**Estimation for purse-seine, 1975-1999 (BET, YFT, SKJ)**

This document contains the instructions for obtaining **single species P-S estimates** of catch quantities for a given year. These methods only apply to years prior to 2000.

R functions are used for all but the raw data extractions from the various IATTC data bases. All R functions are in the workspace on Cleridy's computer: /Users/clennert/Documents/R/CL programs\_stock assessment/single spp programs\_PS\_1975-1999/single spp PS\_R functions.RData (a copy is also available at: U:\StockAssessment\Catch\_Estimation\_Programs\Single Species Sampling\_PS\_1975-1999\single spp\_R functions\_1975-1999.RData). Functions are based on equations in: Tomlinson *et al*. 1992 IATTC Bulletin 20 (6). <http://www.iattc.org/PDFFiles2/Bulletins/Bulletin-Vol.20-No.6.pdf>

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To get the raw data from the IATTC data bases, run the following three VB progams that are located in: Y:\Observer\Programs\Miscellaneous. This is done by double-clicking on the main program Miscellaneous.exe (written and maintained by Nick Vogel) and then running the following programs associated with Miscellaneous.exe:

- For total unloadings run the program: "Get prorated Unload (June 11, 2014)" in "Cleridy data files"

- For CAE data run the program: "CAE data" under "Data dump files"

- For port-sampling (length-frequency) data run the program: "Length frequency II (May 16, 2008)" located under "Cleridy data files"

NOTE: All three of these VB data extraction programs can be run for blocks of years at one time.

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Below are the list of R commands to implement the single species catch estimation from within an R session, once the Miscellaneous VB extraction programs have been run and the output copied/moved to an appropriate directory.

**NOTE**: In order to run some of the R commands and functions below on a machine other than Cleridy's, you will need to modify the paths.

Note: Almost all of the single species functions used below are edited version of species composition functions (see spp comp\_R\_functions.RData and spp comp\_overview\_notes\_DRAFT.rtf). Also, these programs do not currently make size composition estimates for catch strata without well sample data.

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# First, get functions

# Attach the workspace with the R functions

> attach("/Users/clennert/Documents/R/poststratification/CL programs\_stock assessment/single spp programs\_PS\_1975-1999/single spp PS\_R functions.RData",pos=2)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Now, get and minimally process data output by Miscellaneous.exe VB programs

#

# (i) This can be done in two ways: all at once (example is for a 1975-1999 raw data extraction):

> get.VB.output.f("Unloading1975-1999.txt","CAE1975-1999.txt","LengthMM1975-1999.txt","LengthFreq1975-1999.txt",1975,1999)

# (ii) Or, by running each function separately:

#

# Get corrected annual unloads totals by species

> corrected.unlds<-get.corrected.unloads.f("Unloading1975-1999.txt",1975,1999,spp.correction.ratios)

# Get the CAE data

> cae.19751999<-read.cae.f("CAE1975-1999.txt",1975,1999)

# Get the length-frequency data (length in millimeters

> lfmm.19751999<-read.lfmmdata.f("LengthMM1975-1999.txt")

# Get the grouped length-frequency output

> lfgrpd.19751999<-read.lengthfreq.f("LengthFreq1975-1999.txt")

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Next, create a variable that identifies the catch estimation strata for the CAE data (for each spp)

# Create a catch stratum id variable for the CAE data

> cae.stratflg.19751999<-create.strat.flg.f(cae.19751999$latc5,cae.19751999$lonc5,is.lwrght=F,cae.19751999$month,cae.19751999$setype,cae.19751999$class)

[1] "\*\*\* Please edit first to make sure stratum definitions are correct \*\*\*"

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**NOTE**: the functions above that read and process the raw input data, and create stratum id variables, can all be run on blocks of years at one time. However, ALL the functions below operate on INDIVIDUAL years only.

