Formato Archivo forecast.ss

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1 Descripción del repositorio

- Directorio con archivos requeridos para ejecutar GADGET
- Directorio con archivos requeridos para ejecutar SS3
- Directorio con ejecutable SS3 para tres sistemas operativos (windows, linux y mac)
- Códigos Rmarkdown (pdf o html) que permita modificar archivos SS3
  - formato data.ss
  - formato contro.ss
  - formato starter.ss
  - formato forecast.ss

2 Descargar archivos requeridos desde repositorio

Tarea pendiente. . . .

3 Librerias requeridas

3.1 Identificamos los directorio de trabajo

```
dirname_base <- here("10a_anchcadiz")
dirname_mod <- here("boqueron_SS3")
```

3.2 Leer los archivos de Stock Synthesis con la función `SS_read()`

```
inputs <- r4ss::SS_read(dir = dirname_base)
names(inputs)
## [1] "dir"     "path"    "dat"     "ctl"     "start"   "fore"    "wtatage"
## [8] "par"
 #trabajaremos con archivo fore
 fore<-inputs$fore # archivo base
 fore1<-fore # archivo modificado
```

3.3 Investigar el modelo

Cada uno de los archivos de entrada se lee en R como una lista.

Use `names()` para ver todos los componentes de la lista

3.4 Revisamos los nombres de los componentes de la lista del archivo control que deseamos modificar

```
names(fore)
##  [1] "warnings"
##  [2] "SSversion"
##  [3] "sourcefile"
##  [4] "type"
##  [5] "benchmarks"
##  [6] "MSY"
##  [7] "SPRtarget"
##  [8] "Btarget"
##  [9] "Bmark_years"
## [10] "Bmark_relF_Basis"
## [11] "Forecast"
## [12] "Nforecastyrs"
## [13] "F_scalar"
## [14] "Fcast_years"
## [15] "Fcast_selex"
## [16] "ControlRuleMethod"
## [17] "BforconstantF"
## [18] "BfornoF"
## [19] "Flimitfraction"
## [20] "N_forecast_loops"
## [21] "First_forecast_loop_with_stochastic_recruitment"
## [22] "fcast_rec_option"
## [23] "fcast_rec_val"
## [24] "Forecast_loop_control_5"
## [25] "FirstYear_for_caps_and_allocations"
## [26] "stddev_of_log_catch_ratio"
## [27] "Do_West_Coast_gfish_rebuilder_output"
## [28] "Ydecl"
## [29] "Yinit"
## [30] "fleet_relative_F"
## [31] "basis_for_fcast_catch_tuning"
## [32] "fleet_assignment_to_allocation_group"
## [33] "N_allocation_groups"
## [34] "allocation_among_groups"
## [35] "InputBasis"
## [36] "eof"
```

```
# fore1$warnings # no se cambia
# fore1$SSversion # no se cambia
# fore1$sourcefile # no se cambia
# fore1$type # no se cambia

#----------------------------------------------------------------------------------------
# Benchmarks:
 # 0=skip;
 # 1=calc F_spr,F_btgt,F_msy
fore1$benchmarks <- 1
#----------------------------------------------------------------------------------------
# MSY:
  # 1= set to F(SPR);
  # 2=calc F(MSY);
  # 3=set to F(Btgt);
  # 4=set to F(endyr)
fore1$MSY <- 2
#----------------------------------------------------------------------------------------
# SPR target (e.g. 0.40)
fore1$SPRtarget <- 0.6
#----------------------------------------------------------------------------------------
# Biomass target (e.g. 0.40)
fore1$Btarget<-0.55
#----------------------------------------------------------------------------------------
#_Bmark_years:
```

```
            #  beg_bio, end_bio, beg_selex, end_selex, beg_relF, end_relF, beg_recr_dist,
            #  end_recr_dist, beg_SRparm, end_SRparm (enter actual year,
            #  or values of 0 or -integer to be rel. endyr)

Bmark_years1<-data.frame(matrix(rep(0,10),nrow=1,ncol=10))
colnames(Bmark_years1)<-paste("#_Bmark_years_",seq(1,10,1),sep="")

fore1$Bmark_years<-Bmark_years1
#----------------------------------------------------------------------------------------
#Bmark_relF_Basis:
  # 1 = use year range;
  # 2 = set relF same as forecast below
fore1$Bmark_relF_Basis<-1
#----------------------------------------------------------------------------------------
# Forecast:
  # 0=none;
  # 1=F(SPR);
  # 2=F(MSY)
  # 3=F(Btgt);
  # 4=Ave F (uses first-last relF yrs);
  # 5=input annual F scalar
fore1$Forecast<-2
#----------------------------------------------------------------------------------------
# N forecast years
fore1$Nforecastyrs<-1
#----------------------------------------------------------------------------------------
# F scalar (only used for Do_Forecast==5)
fore1$F_scalar<-1
#----------------------------------------------------------------------------------------
#_Fcast_years:
#            beg_selex, end_selex, beg_relF, end_relF, beg_recruits, end_recruits
#            (enter actual year, or values of 0 or -integer to be rel. endyr)
Fcast_years1<-data.frame(matrix(c(-5,0,-5,0,-999,0),nrow=1,ncol=6))
colnames(Fcast_years1)<-paste("#_Fcast_years_",seq(1,6,1),sep="")

fore1$Fcast_years<-Fcast_years1
#----------------------------------------------------------------------------------------
# Forecast selectivity
  # (0=fcast selex is mean from year range;
  #  1=fcast selectivity from annual time-vary parms)
fore1$Fcast_selex<-0
#----------------------------------------------------------------------------------------
# Control rule method
   # (1=catch=f(SSB) west coast;
   # 2=F=f(SSB) )
fore1$ControlRuleMethod<-1
