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ROAME MF0170: ALTERNATIVE SURVEY INDEX ESTIMATION

FRS PRODUCTION OF SCOTTISH WEST COAST SURVEY INDICES

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SUMMARY

1. The calculations used to raise raw haul by haul data to ICES Division VIa abundance indices for cod, haddock, whiting and saithe are described.

2. Names and locations of raw data files are listed and available outputs from the FRS Fisheries Management Database (FMD) displayed in an Appendix.

INTRODUCTION

The current method of compiling abundance indices for species using data from FRS research vessel surveys has no single reference documenting the methodology, software systems and data storage used. This brief report seeks to address that shortfall.

The abundance indices described are available for cod, haddock, whiting and saithe. For stock assessment purposes they are used by the ICES working group assessing northern shelf demersal stocks (WGNSDS). Quarter one indices suitable for assessing stocks from ICES Division VIa are available from 1981-1983 and 1985 to the present (2008 at time of writing). Data recorded in 1984 is classified as unreliable and so index series starting in 1985 are used in the assessments. Quarter four indices for ICES Division VIa are available from 1996 to the present (2007). Indices are also available for ICES Division VIIa for the years 1996-2006 (Quarter 1) and 1997-2005 (quarter 4). Surveying in VIIa is no longer conducted.

MATERIALS AND METHOD

Initial Data File

Data from research vessel surveys are initially recorded into files given the extension '.DAT' (and are known as 'dot dat' files). The naming convention is a common route 'RVR_' followed by a letter to denote the name of the ship (e.g. S for Scotia), the final two digits from the year and a letter recording the number of surveys since the beginning of the year, i.e. the first survey receives the letter 'A', the second 'B' etc. The regular surveys often receive the same letter from year to year but not always. A table listing the names of .DAT files for the different west coast surveys is given in Table 1. For completeness filenames for equivalent surveys conducted in the North Sea are also given.

The .DAT files can not be downloaded from the Fisheries Management Database (FMD). They are stored as text files on the FRS network nts13 in directory `\\Nts13\Fmd\Data\RVR`. Appendix 1 shows an example .DAT file.

Standardised numbers at Age by Demersal Sampling Area

The area sampled by FRS is divided into demersal sampling areas. Figure 1 shows the sampling areas. Sampling areas relevant to the ICES Division VIa indices are:

- 40, 41, 42, 43, 44, 45, 46, 47, 48

ICES VIIa equates to a single market sampling area (area 50).

The current demersal sampling areas within ICES Division VIa were defined in 1978 (Armstrong and Hall, 1987). Areas were defined on the basis of growth and mortality rates of the following species:

- cod, haddock, whiting, plaice, lemon sole and saithe;

and the distribution of fishing effort by commercial vessels with the following gear types:

- trawl, light trawl, seine nets and *Nephrops* trawl

Haul duration is recorded in the .DAT files. Within FMD, numbers at length (the length frequencies LF) per haul are standardised to numbers per one hour towing. All otoliths from all hauls in a given demersal sampling area are combined to create an age length key (ALK) for that area[1]. This ALK is applied to all LFs in the area individually to produce age frequencies for each haul. Finally, for each demersal sampling area the age frequencies are summed, the values divided by the number of valid hauls and the results multiplied by ten. This procedure can be summarised as

[1] Since the start of recording maturity data, .DAT files contain both an ALK and a MALK section. To populate FMD age data is taken from a MALK section if one exists and the ALK section is ignored. Internal consistency of .DAT files is checked when data is entered into FMD but checks only take place on LFD and MALK sections if a MALK section exists. West coast surveys began taking maturity data in 1986.

$$CPUE_{SA,\,a} = \frac{\sum_{h=1}^{H_{SA}} \sum_{l=lmin}^{l=lmax} N_{a,\,l,\,h} * 10}{H_{SA}} \qquad (1)$$

where $N_{a,l,h}$ is the number of fish at age *a* and length *l* caught during haul *h*, H_{SA} is the number of valid hauls in demersal sampling area *SA* and $CPUE_{SA,a}$ is the catch per unit effort of fish at age *a* in demersal sampling area *SA*. The results can be opened as an EXCEL spreadsheet and saved via a FMD request. The spreadsheet is known as a RVARAG output file[2].

Numbers at Age by ICES Assessment Region

For each age, the age frequency for each sampling area within the region is raised by the number of valid hauls in the area. These raised frequencies are then summed and the result divided by the total number of valid hauls in the assessment region.
In summary

$$I_a = \frac{\sum_{SA=1}^{SA=nareas} (CPUE_{SA,\,a} * N_{SA})}{\sum_{SA=1}^{SA=nareas} N_{SA}} \qquad (2)$$

The final index values can not be retrieved from FMD. For assessment working groups they are created using an EXCEL spreadsheet by a designated member of staff. All possible retrievals for research vessel survey data are shown in Appendix 2. One retrieval provides data in the ICES DATRAS exchange format. Further information on DATRAS and the exchange format can be found in the DATRAS final report[3].

ACKNOWLEDGEMENTS

I would like to thank Phil Kunzlik and Andrew Newton for supply of information and equations related to the index calculation. Also Bruce McIver for providing user access to and information on FMD. Finally Colin Miller for use of Figure 1.

[2] Before FMD RVARAG output files could be obtained from a VAX system. If using output files from the old VAX system care should be taken with files called RVR_RVARAG output files. These show age frequencies for demersal sampling areas once they have been summed across hauls but before division by the number of valid hauls and raising to numbers per 10 hours. The result of the final two steps could only be seen if the results were printed onto a hard copy (a 'green map' output).

REFERENCES

Armstrong, D. W. & Hall, W. B. (1987), Collection, processing and retrieval of data from catches by Scottish commercial fishing vessels of demersal fish species 1950-1982, in Bailey, R. S. & Parrish, B. B. (eds) Developments in fisheries research in Scotland, Farnham: Fishing News Books.

ICES, 2004. Report of the Working Group on Methods of Fish Stock Assessments, 11–18 February 2004. ICES CM 2004/D:03, 238 pp.

ICES. 2004. DATRAS Database TRAwl Surveys Final Report, EU Project QLRT-2001-00025.

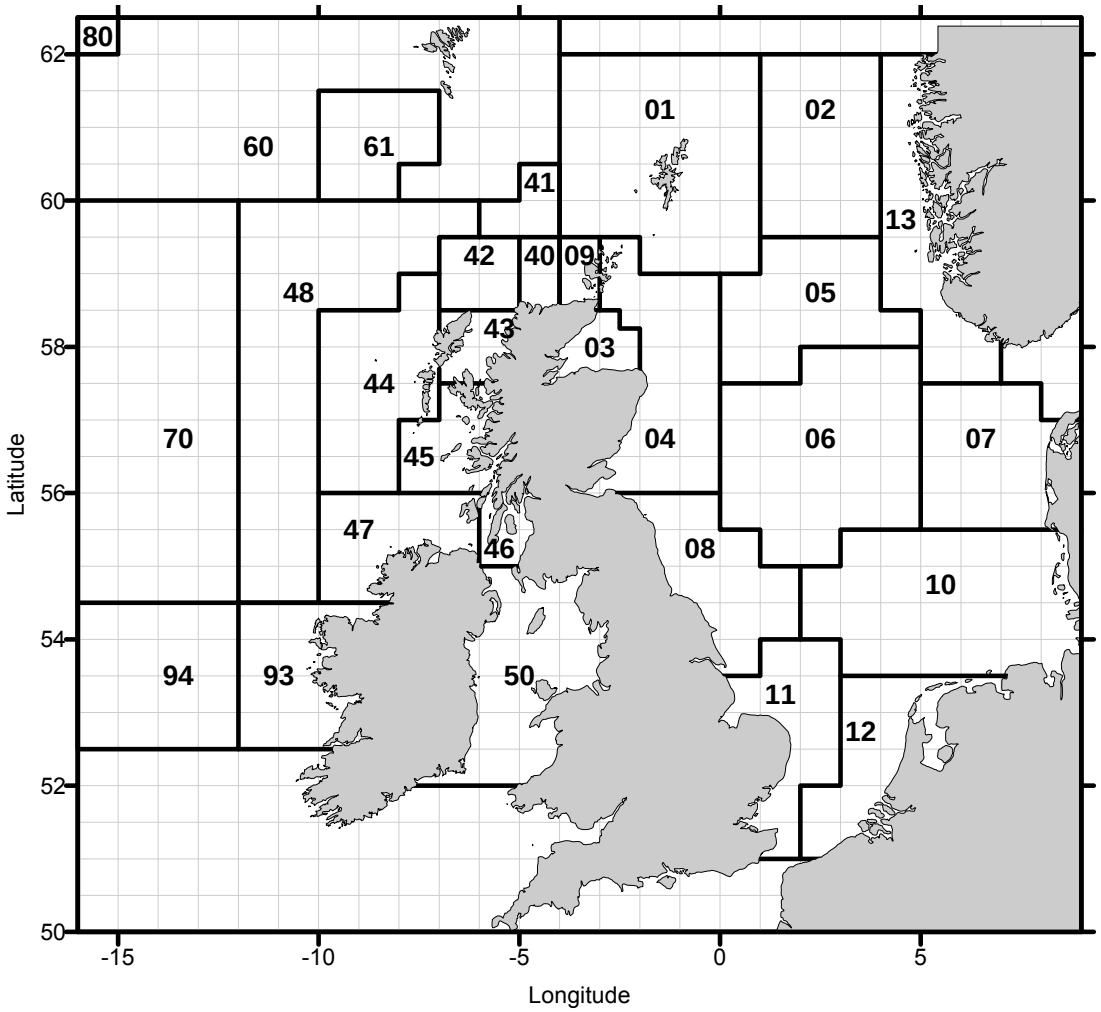
TABLE 1

Names of .DAT files for different survey indices. ScoGFS = Scottish Ground Fish Survey; WCQ1 = West Coast Quarter one; WCQ4 = West Coast Quarter four; NSQ1 = North Sea Quarter one; NSQ2 = North Sea Quarter two; NSQ3 = North Sea Quarter three; NSQ4 = North Sea Quarter four.

INDEX SERIES	YEAR or YEAR RANGE	NAME[1]
ScoGFSWCQ1	1983-1985	RVR_S##A.DAT
	1986-2008	RVR_S##B.DAT
ScoGFSWCQ4	1996-1998	RVR_S##H.DAT
	1999	RVR_S##I.DAT
	2000	RVR_S##F.DAT
	2001	RVR_S##E.DAT
	2002	RVR_S##F.DAT
	2003	RVR_S##G.DAT
	2004	RVR_S##E.DAT
	2005	RVR_S##F.DAT
	2006	RVR_S##H.DAT
	2007	RVR_S##G.DAT
ScoGFSNSQ1	1986-2008	RVR_S##A.DAT
ScoGFSNSQ2	Not yet in FMD	Not yet in FMD
ScoGFSNSQ3	1982	RVR_S##A.DAT
	1983	RVR_S##C.DAT
	1984	RVR_S##B.DAT
	1985-1990	RVR_S##C.DAT
	1991-1996	RVR_S##D.DAT
	1997-1999	RVR_S##E.DAT
	2000	RVR_S##D.DAT
	2001-2006	RVR_S##C.DAT
	2007	RVR_S##D.DAT
ScoGFSNSQ4	Not yet in FMD	Not yet in FMD

1) ## denotes last two digits of year of survey.
2) Not yet in FMD.

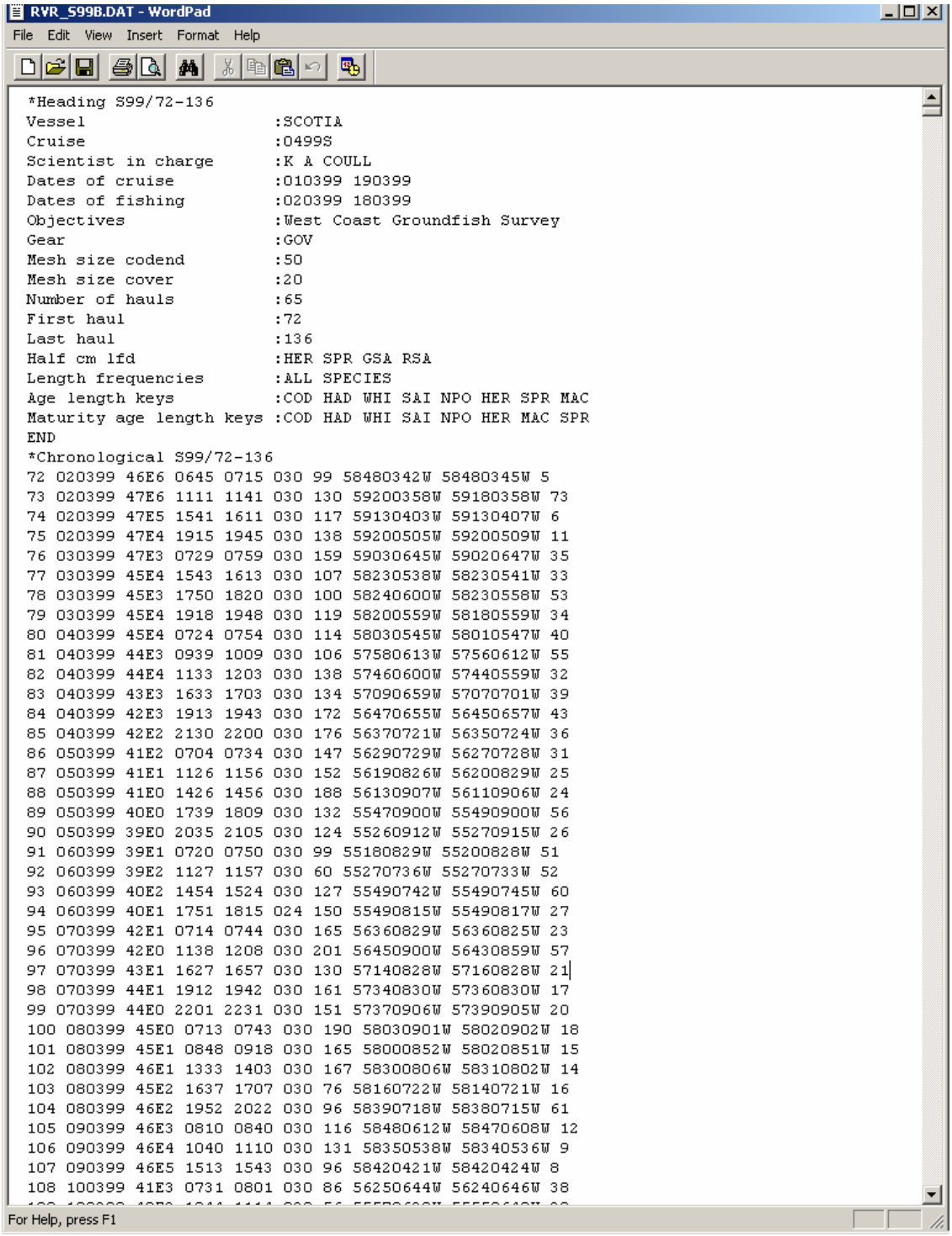
Figure 1: Demersal sampling areas used by FRS



Division VIa, West Coast		Sub-area IV, North Sea	
40	Solan	1	Shetland
41	Rising Ground	2	Viking
42	Butt of Lewis	3	Moray Firth
43	Inner Hebrides	4	Buchan
44	Outer Hebrides	5	Forties
45	South Minch	6	Central
46	Clyde	7	Danish Coast
47	North Ireland	8	Humber
48	Western Deeps	9	West Orkney
		10	German Bight
		11	Thames
		12	Ijmuiden
		13	Utsire

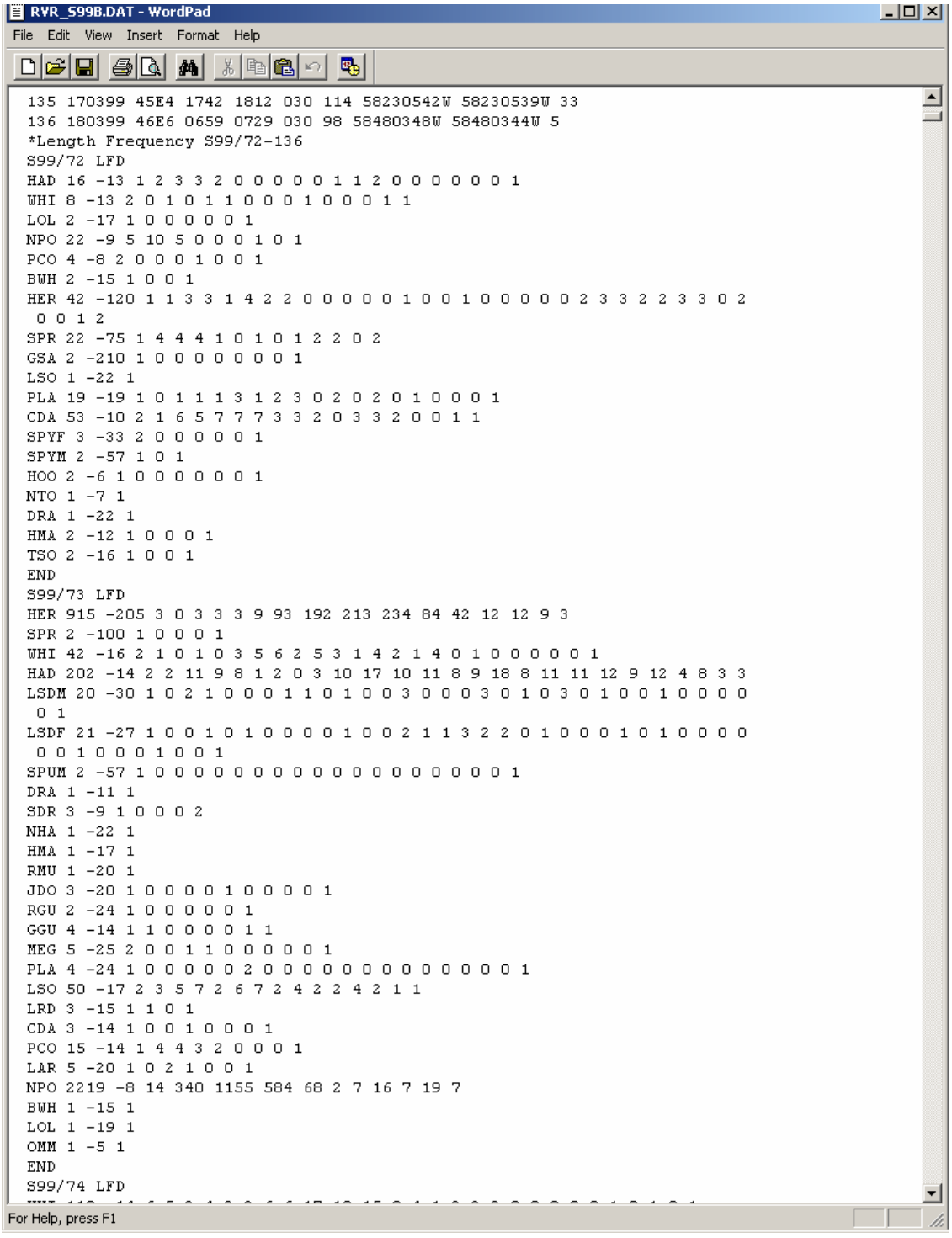
APPENDIX 1
DAT ('dot dat' data file)

.DAT file from 1999 west coast quarter 1 survey. Header information followed by information on each haul listed in chronological order (first entry gives haul number).