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# Then, estimate catch composition quantities (catch by stratum; size composition of the catch by stratum)

#

# (i) This can be done in two ways: all at once (example for 1976, with minimum stratum sample size requirement of 2 well samples):

> get.catch.estimates.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1976,2)

[1] "\*\*\* Please edit first to make sure stratum definitions are correct \*\*\*"

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# (ii) Or, by running each function separately (example is for 1975):

#

# Get total unloads (by species) for each catch stratum

> totunlds.bystrat.1975<-get.strat.unloads.f(cae.19751999[cae.19751999$year==1975,],cae.stratflg.19751999[cae.19751999$year==1975,],corrected.unlds[corrected.unlds$year==1975,2:4])

# Get well-level estimates

> well.estimates.1975<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1975,],lfmm.19751999)

# Create a catch stratum id variable for the well-level estimate output

> tmpbet<-create.strat.flg.f(well.estimates.1975$ancillary.info[[1]]$lat.5deg,well.estimates.1975$ancillary.info[[1]]$lon.5deg,is.lwrght=T,well.estimates.1975$ancillary.info[[1]]$month,well.estimates.1975$ancillary.info[[1]]$setype,well.estimates.1975$ancillary.info[[1]]$class)

[1] "\*\*\* Please edit first to make sure stratum definitions are correct \*\*\*"

> tmpyft<-create.strat.flg.f(well.estimates.1975$ancillary.info[[2]]$lat.5deg,well.estimates.1975$ancillary.info[[2]]$lon.5deg,is.lwrght=T,well.estimates.1975$ancillary.info[[2]]$month,well.estimates.1975$ancillary.info[[2]]$setype,well.estimates.1975$ancillary.info[[2]]$class)

[1] "\*\*\* Please edit first to make sure stratum definitions are correct \*\*\*"

> tmpskj<-create.strat.flg.f(well.estimates.1975$ancillary.info[[3]]$lat.5deg,well.estimates.1975$ancillary.info[[3]]$lon.5deg,is.lwrght=T,well.estimates.1975$ancillary.info[[3]]$month,well.estimates.1975$ancillary.info[[3]]$setype,well.estimates.1975$ancillary.info[[3]]$class)

[1] "\*\*\* Please edit first to make sure stratum definitions are correct \*\*\*"

> well.stratflg.1975<-list(bet=tmpbet,yft=tmpyft,skj=tmpskj)

> rm(list=c("tmpbet","tmpyft","tmpskj"))

# Get stratum-level estimates for catch strata that have sufficient sample data

# sufficient sample data is defined in terms of the minimum number of samples required per stratum

# in the example below, the minimum number of samples is 5

#

# NOTE: strata with well samples but no CAE records get dropped (ignored) from this point on...

> stratum.estimates.1975.withsamps<-call.stratum.estimates.f(totunlds.bystrat.1975,well.estimates.1975,well.stratflg.1975,5)

#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# And, last but not least, compute stock assessment inputs (example is for 1975)

> fishery.estimates.1975<-call.fishery.estimates.f(stratum.estimates.1975.withsamps,totunlds.bystrat.1975,1975)

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**Some notes**

**Species catch correction factors**

To read in currently correction factor matrix (tab in Excel spreadsheet from Joanne):

(NOTE: this data frame is already in the functions workspace, so it does not need to be read in again, unless changes need to be made.)

> spp.correction.ratios<-read.csv("/Users/clennert/Documents/R/poststratification/CL programs\_stock assessment/single spp programs\_PS\_1975-1999/spp comp\_corrections\_from Joanne.csv",header=T)

**Stratum definitions**

To change catch strata (e.g., areas) and/or stock assessment gear-area definitions, you need to modify the following functions: create.strat.flg.f, create.fishery.flg.f

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**Running the single species programs for YFT with Carolina's areas (January 7-8, 2015)**

> attach("/Users/clennert/Documents/R/poststratification/CL programs\_stock assessment/single spp programs\_PS\_1975-1999/single spp PS\_R functions.RData",pos=2)

> get.VB.output.f("Unloading1975-1999.txt","CAE1975-1999.txt","LengthMM1975-1999.txt","LengthFreq1975-1999.txt",1975,1999)

> well.estimates.1975<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1975,],lfmm.19751999)

> well.estimates.1976<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1976,],lfmm.19751999)

> well.estimates.1977<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1977,],lfmm.19751999)

> well.estimates.1978<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1978,],lfmm.19751999)

