The following appendices accompany the article

Male krill grow fast and die young

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Appendix 1. How to set parameters values for krill sex ratio simulation program

Age composition:
The user can set the number of age classes to be simulated, independently for males and females.

```
No.ages.m <-
No.ages.f <-
```

For simulation in the paper, females were set to 7, and males were set to 7, 4 or 3.

Mortality rate:
Mortality rate can be set by entering values for M.f and M.mr.

```
M.f <-
M.mr <-
```

Female mortality (M.f) is to be set as an absolute value. Male mortality (M.m) is set as a relative value (M.mr) to M.f. If M.mr is set to 1.0 then this means male mortality is same as the value set for females.

If M.f is set to 0.8, and M.mr to 1.5, then Male mortality (M.m) will be 1.2 (0.8×1.5).

Mortality accelaration:
age0 value sets the upper age limit below which there is no acceleration of mortality.

```
age0 <-
lambda <-
```

For example, if age0 is set to 3.0, acceleration of mortality will not occur until the Age 3 growth season and be effective thereafter.

Standard deviation in M:
The user can set the standard deviation for lognormal errors in M.f if stochastic variation is required. Also, the program allows the user to set stochastic variation in the relationship between M.f and M.m.

```
Mort.sd <-
Mort.m.sd <-
```

If Mort.sd is set to 0, then mortality will be set as a fixed value. If Mort.sd is set to >0, then female mortality is lognormally distributed with mean M.f and with standard deviation on the logarithmic scale of Mort.sd. Similarly if Mort.m.sd >0, then male mortality is lognormally distributed with mean M.m and with standard deviation on the logarithmic scale of Mort.m.sd. For simulations in the paper, both Mort.sd and Mort.m.sd were set to 0.2.

Number of individuals and number of runs
Number of individuals for Age 1 krill can be set here. This number will be applied for both males and females, so if this is set to 10000, this means 20000 individuals in total.

```
No.ind <- 10000
No.run <- 1000
```

For all simulations presented in the paper, No.ind was set to 10000, and No.run to 1000.

VB parameters
The user can set VB parameters for males and females independently by giving these in the order: asymptotic length, rate parameter κ, and t_0 parameter within following lists

```
VB.m <- c(xxxx,xxxx,xxxx)
VB.f <- c(xxxx,xxxx,xxxx).
```

In the script there are three parameter settings described in Table 3 of the paper that are offered for user's convenience. Simply remove # in front of code the user wishes to use and place a # in front of code not required (i.e. # indicates a comment in R). The users can also alter the VB parameters by directly changing the parameters in the code.

```
#VB.m <- c(66.84963,0.43747,-0.22435)
#VB.f <- c(54.63266,0.601248,-0.19512)
VB.m <- c(60.1334,0.4981,-0.3511)
VB.f <- c(60.1334,0.4308,-0.3511)
#VB.f <- VB.m
```

In this case the second option (common asymptotic length and t_0 parameters for males and females, but different κ values) is selected. If the third option is selected at the same time (# removed) then this will automatically set the male's VB parameters identical to the females which are set in either of the selected previous options.

Age class standard deviations
Users can set age class standard deviations by providing a list with an element for each age class in age order separately for each of males and females. It is important that the number of standard deviations match the number of age classes set at the beginning of the parameter settings.

```
SD.m <- c(2.0,2.5,3.0,3.5,4.0,4.5,5.0)
SD.f <- c(2.0,2.5,3.0,3.5,4.0,4.5,5.0)
```

This is an example for varying sd from 2.0 to 5.0 for number of age classes set to 7 for both males and females.

Appendix 2. Script for krill sex-ratio simulation program http://www.int-res.com/articles/suppl/m345p199_app/m345p199_app.txt