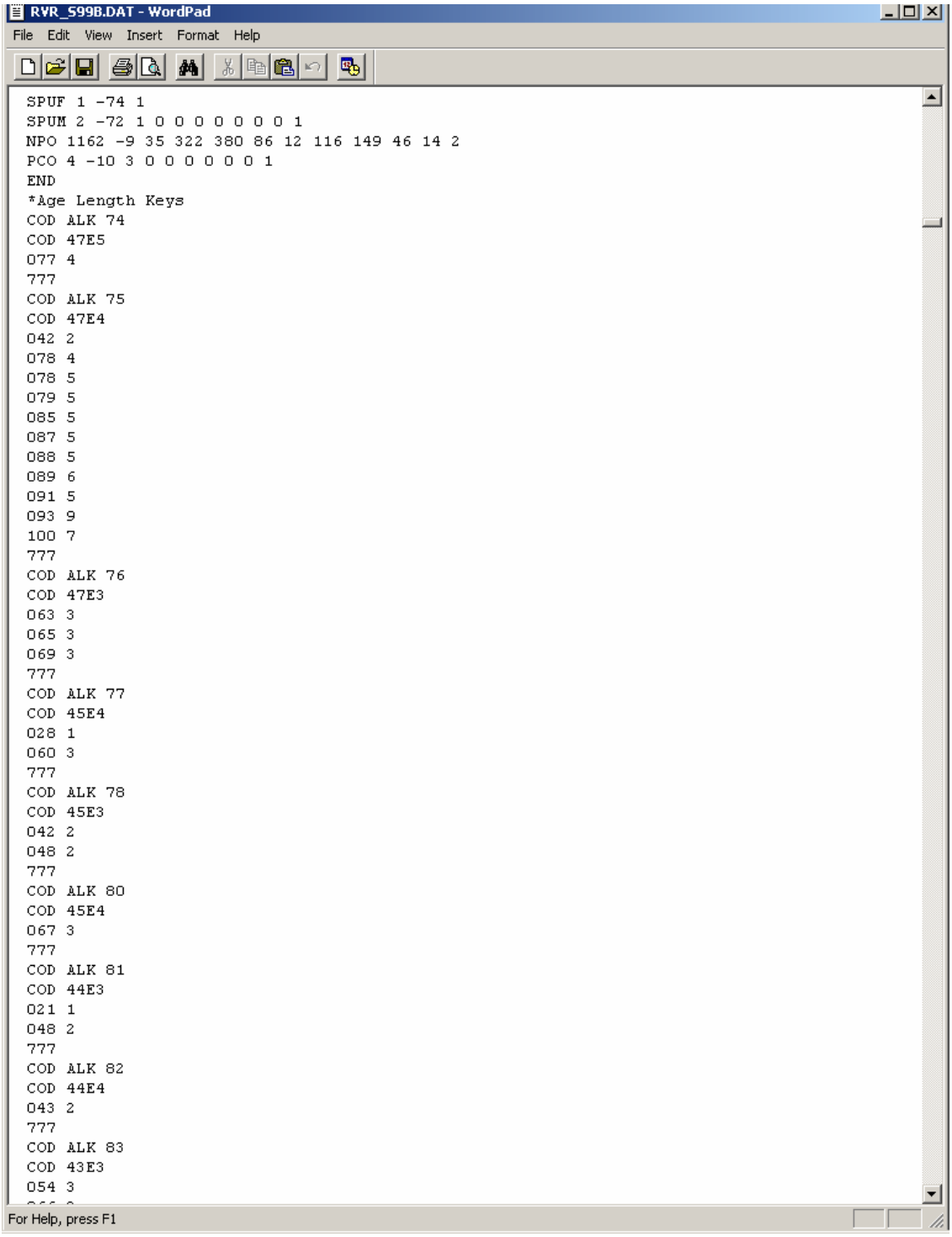



```
*Heading S99/72-136
Vessel                    :SCOTIA
Cruise                    :0499S
Scientist in charge       :K A COULL
Dates of cruise           :010399 190399
Dates of fishing          :020399 180399
Objectives                :West Coast Groundfish Survey
Gear                      :GOV
Mesh size codend          :50
Mesh size cover           :20
Number of hauls           :65
First haul                :72
Last haul                 :136
Half cm lfd               :HER SPR GSA RSA
Length frequencies        :ALL SPECIES
Age length keys           :COD HAD WHI SAI NPO HER SPR MAC
Maturity age length keys :COD HAD WHI SAI NPO HER MAC SPR
END
*Chronological S99/72-136
72 020399 46E6 0645 0715 030 99 58480342W 58480345W 5
73 020399 47E6 1111 1141 030 130 59200358W 59180358W 73
74 020399 47E5 1541 1611 030 117 59130403W 59130407W 6
75 020399 47E4 1915 1945 030 138 59200505W 59200509W 11
76 030399 47E3 0729 0759 030 159 59030645W 59020647W 35
77 030399 45E4 1543 1613 030 107 58230538W 58230541W 33
78 030399 45E3 1750 1820 030 100 58240600W 58230558W 53
79 030399 45E4 1918 1948 030 119 58200559W 58180559W 34
80 040399 45E4 0724 0754 030 114 58030545W 58010547W 40
81 040399 44E3 0939 1009 030 106 57580613W 57560612W 55
82 040399 44E4 1133 1203 030 138 57460600W 57440559W 32
83 040399 43E3 1633 1703 030 134 57090659W 57070701W 39
84 040399 42E3 1913 1943 030 172 56470655W 56450657W 43
85 040399 42E2 2130 2200 030 176 56370721W 56350724W 36
86 050399 41E2 0704 0734 030 147 56290729W 56270728W 31
87 050399 41E1 1126 1156 030 152 56190826W 56200829W 25
88 050399 41E0 1426 1456 030 188 56130907W 56110906W 24
89 050399 40E0 1739 1809 030 132 55470900W 55490900W 56
90 050399 39E0 2035 2105 030 124 55260912W 55270915W 26
91 060399 39E1 0720 0750 030 99 55180829W 55200828W 51
92 060399 39E2 1127 1157 030 60 55270736W 55270733W 52
93 060399 40E2 1454 1524 030 127 55490742W 55490745W 60
94 060399 40E1 1751 1815 024 150 55490815W 55490817W 27
95 070399 42E1 0714 0744 030 165 56360829W 56360825W 23
96 070399 42E0 1138 1208 030 201 56450900W 56430859W 57
97 070399 43E1 1627 1657 030 130 57140828W 57160828W 21
98 070399 44E1 1912 1942 030 161 57340830W 57360830W 17
99 070399 44E0 2201 2231 030 151 57370906W 57390905W 20
100 080399 45E0 0713 0743 030 190 58030901W 58020902W 18
101 080399 45E1 0848 0918 030 165 58000852W 58020851W 15
102 080399 46E1 1333 1403 030 167 58300806W 58310802W 14
103 080399 45E2 1637 1707 030 76 58160722W 58140721W 16
104 080399 46E2 1952 2022 030 96 58390718W 58380715W 61
105 090399 46E3 0810 0840 030 116 58480612W 58470608W 12
106 090399 46E4 1040 1110 030 131 58350538W 58340536W 9
107 090399 46E5 1513 1543 030 96 58420421W 58420424W 8
108 100399 41E3 0731 0801 030 86 56250644W 56240646W 38
```

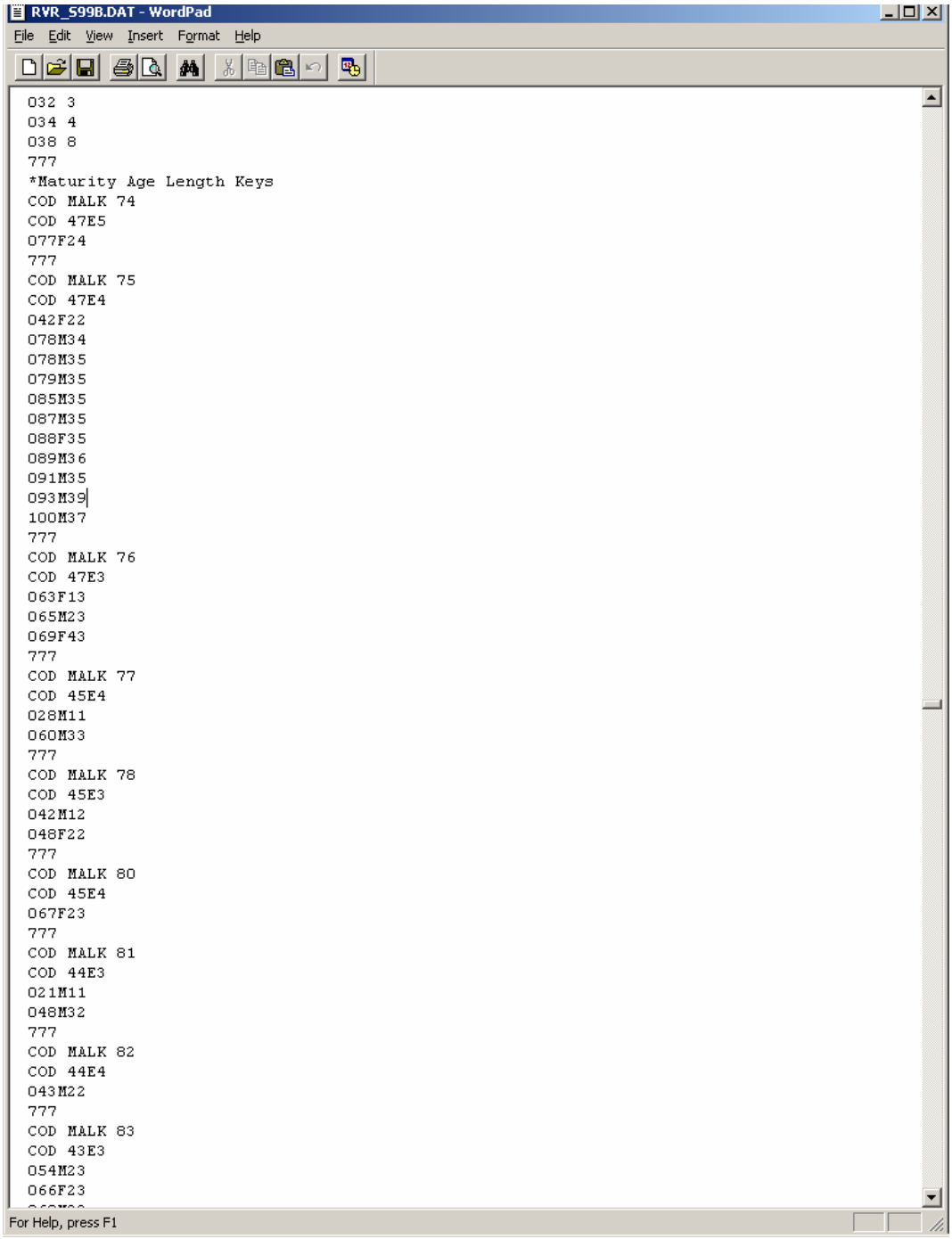
.DAT file from 1999 west coast quarter 1 survey. End of chronological data followed by length frequency distribution for each species found in each haul. Each haul is denoted by ship, year and haul number eg 'S99/72'. Rows give species code, number of fish sampled and length of shortest fish sampled, followed by number at length for each length from the shortest length sampled to the longest length sampled.



.DAT file from 1999 west coast quarter 1 survey. End of length frequency distribution data followed by age length key data. Extract shows data for cod. Similar entries are included for all species which are aged. Each haul where the species was caught is given a header showing the haul number. The following line gives ICES statistical rectangle and this is followed by rows giving length of fish followed by age.

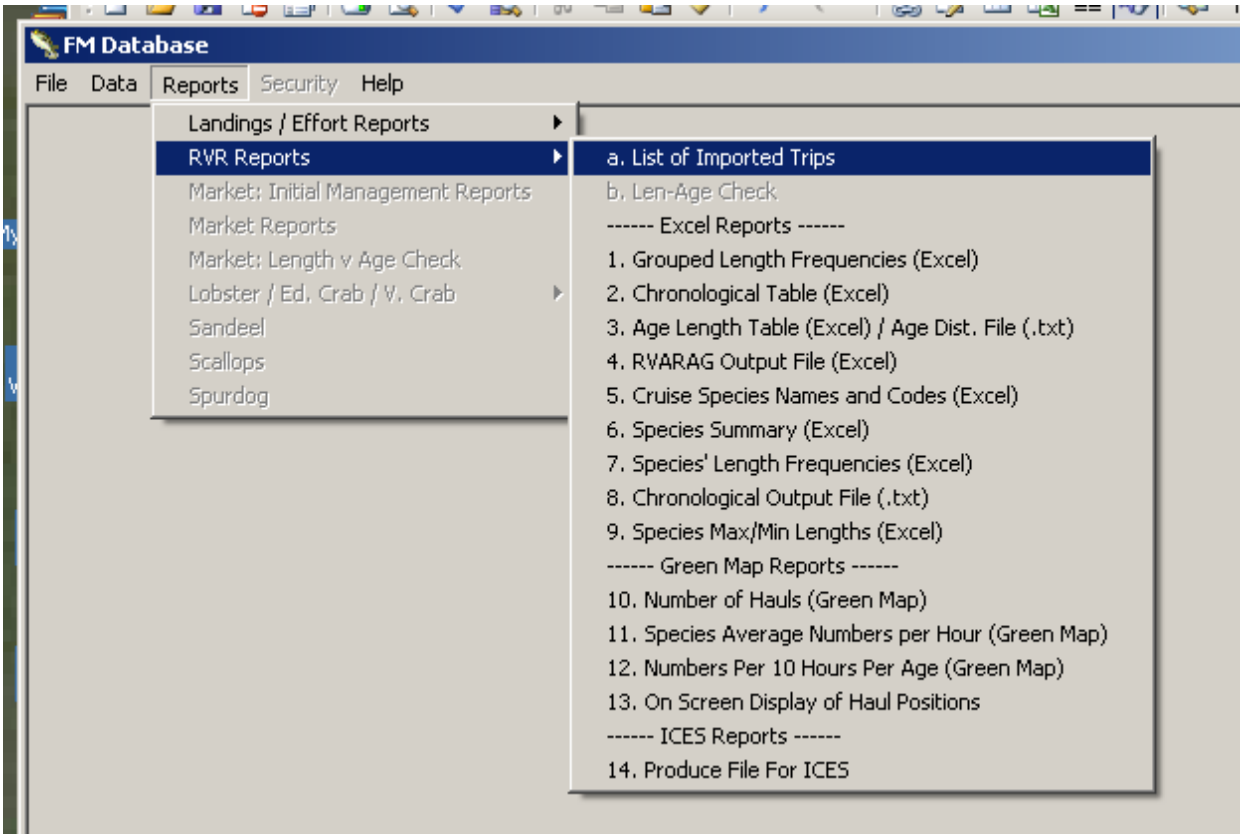


.DAT file from 1999 west coast quarter 1 survey. End of age length key data followed by maturity age length key data. Extract shows data for cod. Similar entries are included for all species which are aged & maturity staged. Each haul where the species was caught is given a header showing the haul number. The following line gives ICES statistical rectangle and this is followed by rows giving length of fish, sex, maturity stage and age. Available on west coast surveys for demersal species from 1986.

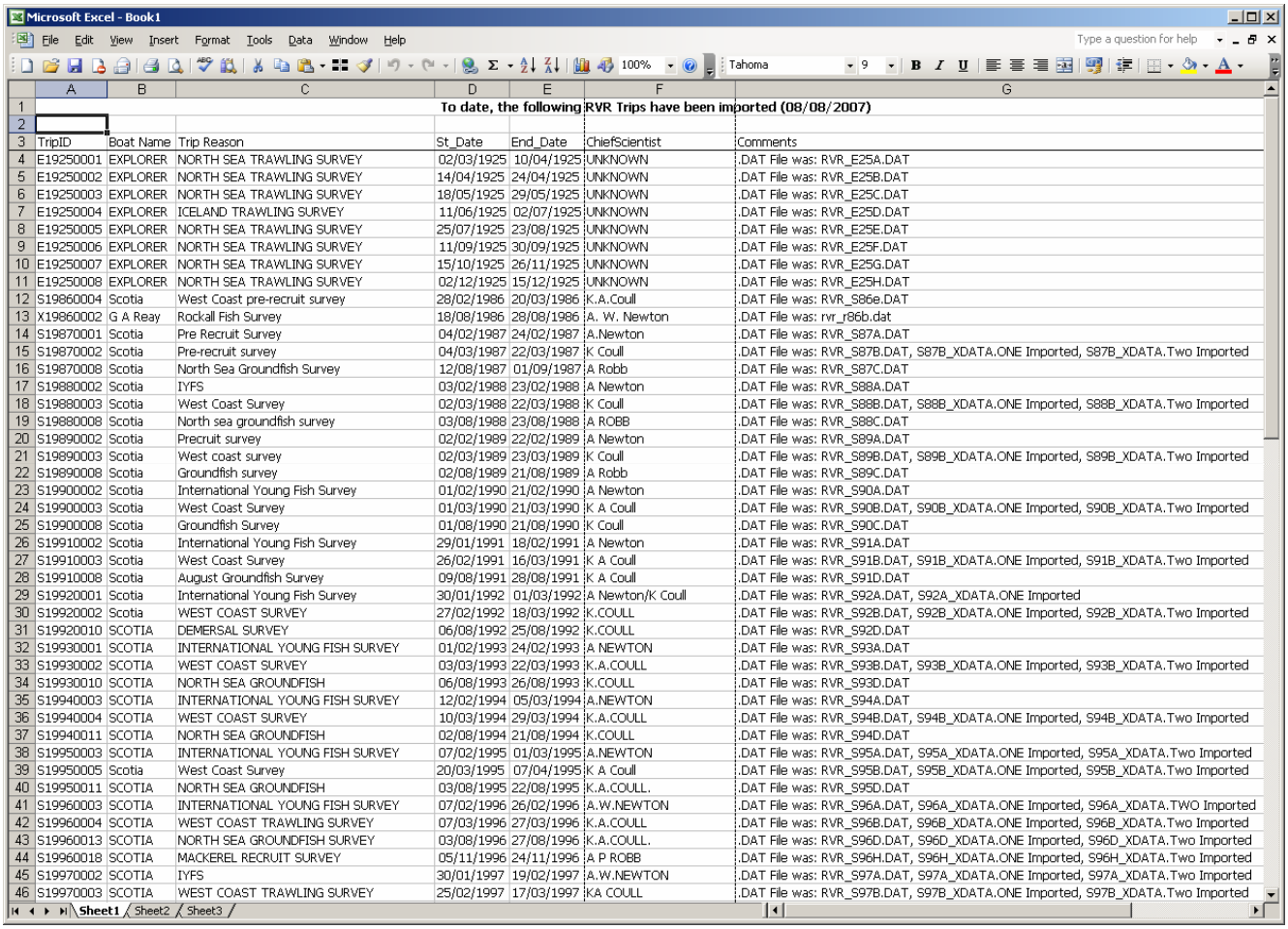


APPENDIX 2
Retrievals from FMD (RVR Reports)

Menu of possible retrievals from FMD



Option A: listing research vessel trips that have been entered into FMD. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