> well.estimates.1979<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1979,],lfmm.19751999)

> well.estimates.1980<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1980,],lfmm.19751999)

> well.estimates.1981<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1981,],lfmm.19751999)

> well.estimates.1982<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1982,],lfmm.19751999)

> well.estimates.1983<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1983,],lfmm.19751999)

> well.estimates.1984<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1984,],lfmm.19751999)

> well.estimates.1985<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1985,],lfmm.19751999)

> well.estimates.1986<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1986,],lfmm.19751999)

> well.estimates.1987<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1987,],lfmm.19751999)

> well.estimates.1988<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1988,],lfmm.19751999)

> well.estimates.1989<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1989,],lfmm.19751999)

> well.estimates.1990<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1990,],lfmm.19751999)

> well.estimates.1991<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1991,],lfmm.19751999)

> well.estimates.1992<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1992,],lfmm.19751999)

> well.estimates.1993<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1993,],lfmm.19751999)

> well.estimates.1994<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1994,],lfmm.19751999)

> well.estimates.1995<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1995,],lfmm.19751999)

> well.estimates.1996<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1996,],lfmm.19751999)

> well.estimates.1997<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1997,],lfmm.19751999)

> well.estimates.1998<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1998,],lfmm.19751999)

> well.estimates.1999<-well.estimates.f(lfgrpd.19751999[lfgrpd.19751999$year.firstset==1999,],lfmm.19751999)

# for Dolphin sets (after editing create.strat.flg.f and create.fishery.flg.f)

> cae.stratflg.19751999<-create.strat.flg.f(cae.19751999$latc5,cae.19751999$lonc5,is.lwrght=F,cae.19751999$month,cae.19751999$setype,cae.19751999$class)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1975,2,well.estimates.1975)

> fishery.estimates.1975<-call.fishery.estimates.f(stratum.estimates.1975.withsamps,totunlds.bystrat.1975,1975)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1976,2,well.estimates.1976)

> fishery.estimates.1976<-call.fishery.estimates.f(stratum.estimates.1976.withsamps,totunlds.bystrat.1976,1976)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1977,2,well.estimates.1977)

> fishery.estimates.1977<-call.fishery.estimates.f(stratum.estimates.1977.withsamps,totunlds.bystrat.1977,1977)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1978,2,well.estimates.1978)

> fishery.estimates.1978<-call.fishery.estimates.f(stratum.estimates.1978.withsamps,totunlds.bystrat.1978,1978)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1979,2,well.estimates.1979)

> fishery.estimates.1979<-call.fishery.estimates.f(stratum.estimates.1979.withsamps,totunlds.bystrat.1979,1979)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1980,2,well.estimates.1980)

> fishery.estimates.1980<-call.fishery.estimates.f(stratum.estimates.1980.withsamps,totunlds.bystrat.1980,1980)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1981,2,well.estimates.1981)

> fishery.estimates.1981<-call.fishery.estimates.f(stratum.estimates.1981.withsamps,totunlds.bystrat.1981,1981)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1982,2,well.estimates.1982)

> fishery.estimates.1982<-call.fishery.estimates.f(stratum.estimates.1982.withsamps,totunlds.bystrat.1982,1982)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1983,2,well.estimates.1983)

> fishery.estimates.1983<-call.fishery.estimates.f(stratum.estimates.1983.withsamps,totunlds.bystrat.1983,1983)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1984,2,well.estimates.1984)

> fishery.estimates.1984<-call.fishery.estimates.f(stratum.estimates.1984.withsamps,totunlds.bystrat.1984,1984)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1985,2,well.estimates.1985)

> fishery.estimates.1985<-call.fishery.estimates.f(stratum.estimates.1985.withsamps,totunlds.bystrat.1985,1985)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1986,2,well.estimates.1986)

> fishery.estimates.1986<-call.fishery.estimates.f(stratum.estimates.1986.withsamps,totunlds.bystrat.1986,1986)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1987,2,well.estimates.1987)

> fishery.estimates.1987<-call.fishery.estimates.f(stratum.estimates.1987.withsamps,totunlds.bystrat.1987,1987)

