Northwest Atlantic   Fisheries Organization

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Workshop on Assessment Methods

Lowestoft Stock Assessment Suite.

Tutorial 2

Separable VPA

by

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Abstract

This document is the second in a series of tutorials designed to assist users of the Lowestoft VPA Suite assessment software. The tutorial takes the user through the options required for running the Separable VPA assessment model.

SEPARABLE VPA

Open the program and read in the index file C:\VPAS\DATA\BLACKFIN.IND Use the default year, age and summary means settings until the main menu is reached.

```
C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe                    _ □ ×


          *****      LOWESTOFT VPA PROGRAM      *****
          *****           CENTRAL MENU         *****


          Assessment methods:


               1  User-defined VPA/Cohort analysis
               2  Separable VPA
               3  Ad hoc tuning
               4  Extended Survivors Analysis

               9  Print input data and results
               0  Stop


        < You have so far selected the options marked < * > >


             Please select one of the options : ---->  _
```

At the main menu **Type 2 ¿** to select Separable VPA.

The first input screen is used to define the year weights for the log catch ratios to which the model is fitted. Usually the default settings, which utilise the data from the most recent six years, provide a suitable model for an assessment. However to demonstrate the use of year weighting we shall use the last 11 years.

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          Please select one of the options : ----> 2





                    *******   Separable UPA   *******




                 ***   Year weighting choice :   ***

            1. Default - uses the most recent six years only
            2. Manual  - user defines the weight for each year

        Your choice ? <default= 1> ---->  _
```

Type 2 ¿

In order to select the most recent years for fitting the model we down-weight data from the early years.

Type 1963, 1983, 0.01¿
Type ¿ to exit year weighting.

The next screen presents the options for user-defined age weighting. This would merit a tutorial on its own, and further information on using the option is contained in the referenced user guide. In general it is best left to the program and here we shall take the default and let the program calculate the weights.

Input is now required for the reference age for unit selection (full recruitment) . The selection at each age will be scaled relative to this value. The choice as to which age to use is not usually critical and the age with the greatest catch in number will suffice.

Type 5 ¿

The program allows up to 3 terminal F values to be fitted for each of 3 terminal selection values. Here we shall only run one of each. A terminal F of 0.2 and a selection at the oldest age of 1.0

Type 1 ¿
Type 0.2 ¿
Type 1 ¿
Type 1.0 ¿ (make sure it is 1.**0** bug/feature)

```
C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe                    _□×
              ***        Age weighting choice :     ***
         1. Automatic   (set by inverse variance)
         2. Manual      (defined by the user)

    Your choice ?  <default= 1> ---->

Youngest age chosen is  1 ; oldest is  9
Please give a reference age for unit selection [not oldest]
<If in doubt try the third age group> ----> 5

Please enter number of terminal Fs to be run ---> 1
Please enter 1 terminal F(s) ----> 0.2

Please enter number of terminal Ss to be run ---> 1
Please enter 1 terminal S(s) ----> 1.0

Do you want the Separable f- and population matrices printed ?
<default = No> ---->
Use separable values to start a VPA/cohort analysis ?
<Default = Y(es)> _
```

Type ¿   (Do not print the separable F's and population numbers)
Type ¿   (default option to use the separable results to start a VPA)
Type a directory path and filename for the Separable VPA diagnostics file ¿
Type ¿ (exact VPA)

```
C:\WINNT\PROFILES\cdd00\DESKTOP\VPA95.exe                    _□×

Do you want the Separable f- and population matrices printed ?
<default = No> ---->
Use separable values to start a VPA/cohort analysis ?
<Default = Y(es)>

Enter report filename
<LPT1 for line printer> ---> c:\scws\output\sepdiag.csv

              ++++++  Calculating  ++++++

Starting F = .2000,S = 1.0000

        ****  Virtual Population Analysis Menu  ****

           1. Traditional vpa .... ('exact' method)
           2. Cohort analysis .... (Pope's approximation)
    Please select your analysis <default=1> ---->
```

This completes the fitting of the separable model to the catch at age data and the calculation of a VPA based on the marginal fishing mortalities. To output the SSB and biomass values resulting from the run option 9 must be selected from the main menu.