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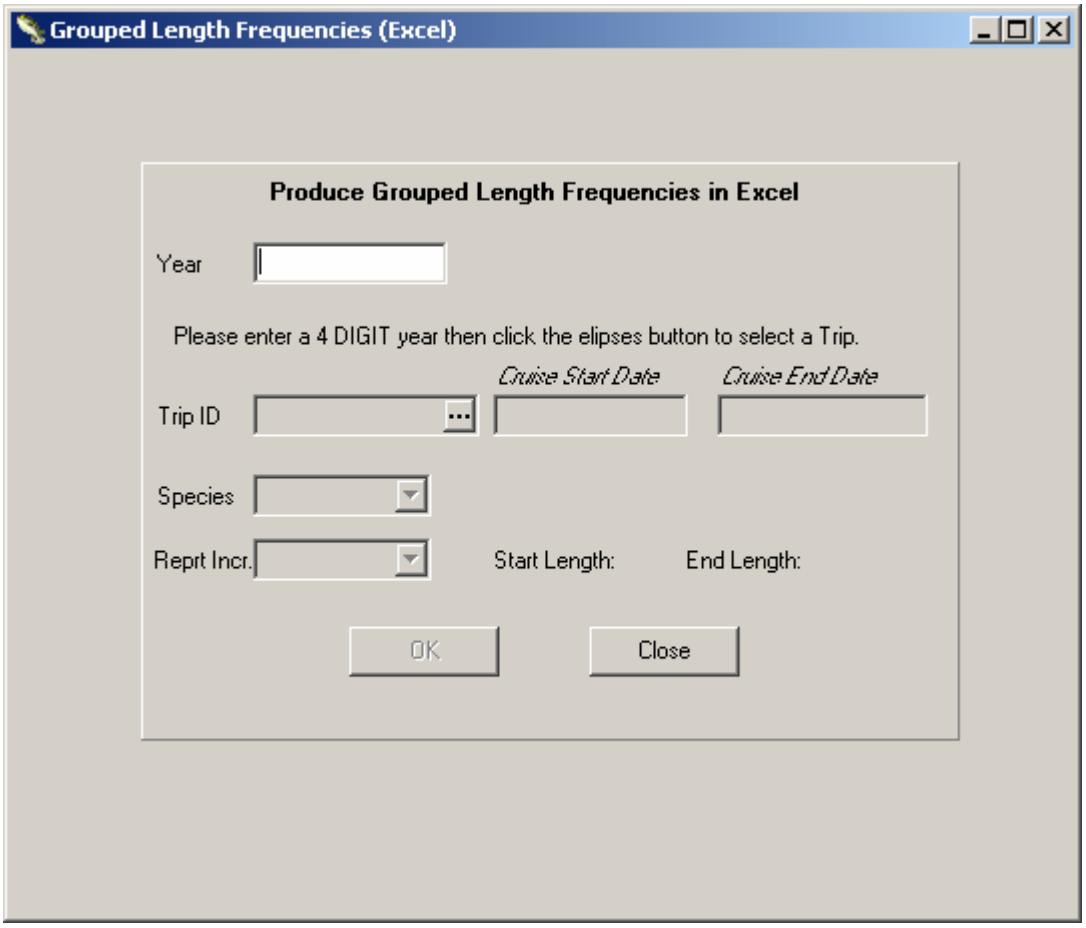
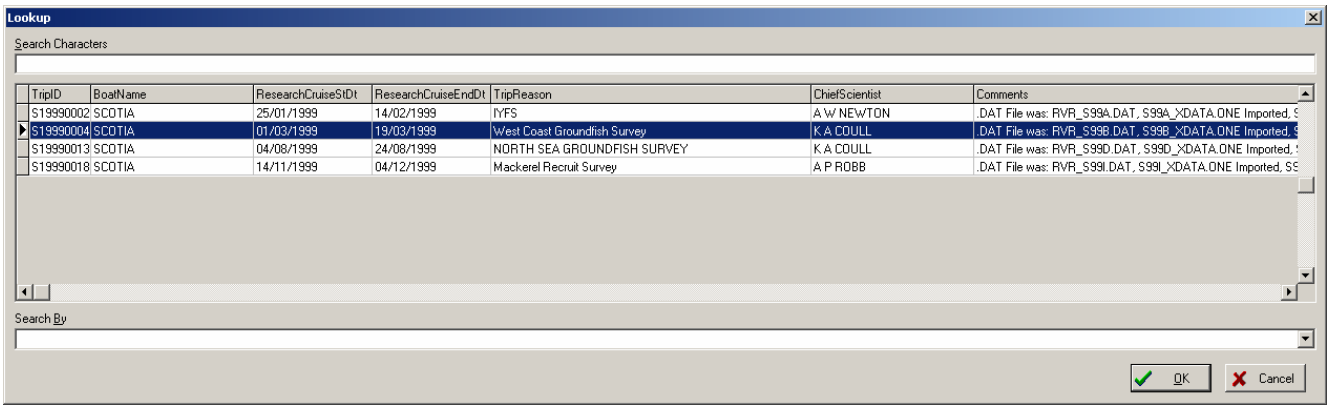
To date, the following RVR Trips have been imported (08/08/2007)

TripID	Boat Name	Trip Reason	St_Date	End_Date	ChiefScientist	Comments
E19250001	EXPLORER	NORTH SEA TRAWLING SURVEY	02/03/1925	10/04/1925	UNKNOWN	.DAT File was: RVR_E25A.DAT
E19250002	EXPLORER	NORTH SEA TRAWLING SURVEY	14/04/1925	24/04/1925	UNKNOWN	.DAT File was: RVR_E25B.DAT
E19250003	EXPLORER	NORTH SEA TRAWLING SURVEY	18/05/1925	29/05/1925	UNKNOWN	.DAT File was: RVR_E25C.DAT
E19250004	EXPLORER	ICELAND TRAWLING SURVEY	11/06/1925	02/07/1925	UNKNOWN	.DAT File was: RVR_E25D.DAT
E19250005	EXPLORER	NORTH SEA TRAWLING SURVEY	25/07/1925	23/08/1925	UNKNOWN	.DAT File was: RVR_E25E.DAT
E19250006	EXPLORER	NORTH SEA TRAWLING SURVEY	11/09/1925	30/09/1925	UNKNOWN	.DAT File was: RVR_E25F.DAT
E19250007	EXPLORER	NORTH SEA TRAWLING SURVEY	15/10/1925	26/11/1925	UNKNOWN	.DAT File was: RVR_E25G.DAT
E19250008	EXPLORER	NORTH SEA TRAWLING SURVEY	02/12/1925	15/12/1925	UNKNOWN	.DAT File was: RVR_E25H.DAT
S19860004	Scotia	West Coast pre-recruit survey	28/02/1986	20/03/1986	K.A.Coull	.DAT File was: RVR_S86e.DAT
X19860002	G A Reay	Rockall Fish Survey	18/08/1986	28/08/1986	A. W. Newton	.DAT File was: rvr_r86b.dat
S19870001	Scotia	Pre Recruit Survey	04/02/1987	24/02/1987	A.Newton	.DAT File was: RVR_S87A.DAT
S19870002	Scotia	Pre-recruit survey	04/03/1987	22/03/1987	K Coull	.DAT File was: RVR_S87B.DAT, S87B_XDATA.ONE Imported, S87B_XDATA.Two Imported
S19870008	Scotia	North Sea Groundfish Survey	12/08/1987	01/09/1987	A Robb	.DAT File was: RVR_S87C.DAT
S19880002	Scotia	IYFS	03/02/1988	23/02/1988	A Newton	.DAT File was: RVR_S88A.DAT
S19880003	Scotia	West Coast Survey	02/03/1988	22/03/1988	K Coull	.DAT File was: RVR_S88B.DAT, S88B_XDATA.ONE Imported, S88B_XDATA.Two Imported
S19880008	Scotia	North sea groundfish survey	03/08/1988	23/08/1988	A ROBB	.DAT File was: RVR_S88C.DAT
S19890002	Scotia	Precruit survey	02/02/1989	22/02/1989	A Newton	.DAT File was: RVR_S89A.DAT
S19890003	Scotia	West coast survey	02/03/1989	23/03/1989	K Coull	.DAT File was: RVR_S89B.DAT, S89B_XDATA.ONE Imported, S89B_XDATA.Two Imported
S19890008	Scotia	Groundfish survey	02/08/1989	21/08/1989	A Robb	.DAT File was: RVR_S89C.DAT
S19900002	Scotia	International Young Fish Survey	01/02/1990	21/02/1990	A Newton	.DAT File was: RVR_S90A.DAT
S19900003	Scotia	West Coast Survey	01/03/1990	21/03/1990	K A Coull	.DAT File was: RVR_S90B.DAT, S90B_XDATA.ONE Imported, S90B_XDATA.Two Imported
S19900008	Scotia	Groundfish Survey	01/08/1990	21/08/1990	K Coull	.DAT File was: RVR_S90C.DAT
S19910002	Scotia	International Young Fish Survey	29/01/1991	18/02/1991	A Newton	.DAT File was: RVR_S91A.DAT
S19910003	Scotia	West Coast Survey	26/02/1991	16/03/1991	K A Coull	.DAT File was: RVR_S91B.DAT, S91B_XDATA.ONE Imported, S91B_XDATA.Two Imported
S19910008	Scotia	August Groundfish Survey	09/08/1991	28/08/1991	K A Coull	.DAT File was: RVR_S91D.DAT
S19920001	Scotia	International Young Fish Survey	30/01/1992	01/03/1992	A Newton/K Coull	.DAT File was: RVR_S92A.DAT, S92A_XDATA.ONE Imported
S19920002	Scotia	WEST COAST SURVEY	27/02/1992	18/03/1992	K.COULL	.DAT File was: RVR_S92B.DAT, S92B_XDATA.ONE Imported, S92B_XDATA.Two Imported
S19920010	SCOTIA	DEMERSAL SURVEY	06/08/1992	25/08/1992	K.COULL	.DAT File was: RVR_S92D.DAT
S19930001	SCOTIA	INTERNATIONAL YOUNG FISH SURVEY	01/02/1993	24/02/1993	A NEWTON	.DAT File was: RVR_S93A.DAT
S19930002	SCOTIA	WEST COAST SURVEY	03/03/1993	22/03/1993	K.A.COULL	.DAT File was: RVR_S93B.DAT, S93B_XDATA.ONE Imported, S93B_XDATA.Two Imported
S19930010	SCOTIA	NORTH SEA GROUNDFISH	06/08/1993	26/08/1993	K.COULL	.DAT File was: RVR_S93D.DAT
S19940003	SCOTIA	INTERNATIONAL YOUNG FISH SURVEY	12/02/1994	05/03/1994	A.NEWTON	.DAT File was: RVR_S94A.DAT
S19940004	SCOTIA	WEST COAST SURVEY	10/03/1994	29/03/1994	K.A.COULL	.DAT File was: RVR_S94B.DAT, S94B_XDATA.ONE Imported, S94B_XDATA.Two Imported
S19940011	SCOTIA	NORTH SEA GROUNDFISH	02/08/1994	21/08/1994	K.COULL	.DAT File was: RVR_S94D.DAT
S19950003	SCOTIA	INTERNATIONAL YOUNG FISH SURVEY	07/02/1995	01/03/1995	A.NEWTON	.DAT File was: RVR_S95A.DAT, S95A_XDATA.ONE Imported, S95A_XDATA.Two Imported
S19950005	Scotia	West Coast Survey	20/03/1995	07/04/1995	K A Coull	.DAT File was: RVR_S95B.DAT, S95B_XDATA.ONE Imported, S95B_XDATA.Two Imported
S19950011	SCOTIA	NORTH SEA GROUNDFISH	03/08/1995	22/08/1995	K.A.COULL.	.DAT File was: RVR_S95D.DAT
S19960003	SCOTIA	INTERNATIONAL YOUNG FISH SURVEY	07/02/1996	26/02/1996	A.W.NEWTON	.DAT File was: RVR_S96A.DAT, S96A_XDATA.ONE Imported, S96A_XDATA.TWO Imported
S19960004	SCOTIA	WEST COAST TRAWLING SURVEY	07/03/1996	27/03/1996	K.A.COULL	.DAT File was: RVR_S96B.DAT, S96B_XDATA.ONE Imported, S96B_XDATA.Two Imported
S19960013	SCOTIA	NORTH SEA GROUNDFISH SURVEY	03/08/1996	27/08/1996	K.A.COULL.	.DAT File was: RVR_S96D.DAT, S96D_XDATA.ONE Imported, S96D_XDATA.Two Imported
S19960018	SCOTIA	MACKEREL RECRUIT SURVEY	05/11/1996	24/11/1996	A P ROBB	.DAT File was: RVR_S96H.DAT, S96H_XDATA.ONE Imported, S96H_XDATA.Two Imported
S19970002	SCOTIA	IYFS	30/01/1997	19/02/1997	A.W.NEWTON	.DAT File was: RVR_S97A.DAT, S97A_XDATA.ONE Imported, S97A_XDATA.Two Imported
S19970003	SCOTIA	WEST COAST TRAWLING SURVEY	25/02/1997	17/03/1997	KA COULL	.DAT File was: RVR_S97B.DAT, S97B_XDATA.ONE Imported, S97B_XDATA.Two Imported

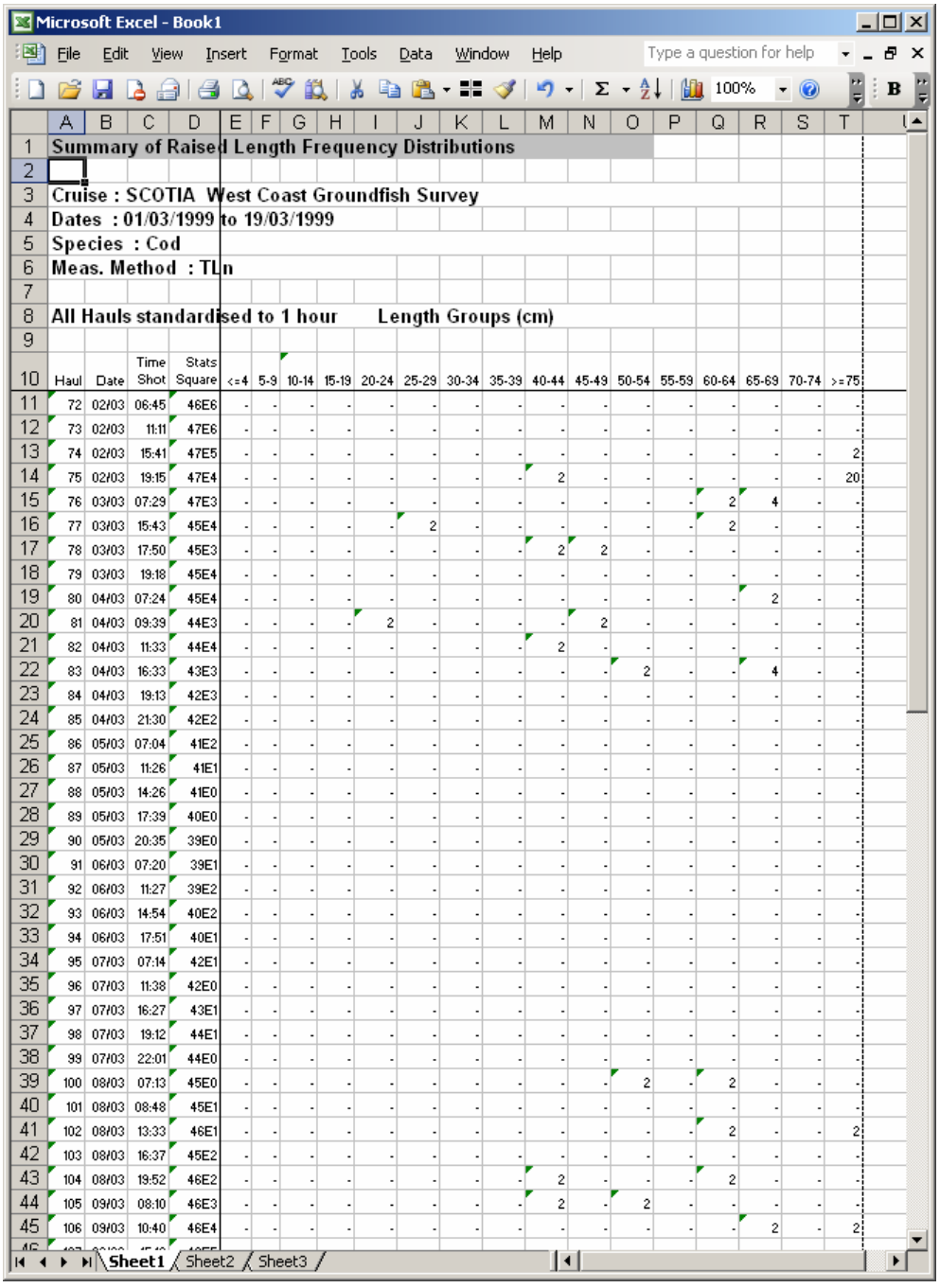
Typical pop-up to allow choice of data from specific trip (Option 1 being used in this instance)



Choices when click on elipses



Option 1: Grouped Length Frequencies. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

Summary of Raised Length Frequency Distributions

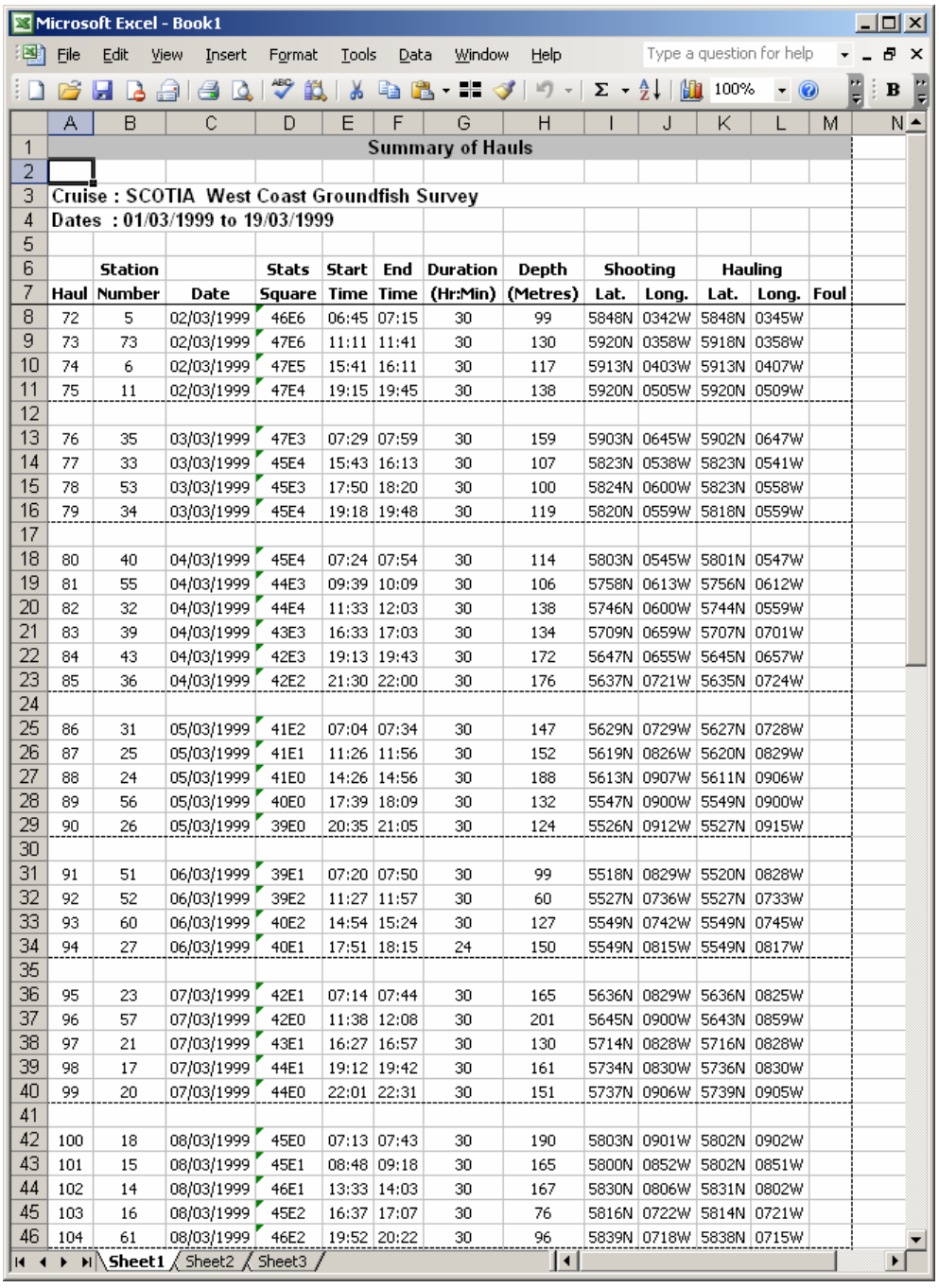
Cruise : SCOTIA West Coast Groundfish Survey
Dates : 01/03/1999 to 19/03/1999
Species : Cod
Meas. Method : TLn

All Hauls standardised to 1 hour Length Groups (cm)

Haul	Date	Time Shot	Stats Square	<=4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	>=75
72	02/03	06:45	46E6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	02/03	11:11	47E6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	02/03	15:41	47E5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
75	02/03	19:15	47E4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	20
76	03/03	07:29	47E3	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-	-
77	03/03	15:43	45E4	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-
78	03/03	17:50	45E3	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
79	03/03	19:18	45E4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	04/03	07:24	45E4	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
81	04/03	09:39	44E3	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-
82	04/03	11:33	44E4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
83	04/03	16:33	43E3	-	-	-	-	-	-	-	-	-	-	2	-	-	4	-	-
84	04/03	19:13	42E3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85	04/03	21:30	42E2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
86	05/03	07:04	41E2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
87	05/03	11:26	41E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	05/03	14:26	41E0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	05/03	17:39	40E0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	05/03	20:35	39E0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91	06/03	07:20	39E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
92	06/03	11:27	39E2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93	06/03	14:54	40E2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	06/03	17:51	40E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	07/03	07:14	42E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
96	07/03	11:38	42E0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97	07/03	16:27	43E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	07/03	19:12	44E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	07/03	22:01	44E0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	08/03	07:13	45E0	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-
101	08/03	08:48	45E1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
102	08/03	13:33	46E1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
103	08/03	16:37	45E2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	08/03	19:52	46E2	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-
105	09/03	08:10	46E3	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-
106	09/03	10:40	46E4	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2

Sheet1 Sheet2 Sheet3

Option 2: Chronological Table. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