## NOTE: for YFT, I actually could used 2 sample minimum (since each species is handled separately)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1988,1,well.estimates.1988)

> fishery.estimates.1988<-call.fishery.estimates.f(stratum.estimates.1988.withsamps,totunlds.bystrat.1988,1988)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1989,2,well.estimates.1989)

> fishery.estimates.1989<-call.fishery.estimates.f(stratum.estimates.1989.withsamps,totunlds.bystrat.1989,1989)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1990,2,well.estimates.1990)

> fishery.estimates.1990<-call.fishery.estimates.f(stratum.estimates.1990.withsamps,totunlds.bystrat.1990,1990)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1991,2,well.estimates.1991)

> fishery.estimates.1991<-call.fishery.estimates.f(stratum.estimates.1991.withsamps,totunlds.bystrat.1991,1991)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1992,2,well.estimates.1992)

> fishery.estimates.1992<-call.fishery.estimates.f(stratum.estimates.1992.withsamps,totunlds.bystrat.1992,1992)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1993,2,well.estimates.1993)

> fishery.estimates.1993<-call.fishery.estimates.f(stratum.estimates.1993.withsamps,totunlds.bystrat.1993,1993)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1994,2,well.estimates.1994)

> fishery.estimates.1994<-call.fishery.estimates.f(stratum.estimates.1994.withsamps,totunlds.bystrat.1994,1994)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1995,2,well.estimates.1995)

> fishery.estimates.1995<-call.fishery.estimates.f(stratum.estimates.1995.withsamps,totunlds.bystrat.1995,1995)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1996,2,well.estimates.1996)

> fishery.estimates.1996<-call.fishery.estimates.f(stratum.estimates.1996.withsamps,totunlds.bystrat.1996,1996)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1997,2,well.estimates.1997)

> fishery.estimates.1997<-call.fishery.estimates.f(stratum.estimates.1997.withsamps,totunlds.bystrat.1997,1997)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1998,2,well.estimates.1998)

> fishery.estimates.1998<-call.fishery.estimates.f(stratum.estimates.1998.withsamps,totunlds.bystrat.1998,1998)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1999,2,well.estimates.1999)

> fishery.estimates.1999<-call.fishery.estimates.f(stratum.estimates.1999.withsamps,totunlds.bystrat.1999,1999)

# For Unassociated sets (after editing create.strat.flg.f)

> cae.stratflg.19751999<-create.strat.flg.f(cae.19751999$latc5,cae.19751999$lonc5,is.lwrght=F,cae.19751999$month,cae.19751999$setype,cae.19751999$class)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1975,2,well.estimates.1975)

> fishery.estimates.1975<-call.fishery.estimates.f(stratum.estimates.1975.withsamps,totunlds.bystrat.1975,1975)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1976,2,well.estimates.1976)

> fishery.estimates.1976<-call.fishery.estimates.f(stratum.estimates.1976.withsamps,totunlds.bystrat.1976,1976)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1977,2,well.estimates.1977)

> fishery.estimates.1977<-call.fishery.estimates.f(stratum.estimates.1977.withsamps,totunlds.bystrat.1977,1977)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1978,2,well.estimates.1978)

> fishery.estimates.1978<-call.fishery.estimates.f(stratum.estimates.1978.withsamps,totunlds.bystrat.1978,1978)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1979,2,well.estimates.1979)

> fishery.estimates.1979<-call.fishery.estimates.f(stratum.estimates.1979.withsamps,totunlds.bystrat.1979,1979)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1980,2,well.estimates.1980)

> fishery.estimates.1980<-call.fishery.estimates.f(stratum.estimates.1980.withsamps,totunlds.bystrat.1980,1980)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1981,2,well.estimates.1981)

> fishery.estimates.1981<-call.fishery.estimates.f(stratum.estimates.1981.withsamps,totunlds.bystrat.1981,1981)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1982,2,well.estimates.1982)

> fishery.estimates.1982<-call.fishery.estimates.f(stratum.estimates.1982.withsamps,totunlds.bystrat.1982,1982)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1983,2,well.estimates.1983)

> fishery.estimates.1983<-call.fishery.estimates.f(stratum.estimates.1983.withsamps,totunlds.bystrat.1983,1983)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1984,2,well.estimates.1984)

