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The Lowestoft Stock Assessment Suite.

Tutorial 1

Data file input and User-defined VPA

by

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Abstract

This document is the first in a series of tutorials that provide an introduction to the Lowestoft VPA Suite assessment software. This tutorial takes the user through the input of data files, running a VPA with user defined fishing mortalities and the printing of data and results.

DATA INPUT, PRINTING AND THE SPECIFICATION OF SUMMARY MEANS

Start the VPA suite from the program file VPA95.EXE or at the windows icon.

This will present the opening introduction screen shown below

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	- 🗆 ×
UIRTUAL POPULATION ANALYSIS Version : 3.1 (Windows) 20 fleets, 25 ages, 40 years Copyright : MAFF Directorate of Fisheries Research License No. DFRUPA315.030	
<pre>+ Most of the input options + + will offer a default choice. + + To select the default, press + + the <return> or <enter> key. + +++++++++++++++++++++++++++++++++++</enter></return></pre>	
Please input [path]name of stock index file >	

Type in the directory path and index file name C:\VPAS\DATA\BLACKFIN.IND ¿

This will present the data file entry screen.

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	_ 🗆 ×
You have selected:	
Blackfin: NAFO course 2000. Combined sex; plusgroup.	
**** Data entry menu ****	
1. Read data files listed in index file 2. Read minimum data files for quick run 3. Give file names interactively	
Your choice ? <default 1="" =="">></default>	

The title from the index file is displayed, for reference, at the top of the screen. Three options are available for input of the data files. Option (1) reads the first eight stock data files from the index file list. Option (2) reads the catch numbers and natural mortality files only, it is used if the other data is not readily available. Option (3) allows the user to type the path and name of each file interactively, the appropriate file name in the index file is given as the default.

Type 3 ¿ Type ¿ at each prompt and select the default data files.

This brings us to the prompts for the selection of the year and age range for the assessment. The first and last years of the assessment can be selected as a subset of the complete range specified in the data files.

Type 2 and select the default at each of the year prompts.

When selecting the age range for the assessment, the only restriction imposed is that the first assessment age must be that defined in the data files. If the oldest age selected is less than the oldest defined in the data files, a plus group will be created. The plus group catch weights, stock weights and proportion mature are automatically calculated as catch number weighted means.

Type 2 and select the default oldest age.

The next question defines the use of the oldest age. In this case the data set does have a plus group at age 10.

Type **¿** to take the default.

We have reached the final part of the user input required for setting up the assessment data ranges. In the next series of selections we will define the range of ages used for the fishing mortality and population means printed in the output tables. In this example we will only define two means for the annual fishing mortality. The first is an arithmetic mean F calculated over ages 3-7. The second is a population weighted mean F over the same ages.



C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	_ 🗆 ×
**** Output table means and ranges menu ****	
1. Full default settings — see help and user guide 2. Choose year (column) means for F table only (rest set to default v 3. Choose all means and ranges interactively 4. Help	alues)
Your choice ? < default=1 >> 2 A. Please define year(column) means for the F-table. 1,2 or 3 may be defined, how many do you want?	

Select two means by typing 2 →

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	- 🗆 ×
Please choose the required weighting from the menu :	
 Arithmetic mean weighted by catch number per recruit.(FBARC) Arithmetic mean weighted by catch/population number per recruit.(FBARP) Arithmetic mean unweighted.(FBAR) Exploitation pattern weighting.(FBARS) 	
This first selected mean will be used as the reference F in the exploitation pattern calculation : it can only be a weighting of type 1) or 3).	
Your choice ? Default = $\langle 3 \rangle \rangle$	

At this screen we select the type of mean required

Type 3 for the arithmetic mean or just press enter for the default.

& C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe

as the reference F in the
exploitation pattern calculation :
it can only be a weighting of type 1> or 3>.

Your choice ? Default = < 3 > ---->
+++++ default accepted +++++

Please give lower age limit for the mean :
< default = 3 > ---->
default accepted

Please give upper age limit for the mean :
< default = 7 > ---->

Select the defaults offered for the range of ages over which the arithmetic mean is to be calculated.

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	×
Please give upper age limit for the mean : < default = 7 >> 7 you have already chosen weightingtype < 3 > so for your second mean :	
Please choose the required weighting from the menu :	
 Arithmetic mean weighted by catch number per recruit.(FBARC) Arithmetic mean weighted by catch/population number per recruit.(FBARP) 	
3) Arithmetic mean unweighted.(FBAR)	
4) Exploitation pattern weighting.(FBARS)	
Your choice : Default = < 1 >>	

Type 2 for the population weighted mean and take the offered default ages

This completes the specification of the summary means and brings us to the central menu for the program. Here we can select assessment models and print results or input data. After each assessment the program will return to this menu. This allows the user to undertake a series of exploratory trials and examine the results of the assessments in an editor or spreadsheet package without having to re-specify all the data ranges again.

🔀 C:\WINNT\PROFIL	ES\cdd00\DESKT0P\VPA95.exe		
*****	LOWESTOFT UPA PROGRAM CENTRAL MENU	***** *****	
Assessm	ent methods:		
1 2 3 4 9 0	User-defined VPA/Cohort an Separable VPA Ad hoc tuning Extended Survivors Analys: Print input data and resul Stop	nalysis is lts	
< You have s	o far selected the options	marked < * > >	
Please	select one of the options	:>	

Type 9.↓

This screen presents a list of the tables available for printing from the program. At the current stage in the tutorial we have not run an assessment model so that there are no results available for printing. We can only print the input data sets 1 - 7.