Summary of Hauls

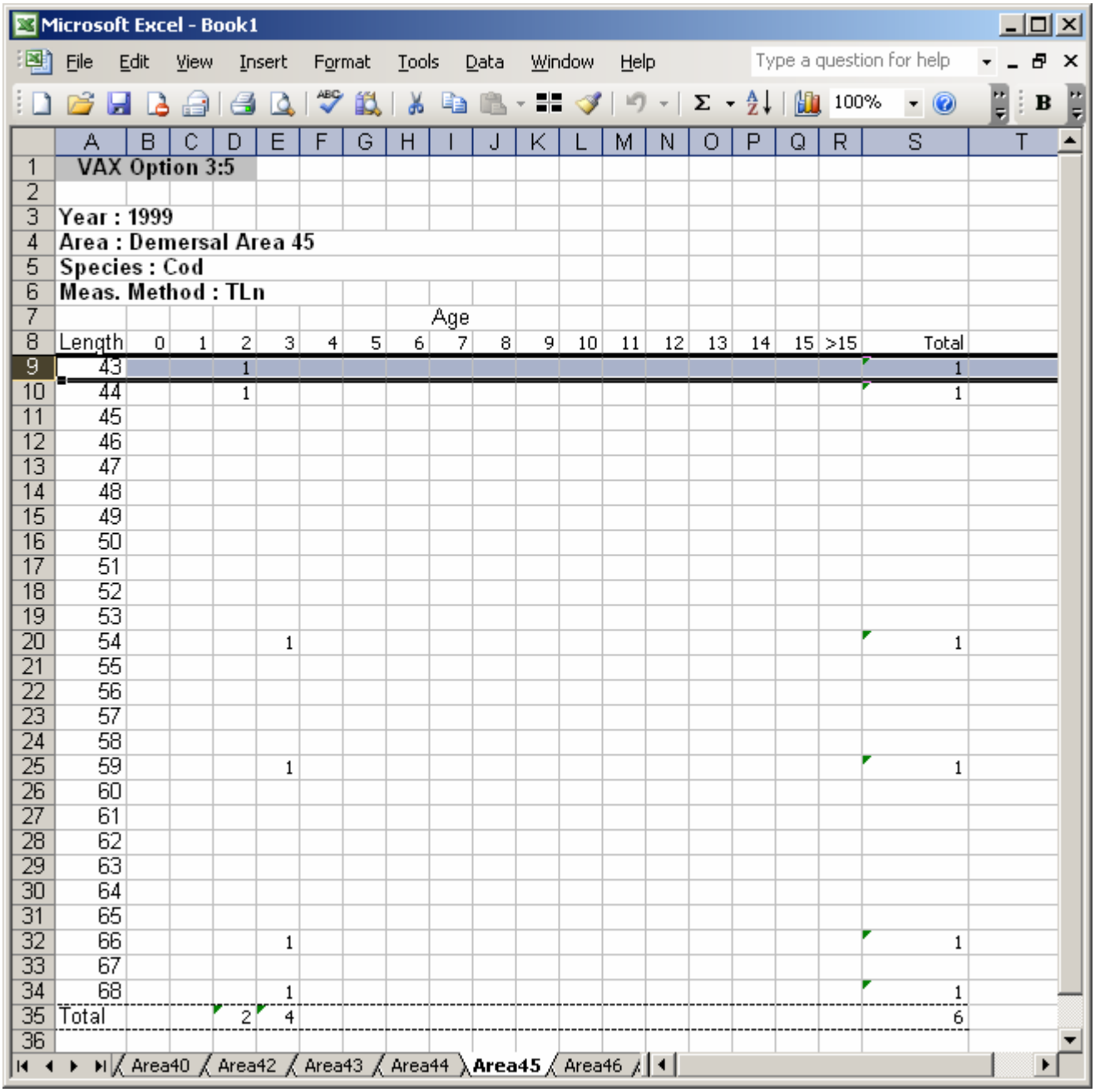
Cruise : SCOTIA West Coast Groundfish Survey

Dates : 01/03/1999 to 19/03/1999

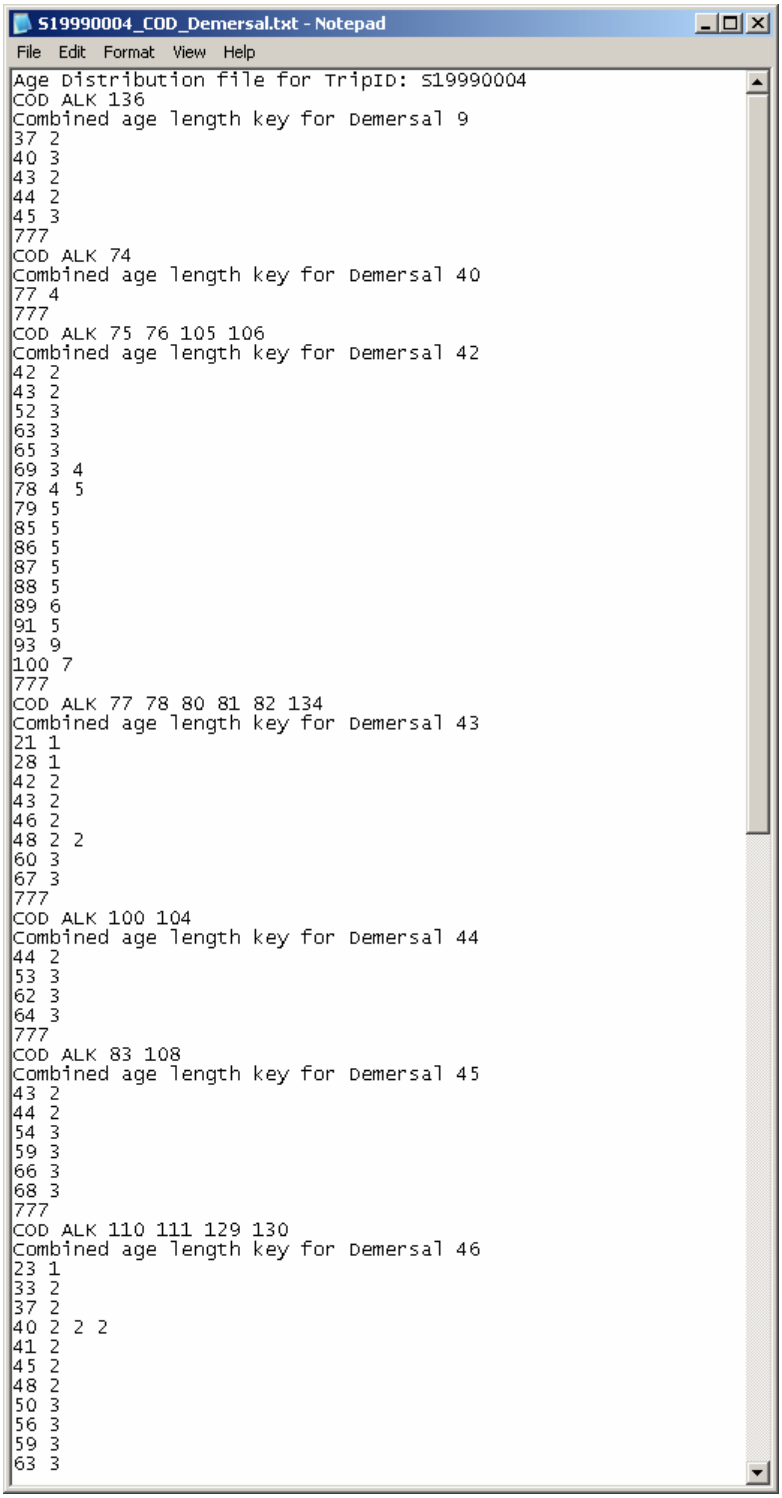
Haul	Station Number	Date	Stats Square	Start Time	End Time	Duration (Hr:Min)	Depth (Metres)	Shooting Lat.	Shooting Long.	Hauling Lat.	Hauling Long.	Foul
72	5	02/03/1999	46E6	06:45	07:15	30	99	5848N	0342W	5848N	0345W	
73	73	02/03/1999	47E6	11:11	11:41	30	130	5920N	0358W	5918N	0358W	
74	6	02/03/1999	47E5	15:41	16:11	30	117	5913N	0403W	5913N	0407W	
75	11	02/03/1999	47E4	19:15	19:45	30	138	5920N	0505W	5920N	0509W	
76	35	03/03/1999	47E3	07:29	07:59	30	159	5903N	0645W	5902N	0647W	
77	33	03/03/1999	45E4	15:43	16:13	30	107	5823N	0538W	5823N	0541W	
78	53	03/03/1999	45E3	17:50	18:20	30	100	5824N	0600W	5823N	0558W	
79	34	03/03/1999	45E4	19:18	19:48	30	119	5820N	0559W	5818N	0559W	
80	40	04/03/1999	45E4	07:24	07:54	30	114	5803N	0545W	5801N	0547W	
81	55	04/03/1999	44E3	09:39	10:09	30	106	5758N	0613W	5756N	0612W	
82	32	04/03/1999	44E4	11:33	12:03	30	138	5746N	0600W	5744N	0559W	
83	39	04/03/1999	43E3	16:33	17:03	30	134	5709N	0659W	5707N	0701W	
84	43	04/03/1999	42E3	19:13	19:43	30	172	5647N	0655W	5645N	0657W	
85	36	04/03/1999	42E2	21:30	22:00	30	176	5637N	0721W	5635N	0724W	
86	31	05/03/1999	41E2	07:04	07:34	30	147	5629N	0729W	5627N	0728W	
87	25	05/03/1999	41E1	11:26	11:56	30	152	5619N	0826W	5620N	0829W	
88	24	05/03/1999	41E0	14:26	14:56	30	188	5613N	0907W	5611N	0906W	
89	56	05/03/1999	40E0	17:39	18:09	30	132	5547N	0900W	5549N	0900W	
90	26	05/03/1999	39E0	20:35	21:05	30	124	5526N	0912W	5527N	0915W	
91	51	06/03/1999	39E1	07:20	07:50	30	99	5518N	0829W	5520N	0828W	
92	52	06/03/1999	39E2	11:27	11:57	30	60	5527N	0736W	5527N	0733W	
93	60	06/03/1999	40E2	14:54	15:24	30	127	5549N	0742W	5549N	0745W	
94	27	06/03/1999	40E1	17:51	18:15	24	150	5549N	0815W	5549N	0817W	
95	23	07/03/1999	42E1	07:14	07:44	30	165	5636N	0829W	5636N	0825W	
96	57	07/03/1999	42E0	11:38	12:08	30	201	5645N	0900W	5643N	0859W	
97	21	07/03/1999	43E1	16:27	16:57	30	130	5714N	0828W	5716N	0828W	
98	17	07/03/1999	44E1	19:12	19:42	30	161	5734N	0830W	5736N	0830W	
99	20	07/03/1999	44E0	22:01	22:31	30	151	5737N	0906W	5739N	0905W	
100	18	08/03/1999	45E0	07:13	07:43	30	190	5803N	0901W	5802N	0902W	
101	15	08/03/1999	45E1	08:48	09:18	30	165	5800N	0852W	5802N	0851W	
102	14	08/03/1999	46E1	13:33	14:03	30	167	5830N	0806W	5831N	0802W	
103	16	08/03/1999	45E2	16:37	17:07	30	76	5816N	0722W	5814N	0721W	
104	61	08/03/1999	46E2	19:52	20:22	30	96	5839N	0718W	5838N	0715W	

Sheet1 Sheet2 Sheet3

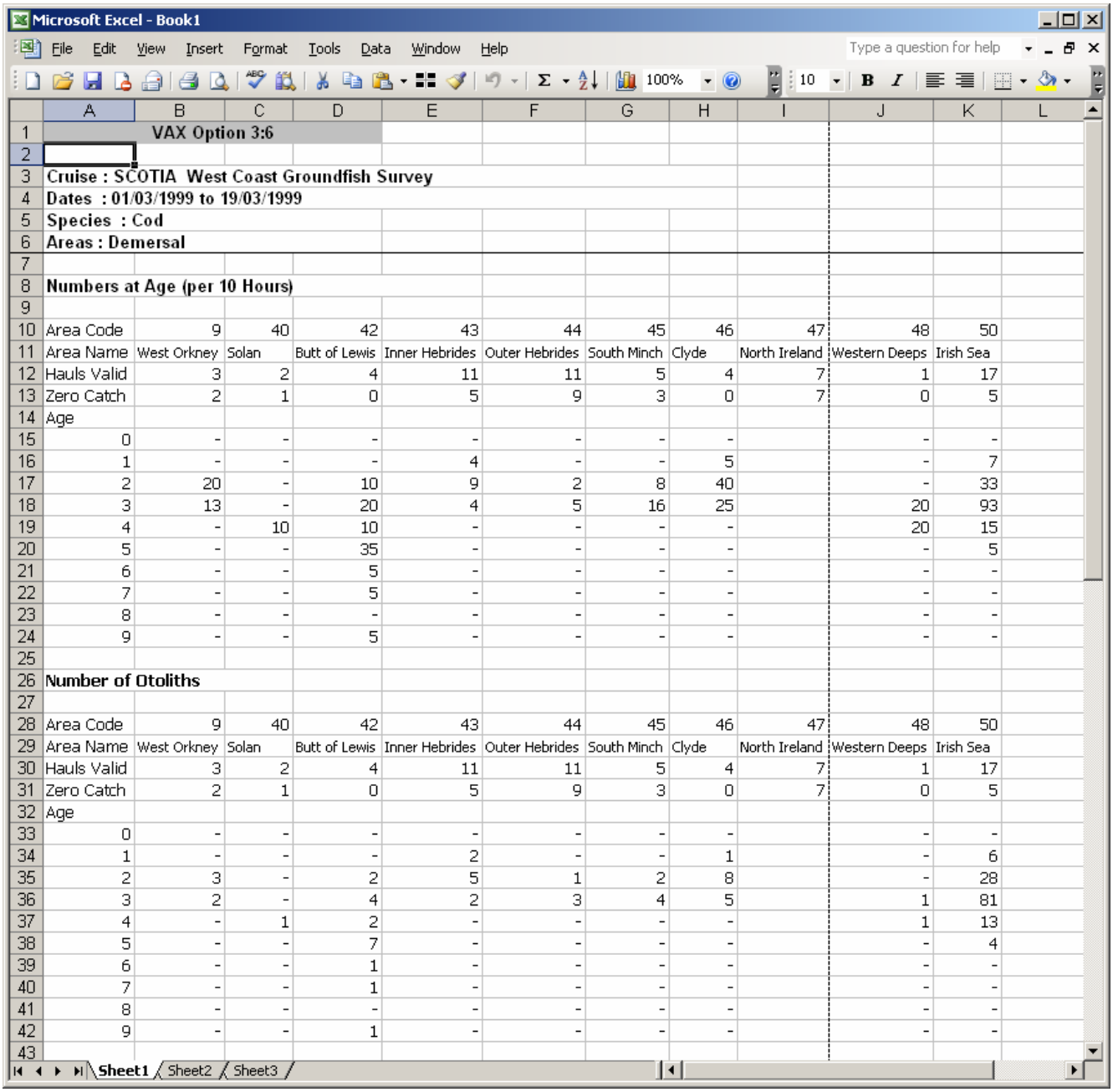
Option 3: Age Length Table (Excel). Note each demersal sampling area is represented by a different sheet. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



Option 3: Age Dist. File. Saved automatically to directory C:/FMD_Temp/RVRAgeDist. File name constructed from survey code number (the Scotia west coast groundfish survey was the forth RV cruise of 1999), chosen species and chosen areas of aggregation.
Note: whole file not shown.



Option 4: RVARAG output file; Numbers at age per 10 hours haul duration & number of otoliths taken for each demersal sampling area covered by the survey. Demersal sampling areas are identified by the row labelled “Area Code”. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



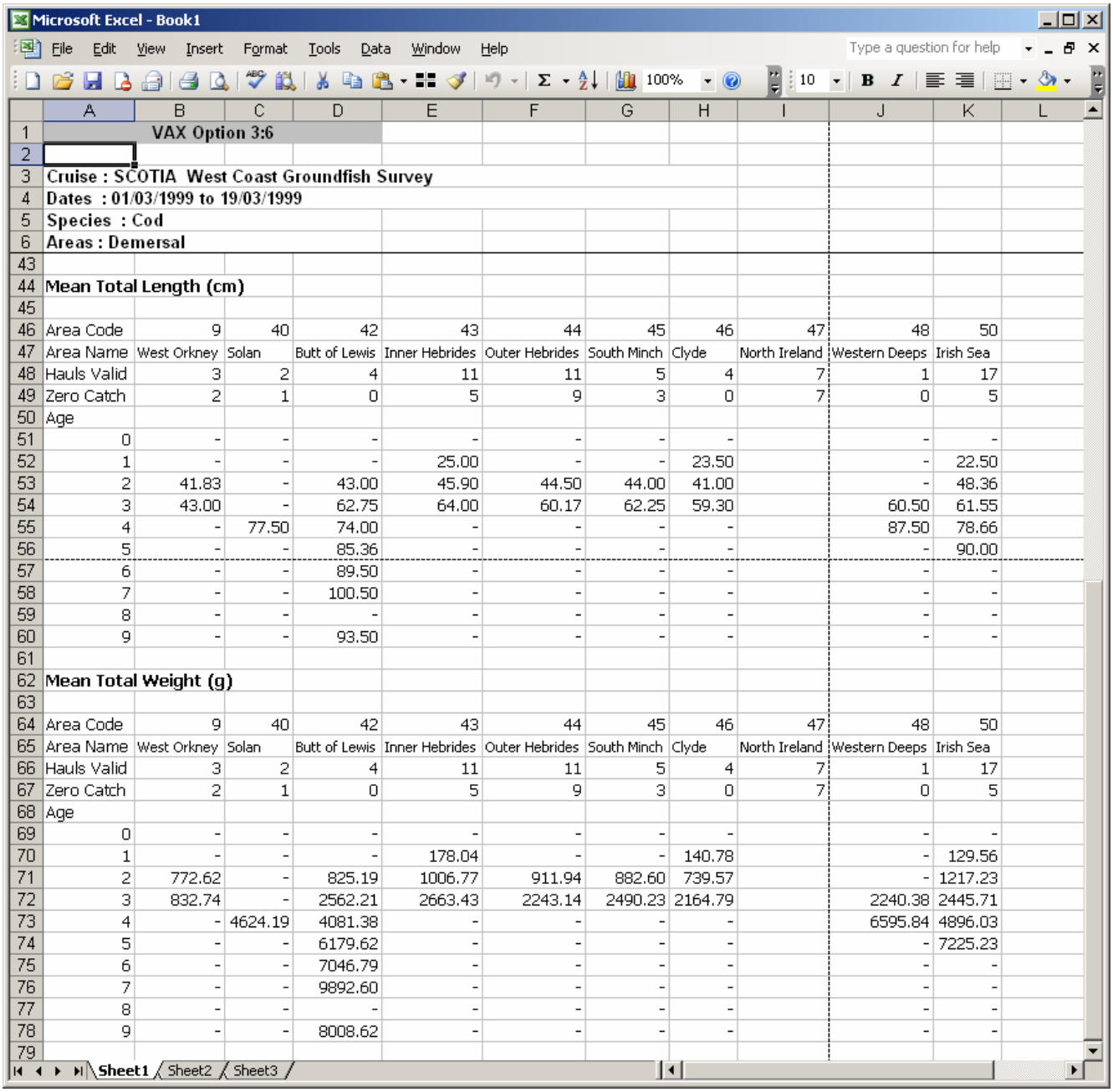
Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