> fishery.estimates.1984<-call.fishery.estimates.f(stratum.estimates.1984.withsamps,totunlds.bystrat.1984,1984)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1985,2,well.estimates.1985)

> fishery.estimates.1985<-call.fishery.estimates.f(stratum.estimates.1985.withsamps,totunlds.bystrat.1985,1985)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1986,2,well.estimates.1986)

> fishery.estimates.1986<-call.fishery.estimates.f(stratum.estimates.1986.withsamps,totunlds.bystrat.1986,1986)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1987,2,well.estimates.1987)

> fishery.estimates.1987<-call.fishery.estimates.f(stratum.estimates.1987.withsamps,totunlds.bystrat.1987,1987)

## NOTE: for YFT, I actually could used 2 sample minimum (since each species is handled separately)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1988,1,well.estimates.1988)

> fishery.estimates.1988<-call.fishery.estimates.f(stratum.estimates.1988.withsamps,totunlds.bystrat.1988,1988)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1989,2,well.estimates.1989)

> fishery.estimates.1989<-call.fishery.estimates.f(stratum.estimates.1989.withsamps,totunlds.bystrat.1989,1989)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1990,2,well.estimates.1990)

> fishery.estimates.1990<-call.fishery.estimates.f(stratum.estimates.1990.withsamps,totunlds.bystrat.1990,1990)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1991,2,well.estimates.1991)

> fishery.estimates.1991<-call.fishery.estimates.f(stratum.estimates.1991.withsamps,totunlds.bystrat.1991,1991)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1992,2,well.estimates.1992)

> fishery.estimates.1992<-call.fishery.estimates.f(stratum.estimates.1992.withsamps,totunlds.bystrat.1992,1992)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1993,2,well.estimates.1993)

> fishery.estimates.1993<-call.fishery.estimates.f(stratum.estimates.1993.withsamps,totunlds.bystrat.1993,1993)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1994,2,well.estimates.1994)

> fishery.estimates.1994<-call.fishery.estimates.f(stratum.estimates.1994.withsamps,totunlds.bystrat.1994,1994)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1995,2,well.estimates.1995)

> fishery.estimates.1995<-call.fishery.estimates.f(stratum.estimates.1995.withsamps,totunlds.bystrat.1995,1995)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1996,2,well.estimates.1996)

> fishery.estimates.1996<-call.fishery.estimates.f(stratum.estimates.1996.withsamps,totunlds.bystrat.1996,1996)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1997,2,well.estimates.1997)

> fishery.estimates.1997<-call.fishery.estimates.f(stratum.estimates.1997.withsamps,totunlds.bystrat.1997,1997)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1998,2,well.estimates.1998)

> fishery.estimates.1998<-call.fishery.estimates.f(stratum.estimates.1998.withsamps,totunlds.bystrat.1998,1998)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1999,2,well.estimates.1999)

> fishery.estimates.1999<-call.fishery.estimates.f(stratum.estimates.1999.withsamps,totunlds.bystrat.1999,1999)

# for Floating-object sets (after editing create.strat.flg.f and create.fishery.flg.f)

> cae.stratflg.19751999<-create.strat.flg.f(cae.19751999$latc5,cae.19751999$lonc5,is.lwrght=F,cae.19751999$month,cae.19751999$setype,cae.19751999$class)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1975,2,well.estimates.1975)

> fishery.estimates.1975<-call.fishery.estimates.f(stratum.estimates.1975.withsamps,totunlds.bystrat.1975,1975)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1976,2,well.estimates.1976)

> fishery.estimates.1976<-call.fishery.estimates.f(stratum.estimates.1976.withsamps,totunlds.bystrat.1976,1976)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1977,2,well.estimates.1977)

> fishery.estimates.1977<-call.fishery.estimates.f(stratum.estimates.1977.withsamps,totunlds.bystrat.1977,1977)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1978,2,well.estimates.1978)

> fishery.estimates.1978<-call.fishery.estimates.f(stratum.estimates.1978.withsamps,totunlds.bystrat.1978,1978)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1979,2,well.estimates.1979)

