.7  -7 0   0   999     # Females (beta)
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## MOLTING PROBABILITY CONTROLS                                                      ##
##     Two lines for each parameter if split sex, one line if not                    ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ival       lb        ub        phz   prior     p1      p2          # parameter       ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## males and combined
  145.0386     100.     500.0       3       0    0.0    999.0         # molt_mu males
    0.053036     0.02     2.0       3       0    0.0    999.0         # molt_cv males
  145.0386     100.     500.0       3       0    0.0    999.0         # molt_mu males
    0.053036     0.02     2.0       3       0    0.0    999.0         # molt_cv males
## females
  300.0000       5.     500.0      -4       0    0.0    999.0         # molt_mu females (molt every year)
    0.01         0.001    9.0      -4       0    0.0    999.0         # molt_cv females (molt every year)
  300.0000       5.     500.0      -4       0    0.0    999.0         # molt_mu females (molt every year)
    0.01         0.001    9.0      -4       0    0.0    999.0         # molt_cv females (molt every year)
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

# The custom growth-increment matrix

# custom molt probability matrix


## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## SELECTIVITY CONTROLS                                                              ##
##     Selectivity P(capture of all sizes). Each gear must have a selectivity and a     ##
##     retention selectivity. If a uniform prior is selected for a parameter then the   ##
##     lb and ub are used (p1 and p2 are ignored)                                     ##
```

```
## LEGEND                                                                          ##
##     sel type: 0 = parametric, 1 = coefficients (NIY), 2 = logistic, 3 = logistic95,  ##
##              4 = double normal (NIY)                                            ##
##     gear index: use +ve for selectivity, -ve for retention                      ##
##     sex dep: 0 for sex-independent, 1 for sex-dependent                         ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## Gear-1   Gear-2   Gear-3   Gear-4   Gear-5   Gear-6
## PotFshry TrawlByc TCFshry  FixedGr  NMFS     BSFRF
   1        1        1        1        2        1         # selectivity periods
   1        0        1        0        0        0         # sex specific selectivity
  # 9        2        2        2        2        2         # male selectivity type
   2        2        2        2        2        2         # male selectivity type
   2        2        2        2        2        2         # female selectivity type
   0        0        0        0        6        0   #6      # within another gear
  # 5        0        0        0        0        0         #-NEW: extra parameters for each pattern by fleet, males
   0        0        0        0        0        0         #-NEW: extra parameters for each pattern by fleet, males
   0        0        0        0        0        0         #-NEW: extra parameters for each pattern by fleet, females
## Gear-1   Gear-2   Gear-3   Gear-4   Gear-5   Gear-6
   2        1        1        1        1        1         # retention periods
   1        0        0        0        0        0         # sex specific retention
   2        6        6        6        6        6         # male   retention type
   6        6        6        6        6        6         # female retention type
   1        0        0        0        0        0         # male   retention flag (0 = no, 1 = yes)
   0        0        0        0        0        0         # female retention flag (0 = no, 1 = yes)
   0        0        0        0        0        0         #-NEW: extra parameters for each pattern by fleet, males
   0        0        0        0        0        0         #-NEW: extra parameters for each pattern by fleet, females

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## gear  par   sel                                                    start  end        ##
## index index par sex  ival  lb    ub     prior  p1   p2     phz   period period      ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
   # Gear-1
   1      1    1   1    125.0000    5   190    0       1    999    4     1975   2021  #4
   1      2    2   1      8.0      0.1   20    0       1    999    4     1975   2021  #4
 # Gear-1
#  1      1    1   1      67.5       0   200    0       1    999   -999     1975   2018  #4          #parameters for cubic spine
#  1      2    2   1      87.5       0   200    0       1    999   -999     1975   2018  #4
#  1      3    3   1      97.5       0   200    0       1    999   -999     1975   2018  #4
#  1      4    4   1     112.5       0   200    0       1    999   -999     1975   2018  #4
#  1      5    5   1     162.5       0   200    0       1    999   -999     1975   2018  #4
#  1      6    6   1     0.001       0.00001  0.99999   0       1    999    4     1975   2018  #4
#  1      6    7   1     0.1         0.00001  0.99999   0       1    999    4     1975   2018  #4
#  1      6    8   1     0.3         0.00001  0.99999   0       1    999    4    1975   2018  #4
#  1      6    9   1     0.7         0.00001  0.99999   0       1    999    4     1975   2018  #4
#  1      6   10   1     0.99999     0.00001  1.01      0       1    999   -4     1975   2018  #4
  1      3    1   2    84.00      5    150    0       1    999    4     1975   2021
  1      4    2   2     4.0000    0.1   20    0       1    999    4     1975   2021
# Gear-2
   2      5    1   0    165.0       5    190    0       1    999    4     1975   2021
   2      6    2   0     15.0000    0.1   25    0       1    999    4     1975   2021
# Gear-3-9
 # 3      7    1   1    103.275       5    190    1       103.275    20.66  4     1975   2019
 # 3      8    2   1     8.834        0.1   25    1       8.834      1.76   4     1975   2019
 # 3      9    1   2     91.178       5    190    1       91.178     18.24  4     1975   2019
 # 3     10    2   2     2.5          0.1   25    1       2.5        0.50   4     1975   2019
 #3      7    1   1    103.275      5    190    1       103.275    51.64  4     1975   2019
 #3      8    2   1     8.834       0.1   25    1       8.834      4.42   4     1975   2019
 #3      9    1   2     91.178      5    190    1       91.178     45.59  4     1975   2019
 #3     10    2   2     2.5         0.1   25    1       2.5        1.25   4     1975   2019
  3      7    1   1    103.275      5    190    1       103.275    30.98  4     1975   2021
  3      8    2   1     8.834       0.1   25    1       8.834      2.65   4     1975   2021
  3      9    1   2     91.178      5    190    1       91.178     27.35  4     1975   2021
  3     10    2   2     2.5         0.1   25    1       2.5        0.75   4     1975   2021
# Gear-4
   4     11    1   0    115.0       5    190    0       1    999    4     1975   2021  # dummy
   4     12    2   0     9.0        0.1   25    0       1    999    4     1975   2021
# Gear-5
   5     13    1   0     75.0      30   190    0       1    999    5     1975   1981  #5
   5     14    2   0      5.0      1     50    0       1    999    5     1975   1981  #5
   5     15    1   0     80.0      30   190    0       1    999    5     1982   2022  #5
   5     16    2   0      10.0     1     50    0       1    999    5     1982   2022  #5
 # 5     17    1   2     70.0      30   180    0       1    999    5     1975   1981  #5
```