	A	B	C	D	E	F	G	H	I	J	K	L
1	VAX Option 3:6											
2												
3	Cruise : SCOTIA West Coast Groundfish Survey											
4	Dates : 01/03/1999 to 19/03/1999											
5	Species : Cod											
6	Areas : Demersal											
7												
8	Numbers at Age (per 10 Hours)											
9												
10	Area Code	9	40	42	43	44	45	46	47	48	50	
11	Area Name	West Orkney	Solan	Butt of Lewis	Inner Hebrides	Outer Hebrides	South Minch	Clyde	North Ireland	Western Deeps	Irish Sea	
12	Hauls Valid	3	2	4	11	11	5	4	7	1	17	
13	Zero Catch	2	1	0	5	9	3	0	7	0	5	
14	Age											
15	0	-	-	-	-	-	-	-		-	-	
16	1	-	-	-	4	-	-	5		-	7	
17	2	20	-	10	9	2	8	40		-	33	
18	3	13	-	20	4	5	16	25		20	93	
19	4	-	10	10	-	-	-	-		20	15	
20	5	-	-	35	-	-	-	-		-	5	
21	6	-	-	5	-	-	-	-		-	-	
22	7	-	-	5	-	-	-	-		-	-	
23	8	-	-	-	-	-	-	-		-	-	
24	9	-	-	5	-	-	-	-		-	-	
25												
26	Number of Otoliths											
27												
28	Area Code	9	40	42	43	44	45	46	47	48	50	
29	Area Name	West Orkney	Solan	Butt of Lewis	Inner Hebrides	Outer Hebrides	South Minch	Clyde	North Ireland	Western Deeps	Irish Sea	
30	Hauls Valid	3	2	4	11	11	5	4	7	1	17	
31	Zero Catch	2	1	0	5	9	3	0	7	0	5	
32	Age											
33	0	-	-	-	-	-	-	-		-	-	
34	1	-	-	-	2	-	-	1		-	6	
35	2	3	-	2	5	1	2	8		-	28	
36	3	2	-	4	2	3	4	5		1	81	
37	4	-	1	2	-	-	-	-		1	13	
38	5	-	-	7	-	-	-	-		-	4	
39	6	-	-	1	-	-	-	-		-	-	
40	7	-	-	1	-	-	-	-		-	-	
41	8	-	-	-	-	-	-	-		-	-	
42	9	-	-	1	-	-	-	-		-	-	
43												

Sheet1 Sheet2 Sheet3

Option4 (cont): RVARAG output file; Mean total length (cm) and mean total weight (g) at age for each demersal sampling area covered by the survey. Demersal sampling areas are identified by the row labelled “Area Code”. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

	A	B	C	D	E	F	G	H	I	J	K	L
1	VAX Option 3:6											
2												
3	Cruise : SCOTIA West Coast Groundfish Survey											
4	Dates : 01/03/1999 to 19/03/1999											
5	Species : Cod											
6	Areas : Demersal											
43												
44	Mean Total Length (cm)											
45												
46	Area Code	9	40	42	43	44	45	46	47	48	50	
47	Area Name	West Orkney	Solan	Butt of Lewis	Inner Hebrides	Outer Hebrides	South Minch	Clyde	North Ireland	Western Deeps	Irish Sea	
48	Hauls Valid	3	2	4	11	11	5	4	7	1	17	
49	Zero Catch	2	1	0	5	9	3	0	7	0	5	
50	Age											
51	0	-	-	-	-	-	-	-		-	-	
52	1	-	-	-	25.00	-	-	23.50		-	22.50	
53	2	41.83	-	43.00	45.90	44.50	44.00	41.00		-	48.36	
54	3	43.00	-	62.75	64.00	60.17	62.25	59.30		60.50	61.55	
55	4	-	77.50	74.00	-	-	-	-		87.50	78.66	
56	5	-	-	85.36	-	-	-	-		-	90.00	
57	6	-	-	89.50	-	-	-	-		-	-	
58	7	-	-	100.50	-	-	-	-		-	-	
59	8	-	-	-	-	-	-	-		-	-	
60	9	-	-	93.50	-	-	-	-		-	-	
61												
62	Mean Total Weight (g)											
63												
64	Area Code	9	40	42	43	44	45	46	47	48	50	
65	Area Name	West Orkney	Solan	Butt of Lewis	Inner Hebrides	Outer Hebrides	South Minch	Clyde	North Ireland	Western Deeps	Irish Sea	
66	Hauls Valid	3	2	4	11	11	5	4	7	1	17	
67	Zero Catch	2	1	0	5	9	3	0	7	0	5	
68	Age											
69	0	-	-	-	-	-	-	-		-	-	
70	1	-	-	-	178.04	-	-	140.78		-	129.56	
71	2	772.62	-	825.19	1006.77	911.94	882.60	739.57		-	1217.23	
72	3	832.74	-	2562.21	2663.43	2243.14	2490.23	2164.79		2240.38	2445.71	
73	4	-	4624.19	4081.38	-	-	-	-		6595.84	4896.03	
74	5	-	-	6179.62	-	-	-	-		-	7225.23	
75	6	-	-	7046.79	-	-	-	-		-	-	
76	7	-	-	9892.60	-	-	-	-		-	-	
77	8	-	-	-	-	-	-	-		-	-	
78	9	-	-	8008.62	-	-	-	-		-	-	
79												

Sheet1 Sheet2 Sheet3

Option 5: Species caught on a cruise. Note: whole file not shown. Opens as EXCEL spreadsheet. Must be saved (and named) by user.

Microsoft Excel - S99B_opt5.xls

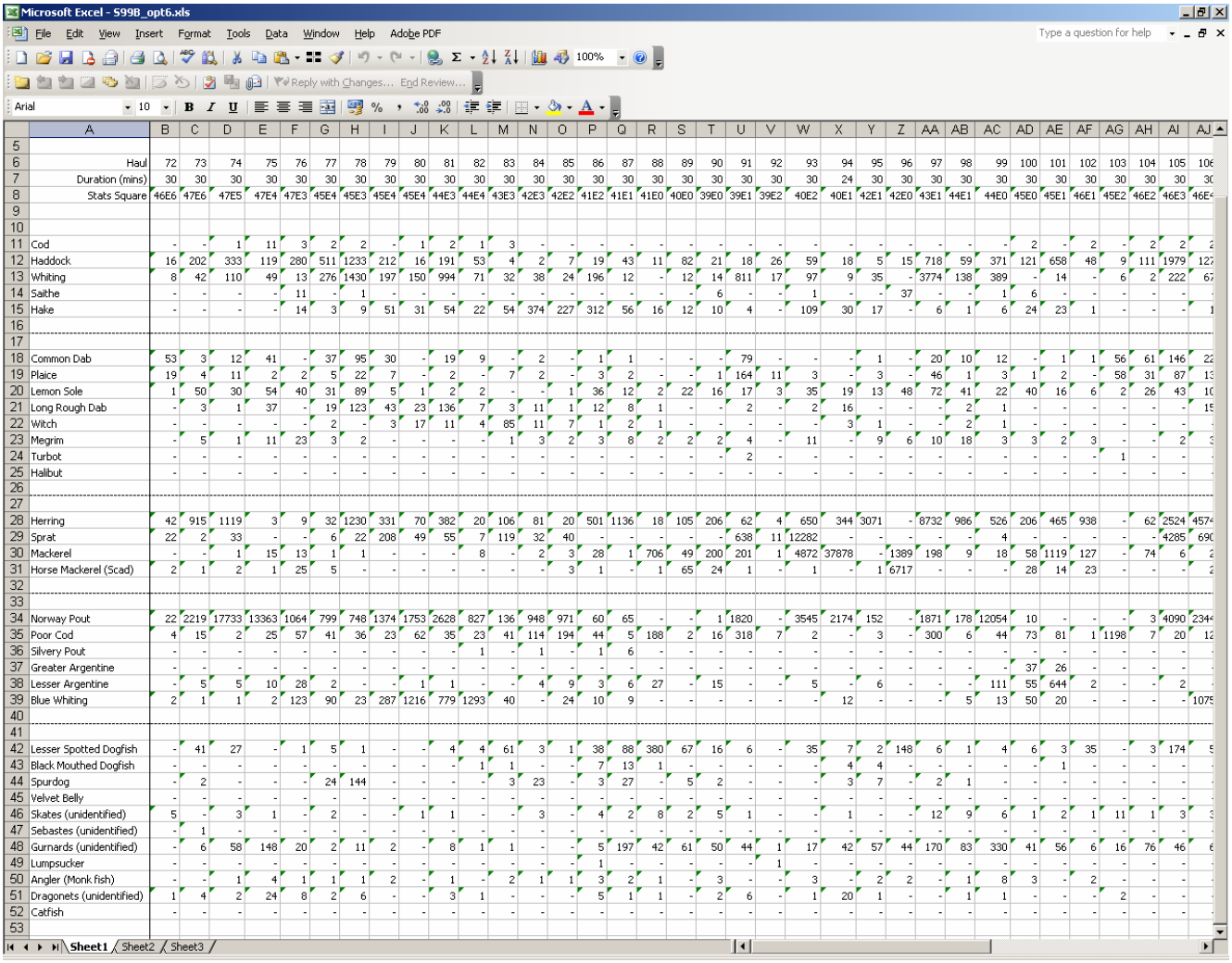
File Edit View Insert Format Tools Data Window Help Adobe PDF

Arial 10

	A	B	C	D
1	Species Found on Cruise			
2				
3	Cruise : SCOTIA West Coast Groundfish Survey			
4	Dates : 01/03/1999 to 19/03/1999			
5				
6	NODC	TSN	Latin Name	Common Name
7	57060101	82370	A. subulata	Alloteuthis
8	5706010100		Loligo	Long Finned Squid
9	5707150000	82514	Ommastrephidae	Short Finned Squid
10	6179180100	96966	Pandalus sp	Pandalus (unidentified)
11	6181010301	97317	Nephrops norvegicus	Norway Lobster
12	8708010203	160034	Galeus melastomus	Black Mouthed Dogfish
13	8708010306	160065	Scyliorhinus canicula	Lesser Spotted Dogfish
14	8708020102	160181	Galeorhinus galeus	Tope
15	8708020408	160240	Mustelus asterias	Starry Smooth Hound
16	8708020409	160242	Mustelus mustelus	Smooth Hound
17	8710010201	160617	Squalus acanthias	Spurdog
18	8713040134	564149	Amblyraja radiata	Starry Ray
19	8713040141	160883	Raja montagui	Spotted Ray
20	8713040143	564126	Dipturus batis	Skate
21	8713040148	564143	Leucoraja naevus	Cuckoo Ray
22	8713040159	160901	Raja clavata	Thornback Ray
23	8741120111	161341	Conger conger	Conger Eel
24	8747010201	161722	Clupea harengus	Herring
25	8747011701	161789	Sprattus sprattus	Sprat
26	8747020104	161831	Engraulis encrasicolus	Anchovy
27	8756010203	162064	Argentina silus	Greater Argentine
28	8756010209	162071	Argentina sphyraena	Lesser Argentine
29	8759010501	162187	Maurolicus muelleri	Pearlsides
30	8786010103	164501	Lophius piscatorius	Angler (Monk fish)
31	8786010104	164502	Lophius budegassa	Black-bellied Angler
32	8791030402	164712	Gadus morhua	Cod
33	8791030901	164727	Pollachius virens	Saithe
34	8791030902	164728	Pollachius pollachius	Lythe Pollack
35	8791031301	164744	Melanogrammus aeglefinus	Haddock
36	8791031501	164748	Rhinonemus cimbrius	Four-bearded Rockling
37	8791031602	164751	Phycis blennoides	Greater Forkbeard
38	8791031701	164754	Trisopterus minutus	Poor Cod
39	8791031702	164755	Trisopterus luscus	Bib
40	8791031703	164756	Trisopterus esmarki	Norway Pout
41	8791031801	164758	Merlangius merlangus	Whiting
42	8791031901	164760	Molva molva	Ling
43	8791032101	164772	Gadiculus argenteus thori	Silvery Pout
44	8791032201	164774	Micromesistius poutassou	Blue Whiting
45	8791040105	164795	Merluccius merluccius	Hake
46	8792020202	165116	Echiodon drummondi	Pearlfish
47	8811030301	166287	Zeus faber	John Dory
48	8811060301	166320	Capros aper	Boar Fish

Sheet1 Sheet2 Sheet3

Option 6: Summary of number of each species caught in each haul of the survey. For main species the spreadsheet includes haul duration and location (ICES statistical rectangle). Opens as EXCEL spreadsheet. Must be saved (and named) by user.

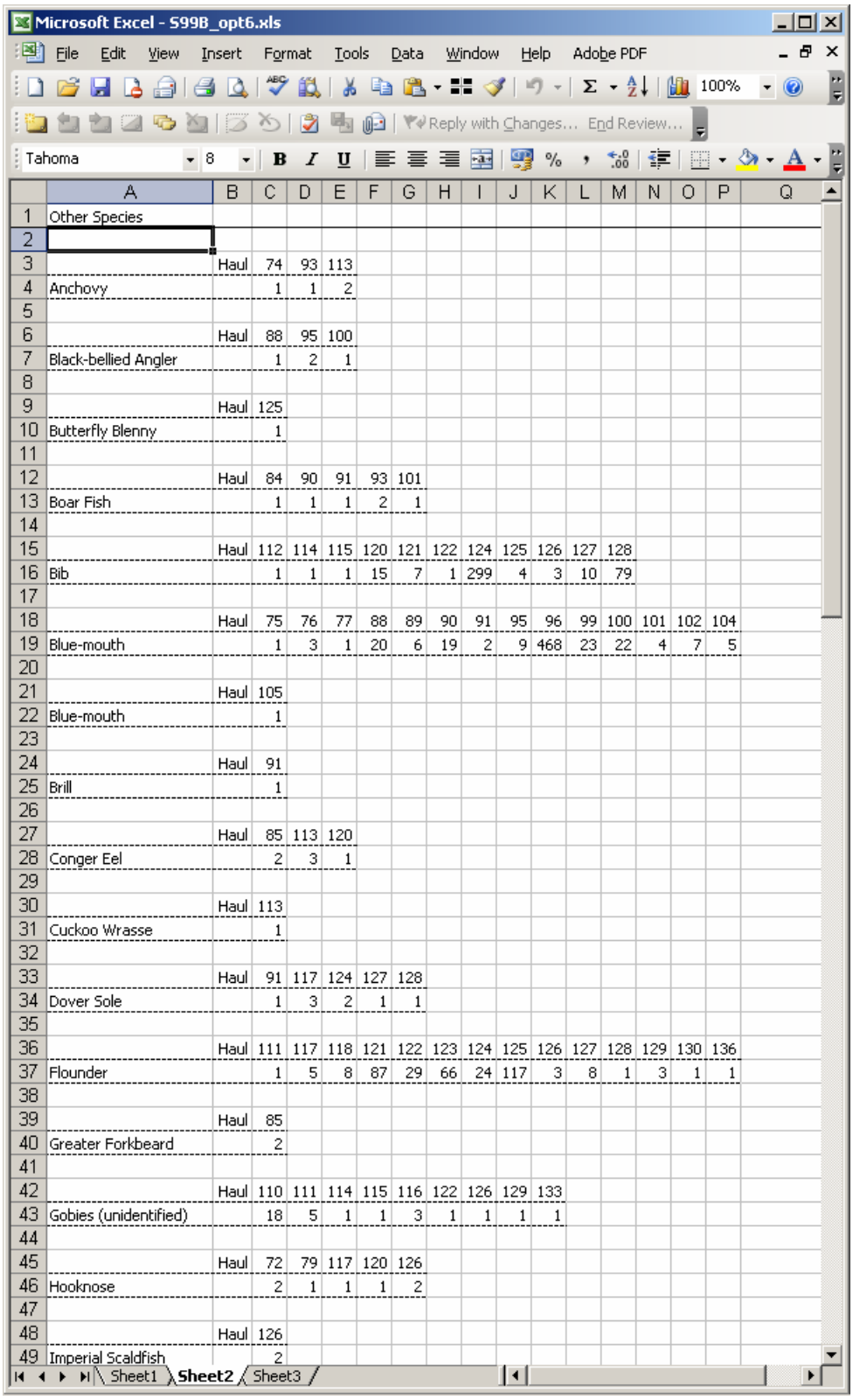


Microsoft Excel - S99B_opt6.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
5																																				
6	Haul	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106
7	Duration (mins)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	24	30	30	30	30	30	30	30	30	30	30	30	30
8	Stats Square	46E6	47E6	47E5	47E4	47E3	45E4	45E3	45E4	45E4	44E3	44E4	43E3	42E3	42E2	41E2	41E1	41E0	40E0	39E0	39E1	39E2	40E2	40E1	42E1	42E0	43E1	44E1	44E0	45E0	45E1	46E1	45E2	46E2	46E3	46E4
9																																				
10																																				
11	Cod	-	-	1	11	3	2	2	-	1	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2	2	2
12	Haddock	16	202	333	119	280	511	1233	212	16	191	53	4	2	7	19	43	11	82	21	18	26	59	18	5	15	718	59	371	121	658	48	9	111	1979	127
13	Whiting	8	42	110	49	13	276	1430	197	150	994	71	32	38	24	196	12	-	12	14	811	17	97	9	35	-	3774	138	389	-	14	-	6	2	222	67
14	Saithe	-	-	-	-	11	-	1	-	-	-	-	-	-	-	-	-	-	-	6	-	-	1	-	-	37	-	-	1	6	-	-	-	-	-	-
15	Hake	-	-	-	-	14	3	9	51	31	54	22	54	374	227	312	56	16	12	10	4	-	109	30	17	-	6	1	6	24	23	1	-	-	-	1
16																																				
17																																				
18	Common Dab	53	3	12	41	-	37	95	30	-	19	9	-	2	-	1	1	-	-	-	79	-	-	-	1	-	20	10	12	-	1	1	56	61	146	22
19	Plaice	19	4	11	2	2	5	22	7	-	2	-	7	2	-	3	2	-	-	1	164	11	3	-	3	-	46	1	3	1	2	-	58	31	87	13
20	Lemon Sole	1	50	30	54	40	31	89	5	1	2	2	-	-	1	36	12	2	22	16	17	3	35	19	13	48	72	41	22	40	16	6	2	26	43	10
21	Long Rough Dab	-	3	1	37	-	19	123	43	23	136	7	3	11	1	12	8	1	-	-	2	-	2	16	-	-	-	2	1	-	-	-	-	-	-	15
22	Witch	-	-	-	-	-	2	-	3	17	11	4	85	11	7	1	2	1	-	-	-	-	-	3	1	-	-	2	1	-	-	-	-	-	-	
23	Megrim	-	5	1	11	23	3	2	-	-	-	-	1	3	2	3	8	2	2	2	4	-	11	-	9	6	10	18	3	3	2	3	-	-	2	3
24	Turbot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	
25	Halibut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26																																				
27																																				
28	Herring	42	915	1119	3	9	32	1230	331	70	382	20	106	81	20	501	1136	18	105	206	62	4	650	344	3071	-	8732	986	526	206	465	938	-	62	2524	4574
29	Sprat	22	2	33	-	-	6	22	208	49	55	7	119	32	40	-	-	-	-	-	638	11	12282	-	-	-	-	-	4	-	-	-	-	-	4285	690
30	Mackerel	-	-	1	15	13	1	1	-	-	-	8	-	2	3	28	1	706	49	200	201	1	4872	37878	-	1389	198	9	18	58	1119	127	-	74	6	2
31	Horse Mackerel (Scad)	2	1	2	1	25	5	-	-	-	-	-	-	-	3	1	-	1	65	24	1	-	1	-	1	6717	-	-	-	28	14	23	-	-	-	2
32																																				
33																																				
34	Norway Pout	22	2219	17733	13363	1064	799	748	1374	1753	2628	827	136	948	971	60	65	-	-	1	1820	-	3545	2174	152	-	1871	178	12054	10	-	-	-	3	4090	2344
35	Poor Cod	4	15	2	25	57	41	36	23	62	35	23	41	114	194	44	5	188	2	16	318	7	2	-	3	-	300	6	44	73	81	1	1198	7	20	12
36	Silvery Pout	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
37	Greater Argentine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	26	-	-	-	-	
38	Lesser Argentine	-	5	5	10	28	2	-	-	1	1	-	-	4	9	3	6	27	-	15	-	-	5	-	6	-	-	111	55	644	2	-	-	2	-	
39	Blue Whiting	2	1	1	2	123	90	23	287	1216	779	1293	40	-	24	10	9	-	-	-	-	-	-	12	-	-	-	5	13	50	20	-	-	-	1075	
40																																				
41																																				
42	Lesser Spotted Dogfish	-	41	27	-	1	5	1	-	-	4	4	61	3	1	38	88	380	67	16	6	-	35	7	2	148	6	1	4	6	3	35	-	3	174	5
43	Black Mouthed Dogfish	-	-	-	-	-	-	-	-	-	-	1	1	-	-	7	13	1	-	-	-	-	-	4	4	-	-	-	-	-	1	-	-	-	-	
44	Spurdog	-	2	-	-	-	24	144	-	-	-	-	3	23	-	3	27	-	5	2	-	-	-	3	7	-	2	1	-	-	-	-	-	-	-	
45	Velvet Belly	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
46	Skates (unidentified)	5	-	3	1	-	2	-	-	1	1	-	-	3	-	4	2	8	2	5	1	-	-	1	-	-	12	9	6	1	2	1	11	1	3	3
47	Sebastes (unidentified)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
48	Gurnards (unidentified)	-	6	58	148	20	2	11	2	-	8	1	1	-	-	5	197	42	61	50	44	1	17	42	57	44	170	83	330	41	56	6	16	76	46	6
49	Lumpsucker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
50	Angler (Monk fish)	-	-	1	4	1	1	1	2	-	1	-	2	1	1	3	2	1	-	3	-	-	3	-	2	2	-	1	8	3	-	2	-	-	-	
51	Dragonets (unidentified)	1	4	2	24	8	2	6	-	-	3	1	-	-	-	5	1	1	-	2	6	-	1	20	1	-	-	1	1	-	-	-	2	-	-	
52	Catfish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
53																																				

Sheet1 Sheet2 Sheet3

Option 6 (cont): Summary of number of each species caught in each haul of the survey. Second sheet gives details of secondary species. Opens as EXCEL spreadsheet. Must be saved (and named) by user.