> fishery.estimates.1979<-call.fishery.estimates.f(stratum.estimates.1979.withsamps,totunlds.bystrat.1979,1979)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1980,2,well.estimates.1980)

> fishery.estimates.1980<-call.fishery.estimates.f(stratum.estimates.1980.withsamps,totunlds.bystrat.1980,1980)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1981,2,well.estimates.1981)

> fishery.estimates.1981<-call.fishery.estimates.f(stratum.estimates.1981.withsamps,totunlds.bystrat.1981,1981)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1982,2,well.estimates.1982)

> fishery.estimates.1982<-call.fishery.estimates.f(stratum.estimates.1982.withsamps,totunlds.bystrat.1982,1982)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1983,2,well.estimates.1983)

> fishery.estimates.1983<-call.fishery.estimates.f(stratum.estimates.1983.withsamps,totunlds.bystrat.1983,1983)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1984,2,well.estimates.1984)

> fishery.estimates.1984<-call.fishery.estimates.f(stratum.estimates.1984.withsamps,totunlds.bystrat.1984,1984)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1985,2,well.estimates.1985)

> fishery.estimates.1985<-call.fishery.estimates.f(stratum.estimates.1985.withsamps,totunlds.bystrat.1985,1985)

## NOTE: for YFT, I actually could used 2 sample minimum (since each species is handled separately)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1986,1,well.estimates.1986)

> fishery.estimates.1986<-call.fishery.estimates.f(stratum.estimates.1986.withsamps,totunlds.bystrat.1986,1986)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1987,2,well.estimates.1987)

> fishery.estimates.1987<-call.fishery.estimates.f(stratum.estimates.1987.withsamps,totunlds.bystrat.1987,1987)

## NOTE: for YFT, I actually could used 2 sample minimum (since each species is handled separately)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1988,1,well.estimates.1988)

> fishery.estimates.1988<-call.fishery.estimates.f(stratum.estimates.1988.withsamps,totunlds.bystrat.1988,1988)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1989,2,well.estimates.1989)

> fishery.estimates.1989<-call.fishery.estimates.f(stratum.estimates.1989.withsamps,totunlds.bystrat.1989,1989)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1990,2,well.estimates.1990)

> fishery.estimates.1990<-call.fishery.estimates.f(stratum.estimates.1990.withsamps,totunlds.bystrat.1990,1990)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1991,2,well.estimates.1991)

> fishery.estimates.1991<-call.fishery.estimates.f(stratum.estimates.1991.withsamps,totunlds.bystrat.1991,1991)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1992,2,well.estimates.1992)

> fishery.estimates.1992<-call.fishery.estimates.f(stratum.estimates.1992.withsamps,totunlds.bystrat.1992,1992)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1993,2,well.estimates.1993)

> fishery.estimates.1993<-call.fishery.estimates.f(stratum.estimates.1993.withsamps,totunlds.bystrat.1993,1993)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1994,2,well.estimates.1994)

> fishery.estimates.1994<-call.fishery.estimates.f(stratum.estimates.1994.withsamps,totunlds.bystrat.1994,1994)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1995,2,well.estimates.1995)

> fishery.estimates.1995<-call.fishery.estimates.f(stratum.estimates.1995.withsamps,totunlds.bystrat.1995,1995)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1996,2,well.estimates.1996)

> fishery.estimates.1996<-call.fishery.estimates.f(stratum.estimates.1996.withsamps,totunlds.bystrat.1996,1996)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1997,2,well.estimates.1997)

> fishery.estimates.1997<-call.fishery.estimates.f(stratum.estimates.1997.withsamps,totunlds.bystrat.1997,1997)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1998,2,well.estimates.1998)

> fishery.estimates.1998<-call.fishery.estimates.f(stratum.estimates.1998.withsamps,totunlds.bystrat.1998,1998)

> get.catch.estimates.V2.f(cae.19751999,cae.stratflg.19751999,corrected.unlds,lfgrpd.19751999,lfmm.19751999,1999,2,well.estimates.1999)

> fishery.estimates.1999<-call.fishery.estimates.f(stratum.estimates.1999.withsamps,totunlds.bystrat.1999,1999)