```
 # 5     18    2   2      9.0       1     50    0       1    999    5     1975   1981  #5
 # 5     19    1   2     70.0       30   180    0       1    999    5     1982   2021  #5
 # 5     20    2   2      4.00     1.0    50    0       1    999    5     1982   2021  #5
# Gear-6
   6     17    1   0     75.0       1    180    0       1    999    5     1975   2022  # 5
  6     18    2   0      8.5       1     50    0       1    999    5     1975   2022   # 5
 # 6     23    1   2     85.0       1    180    0       1    999    5     1975   2021  # 5
 # 6     24    2   2     10.0       1     50    0       1    999    5     1975   2021  # 5

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## Retained                                                                                                                    ##
## gear  par   sel                                                                  start  end         ##
## index index par sex  ival  lb    ub     prior   p1   p2     phz   period period      ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
# Gear-1
  -1     25    1   1    135    1    999    0       1    999    4     1975   2004
  -1     26    2   1    2.0    1     20    0       1    999    4     1975   2004
  -1     27    1   1    140    1    999    0       1    999    4     2005   2021
  -1     28    2   1    2.5    1     20    0       1    999    4     2005   2021
  -1     29    1   2    591    1    999    0       1    999   -3     1975   2004
  -1     30    1   2    591    1    999    0       1    999   -3     2005   2021
# Gear-2
  -2     31    1   0    595    1    999    0       1    999   -3     1975   2021
# Gear-3
  -3     32    1   0    595    1    999    0       1    999   -3     1975   2021    #Dummy
# Gear-4
  -4     33    1   0    595    1    999    0       1    999   -3     1975   2021
# Gear-5
  -5     34    1   0    590    1    999    0       1    999   -3     1975   2022
# Gear-6
  -6     35    1   0    580    1    999    0       1    999   -3     1975   2022
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

# Number of asyptotic parameters
1
# Fleet   Sex     Year       ival  lb   ub    phz
       1     1     1975   0.000001   0    1     -3
#      1     1     2006   0.044000   0    1     -3
#      1     1     2007   0.019700   0    1     -3
#      1     1     2008   0.019875   0    1     -3
#      1     1     2009   0.032750   0    1     -3
#      1     1     2010   0.015320   0    1     -3
#      1     1     2011   0.011250   0    1     -3
#      1     1     2012   0.024045   0    1     -3
#      1     1     2013   0.063200   0    1     -3
#      1     1     2014   0.160500   0    1     -3
#      1     1     2015   0.070950   0    1     -3
#      1     1     2016   0.082600   0    1     -3



## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## PRIORS FOR CATCHABILITY
##     If a uniform prior is selected for a parameter then the lb and ub are used (p1   ##
##     and p2 are ignored). ival must be > 0                                            ##
## LEGEND                                                                               ##
##     prior: 0 = uniform, 1 = normal, 2 = lognormal, 3 = beta, 4 = gamma               ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ival     lb       ub    phz   prior  p1        p2     Analytic?   LAMBDA Emphasis
#   0.896     0        2     6    1      0.843136  0.03   0           1              1
   0.896     0        2     6    1      0.896     0.03   0           1              1
   1.0       0        5    -6    0      0.001     5.00   0           1              1   # BSFRF
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ADDITIONAL CV FOR SURVEYS/INDICES                                                   ##
##     If a uniform prior is selected for a parameter then the lb and ub are used (p1   ##
##     and p2 are ignored). ival must be > 0                                            ##
## LEGEND                                                                               ##
##     prior type: 0 = uniform, 1 = normal, 2 = lognormal, 3 = beta, 4 = gamma          ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## ival        lb        ub        phz   prior     p1      p2
```