Microsoft Excel - S99B_opt6.xls

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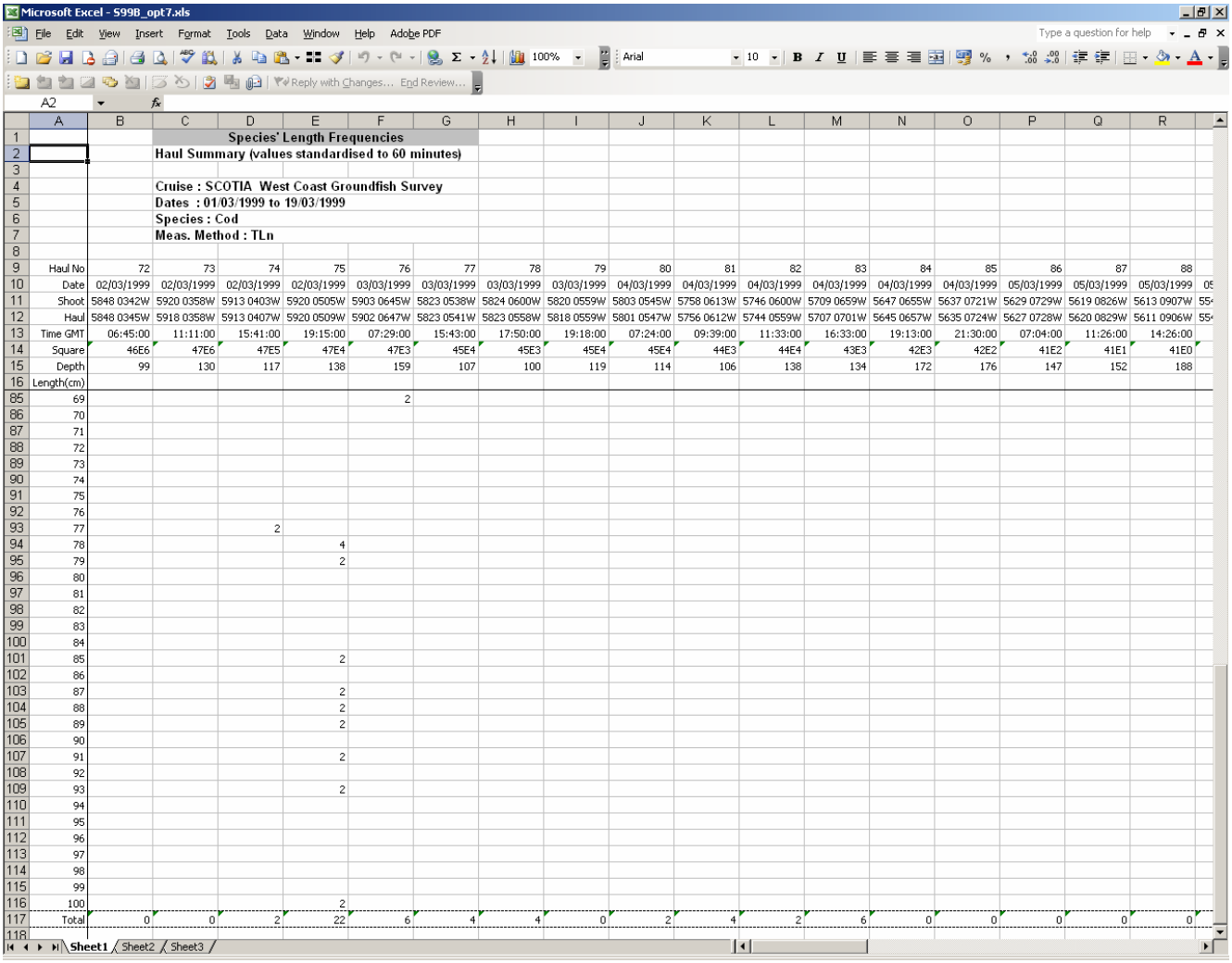
Tahoma 8

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Other Species																
2																	
3		Haul	74	93	113												
4	Anchovy		1	1	2												
5																	
6		Haul	88	95	100												
7	Black-bellied Angler		1	2	1												
8																	
9		Haul	125														
10	Butterfly Blenny		1														
11																	
12		Haul	84	90	91	93	101										
13	Boar Fish		1	1	1	2	1										
14																	
15		Haul	112	114	115	120	121	122	124	125	126	127	128				
16	Bib		1	1	1	15	7	1	299	4	3	10	79				
17																	
18		Haul	75	76	77	88	89	90	91	95	96	99	100	101	102	104	
19	Blue-mouth		1	3	1	20	6	19	2	9	468	23	22	4	7	5	
20																	
21		Haul	105														
22	Blue-mouth		1														
23																	
24		Haul	91														
25	Brill		1														
26																	
27		Haul	85	113	120												
28	Conger Eel		2	3	1												
29																	
30		Haul	113														
31	Cuckoo Wrasse		1														
32																	
33		Haul	91	117	124	127	128										
34	Dover Sole		1	3	2	1	1										
35																	
36		Haul	111	117	118	121	122	123	124	125	126	127	128	129	130	136	
37	Flounder		1	5	8	87	29	66	24	117	3	8	1	3	1	1	
38																	
39		Haul	85														
40	Greater Forkbeard		2														
41																	
42		Haul	110	111	114	115	116	122	126	129	133						
43	Gobies (unidentified)		18	5	1	1	3	1	1	1	1						
44																	
45		Haul	72	79	117	120	126										
46	Hooknose		2	1	1	1	2										
47																	
48		Haul	126														
49	Imperial Scaldfish		2														

Sheet1 Sheet2 Sheet3

Option 7: Species' Length Frequencies. User can scroll length classes while rows 1 to 16 remain fixed. Opens as EXCEL spreadsheet. Must be saved (and named) by user.

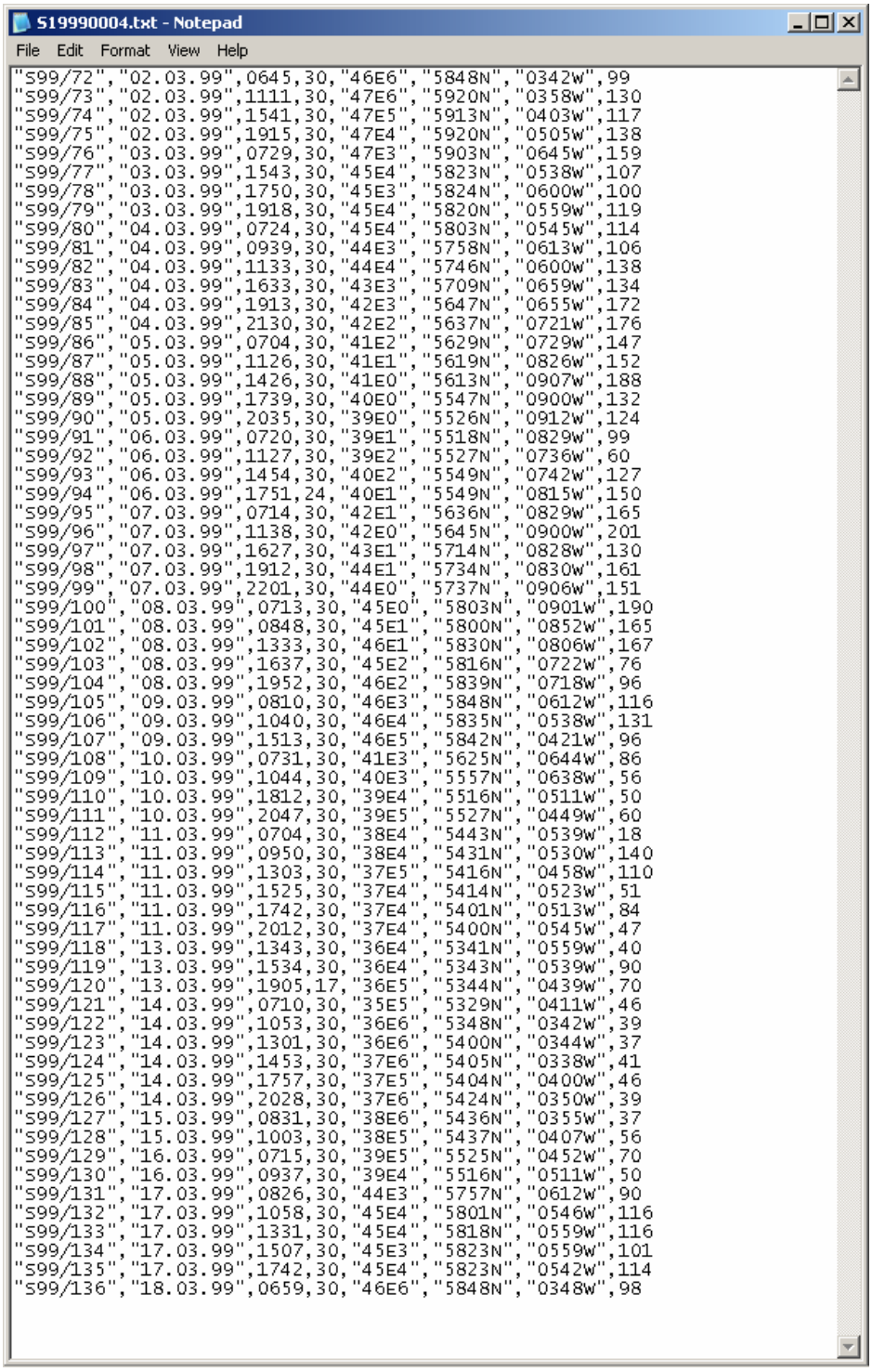


Microsoft Excel - S99B_opt7.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1			Species' Length Frequencies															
2			Haul Summary (values standardised to 60 minutes)															
3																		
4			Cruise : SCOTIA West Coast Groundfish Survey															
5			Dates : 01/03/1999 to 19/03/1999															
6			Species : Cod															
7			Meas. Method : TLn															
8																		
9	Haul No	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
10	Date	02/03/1999	02/03/1999	02/03/1999	02/03/1999	03/03/1999	03/03/1999	03/03/1999	03/03/1999	04/03/1999	04/03/1999	04/03/1999	04/03/1999	04/03/1999	04/03/1999	05/03/1999	05/03/1999	05/03/1999
11	Shoot	5848 0342W	5920 0358W	5913 0403W	5920 0505W	5903 0645W	5823 0538W	5824 0600W	5820 0559W	5803 0545W	5758 0613W	5746 0600W	5709 0659W	5647 0655W	5637 0721W	5629 0729W	5619 0826W	5613 0907W
12	Haul	5848 0345W	5918 0358W	5913 0407W	5920 0509W	5902 0647W	5823 0541W	5823 0558W	5818 0559W	5801 0547W	5756 0612W	5744 0559W	5707 0701W	5645 0657W	5635 0724W	5627 0728W	5620 0829W	5611 0906W
13	Time GMT	06:45:00	11:11:00	15:41:00	19:15:00	07:29:00	15:43:00	17:50:00	19:18:00	07:24:00	09:39:00	11:33:00	16:33:00	19:13:00	21:30:00	07:04:00	11:26:00	14:26:00
14	Square	46E6	47E6	47E5	47E4	47E3	45E4	45E3	45E4	45E4	44E3	44E4	43E3	42E3	42E2	41E2	41E1	41E0
15	Depth	99	130	117	138	159	107	100	119	114	106	138	134	172	176	147	152	188
16	Length(cm)																	
85	69					2												
86	70																	
87	71																	
88	72																	
89	73																	
90	74																	
91	75																	
92	76																	
93	77			2														
94	78				4													
95	79				2													
96	80																	
97	81																	
98	82																	
99	83																	
100	84																	
101	85				2													
102	86																	
103	87				2													
104	88				2													
105	89				2													
106	90																	
107	91				2													
108	92																	
109	93				2													
110	94																	
111	95																	
112	96																	
113	97																	
114	98																	
115	99																	
116	100				2													
117	Total	0	0	2	22	6	4	4	0	2	4	2	6	0	0	0	0	0
118																		

Sheet1 Sheet2 Sheet3

Option 8: Chronological file. Text file (.txt) automatically saved to folder C:/FMDTemp/ChronFiles/. File name constructed from survey code number (the Scotia west coast groundfish survey was the forth RV cruise of 1999). Fields (seperated by commas are code number for haul, date of haul, time of haul, haul duration, ICES statistical rectangle, latitude (haul shot), longitude (haul shot), depth.