#----------------------------------------------------------------------------------------
# Control rule Biomass level for constant F
# (as frac of Bzero, e.g. 0.40); (Must be > the no F level below)
fore1$BforconstantF<-0.6
#----------------------------------------------------------------------------------------
# Control rule Biomass level for no F
# (as frac of Bzero, e.g. 0.10)
```

```
fore1$BfornoF<-0.55
#----------------------------------------------------------------------------------------
# Control rule target as fraction of Flimit (e.g. 0.75)
fore1$Flimitfraction<-1
#----------------------------------------------------------------------------------------
#_N forecast loops
  # (1=OFL only;
  #  2=ABC;
  #  3=get F from forecast ABC catch with allocations applied)
fore1$N_forecast_loops<-2
#----------------------------------------------------------------------------------------
#_First forecast loop with stochastic recruitment
fore1$First_forecast_loop_with_stochastic_recruitment<-3
#----------------------------------------------------------------------------------------
#_Forecast loop control #3 (reserved for future bells&whistles)
fore1$fcast_rec_option<- -1
#----------------------------------------------------------------------------------------
#_Forecast loop control #4 (reserved for future bells&whistles)
fore1$fcast_rec_val<-0
#----------------------------------------------------------------------------------------
#_Forecast loop control #5 (reserved for future bells&whistles)
fore1$Forecast_loop_control_5<-0
#----------------------------------------------------------------------------------------
#FirstYear for caps and allocations (should be after years with fixed inputs)
fore1$FirstYear_for_caps_and_allocations<-2022
#----------------------------------------------------------------------------------------
# stddev of log(realized catch/target catch) in forecast
# (set value>0.0 to cause active impl_error)
fore1$stddev_of_log_catch_ratio<-0
#----------------------------------------------------------------------------------------
# Do West Coast gfish rebuilder output (0/1)
fore1$Do_West_Coast_gfish_rebuilder_output<-0
#----------------------------------------------------------------------------------------
# Rebuilder:
#           first year catch could have been set to zero (Ydecl)(-1 to set to 1999)
fore1$Ydecl<-1989
#----------------------------------------------------------------------------------------
# Rebuilder:
#           year for current age structure (Yinit) (-1 to set to endyear+1)
fore1$Yinit<-2019
#----------------------------------------------------------------------------------------
# fleet relative F:  1=use first-last alloc year; 2=read seas, fleet, alloc list below
fore1$fleet_relative_F<-1
#----------------------------------------------------------------------------------------
# Note that fleet allocation is used directly as average F if Do_Forecast=4
#
# basis for fcast catch tuning and for fcast catch caps and allocation
  # (2=deadbio;
  # 3=retainbio;
  # 5=deadnum;
  # 6=retainnum)
fore1$basis_for_fcast_catch_tuning<-2
#----------------------------------------------------------------------------------------
```

```
# enter list of fleet number and allocation group assignment, if any; terminate with fleet=-9999
fleet.as.all<-data.frame(Fleet=1,Group=1)
row.names(fleet.as.all)<-"#_fleet_assignment_to_allocation_group1"

fore1$fleet_assignment_to_allocation_group <-fleet.as.all

#----------------------------------------------------------------------------------------
#_if N allocation groups >0, list year, allocation fraction for each group
# list sequentially because read values fill to end of N forecast
# terminate with -9999 in year field
fore1$N_allocation_groups<-1

allocation<-data.frame(Year=2022,Group1=1)
row.names(allocation)<-"#_allocation_among_groups1"

fore1$allocation_among_groups<-allocation
#----------------------------------------------------------------------------------------
# basis for input Fcast catch:
  # -1=read basis with each obs;
  # 2=dead catch;
  # 3=retained catch;
  # 99=input Hrate(F)
fore1$InputBasis<-2
#----------------------------------------------------------------------------------------
fore1$eof<-TRUE

#----------------------------------------------------------------------------------------
```

3.4.1 Escribir archivo de forecast modificado con la función SS_write para el enfoque de modelación SS3

```
#-----------------------------------------------------------------
r4ss::SS_writeforecast(mylist=fore1,
                      dir=here(dirname_mod),
                      file="forecast.ss",
                      overwrite = TRUE,
                      verbose = TRUE)
#-----------------------------------------------------------------
```

4 comprobar si el modelo corre al modificar este archivo

```
exe_path <- here("Ejecutables_SS3","3.30.18_release")
ss_exe_mac <- paste(exe_path,"ss_osx",sep= "/")

r4ss::run(
  dir = dirname_base,
  exe = ss_exe_mac,
  extras = "",
  skipfinished = FALSE,
  show_in_console = FALSE,
  verbose = TRUE
)
```