Northwest Atlantic　　　　Fisheries Organization

SCIENTIFIC COUNCIL MEETING – SEPTEMBER 2000
Workshop on Assessment Methods

Lowestoft Stock Assessment Suite

Tutorial 3

AD HOC VPA

by

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Abstract

This document is the third 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 Laurec Shepherd VPA assessment model.

AD HOC **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                        _ □ X


        *****       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 results
            0   Stop


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


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

At the main menu **Type 4 ¿** to select Separable VPA.

The first questions require input of the names of the data file containing the catch and effort data and the tuning diagnostics output file.

Type ¿ to take the default filename
Type a path and filename for the tuning diagnostics.

```
VPA95                                                          _ □ X

  Auto      ▼   □ 🖺 🖺 ⊞ 🖼 🖶 A



                    *****   UPA tuning module   *****




Please give [path]name of fleet effort and catch data file
Default =    c:\vpas\data\blacktun.dat

  --->


Default accepted



Enter report filename
<LPT1 for line printer) ---> c:\vpas\results\lstun.csv
```
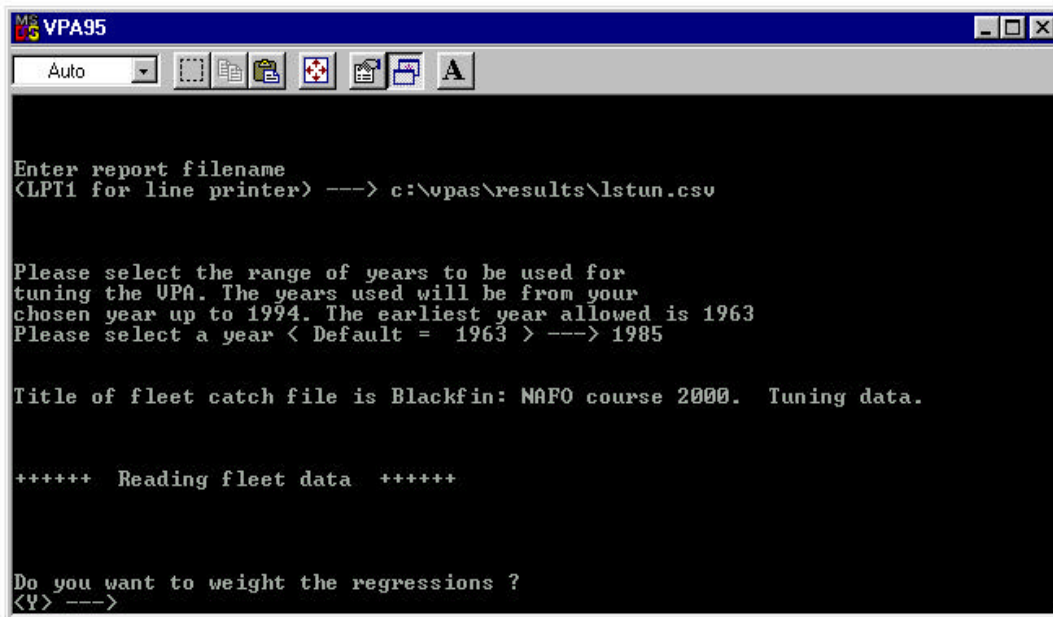
We then have to select the range of years from index series to which we wish to fit the tuning model. The ICES "accepted wisdom" is to take the last ten years of data. In general it is expected that catchability will have altered over a longer period.

Type 1985 ¿

The data file title is printed for reference. We are the asked whether we wish to apply a time series weighting to the model down weighting the influence of early tuning data in the fitted model. As we have only taken ten years of data we shall not do this.

Type No ¿ or N ¿

```
Enter report filename
<LPT1 for line printer) ---> c:\vpas\results\lstun.csv


Please select the range of years to be used for
tuning the VPA. The years used will be from your
chosen year up to 1994. The earliest year allowed is 1963
Please select a year < Default =  1963 > ---> 1985


Title of fleet catch file is Blackfin: NAFO course 2000.  Tuning data.


++++++  Reading fleet data  ++++++



Do you want to weight the regressions ?
<Y> --->
```

In order to apply a fishing mortality constraint at the oldest age, we define the number of ages over which the average is to be calculated and a scalar multiplier to be applied to that average (e.g. a value of 0.5 would apply half of the mean F).

```
VPA95                                                              _ □ ×
  Auto      ▼  □ 🗈 🗐  ⊞  🖭 🗗  A


++++++  Reading fleet data  ++++++



Do you want to weight the regressions ?
<Y> ---> n


Are the Fishing mortalities on the oldest age group
to be calculated as an average of some younger ages ?
< Default = Y(es) > --->

The fishing mortality is taken to be a fixed
ratio of the average of the "n" younger Fs.

Please enter the ratio < default=1.0 > --->

Default accepted

Please enter n < default=  3 > ---> 3
```

Type Yes ¿ to calculate the fishing mortalities as an average of younger ages.
Type 1.0 ¿ for the scalar.
Type 3 ¿ for the number of ages used for the mean.

```
VPA95                                                              _ □ ×
  Auto      ▼  □ 🗈 🗐  ⊞  🖭 🗗  A

Enter F for age  1 < Default =  .0000 > ---> 0.01

Enter F for age  8 < Default =  .0000 > ---> 0.15

Enter F for age  9 < Default =  .0000 > ---> 0.15



              *****  Tuning Method Menu  *****


       1.  Hybrid Method

       2.  Laurec-Shepherd Method

       3.  Help


              Please select an option  < default = 2 >  ---> 2_
```

We do not have calibration data for the first age or for ages 8 and 9. We therefore have to input initial values for starting the VPA. They will be replaced in the fitted model.

Type 0.1 ¿
Type 0.15 ¿
Type 0.15 ¿

For an initial run we shall fit the constant catchability Laurec Shepherd model to the data

Type 2 ¿

As we don not have calibration data

++++++   Tuning started   ++++++

** Tuning has not converged after 10 iterations. **

The sum across ages of the absolute residuals of the
final year Fs, between iterations 9 and 10 is
                    .000214

Do you wish to continue the tuning for 10 more iterations. Y/<N> :y

Tuning converged after   11 iterations

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

            1. Traditional vpa .... ('exact' method)
            2. Cohort analysis .... (Pope's approximation)

      Please select your analysis <default=1> ---->

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

      Assessment methods:

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

      Output methods:
            8   Output precautionary approach data
            9   Output input data and results

            0   Stop

      < You have so far selected the options marked < * > >
            Please select one of the options : ---->