S19990004.txt - Notepad

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"S99/72","02.03.99",0645,30,"46E6","5848N","0342w",99
"S99/73","02.03.99",1111,30,"47E6","5920N","0358w",130
"S99/74","02.03.99",1541,30,"47E5","5913N","0403w",117
"S99/75","02.03.99",1915,30,"47E4","5920N","0505w",138
"S99/76","03.03.99",0729,30,"47E3","5903N","0645w",159
"S99/77","03.03.99",1543,30,"45E4","5823N","0538w",107
"S99/78","03.03.99",1750,30,"45E3","5824N","0600w",100
"S99/79","03.03.99",1918,30,"45E4","5820N","0559w",119
"S99/80","04.03.99",0724,30,"45E4","5803N","0545w",114
"S99/81","04.03.99",0939,30,"44E3","5758N","0613w",106
"S99/82","04.03.99",1133,30,"44E4","5746N","0600w",138
"S99/83","04.03.99",1633,30,"43E3","5709N","0659w",134
"S99/84","04.03.99",1913,30,"42E3","5647N","0655w",172
"S99/85","04.03.99",2130,30,"42E2","5637N","0721w",176
"S99/86","05.03.99",0704,30,"41E2","5629N","0729w",147
"S99/87","05.03.99",1126,30,"41E1","5619N","0826w",152
"S99/88","05.03.99",1426,30,"41E0","5613N","0907w",188
"S99/89","05.03.99",1739,30,"40E0","5547N","0900w",132
"S99/90","05.03.99",2035,30,"39E0","5526N","0912w",124
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"S99/93","06.03.99",1454,30,"40E2","5549N","0742w",127
"S99/94","06.03.99",1751,24,"40E1","5549N","0815w",150
"S99/95","07.03.99",0714,30,"42E1","5636N","0829w",165
"S99/96","07.03.99",1138,30,"42E0","5645N","0900w",201
"S99/97","07.03.99",1627,30,"43E1","5714N","0828w",130
"S99/98","07.03.99",1912,30,"44E1","5734N","0830w",161
"S99/99","07.03.99",2201,30,"44E0","5737N","0906w",151
"S99/100","08.03.99",0713,30,"45E0","5803N","0901w",190
"S99/101","08.03.99",0848,30,"45E1","5800N","0852w",165
"S99/102","08.03.99",1333,30,"46E1","5830N","0806w",167
"S99/103","08.03.99",1637,30,"45E2","5816N","0722w",76
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"S99/118","13.03.99",1343,30,"36E4","5341N","0559w",40
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"S99/121","14.03.99",0710,30,"35E5","5329N","0411w",46
"S99/122","14.03.99",1053,30,"36E6","5348N","0342w",39
"S99/123","14.03.99",1301,30,"36E6","5400N","0344w",37
"S99/124","14.03.99",1453,30,"37E6","5405N","0338w",41
"S99/125","14.03.99",1757,30,"37E5","5404N","0400w",46
"S99/126","14.03.99",2028,30,"37E6","5424N","0350w",39
"S99/127","15.03.99",0831,30,"38E6","5436N","0355w",37
"S99/128","15.03.99",1003,30,"38E5","5437N","0407w",56
"S99/129","16.03.99",0715,30,"39E5","5525N","0452w",70
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"S99/131","17.03.99",0826,30,"44E3","5757N","0612w",90
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"S99/133","17.03.99",1331,30,"45E4","5818N","0559w",116
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"S99/135","17.03.99",1742,30,"45E4","5823N","0542w",114
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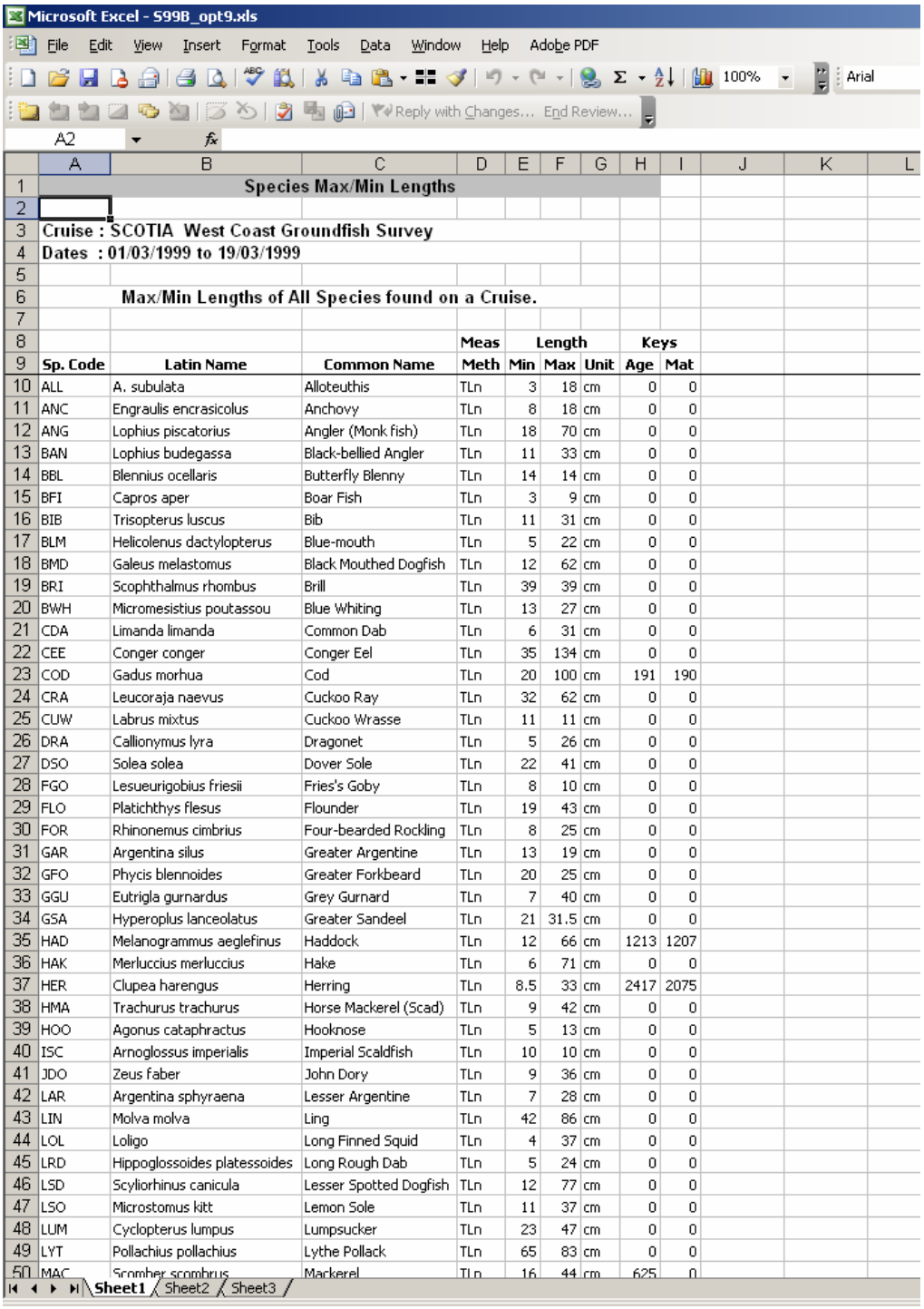
```

Option 9: Species Minimum and maximum lengths. FMD Species Codes can differ from FAO codes (as used in UK govt. FIN database). Measurement methods can be TLn ≡ Total Length; CLn ≡ Carapace Length; CWi ≡ Carapace Width; PoA ≡ Post-anal Length; PrA ≡ Pre-anal Fin Length; PSC ≡ Pre-supra Caudal Fin Len; SDF ≡ 2nd Dorsal Fin Length; SLn ≡ Standard Length; TWi ≡ Tail Width; Wid ≡ Width; WSp ≡ Wing Span. Keys, Age ≡ Number of fish aged; Keys, Mat ≡ Number of fish staged for maturity. Opens as EXCEL spreadsheet. Must be saved (and named) by user.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A2

Species Max/Min Lengths

Cruise : SCOTIA West Coast Groundfish Survey

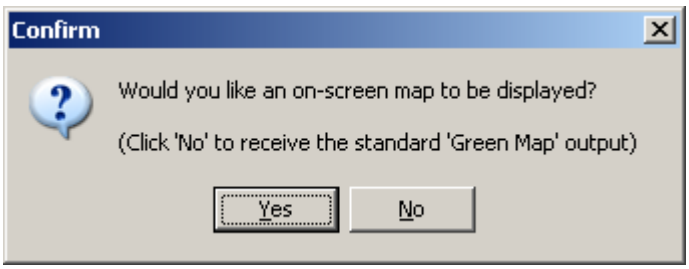
Dates : 01/03/1999 to 19/03/1999

Max/Min Lengths of All Species found on a Cruise.

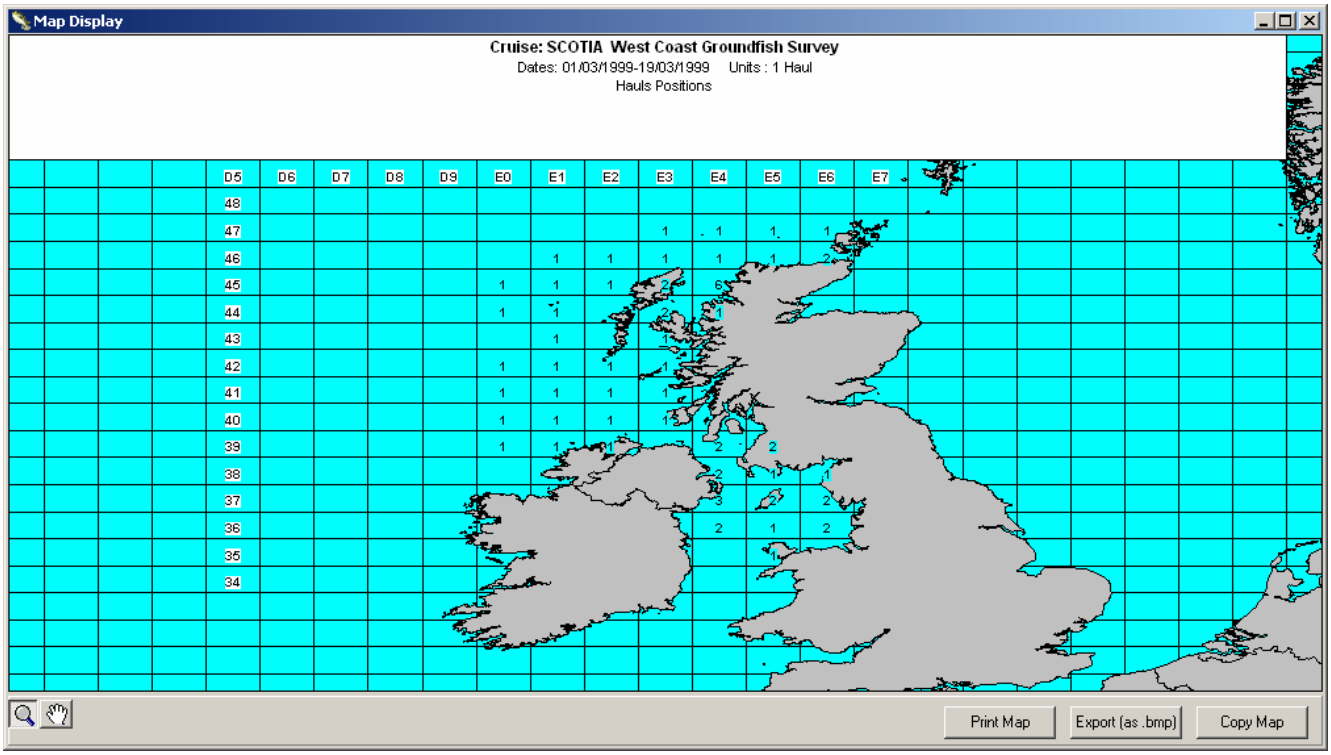
				Meas	Length			Keys	
	Sp. Code	Latin Name	Common Name	Meth	Min	Max	Unit	Age	Mat
10	ALL	A. subulata	Alloteuthis	TLn	3	18	cm	0	0
11	ANC	Engraulis encrasicolus	Anchovy	TLn	8	18	cm	0	0
12	ANG	Lophius piscatorius	Angler (Monk fish)	TLn	18	70	cm	0	0
13	BAN	Lophius budegassa	Black-bellied Angler	TLn	11	33	cm	0	0
14	BBL	Blennius ocellaris	Butterfly Blenny	TLn	14	14	cm	0	0
15	BFI	Capros aper	Boar Fish	TLn	3	9	cm	0	0
16	BIB	Trisopterus luscus	Bib	TLn	11	31	cm	0	0
17	BLM	Helicolenus dactylopterus	Blue-mouth	TLn	5	22	cm	0	0
18	BMD	Galeus melastomus	Black Mouthed Dogfish	TLn	12	62	cm	0	0
19	BRI	Scophthalmus rhombus	Brill	TLn	39	39	cm	0	0
20	BWH	Micromesistius poutassou	Blue Whiting	TLn	13	27	cm	0	0
21	CDA	Limanda limanda	Common Dab	TLn	6	31	cm	0	0
22	CEE	Conger conger	Conger Eel	TLn	35	134	cm	0	0
23	COD	Gadus morhua	Cod	TLn	20	100	cm	191	190
24	CRA	Leucoraja naevus	Cuckoo Ray	TLn	32	62	cm	0	0
25	CUW	Labrus mixtus	Cuckoo Wrasse	TLn	11	11	cm	0	0
26	DRA	Callionymus lyra	Dragonet	TLn	5	26	cm	0	0
27	DSO	Solea solea	Dover Sole	TLn	22	41	cm	0	0
28	FGO	Lesueurigobius friesii	Fries's Goby	TLn	8	10	cm	0	0
29	FLO	Platichthys flesus	Flounder	TLn	19	43	cm	0	0
30	FOR	Rhinonemus cimbrius	Four-bearded Rockling	TLn	8	25	cm	0	0
31	GAR	Argentina silus	Greater Argentine	TLn	13	19	cm	0	0
32	GFO	Phycis blennoides	Greater Forkbeard	TLn	20	25	cm	0	0
33	GGU	Eutrigla gurnardus	Grey Gurnard	TLn	7	40	cm	0	0
34	GSA	Hyperoplus lanceolatus	Greater Sandeel	TLn	21	31.5	cm	0	0
35	HAD	Melanogrammus aeglefinus	Haddock	TLn	12	66	cm	1213	1207
36	HAK	Merluccius merluccius	Hake	TLn	6	71	cm	0	0
37	HER	Clupea harengus	Herring	TLn	8.5	33	cm	2417	2075
38	HMA	Trachurus trachurus	Horse Mackerel (Scad)	TLn	9	42	cm	0	0
39	HOO	Agonus cataphractus	Hooknose	TLn	5	13	cm	0	0
40	ISC	Arnoglossus imperialis	Imperial Scaldfish	TLn	10	10	cm	0	0
41	JDO	Zeus faber	John Dory	TLn	9	36	cm	0	0
42	LAR	Argentina sphyraena	Lesser Argentine	TLn	7	28	cm	0	0
43	LIN	Molva molva	Ling	TLn	42	86	cm	0	0
44	LOL	Loligo	Long Finned Squid	TLn	4	37	cm	0	0
45	LRD	Hippoglossoides platessoides	Long Rough Dab	TLn	5	24	cm	0	0
46	LSD	Scyliorhinus canicula	Lesser Spotted Dogfish	TLn	12	77	cm	0	0
47	LSO	Microstomus kitt	Lemon Sole	TLn	11	37	cm	0	0
48	LUM	Cyclopterus lumpus	Lumpsucker	TLn	23	47	cm	0	0
49	LYT	Pollachius pollachius	Lythe Pollack	TLn	65	83	cm	0	0
50	MAC	Scomber scombrus	Mackerel	TLn	16	44	cm	625	0

Sheet1 Sheet2 Sheet3

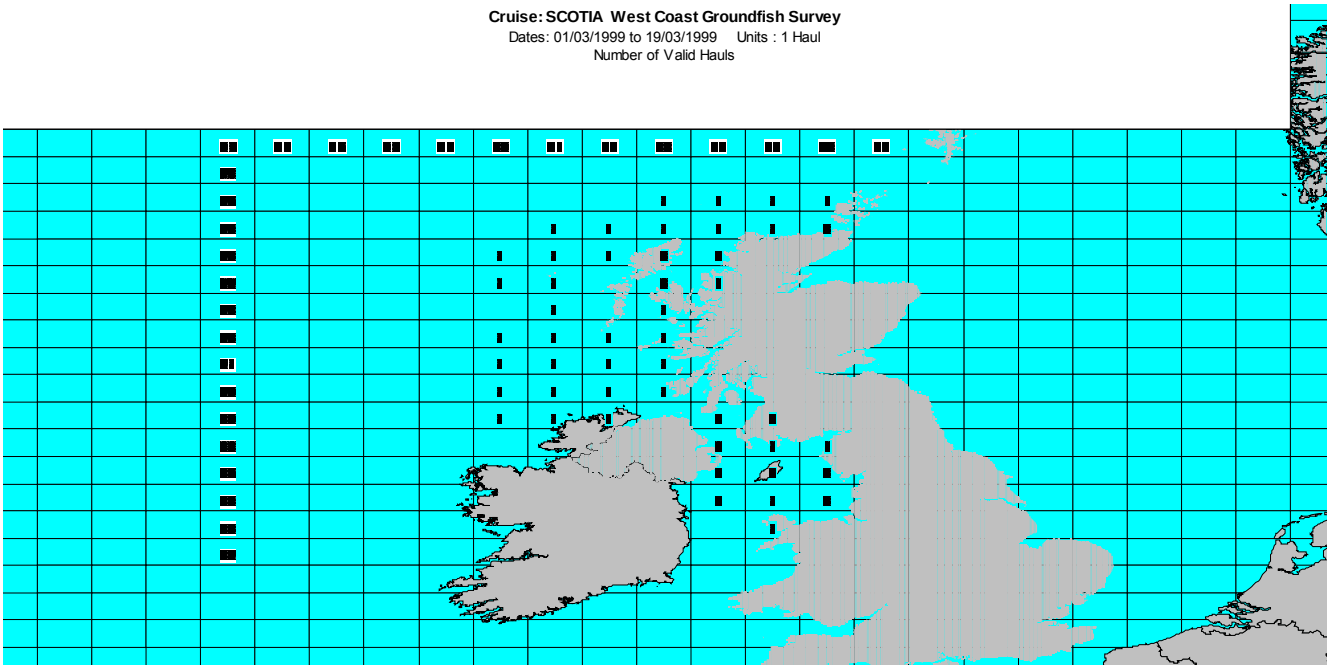
Options 10, 11 and 13: After chosing survey the following option is displayed. ‘Green Map’ output requires specialist paper (ready printed with map of UK and ICES statistical rectangles in surrounding waters… …in green). Successful printing is dependent on the setup of the printer. It is recommended to accept the on-screen map display. It is possible to copy and paste the map report produced into Word or export the map report as a .bmp file. The latter can be edited in Microsoft 'Paint'. FMD users are not automatically able to produce these on-screen maps, dll files must be installed first. Option 13 is the same as option 10 if the on-screen map is selected with the former option.



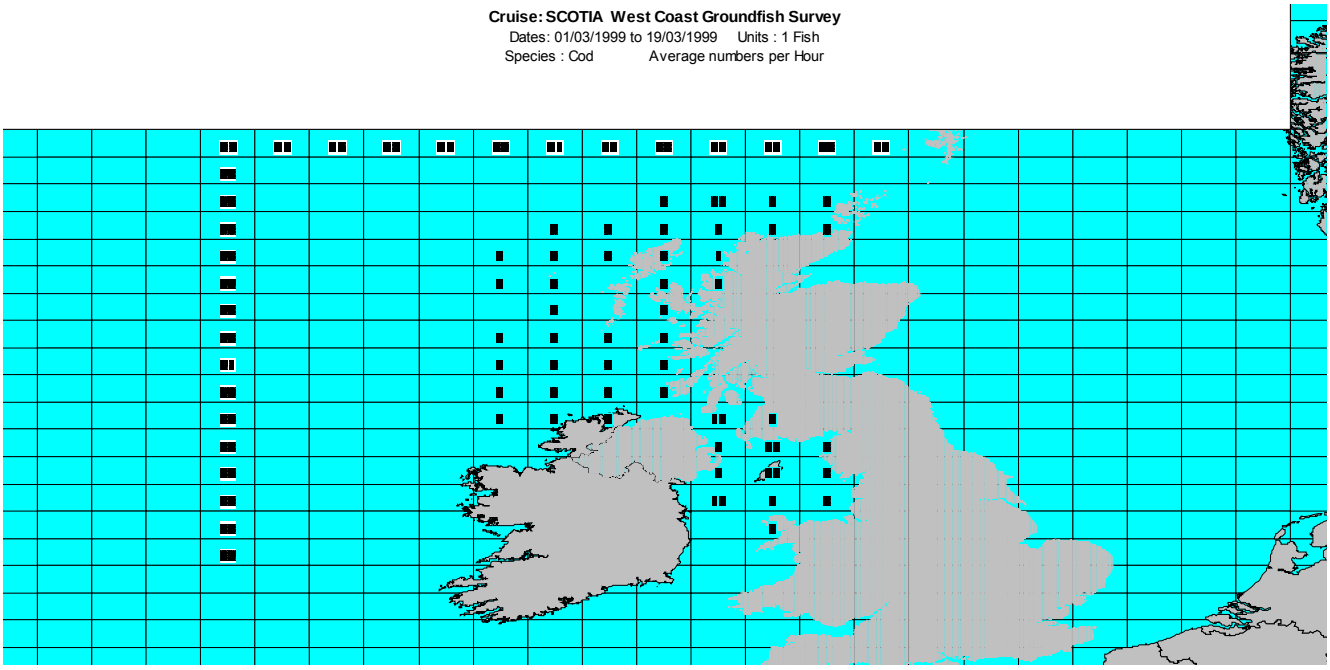
Option 10: Number of hauls by ICES statistical rectangle.



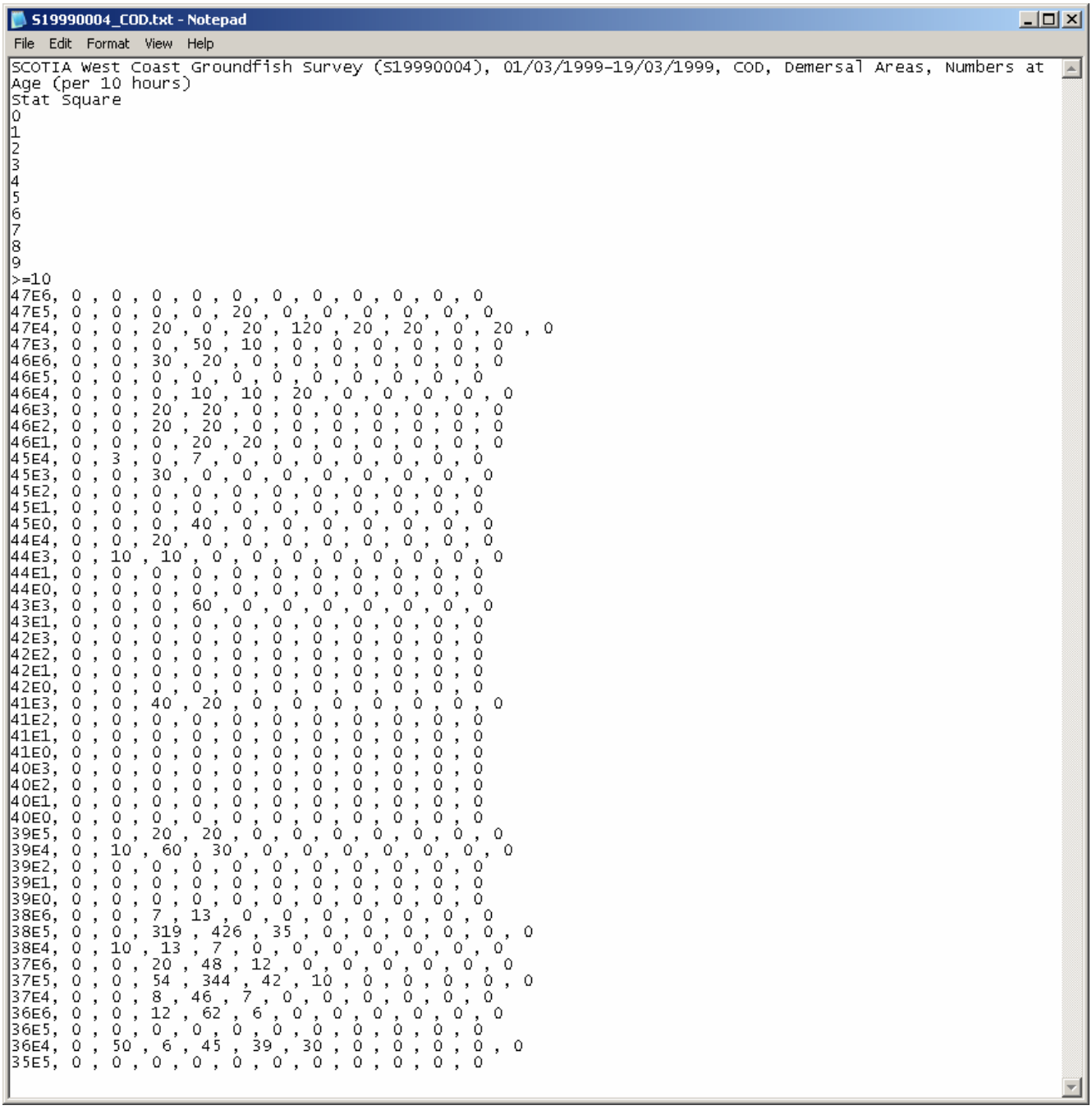
Result of using “Copy Map” button and pasting into Microsoft Word document.



Option 11: Average CPUE (one hour trawl) over all ages by ICES statistical rectangle.
Result of using copy button and pasting into Microsoft Word document.



Option 12: Number at age by haul for a chosen species. Text file (.txt) automatically saved to folder C:/FMDTemp/NumAtEachAge/. File name constructed from survey code number (the Scotia west coast groundfish survey was the forth RV cruise of 1999) and chosen species. User asked to specify 'End Age'. Numbers at age will be output for each age up to and including the end age, together with the number of fish at all older ages.

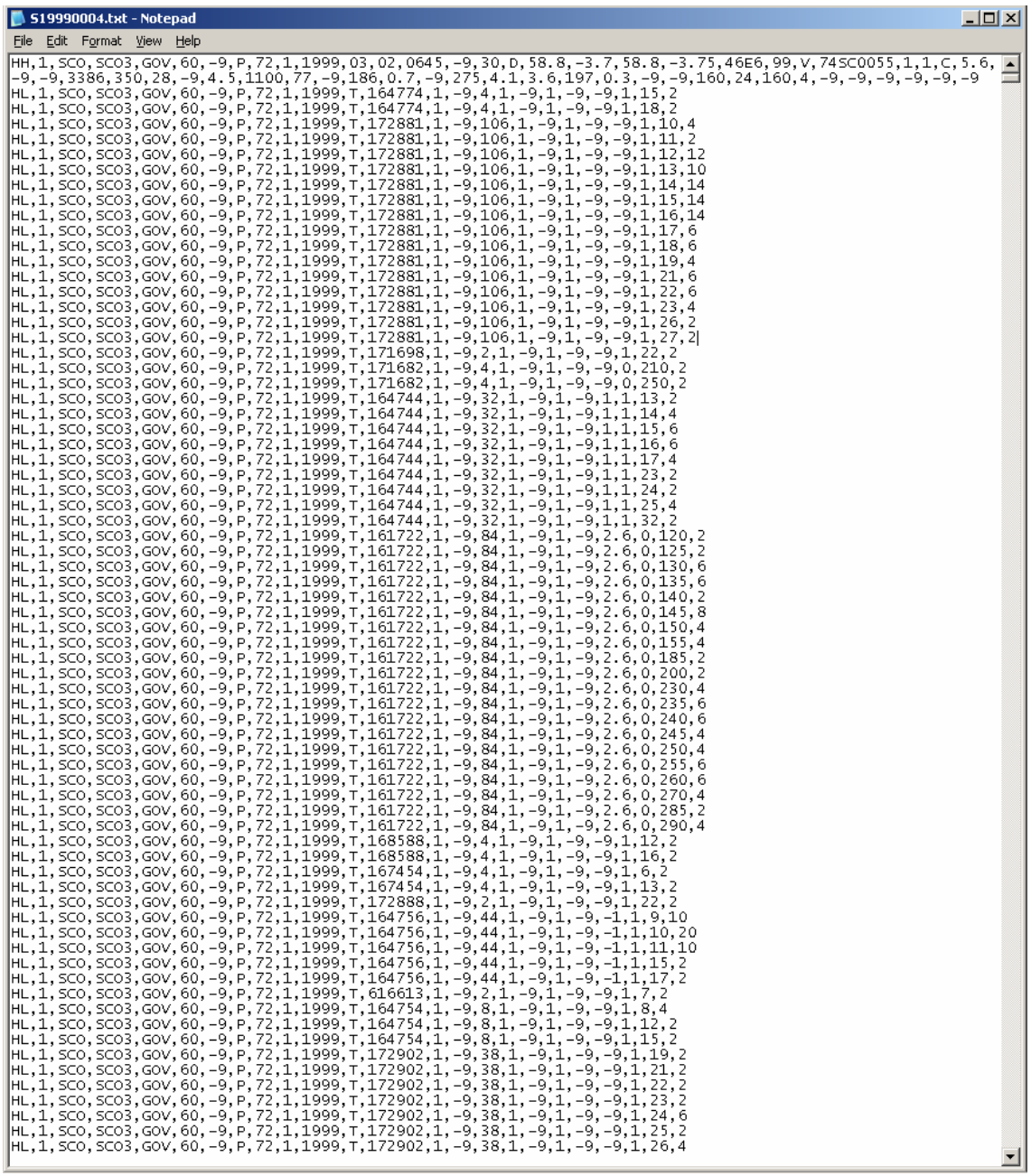


S19990004_COD.txt - Notepad

File Edit Format View Help