👸 C:\WII	INT\PROFILES\cdd00\DESKTOP\VPA95.exe	_ 🗆 ×
Menu of	Tables	
Table	1 Catch numbers at age	
Table	2 Catch weights at age (kg)	
Table	3 Stock weights at age (kg)	
Table	4 Natural Mortality (M) at age	
Table	5 Proportion mature at age	
Table	6 Proportion of M before Spawning	
Table	7 Proportion of F before Spawning	
Table	B Fishing mortality (F) at age	
Table	9 Relative F at age	
Table 1	Ø Stock number at age (start of year)	
Table 1	1 Spawning stock number at age (spawning time)	
Table 1	2 Stock biomass at age (start of year)	
Table 1	3 Spawning stock biomass at age (spawning time)	
Table 1	4 Stock biomass at age with SOP (start of year)	
Table 1	5 Spawning stock biomass with SOP (spawning time)	
Table 1	6 Summary (without_SOP correction)	
Table 1	7 Summary (with SOP correction)	
CODE 1	B Will produce data_tables 1,2,3,4,5,6,7	
CODE 1	9 Will produce_result tables 8 to 17 inclusive	
(Summar	ies also give tables 8 and 10.)	
Please	select required tables	

Type 1, 2, 3, 4, 5, 6, 7.↓ Type an output path followed by a file name with a .csv extension ↓

💏 C:\W	INN	T\PROFILES\cdd00\DESKTOP\VPA95.exe	_ 🗆 🗙
Table	1	Catch numbers at age	
Table	2	Catch weights at age (kg)	
Table	3	Stock weights at age (kg)	
Table	4	Natural Mortality (M) at age	
Table	5	Proportion mature at age	
Table	6	Proportion of M before Spawning	
Table	7	Proportion of F before Spawning	
Table	8	Fishing mortality (F) at age	
Table	. 2	Relative F at age	
Table	10	Stock number at age (start of year)	
Table	11	Spawning stock number at age (spawning time)	
Table	12	Stock biomass at age (start of year)	
Table	13	Spawning stock biomass at age (spawning time)	
Table	14	Stock biomass at age with SOP (start of year)	
Table	15	Spawning stock biomass with SOP (spawning time)	
Table	16	Summary (without SOP correction)	
Table	17	Summary (with SOP correction)	
CODE	18	Will produce data tables 1,2,3,4,5,6,7	
CODE	19	Will produce result tables 8 to 17 inclusive	
(Summa	rie	s also give tables 8 and 10.)	
Please	SE	lect required tables 1,2,3,4,5,6,7	
24 B			
Enter	rer	ort filename	
CLPT1	101	line printer)> c:\vpas\results\input.csv	

After pressing return you should be back at the main central menu. Note the star indicating that we have used the printing section.

🔀 C:\WINNT\PROFIL	ES\cdd00\DESKTOP\VPA95.exe	_ 🗆 ×
*****	LOWESTOFT UPA PROGRAM ***** CENTRAL MENU *****	
Assessm	ent methods:	
1 2 3 4 * 9 0	User-defined UPA/Cohort analysis Separable UPA Ad hoc tuning Extended Survivors Analysis Print input data and results Stop	
(You have s Please	o far selected the options marked < * > > select one of the options :>	

Examine the results file in a suitable spreadsheet or word processing package, there is no need to close the program. The use of the .csv file extension produces spreadsheets that are automatically formatted.

USER-DEFINED VPA

Select Option 1 at the main menu

🔀 C:\WINNT\PROFI	LES\cdd00\DESKTOP\VPA95.exe		_ 🗆 ×		
****	LOWESTOFT UPA PROGRAM CENTRAL MENU	***** *****			
Assessr	ment methods:				
1 2 3 4	User-defined UPA/Cohort an Separable UPA Ad hoc tuning Extended Survivors Analys:	nalysis is			
* 9 Ø	Print input data and resu Stop	lts			
<pre>(You have so far selected the options marked < * >)</pre>					
Please	select one of the options	:> 1			

Four methods are available for the input of terminal fishing mortality values at the oldest age. They are listed below. Option 3 takes F values from a previous run of any of the assessment methods. Option 4 calculates an average of the fishing mortalities at younger ages.

Select option 1.

Note the four stars in the default. This indicates that a filename was not specified in the index file and user input is required.

Type the path and file name C:\VPAS\DATA\BLACKFO.DAT ↓

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe	_ 🗆 ×
First, terminal F on the oldest age in each year :	
please select your input method from the menu	
2) Screen input 3) No change 4) Use backwards extension	
(Option 3 requires that you have already carried out a vpa !!)	
Your choice ?> 1	
Please input the name of the data file <default =="">****</default>	
> c:\vpas\data\blackfo.dat	

At the next menu select the "Screen Input" option and type the following values for each successive age (0.01 0.03 0.09 0.10 0.12 0.18 0.15 0.15 0.15).



Select 1 for the Exact VPA method.

After running the VPA we return to the main menu. A star now highlights the user-defined method that we have just used.

C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe			
**** ****	LOWESTOFT UPA PROGRAM CENTRAL MENU	**** ****	
Assessment methods:			
* 1 User-defined UPA/Cohort analysis 2 Separable UPA 3 Ad hoc tuning 4 Extended Survivors Analysis			
* 9	Print input data and resul Stop	lts	
<pre>< You have so far selected the options marked $\langle * \rangle$ ></pre>			
Please select one of the options :>			

The program has now calculated a time series of population abundance and fishing mortality at each age. We can therefore print the time series of spawning and stock biomass and fishing mortalities.

Type 9 and select table 19. Specify a directory path and a file name with a .csv extension.

Examine the results file in a suitable spreadsheet or word processing package.