```
   0.0001      0.00001   10.0      -4    4         1.0     100   # NMFS
   0.25      0.00001   10.0        10   0         0.001   1.00   # BSFRF
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
### Pointers to how the the additional CVs are used (0 ignore; >0 link to one of the parameters  !!!NEW 1/2022
1 2
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## PENALTIES FOR AVERAGE FISHING MORTALITY RATE FOR EACH GEAR
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## Mean_F   Female Offset STD_PHZ1   STD_PHZ2   PHZ_M   PHZ_F
 # 0.22313         0.0505      0.5      45.50      1       1   # Pot
 # 0.0183156          1.0      0.5      45.50      1      -1   # Trawl
 # 0.011109           1.0      0.5      45.50      1       1   # Tanner (-1 -5)
 # 0.011109           1.0      0.5      45.50      1      -1   # Fixed
 # 0.00               0.0     2.00      20.00     -1      -1   # NMFS trawl survey (0 catch)
 # 0.00               0.0     2.00      20.00     -1      -1   # BSFRF (0)
 # 2.95                                                        # Upper bound value for male directed fishig mortality deviations
   0.22313         0.0505      0.5      45.50      1       1     -12      4    -10   2.95     -10    10  # Pot
   0.0183156          1.0      0.5      45.50      1      -1     -12      4    -10     10     -10    10   # Trawl
   0.011109           1.0      0.5      45.50      1       1     -12      4    -10     10     -10    10   # Tanner (-1 -5)
   0.011109           1.0      0.5      45.50      1      -1     -12      4    -10     10     -10    10   # Fixed
   0.00               0.0     2.00      20.00     -1      -1     -12      4    -10     10     -10    10   # NMFS trawl survey (0 catch)
   0.00               0.0     2.00      20.00     -1      -1     -12      4    -10     10     -10    10   # BSFRF (0)
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## OPTIONS FOR SIZE COMPOSTION DATA                                                    ##
##     One column for each data matrix                                                 ##
## LEGEND                                                                              ##
##     Likelihood: 1 = Multinomial with estimated/fixed sample size                    ##
##                 2 = Robust approximation to multinomial                             ##
##                 3 = logistic normal (NIY)                                           ##
##                 4 = multivariate-t (NIY)                                            ##
##                 5 = Dirichlet                                                       ##
## AUTO TAIL COMPRESSION                                                               ##
##     pmin is the cumulative proportion used in tail compression                      ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
#  Pot         Trawl   Tanner  Fixed   NMFS    BSFRF
   2   2   2   2   2   2   2   2   2   2   2   2  2   # Type of likelihood
   0   0   0   0   0   0   0   0   0   0   0   0  0   # Auto tail compression (pmin)
   1   1   1   1   1   1   1   1   1   1   1   1  1   # Initial value for effective sample size multiplier
  -4  -4  -4  -4  -4  -4  -4  -4  -4  -4  -4  -4 -4   # Phz for estimating effective sample size (if appl.)
   1   2   3   4   4   5   5   6   6   7   7   8  8   # Composition aggregator
  #1   2   3   4   5   6   7   8   9  10  11  12 13   # Composition aggregator
   1   1   1   1   1   1   1   1   1   2   2   2  2   # Set to 2 for survey-like predictions; 1 for catch-like predictions !!!NEW 1/2022
   1   1   1   1   1   1   1   1   1   1   1   1  1   # LAMBDA
   1   1   1   1   1   1   1   1   1   1   1   1  1   # Emphasis AEP
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€

## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## TIME VARYING NATURAL MORTALIIY RATES                                                ##
## LEGEND                                                                              ##
## Type: 0 = constant natural mortality                                                ##
##       1 = Random walk (deviates constrained by variance in M)                       ##
##       2 = Cubic Spline (deviates constrained by nodes & node-placement)             ##
##       3 = Blocked changes (deviates constrained by variance at specific knots)      ##
##       4 = Time blocks                                                               ##
## â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€"â€
## Type
6
## M is relative (YES=1; NO=0)
1
## Phase of estimation
3
## STDEV in m_dev for Random walk
0.25
## Number of nodes for cubic spline or number of step-changes for option 3
2
2
## Year position of the knots (vector must be equal to the number of nodes)
1980 1985
1980 1985
# number of breakpoints in M by size
```

```
0
## Specific initial values for the natural mortality devs (0-no, 1=yes)
1
## â€"â€"â€"
```