```
SCOTIA West Coast Groundfish Survey (S19990004), 01/03/1999-19/03/1999, COD, Demersal Areas, Numbers at
Age (per 10 hours)
Stat Square
0
1
2
3
4
5
6
7
8
9
>=10
47E6, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
47E5, 0 , 0 , 0 , 0 , 20 , 0 , 0 , 0 , 0 , 0 , 0
47E4, 0 , 0 , 20 , 0 , 20 , 120 , 20 , 20 , 0 , 20 , 0
47E3, 0 , 0 , 0 , 50 , 10 , 0 , 0 , 0 , 0 , 0 , 0
46E6, 0 , 0 , 30 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0
46E5, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
46E4, 0 , 0 , 0 , 10 , 10 , 20 , 0 , 0 , 0 , 0 , 0
46E3, 0 , 0 , 20 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0
46E2, 0 , 0 , 20 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0
46E1, 0 , 0 , 0 , 20 , 20 , 0 , 0 , 0 , 0 , 0 , 0
45E4, 0 , 3 , 0 , 7 , 0 , 0 , 0 , 0 , 0 , 0 , 0
45E3, 0 , 0 , 30 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
45E2, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
45E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
45E0, 0 , 0 , 0 , 40 , 0 , 0 , 0 , 0 , 0 , 0 , 0
44E4, 0 , 0 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
44E3, 0 , 10 , 10 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
44E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
44E0, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
43E3, 0 , 0 , 0 , 60 , 0 , 0 , 0 , 0 , 0 , 0 , 0
43E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
42E3, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
42E2, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
42E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
42E0, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
41E3, 0 , 0 , 40 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0
41E2, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
41E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
41E0, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
40E3, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
40E2, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
40E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
40E0, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
39E5, 0 , 0 , 20 , 20 , 0 , 0 , 0 , 0 , 0 , 0 , 0
39E4, 0 , 10 , 60 , 30 , 0 , 0 , 0 , 0 , 0 , 0 , 0
39E2, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
39E1, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
39E0, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
38E6, 0 , 0 , 7 , 13 , 0 , 0 , 0 , 0 , 0 , 0 , 0
38E5, 0 , 0 , 319 , 426 , 35 , 0 , 0 , 0 , 0 , 0 , 0
38E4, 0 , 10 , 13 , 7 , 0 , 0 , 0 , 0 , 0 , 0 , 0
37E6, 0 , 0 , 20 , 48 , 12 , 0 , 0 , 0 , 0 , 0 , 0
37E5, 0 , 0 , 54 , 344 , 42 , 10 , 0 , 0 , 0 , 0 , 0
37E4, 0 , 0 , 8 , 46 , 7 , 0 , 0 , 0 , 0 , 0 , 0
36E6, 0 , 0 , 12 , 62 , 6 , 0 , 0 , 0 , 0 , 0 , 0
36E5, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
36E4, 0 , 50 , 6 , 45 , 39 , 30 , 0 , 0 , 0 , 0 , 0
35E5, 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
```

Option 14: Files in format provided to ICES for inclusion in DATRAS database. Text file (.txt) automatically saved to folder C:/FMDTemp/ICESFiles/. File name constructed from survey code number (the Scotia west coast groundfish survey was the forth RV cruise of 1999). File consists of header lines for each haul (lines starting HH), data lines giving length frequency information (lines starting HL) and lines giving SMALK information (lines starting CA). Below reproductions of the output is a copy of the table specifying the fields of each type of data line, reproduced from Appendix I of the DATRAS final report which can be found on `shared on nts2` under `Contract_Reports\C724 (DATRAS)`.

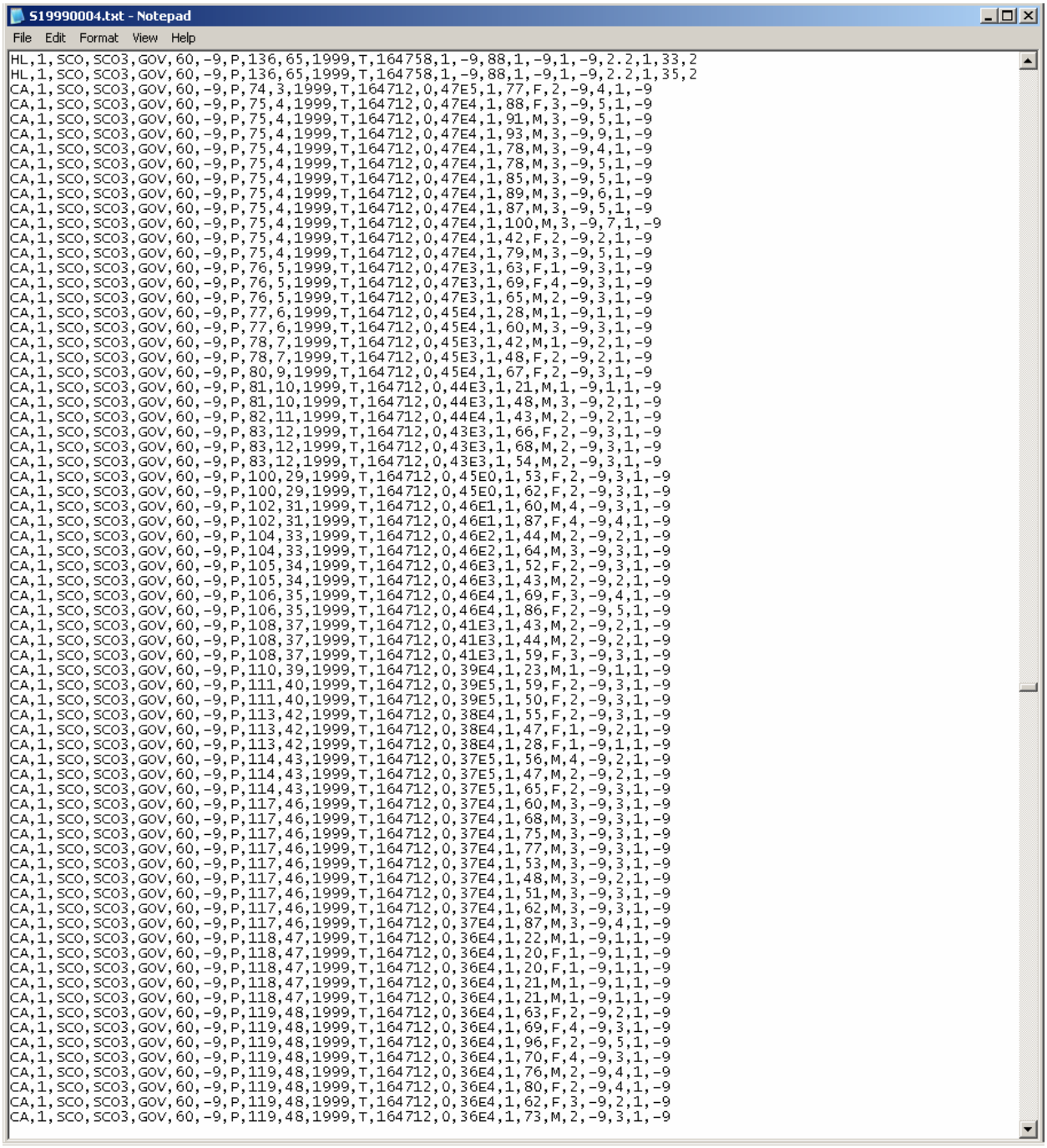


S19990004.txt - Notepad

File Edit Format View Help

```
HH,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,03,02,0645,-9,30,D,58.8,-3.7,58.8,-3.75,46E6,99,V,74SC0055,1,1,C,5.6,
-9,-9,3386,350,28,-9,4.5,1100,77,-9,186,0.7,-9,275,4.1,3.6,197,0.3,-9,-9,160,24,160,4,-9,-9,-9,-9,-9,-9
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164774,1,-9,4,1,-9,1,-9,-9,1,15,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164774,1,-9,4,1,-9,1,-9,-9,1,18,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,10,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,11,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,12,12
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,13,10
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,14,14
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,15,14
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,16,14
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,17,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,18,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,19,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,21,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,22,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,23,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,26,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172881,1,-9,106,1,-9,1,-9,-9,1,27,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,171698,1,-9,2,1,-9,1,-9,-9,1,22,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,171682,1,-9,4,1,-9,1,-9,-9,0,210,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,171682,1,-9,4,1,-9,1,-9,-9,0,250,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,13,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,14,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,15,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,16,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,17,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,23,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,24,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,25,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164744,1,-9,32,1,-9,1,-9,1,1,32,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,120,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,125,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,130,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,135,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,140,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,145,8
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,150,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,155,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,185,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,200,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,230,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,235,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,240,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,245,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,250,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,255,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,260,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,270,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,285,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,161722,1,-9,84,1,-9,1,-9,2.6,0,290,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,168588,1,-9,4,1,-9,1,-9,-9,1,12,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,168588,1,-9,4,1,-9,1,-9,-9,1,16,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,167454,1,-9,4,1,-9,1,-9,-9,1,6,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,167454,1,-9,4,1,-9,1,-9,-9,1,13,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172888,1,-9,2,1,-9,1,-9,-9,1,22,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164756,1,-9,44,1,-9,1,-9,-1,1,9,10
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164756,1,-9,44,1,-9,1,-9,-1,1,10,20
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164756,1,-9,44,1,-9,1,-9,-1,1,11,10
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164756,1,-9,44,1,-9,1,-9,-1,1,15,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164756,1,-9,44,1,-9,1,-9,-1,1,17,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,616613,1,-9,2,1,-9,1,-9,-9,1,7,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164754,1,-9,8,1,-9,1,-9,-9,1,8,4
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164754,1,-9,8,1,-9,1,-9,-9,1,12,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,164754,1,-9,8,1,-9,1,-9,-9,1,15,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,19,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,21,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,22,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,23,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,24,6
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,25,2
HL,1,SCO,SCO3,GOV,60,-9,P,72,1,1999,T,172902,1,-9,38,1,-9,1,-9,-9,1,26,4
```

Option 14 (cont): Files in format provided to ICES for inclusion in DATRAS database.



S19990004.txt - Notepad

File Edit Format View Help

```
HL,1,SCO,SCO3,GOV,60,-9,P,136,65,1999,T,164758,1,-9,88,1,-9,1,-9,2.2,1,33,2
HL,1,SCO,SCO3,GOV,60,-9,P,136,65,1999,T,164758,1,-9,88,1,-9,1,-9,2.2,1,35,2
CA,1,SCO,SCO3,GOV,60,-9,P,74,3,1999,T,164712,0,47E5,1,77,F,2,-9,4,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,88,F,3,-9,5,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,91,M,3,-9,5,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,93,M,3,-9,9,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,78,M,3,-9,4,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,78,M,3,-9,5,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,85,M,3,-9,5,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,87,M,3,-9,5,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,75,4,1999,T,164712,0,47E4,1,79,M,3,-9,5,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,76,5,1999,T,164712,0,47E3,1,63,F,1,-9,3,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,77,6,1999,T,164712,0,45E4,1,60,M,3,-9,3,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,78,7,1999,T,164712,0,45E3,1,42,M,1,-9,2,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,78,7,1999,T,164712,0,45E3,1,48,F,2,-9,2,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,100,29,1999,T,164712,0,45E0,1,53,F,2,-9,3,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,100,29,1999,T,164712,0,45E0,1,62,F,2,-9,3,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,113,42,1999,T,164712,0,38E4,1,28,F,1,-9,1,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,114,43,1999,T,164712,0,37E5,1,56,M,4,-9,2,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,114,43,1999,T,164712,0,37E5,1,47,M,2,-9,2,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,114,43,1999,T,164712,0,37E5,1,65,F,2,-9,3,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,117,46,1999,T,164712,0,37E4,1,60,M,3,-9,3,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,117,46,1999,T,164712,0,37E4,1,68,M,3,-9,3,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,117,46,1999,T,164712,0,37E4,1,75,M,3,-9,3,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,118,47,1999,T,164712,0,36E4,1,22,M,1,-9,1,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,118,47,1999,T,164712,0,36E4,1,20,F,1,-9,1,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,118,47,1999,T,164712,0,36E4,1,21,M,1,-9,1,1,-9
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CA,1,SCO,SCO3,GOV,60,-9,P,119,48,1999,T,164712,0,36E4,1,76,M,2,-9,4,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,119,48,1999,T,164712,0,36E4,1,80,F,2,-9,4,1,-9
CA,1,SCO,SCO3,GOV,60,-9,P,119,48,1999,T,164712,0,36E4,1,62,F,3,-9,2,1,-9
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Start/Order	Field Name	Width	Mandatory	Data Type	Code List
HH Haul Information					
1	RecordType	2	✓	char	
2	Quarter	1	✓	int	
3	Country	3	✓	char	TS_Country
4	Ship	4	✓	char	TS_Ship
5	Gear	6	✓	char	Gear
6	SweepLngt	3		int	
7	GearExp	2		char	TS_GearExp
8	DoorType	2		char	TS_DoorType
9	StNo	6		char	
10	HaulNo	3	✓	int	
11	Year	4	✓	char	
12	Month	2	✓	int	
13	Day	2	✓	int	
14	TimeShot	4	✓	char	
15	Stratum	4		char	*Not used in this format*
16	HaulDur	3	✓	int	
17	DayNight	2	✓	char	TS_DayNight
18	ShootLat	8	✓	decimal4	
19	ShootLong	9	✓	decimal4	
20	HaulLat	8		decimal4	
21	HaulLong	9		decimal4	
22	StatRec	4		char	
23	Depth	4	✓	int	
24	HaulVal	1	✓	char	TS_HaulVal
25	HydroStNo	8	✓	char	
26	StdSpecRecCode	1	✓	char	TS_StdSpecRecCode
27	BycSpecRecCode	1	✓	char	TS_BySpecRecCode
28	DataType	2	✓	char	TS_DataType
29	Netopening	4		decimal1	
30	Rigging	2		char	*Not used in this format*
31	Tickler	2		int	*Not used in this format*
32	Distance	4		int	
33	Warplngt	4		int	
34	Warpdia	2		int	
35	WarpDen	2		int	
36	DoorSurface	4		decimal1	
37	DoorWgt	4		int	
38	DoorSpread	3		int	
39	WingSpread	2		int	
40	Buoyancy	4		int	
41	KiteDim	3		decimal1	
42	WgtGroundRope	4		int	
43	TowDir	3		int	
44	GroundSpeed	3		decimal1	
45	SpeedWater	3		decimal1	
46	SurCurDir	3		int	
47	SurCurSpeed	4		decimal1	

48	BotCurDir	3		int	
49	BotCurSpeed	3		decimal1	
50	WindDir	3		int	
51	WindSpeed	3		int	
52	SwellDir	3		int	
53	SwellHeight	4		decimal1	
54	SurTemp	4		decimal1	
55	BotTemp	4		decimal1	
56	SurSal	5		decimal2	
57	BotSal	5		decimal2	
58	ThermoCline	2		char	TS_ThermoCline
59	ThClineDepth	4		int	
HL Length frequency distribution					
1	RecordType	2	✓	char	
2	Quarter	1	✓	int	
3	Country	3	✓	char	TS_Country
4	Ship	4	✓	char	TS_Ship
5	Gear	6	✓	char	Gear
6	SweepLngt	3		int	
7	GearExp	2		char	TS_GearExp
8	DoorType	2		char	TS_DoorType
9	StNo	6		char	
10	HaulNo	3	✓	int	
11	Year	4	✓	char	
12	SpecCodeType	1	✓	char	TS_SpecCodeType
13	SpecCode	10	✓	char	
14	SpecVal	2	✓	char	TS_SpecVal
15	Sex	2		char	TS_Sex
16	TotalNo	7		decimal2	
17	CatIdentifier	2	✓	int	TS_CatIdentifier
18	NoMeas	3	✓	int	
19	SubFactor	9	✓	decimal4	
20	SubWgt	5		int	
21	CatCatchWgt	8	✓	int	
22	LngtCode	2	✓	char	TS_LngtCode
23	LngtClass	3	✓	int	
24	HLNoAtLngt	6	✓	int	
CA SMALK					
1	RecordType	2	✓	char	
2	Quarter	1	✓	int	
3	Country	3	✓	char	TS_Country
4	Ship	4	✓	char	TS_Ship
5	Gear	6	✓	char	Gear
6	SweepLngt	3		int	
7	GearExp	2		char	TS_GearExp
8	DoorType	2		char	TS_DoorType
9	StNo	6		char	
10	HaulNo	3		int	

11	Year	4	✓	char	
12	SpecCodeType	1	✓	char	TS_SpecCodeType
13	SpecCode	10	✓	char	
14	AreaType	2	✓	char	TS_AreaType
15	AreaCode	4	✓	char	
16	LngtCode	2	✓	char	TS_LngtCode
17	LngtClass	3	✓	int	
18	Sex	2	✓	char	TS_Sex
19	Maturity	2	✓	char	TS_Maturity
20	PlusGr	2		char	TS_PlusGr
21	age	2	✓	int	
22	CANoAtLngt	3	✓	int	
23	IndWgt	5		int	

Measurement methods: Found in Data/Maintenance/Measmt Record.

MeasMethodID	MeasMethodDescpt
CLn	Carapace Length
CWi	Carapace Width
PoA	Post-anal Length
PrA	Pre-anal Fin Length
PSC	Pre-supra Caudal Fin Len
SDF	2nd Dorsal Fin Length
SLn	Standard Length
TLn	Total Length
TWi	Tail Width
Wid	Width
WSp	Wing Span