4.3 The stock data files (1 - 10)

The general format for each data file is as follows:

Title (80 characters maximum)
Sex (**use only 1**) Index N^{o}
First year Last year
First age Last age
Data format identifier (see below)
Data..... ⇒ (by age)
"
" (by year)
"
⇓

It is suggested that in addition to the reference information entered in the stock index file title, a data file's title should include a file contents description. The sex identifier has been retained in order to maintain compatibility with older data sets. It is always set to 1. The Index N^{o} is a reference for file identification (the appropriate values are listed in Section 4.2). The first age, last age and first and last years must be consistent throughout files 1-10. The last age can be a true age or a plus group. Data values should be space or comma separated.

Reading of each data file is controlled by the data format identifier (DFI). A table defining the DFI options available is given in Appendix 1. A variety of data structure examples are provided in the data files on the program disk. They include:

DFI	Data structure	Example file name
1	2 Dimensional array	COD7ASW.DAT
2	Row array	COD7AMO.DAT
3	Scalar value	COD7ANM.DAT
5	Column array	COD7ALA.DAT

Notes:
(i) Insufficient data in a data file will cause the program to stop, with an appropriate error message displayed on the screen. Too much data, i.e. extra values or an incorrect DFI, will not stop the program since excess values in a record or excess records in the file will be ignored. It is therefore important to specify the correct DFI. A visual check is provided by the program: whilst a data file is being read, a description of the format appears on the screen, together with the file title, Index N^{o} and contents description.

(ii) Note (i) describes how the program ignores excess data on a line. This can be used to advantage. When handling data sets with a long time series, identification of the location of data for specific years can be tedious. By creating data files with a year label appended to the end of the row, where it will be ignored, the process is simplified. *The first and last ages must, however be correct.*

4.4 The fleet tuning data file (11)

This file is used to supply the fleet data needed for the *ad hoc* and XSA tuning modules. It has a different structure to the stock data files. The data are presented by fleet and are constructed from effort and catch-at-age data. Data values should be space or comma separated. An example of a two fleet data file is provided in COD7ATUN.DAT.

For use within *ad hoc* tuning **all** fleet catch data must have the same final data year (the year for which F estimates are to be made). Missing data (see note (ii) below) for individual ages in the final year are permitted. For XSA tuning it is preferable, but not necessary, for all of the fleets' tuning data to be consistent with the final year of the overall catch-at-age data.

The data file **must** have the following structure:

			Line No[1]
	File title.		*1*
	Number of fleets (+100).		*2*
	Fleet name.		*3*
	First year Last year	(for the fleet)	*4*
Either	Sex code (**1**) Effort code (**1**)	(for *ad hoc* tuning)	*5*
or	Sex code (**1**) Effort code (**1**) Alpha Beta	(for XSA and *ad hoc*)	*5*
	First age Last age	(for the fleet)	*6*
	Effort value Catch numbers at age.....⇒	(for the fleet)	*7*
	"		
	" (by year)		
	⇓ ⇓		

Lines 3 to 7 are repeated for each fleet present in the data file.

Notes:

File title	- May be up to 80 characters.
N^{o} of fleets	- **Must** be 100 plus the number of fleets in the file. Maximum : VPADOS = 10 fleets, entered as 110 VPAWIN = 20 fleets, entered as 120
Fleet name	- May be up to 20 characters.
Sex code	- Value **1** only (retained for compatibility with old data sets).
Effort code	- Value **1** only (*ditto*).
Alpha and beta	- The start and end of the fishing period for the fleet. They are given as fractions of a year, so that annual data would be entered as alpha = 0, beta = 1.0, second quarter effort as alpha = 0.25, beta = 0.5.
Last age	- **The last age is the oldest true age**; plus group data are not used in the tuning process.

(i) The same tuning data files can be used for XSA and *ad hoc* tuning; alpha and beta values will be ignored by the *ad hoc* routines.

(ii) **Version 3.1** handles zero catches as missing data within both XSA and *ad hoc* tuning. They are weighted out of the analysis. It is assumed that populations do not have zero recruitment and that fishing cannot remove all individuals from a year class. Zero values are considered to be the result of incomplete sampling. If the user considers that the year class strength is near zero (migration effects etc.) replace zero with a suitably low value (but keep an eye on the residuals). *Catch numbers are in thousands so that 1 fish should be entered as 0.001.*

[1] *For reference only - not included in the data file.*

4.5 Suggested data file naming conventions

Standard formats for data file names avoid the need for separate lists linking file names with particular stocks, and aid directory 'housekeeping'. e.g.

MAFF (or ICES) 3 character species code: e.g. Haddock - HAD, Whiting - WHG

ICES Division: as two character division codes (4A, 4B etc.)
(Total sub-region: use nZ e.g. 4Z - North Sea.)

File contents:

LA	- landings (tonnes - round fresh weight)
CN	- catch-at-age (thousands)
CW	- catch weight-at-age (kg)
SW	- stock weight-at-age (kg)
NM	- natural mortality
MO	- maturity-at-age ogive
PF	- proportion of F before spawning
PM	- proportion of M before spawning
FO	- F on oldest age in each year
FN	- F at age in last year
TUN	- Fleet catch and effort data

An example would be SOL7ECN.DAT which contains sole catch numbers from ICES division VIIe.

4.6 Output file names

If the .csv file name extension is used for all tuning report and output table files, the files can be read directly into spreadsheets e.g. Excel, Lotus, SuperCalc.
