Creation of American Plaice ageing datasets for OpenData

Daniel Ricard

January 8, 2020

American Plaice

American Plaice otoliths are collected on the annual September RV survey and during scientific sampling of commercial fisheries.

The goal here is to summarise the ageing materials that we have, and provide a dataset of the otoliths that we have at the Gulf Fisheries Centre.

```
## RV data
y <- read.card(species=40, card.type="bio")
```

```
## Warning in convert.vector(x[, vars[i]], to = format[vars[i], "format"]): Some
## numerical values were set to NA.
```

```
## identify fish specimens that were aged
#l1 <- which(y$age < 40 & !(is.na(y$age)) & y$length!=999 & y$length>0 & y$age!=0)
#vars <- c("year","month","fish.number","length","sex","age")
#plaice.ages <- y[l1,vars]

#gp <- ggplot(plaice.ages, aes(y=length, x=age)) +
#   geom_point() +
#   ggtitle("all American Plaice ages") +
#   xlab("Age (years)") +
#   ylab("Length (cm)") +
#  facet_grid(sex ~ .)
#gp
```

```
## commercial data
## what years are available for commercial ages?
## com.files <- list.files(path="//DFNBE1CwpFSP002/Hd2/commercial/age", pattern="plaage")
y.c <- read.card(year=1982, sampling="commercial", species=40, card.type="age") ## this loads all pre-19
```

```
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage4882.dat'"
```

```
for(yy in 1983:2018){ ## loop over years
t.c <- read.card(year=yy, sampling="commercial", species=40, card.type="age")
y.c <- rbind(y.c,t.c)
}
```

```
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1983.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1984.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1985.dat'"
```

```
## Warning in dmm2deg(x$longitude.start/100): 'minutes' argument must lie between 0
## and 60.
```

```
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1986.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1987.dat'"

## Warning in dmm2deg(x$longitude.start/100): 'minutes' argument must lie between 0
## and 60.

## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1988.dat'"

## Warning in dmm2deg(x$longitude.start/100): 'minutes' argument must lie between 0
## and 60.

## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1989.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1990.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1991.dat'"

## Warning in dmm2deg(x$latitude.start/100): 'minutes' argument must lie between 0
## and 60.

## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1992.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1993.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1994.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1995.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1996.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1997.dat'"

## Warning in dmm2deg(x$latitude.start/100): 'minutes' argument must lie between 0
## and 60.

## Warning in dmm2deg(x$longitude.start/100): 'minutes' argument must lie between 0
## and 60.

## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1998.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage1999.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2000.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2001.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2002.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2003.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2004.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2005.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2006.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2007.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2008.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2009.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2010.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2011.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2012.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2013.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2014.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2015.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2016.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2017.dat'"
## [1] "Reading: '//DFNBE1CwpFSP002/Hd2/commercial/age/plaage2018.dat'"

## Warning in dmm2deg(x$longitude.start/100): 'minutes' argument must lie between 0
## and 60.
```

```r
#l2 <- which(y.c$age < 40 & !(is.na(y.c$age)) & y.c$length!=999 & y.c$length>0 & y.c$age!=0)
#vars <- c("year","month","otolith.number","length","sex","age")
#plaice.comm.ages <- y.c[l2,vars]
```

```r
#gp <- ggplot(plaice.comm.ages, aes(y=length, x=age)) +
#   geom_point() +
#   ggtitle("all American Plaice ages") +
#   xlab("Age (years)") +
#   ylab("Length (cm)") +
#  facet_grid(sex ~ .)
#gp

#plaice.out.df <- rbind(
#  data.frame(
#    source=rep("RV-4T", nrow(plaice.ages)),
#    year=plaice.ages$year,
#    month=plaice.ages$month,
#    length=plaice.ages$length,
#    age=plaice.ages$age
#           ),
#  data.frame(
#    species=rep("Hippoglossoides platessoides",nrow(plaice.comm.ages)),
#    source=rep("Commercial-4T",nrow(plaice.comm.ages)),
#    year=plaice.comm.ages$year,
#    month=plaice.comm.ages$month,
#    length=plaice.comm.ages$length,
#    age=plaice.comm.ages$age
#    )
#)

rv.df <- aggregate(fish.number~year+month, data=y[which(y$age.material==1),], length)
rv.df$source <- "RV"
names(rv.df)[3] <- "number.otoliths_nombre.otolithes"

comm.df <- aggregate(otolith.number~year+month, data=y.c, length)
names(comm.df)[3] <- "number.otoliths_nombre.otolithes"
comm.df$source <- "Commercial"


plaice.out.df <- rbind(rv.df, comm.df)
plaice.out.df$latin.name_nom.latin <- "Hippoglossoides platessoides"
plaice.out.df$english.name_nom.anglais <- "American Plaice"
plaice.out.df$french.name_nom.français <- "Plie Canadienne"


vars <- c("source", "latin.name_nom.latin", "english.name_nom.anglais", "french.name_nom.français", "yea
o1 <- order(plaice.out.df$source, plaice.out.df$year, plaice.out.df$month)

plaice.out.fn <- "NAFO-4T-American-Plaice-ages.csv"
write.csv(plaice.out.df[o1,vars], file=plaice.out.fn, row.names = FALSE)

## and a so-called data dictionary to explain the different columns in the CSV file
data.dic <- data.frame(
  name_nom = vars
  )
data.dic$description_fr <- c("Source de otolithes, peut soit provenir du relevé par navire de recherche
```

```
data.dic$description_en <- c("Source of otoliths, can be either from the Research Vessel (RV) survey or

data.dic.fn <- "data-dictionary.csv"
write.csv(data.dic, file=data.dic.fn, row.names = FALSE)
```

The Web Service to be associated with this dataset will just be a polygon of NAFO division 4T.