

# MyDas

Gurnard Life History Relationships

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*17 enero, 2018*

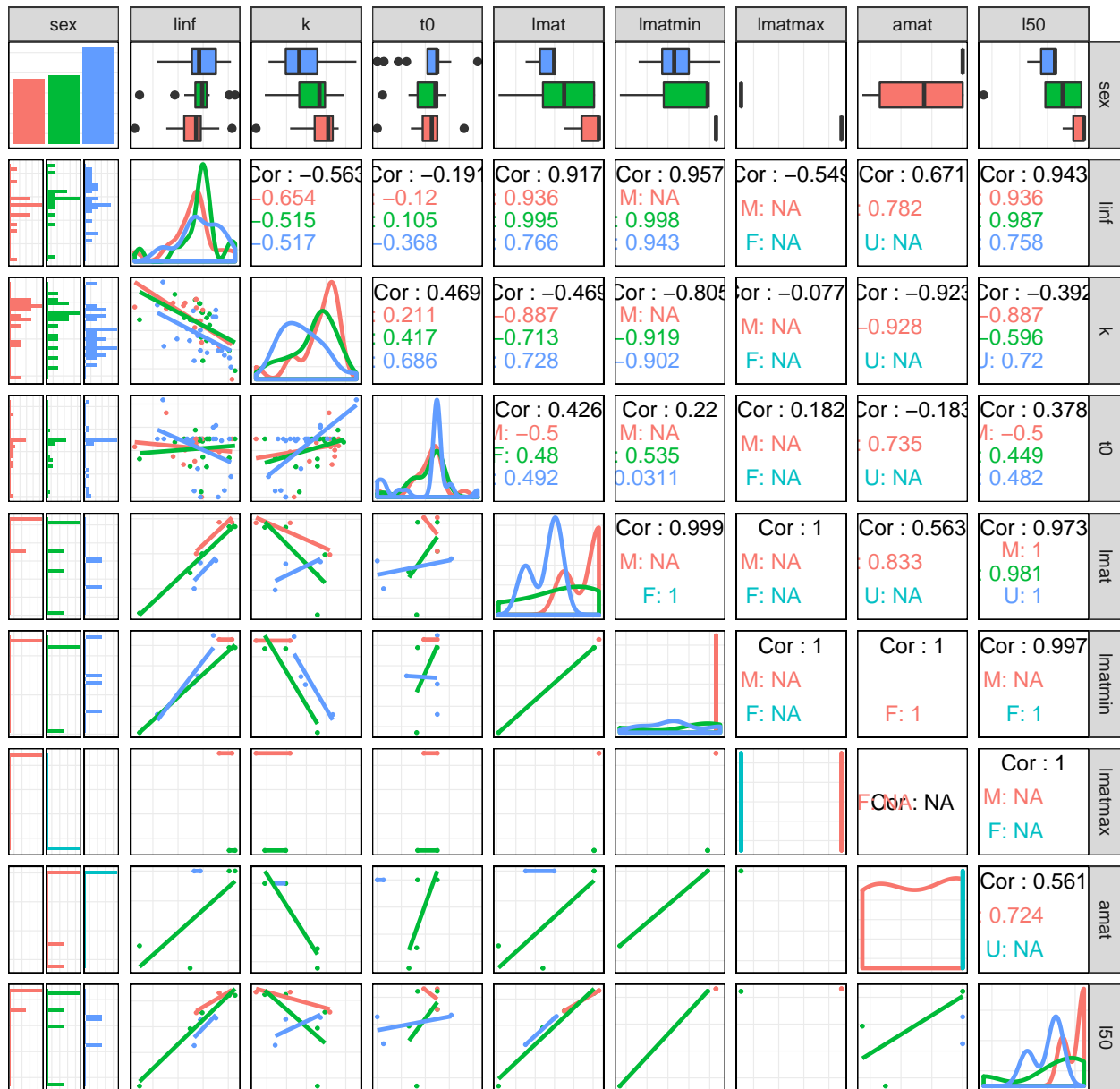
```
dirMy="/home/laurence/Desktop/sea++/mydas"  
#dirMy =getwd()  
dirInp=file.path(dirMy,"tasks/inputs")  
dirDat=file.path(dirMy,"tasks/data")
```

```
library(ggplot2)  
library(GGally)
```

```
library(FLife)  
library(plyr)  
library(reshape)
```

## Life history parameters

```
load(file.path(dirDat,"gurnards.RData"))
```



**Figure 1** Pairwise scatter plots of life history parameters.

## Equilibrium Dynamics

Create an FLPar

```
wkpar=as(wklife[,6:13],"FLPar")
attributes(wkpar)[names(wklife)[1:5]]=wklife[,1:5]
```

Then use life history relationships to estimate missing values

```
par=lhPar(wkpar)
```

and then to derive vectors for processes such as natural mortality

```
library(FLBRP)

eq1=lhEq1(par)

ggplot(FLQuants(eq1,"m","catch.sel","mat","catch.wt"))+
  geom_line(aes(age,data,col=attributes(wkpar)$name[iter]))+
  facet_wrap(~qname,scale="free")+
  scale_x_continuous(limits=c(0,15))+
  guides(colour=guide_legend(title="Species",title.position="top"))
```

**Figure 2** Vectors of  $m$ , selection pattern, maturity and weight-at-age.  
and estimate equilibrium dynamics and reference points, e.g. for lemon sole

```
plot(iter(eq1,7))
```

**Figure 3** Equilibrium curves for lemon sole.

## Simulation

Create a forward projection, i.e. an `FLStock` from an equilibrium object

```
lms1=as(iter(eq1,7),"FLStock")

plot(lms1)
```

**Figure 4** Simulate a stock with increasing  $F$