FLR in 10 slides or less

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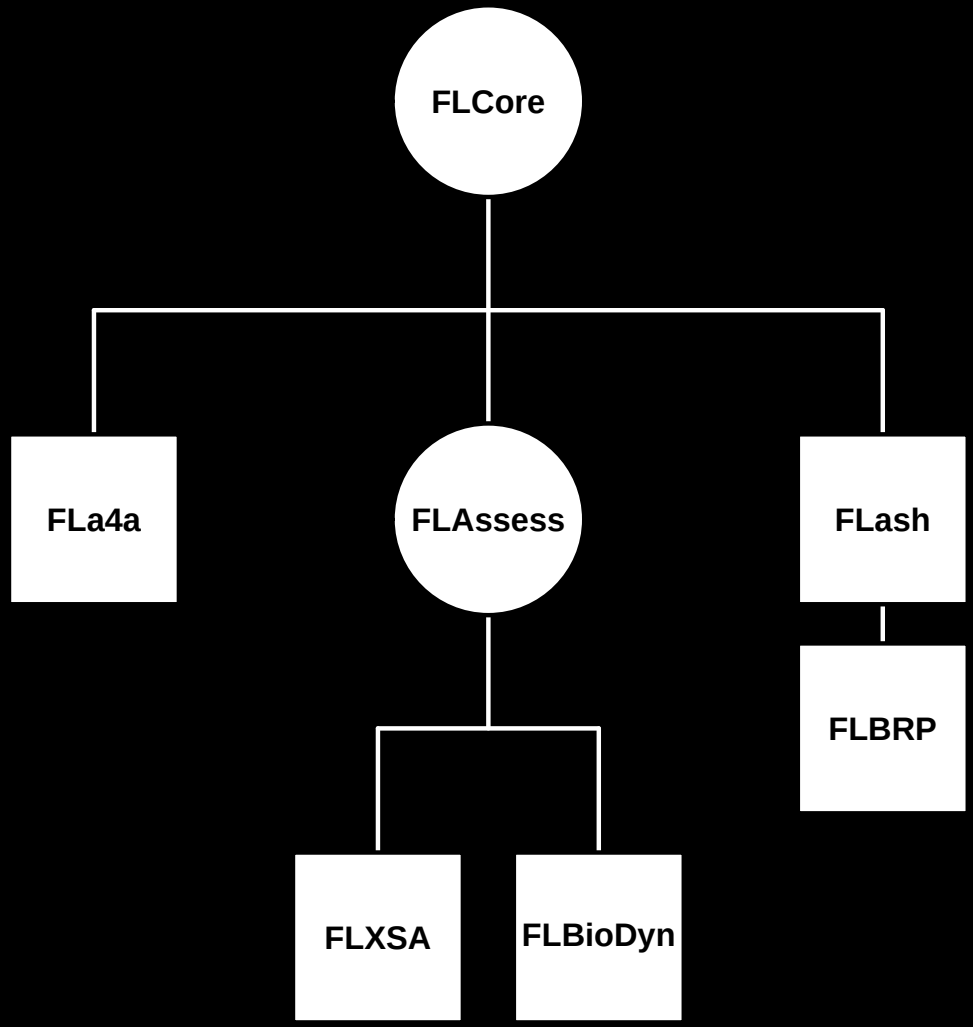
What is FLR ?

- FLR = Fisheries Libraries in R
- FLR is a set of R packages
- FLR is developed and maintained by a group of fisheries scientists

Packages



FLQuant

Stands for "FL quantity" and it's the smallest component of FLR classes.

Six dimensional array used to store data of a particular type (e.g. catch numbers), with the follwoing dimensions:

```
[1] "quant"  "year"   "unit"   "season" "area"   "iter"
```

FLStock

Represents a fish stock and comprises a number of slots.

```
> showClass("FLStock")
```

```
Class "FLStock" [package "FLCore"]

Slots:

Name:         catch       catch.n      catch.wt      discards    discards.n
Class:      FLQuant       FLQuant       FLQuant       FLQuant       FLQuant

Name:   discards.wt      landings    landings.n   landings.wt         stock
Class:      FLQuant       FLQuant       FLQuant       FLQuant       FLQuant

Name:       stock.n      stock.wt             m           mat       harvest
Class:      FLQuant       FLQuant       FLQuant       FLQuant       FLQuant

Name:  harvest.spwn        m.spwn          name          desc         range
Class:      FLQuant       FLQuant     character     character       numeric

Extends:
Class "FLS", directly
Class "FLComp", by class "FLS", distance 2
```

FLIndex

Represents a index (e.g. index of abundance from a survey)

```
> showClass("FLIndex")
```

```
Class "FLIndex" [package "FLCore"]

Slots:

Name:          type distribution         index    index.var       catch.n
Class:    character    character       FLQuant      FLQuant       FLQuant

Name:      catch.wt       effort  sel.pattern      index.q          name
Class:      FLQuant      FLQuant      FLQuant      FLQuant     character

Name:          desc        range
Class:    character      numeric

Extends: "FLComp"
```

FLSR

Represents a stock-recruitment relationship and allows the estimation of its parameters.

```
> showClass("FLSR")
```

```
Class "FLSR" [package "FLCore"]

Slots:

Name:          rec          ssb        covar     logerror        model
Class:     FLQuant      FLQuant     FLQuants      logical      formula

Name:          logl           gr distribution      initial       params
Class:     function     function       factor     function         FLPar

Name:        logLik         vcov      hessian      details    residuals
Class:       logLik        array        array         list      FLArray

Name:        fitted         name         desc        range
Class:      FLArray    character    character      numeric

Extends:
Class "FLModel", directly
Class "FLComp", by class "FLModel", distance 2
```

FLlist

A list of other classes

```
> showClass("FLlst")
```

```
Class "FLlst" [package "FLCore"]

Slots:

Name:       .Data     names      desc      lock
Class:       list character character   logical

Extends:
Class "list", from data part
Class "vector", by class "list", distance 2

Known Subclasses:
Class "FLQuants", directly
Class "FLCohorts", directly
Class "FLComps", directly
Class "FLPars", directly
Class "FLModelSims", directly
Class "FLStocks", by class "FLComps", distance 2
Class "FLIndices", by class "FLComps", distance 2
Class "FLBiols", by class "FLComps", distance 2
Class "FLSRs", by class "FLComps", distance 2
```

Example I

```
> # load ------------------------------
> library(FLCore)
> data(ple4.index)
> data(ple4)
> # FLStock ---------------------------
> plot(ple4)
> summary(ple4)
> # FLQuant ---------------------------
> cth <- catch(ple4)
> plot(cth)
> summary(cth)
```

Example II

```
> # FLIndex ----------------------------
> plot(ple4.index)
> summary(ple4.index)
> # FLSR -------------------------------
> ple4.sr <- as.FLSR(ple4, model="bevholt")
> ple4.sr <- fmle(ple4.sr)
> plot(ple4.sr)
> # FLlst ------------------------------
> flqs <- FLQuants(c=catch(ple4), b=stock(ple4))
> xyplot(data~year, groups=qname, data=flqs,
+         type="l")
```